

**PROVINCIAL ADMINISTRATION OF KWAZULU-NATAL
DEPARTMENT OF HEALTH**



KWAZULU-NATAL PROVINCE

HEALTH
REPUBLIC OF SOUTH AFRICA

**TENDER DOCUMENT
OPTION E: COST REIMBURSABLE CONTRACT**

with NEC3 Engineering and Construction Contract - April 2013

RETURNABLE DOCUMENT
ONE VOLUME APPROACH

**ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF
EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION**

Project Manager

TBC

DOH Project Leader

Nonku Dlamini
Private bag X9051
Pietermaritzburg
3201

033 940 2583

Nonkululeko.dlamini2@kznhealth.gov.za

Employer:

Head of Health
KZN Department of Health
Private Bag X 9051

Pietermaritzburg

3201

Tel Number: 033 - 940 2583

Fax Number: none

Tender Number: ZNB 5175/2024-H

CIDB Grading: 6 GB

ECDP Number: N/A

Project Code:

Document Date:

Contract Period: 12 Calendar Months

0

Contracting Party: _____

CIDB Registration number: _____

Central Suppliers Database Registration Number: _____

**ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY
MEDICAL SERVICES OFFICE ACCOMMODATION**



THE TENDER

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IMPORTANT NOTICE TO TENDERERS

Any reference to words Tender or Tenderder herein and/or in any other documentation shall be construed to have the same meaning as the words Tender or Tenderer. These forms are for internal and external use for the KZN Department of Health, Provincial Administration of KwaZulu-Natal.

Quality" shall mean totality of features and characteristics of a product or service that bears on the ability of the product or service to satisfy stated or implied needs.

No alternative Tenders will be accepted.

The Total (Including Value Added Tax) on the Final Summary of the Pricing Schedule must be carried to the "Offer" part only of the Form of Offer and Acceptance - T2.21"

Enterprise" shall mean the legal Tendering Entity or Tenderder who, on acceptance of the Offer, would become the contractor"



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THE TENDER



**ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY
MEDICAL SERVICES OFFICE ACCOMMODATION**

PART T1. - TENDER PROCEDURES



**ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY
MEDICAL SERVICES OFFICE ACCOMMODATION**

T1.1 - TENDER NOTICE AND INVITATION TO TENDER

T1.1 TENDER NOTICE AND INVITATION TO TENDER

THE KZN DEPARTMENT OF HEALTH INVITES TENDERS FOR THE PROVISION OF:

Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Tender no:	ZNB 5175/2024-H	Project Code:	0
Advertisement date:	23 February 2024	Closing date:	02 April 2024
Closing time:	11:00	Validity period:	84 Calendar Days

It is estimated that tenderers must have a CIDB contractor grading designation of 6 GB or higher. No alternative Class of work, as referred to in Clause 25(3)(a)(i) of the CIDB Regulations, as amended, is anticipated for this project.

	<p>It is estimated that Potentially Emerging enterprises should have a CIDB contractor grading of (N/A) and satisfy the criterion stated in the Tender Data. (<i>Only applicable if Client has an Official Mentorship programme in place to assist potentially emerging enterprises</i>)</p> <p>All Tenderer's should have a CIDB Class of Construction Contractor Grading Designation as indicated above. No Tenderer with a PE status can be considered if "N/A" is indicated above because the Department does not have an Official Mentorship Programme in place to assist a Potentially Emerging Enterprise.</p>
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Only Tenderder's who are responsive to the following responsiveness criteria are eligible to submit Tenders:

<input checked="" type="checkbox"/>	<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 : 6 GB or higher, class of construction work, are eligible to have their Tenders evaluated.</p>
<input checked="" type="checkbox"/>	<p>Joint ventures are eligible to submit tenders provided that:</p> <ol style="list-style-type: none"> 1 every member of the joint venture is registered with the CIDB; 2 the lead partner has a contractor grading designation in the 6 GB or higher, class of construction work; or not lower than one level below the required the required grading designation in the class of works construction works under considerations and possess the required recognition status 3 the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a : 6 GB or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations.
<input checked="" type="checkbox"/>	Tender document must be properly received on or before the tender closing date and time specified on the invitation, fully completed and signed in ink (All as per Standard Conditions of Tender).
<input checked="" type="checkbox"/>	Submission of Compulsory Returnable Schedules documents as per List of returnable documents.
<input checked="" type="checkbox"/>	Tax Compliance Status (TCS) PIN number and Tenderder's or entity tax reference number.
<input checked="" type="checkbox"/>	Contractor's Safety, Health and Environmental Declaration.
<input checked="" type="checkbox"/>	Proof of good standing with the Compensation Commissioner - In terms of Section 84(1)(b) of the Compensation for Occupation Injuries and Disease Act, 1993, a Tenderder may not be awarded a contract if he/she is not registered and in good standing with the Compensation Commissioner.
<input checked="" type="checkbox"/>	Financial Standing and other resources of Business Declaration
<input checked="" type="checkbox"/>	Compulsory Enterprise Questionnaire.
<input checked="" type="checkbox"/>	Tenderers must satisfy all of the eligibility criteria (if applicable) and obtain the minimum qualifying score for functionality criteria first before they can be considered for price and preference.
<input checked="" type="checkbox"/>	Invitation to Tender - SBD 1

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

Name of Tenderer: _____

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 TO VERIFY ON LINE COMPLIANCE SUPPLIER STATUS VIA SARS e-FILING (T2.19) YES or NO

HAS A PREFERENCE CERTIFICATE VERIFICATION CERTIFICATE BEEN SUBMITTED? (T2.9) YES or NO

[Tick Applicable Box]

ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS / SERVICES / WORKS OFFERED? [If yes, enclose proof] YES or NO

This tender will be evaluated according to the preferential procurement model in the Preferential Procurement Policy Framework Act, 2000: Preferential Procurement Regulations, 2022:

THE TENDER SHALL BE EVALUATED IN FOUR(4) STAGES. THE STAGES ARE AS FOLLOWS:

STAGE 1 - Returnable schedules required for tender evaluation purposes

STAGE 2 - Evaluation of mandatory technical criteria: As stated in T2.29 (if applicable). Tenderers are required to comply with ALL stated mandatory technical criteria. Failure to comply with any stated mandatory technical requirements will result in the tender being declared non-responsive

STAGE 3 - Evaluation of functionality criteria. As stated in T2.36

STAGE 4 - Evaluation of price and preference points. As stated in T2.9

Note

T2.1: Returnable Documentation

List of returnable documents include the following:

- Returnable schedules required for tender evaluation purposes
- Documents required for the evaluation of mandatory technical criteria (if applicable)
- Documents required for the evaluation of functionality

This tender will be evaluated according to the preferential procurement model in the Preferential Procurement Policy Framework Act, 2000: Preferential Procurement Regulations, 2022:		
<input checked="" type="checkbox"/>	80/20 Preference point scoring system	<input type="checkbox"/> 90/10 Preference point scoring system
NOTE Refer to T2.36 - Functionality Criteria		
Functionality requirement:	65	Points
Price:	80	points
Preference point scoring system will be based on the following points:		
Preference points system:		
1. Specific goals (according to the PPPFA):		
(a)	In terms of Race, full, partial or combination of points may be allocated to companies who are at least 51% Owned by Black People	20 Points
Total must equal 10 or 20 points		20 Points

Notes:

- 1 The successful Tenderder will be required to sign a contract.
- 2 Tenderders should ensure that Tenders are delivered timeously to the correct address. If the Tender is late, it will not be accepted for consideration.
- 3 The Tender box is generally open during official working hours.
- 4 All Tenders must be submitted on the official forms – (Not to be re-typed)
- 5 THIS TENDER IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE NEW ENGINEERING CONTRACT OPTION E - COST REIMBURSABLE 2013 AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT
- 6 Where stated in the tender data that a two-envelope system has been followed, open only the non-financial proposal of valid tenders in the presence of tenderer's 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.
- 7 Evaluate that non-financial proposals offered by tenderers, then advise tenderers who remain in contention for the award of the contract of the time and place when the financial proposals are to be opened.
- 8 Open only the financial proposals of tenderers who, in the Functionality evaluation score, have more than the minimum number of points for Functionality stated in the tender data, and announce the score obtained for the non-financial proposals and the total price and any preferences claimed. Return unopened financial proposals to tenderers whose non-financial proposals failed to achieve the minimum number of points for Functionality.

THE PHYSICAL ADDRESS FOR COLLECTION OF TENDER DOCUMENTS:

Tender documents may be collected during working hours at the following address :

Department of Health Central Supply Chain 310 Jabu Ndlovu Street, Pietermaritzburg,3200

A non-refundable tender deposit of R is payable as per the tender advertisement , on collection of the Tender documents.

COMPULSORY CLARIFICATION MEETING

A Compulsory clarification Meeting with representatives of the Employer will take place as follows:

35 Hyslop Road, Townhill Office Park Block 1 - Main Boardroom , Townhill Hospital, Pietermaritzburg, 3201

on: **Wednesday, 13 March 2024 at 10:00 AM**

QUERIES REGARDING THE TENDERING PROCEDURE OR TECHNICAL INFORMATION MAY BE DIRECTED TO:

DOH Project Manager:	Nonku Dlamini	Telephone no:	033 940 2583
Cell no:		Fax no:	none
E-mail:	Nonkululeko.dlamini2@kznhealth.gov.za		

DEPOSIT / RETURN OF TENDER DOCUMENTS:

Telegraphic, telephonic, telex, facsimile, electronic and / or late tenders will not be accepted.

Requirements for sealing, addressing, delivery, opening and assessment of tenders are stated in the **Tender Data document**.

All tenders must be submitted on the official forms – (not to be re-typed)

TENDER DOCUMENTS MAY BE:

DEPOSITED IN THE TENDER BOX AT:
KZN Department of Health Central Supply Chain Management Directorate 310 Jabu Ndlovu Street Pietermaritzburg 3201



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T1.2 - TENDER DATA

T1.2 TENDER DATA			
Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Project Code:	0		
Tender no:	ZNB 5175/2024-H	Closing date:	02 April 2024
Closing time:	11:00	Validity period:	84 Calendar Days
Clause number:			
	<p>The conditions of Tender are the Standard Conditions of Tender as contained in Annexure C of the CIDB Standard for Uniformity in Engineering and Construction Works Contracts as per Board Notice 423 of 2019 in Government Gazette 42622 of 8 August 2019 as amended from time to time. (see www.cidb.org.za) Refer to Conditions of Tender as bound into this document.</p> <p>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.</p> <p>Each item of data given below is cross-referenced to the clause marked "C" in the above mentioned Standard Conditions of Tender.</p>		
C.1.1	<p>The Employer is the Head of Health (KZN Department of Health-Province of KwaZulu-Natal)</p> <p>For this contract the <u>single volume</u> approach is adopted.</p> <p>This procurement document has been formatted and compiled under the headings for a single volume approach as contained in table 5 of the CIDB's "Standard for Uniformity in Engineering and Construction Works Contracts."</p> <p>The list of Returnable Documents identifies which of the documents a Tenderer must complete when submitting a Tender. The Tenderer must submit his Tender by completing the Returnable Documents including the priced Final Summary of the Pricing Schedule, signing the "Offer" section in the "Form of Offer and Acceptance" and delivering the whole of the procurement document back to the Department bound up as it was when it was received.</p>		
C.1.2	<p>The single volume procurement document issued by the Employer comprises the following:</p> <p>TENDER</p> <p>Part T1: Tendering procedures</p> <p>T1.1 - Tender Notice and Invitation to Tender</p> <p>T1.2 - Tender Data</p> <p>T1.3 - Annexure C - Standard Conditions of Tender</p> <p>Part T2: Returnable documents</p> <p>T2.1 - List of returnable documents</p> <p>T2.2 - Returnable schedules (See different forms listed in T2.1 - Returnable Schedule)</p> <p>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 - Form of Guarantee if applicable</p> <p>Part C2: Pricing data</p> <p>C2.1 - Pricing Instructions</p> <p>Part C3: Works Information</p> <p>C3.1 - Scope of Works</p> <p>C3.2 - Specification for HIV/AIDS awareness</p> <p>C3.3 - HIV/STI Compliance report</p> <p>C3.4 - Project Specific Construction Safety, Health and Environmental Specification</p> <p>C3.5 - Supplementary Preambles</p> <p>Part C4: Site information</p> <p>C4.1 - Site Information</p>		

	Part 5: List of Drawings/Annexure's														
	C5.1 - Project Brief														
	C5.2 - Joint Venture Agreement														
	C5.3 - Assessments reports														
	C5.4 - Waiver of Builders Lien														
	C5.5 - Standard Preambles for all Trades Rec - DOH 2009														
	C5.6 - Geotechnical Investigation Report (If applicable)														
	C5.7 - EPWP Employment Contract														
	C5.8 - Attendance Register Template														
	C5.9 - General Electrical Specifications														
	C5.10 - Lightening Protection Specifications														
	C5.11														
	C5.12														
	C5.13														
C.1.4	<p>The NEC3 Project Manager shall be the appointed Professional Representative by the Department of Health through a separate tender process. Details of the NEC3 Project Manager are stated below if this information is available at time of this tender:</p> <table border="1"> <tr> <td>Name of Firm:</td> <td>TBC</td> </tr> <tr> <td>Capacity:</td> <td>Project Manager</td> </tr> <tr> <td>Address:</td> <td>TBC</td> </tr> <tr> <td>Tel:</td> <td>TBC</td> </tr> <tr> <td>Fax:</td> <td>TBC</td> </tr> <tr> <td>E-mail:</td> <td>TBC</td> </tr> <tr> <td>Responsible person:</td> <td>TBC</td> </tr> </table> <p>The Department of Health may appoint itself as NEC3 Project Manager through representation by one of its employees should it require to do so</p> <p>The second sentence shall read "Communications can be in any of the official languages recognised in KwaZulu-Natal which is English, Afrikaans or Zulu but writing is preferred in English as this is generally accepted as a business language"</p>	Name of Firm:	TBC	Capacity:	Project Manager	Address:	TBC	Tel:	TBC	Fax:	TBC	E-mail:	TBC	Responsible person:	TBC
Name of Firm:	TBC														
Capacity:	Project Manager														
Address:	TBC														
Tel:	TBC														
Fax:	TBC														
E-mail:	TBC														
Responsible person:	TBC														
C.1.6	<table border="1"> <tr> <td>PP2-Competitive Selection Procedure</td> <td>Design and Build</td> </tr> <tr> <td colspan="2">PP2B-Open Procedure</td> </tr> <tr> <td colspan="2">Tenderers must satisfy all of the eligibility criteria (if applicable) and obtain the minimum qualifying score for functionality criteria first before they can be considered for price and preference.</td> </tr> </table>	PP2-Competitive Selection Procedure	Design and Build	PP2B-Open Procedure		Tenderers must satisfy all of the eligibility criteria (if applicable) and obtain the minimum qualifying score for functionality criteria first before they can be considered for price and preference.									
PP2-Competitive Selection Procedure	Design and Build														
PP2B-Open Procedure															
Tenderers must satisfy all of the eligibility criteria (if applicable) and obtain the minimum qualifying score for functionality criteria first before they can be considered for price and preference.															
C.2.1	<p>For eligibility refer to T1.1 Tender Notice and Invitation to Tender</p> <p>A contract will only be entered into with a Tenderder who has in his employ management and supervisory staff satisfying the requirements of the scope of work for labour intensive competencies for supervisory and management staff during the contract validity of the contract.</p> <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 :</p> <p>6 GB or higher class of construction work, are eligible to have their tenders evaluated.</p> <p>Joint ventures are eligible to submit tenders provided that:</p> <ol style="list-style-type: none"> every member of the joint venture is registered with the CIDB; the lead partner has a contractor grading designation in the 6 GB or higher, class of construction work; or not lower than one level below the required the required grading designation in the class of works construction works under considerations and possess the required recognition status 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 : 6 GB or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations. 														
	See end of T2.3 AUTHORITY FOR CONSORTIA OR JOINT VENTURES TO SIGN TENDER for combinations of JV's arrangements.														
C.2.7	For particulars regarding a pre-tender site inspection meeting (clarification meeting), see T1.1 Tender Notice and Invitation to Tender.														
C.2.12	Alternative tender offer permitted: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>														

	<p>If a tenderer wishes to submit an own alternative tender offer, the only criteria permitted for such alternative tender offer is that it demonstrably satisfies the Employer's standards and requirements. A tenderer may submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted. Provided that the tenderer's main tender offer is according to specification and would under normal circumstances be recommended for acceptance, his alternative tender offer may also be considered for the purpose of the award of the contract.</p> <p>Calculations, drawings and all other pertinent technical information and characteristics as well as modified or proposed Pricing Data must be submitted with the alternative tender offer to enable the Employer to evaluate the efficacy of the alternative and its principal elements, to take a view on the degree to which the alternative complies with the Employer's standards and requirements and to evaluate the acceptability of the pricing proposals. Calculations must be set out in a clear and logical sequence and must clearly reflect all design assumptions. Pricing Data must reflect all assumptions in the development of the pricing proposal.</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> <p>The modified Pricing Data must include an amount equal to 5% of the amount tendered for the alternative offer to cover the Employer's costs of confirming the acceptability of the detailed design before it is constructed.</p>
C.2.13.1	Only the Complete Service as per the Works Information
C.2.13.2	Tenderers are to ensure that their company details appear on the entire relevant Tender documentation and must be legible.
C.2.13.3	The complete tender offer communicated on paper shall be submitted as an original.
C.2.13.4	The second sentence shall read as follows "The Employer will hold all authorised signatories jointly and severally liable on behalf of the tenderer". Tenderers proposing to contract as a Joint Venture shall submit a valid Joint Venture Agreement before the Joint Venture's offer could be accepted. Individuals, Partnerships and Companies proposing to contract as a party to a Joint Venture shall be jointly and severally liable on behalf of the Joint Venture.
C.2.13.5	The Employer's address for delivery of tender offers and identification details to be shown on each tender offer package are as per T1.1 Tender Notice and Invitation to Tender .
	A Open Procedure will be followed
C.2.15	The closing time for submission of tender offers is as per T1.1 Tender Notice and Invitation to Tender .
C.2.16	The tender offer validity period is as per T1.1 Tender Notice and Invitation to Tender .
C.2.17	Sub-clause C2.17 does not preclude the negotiation of the final terms of the contract with the preferred tenderer, following a competitive selection process, should the Employer elect to do so and provided that the competitive position of the preferred tenderer is not affected.
	The tenderer must submit to the Employer, 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
C.2.19	Access shall be provided for inspections, tests and analysis as may be required by the Employer.
C.2.22	Tenderers do not have to return all retained tender documents within 28 days after expiry of the Tender validity period.
	Tenderers are to refer to List of Returnable Schedules and Scope of Works to establish what is required to be submitted with this tender.
C.3.4	The location for opening of the tender offers shall be at: KZN Department of Health, 310 Jabu Ndlovu Street, Pietermaritzburg, 3200
C.3.8	<p>The employer must determine, on opening and before detailed evaluation, whether each Tender offer properly received:</p> <ol style="list-style-type: none"> complies with the requirements of the Conditions of Tender. has been properly and fully completed and signed, and is responsive to the other requirements of the Tender documents. <p>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:</p> <ol style="list-style-type: none"> detrimentally affect the scope, quality, or performance of the Works, services or supply identified in the Scope of Work or significantly change the Employers or the Tenderers risks and responsibilities under the contract, or affect the competitive position of other Tenderers presenting responsive tenders, if it were to be rectified. <p>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.</p>

C.3.13	<p>Tender offers will only be accepted if:</p> <ul style="list-style-type: none"> (a) Tenderers must be registered on Government's Central Supplier Database (CSD) and include their master registration number (MAAA number) on the cover page of the tender document in order to enable the institution to verify the tenderers tax status on the CSD (b) the Tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation as is required for this tender and the Tenderer has submitted a CIDB certificate of registration which clearly indicates the status "Active" (c) the Tenderer has completed the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the Tenderer's ability to perform to the contract in the best interests of the employer or potentially compromise the Tender process. (d) the Tenderer or any of its directors is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act, 2004 (Act No. 12 of 2004) as a person prohibited from doing business with the public sector; and (e) the Tenderer has not: <ul style="list-style-type: none"> i) abused the Employer's Supply Chain Management System; or ii) failed to perform on any previous contract and received a written warning/notice or has been terminated on any contract, in the past 5 years with the KZN Department of Health (f) the Tenderer is registered with: <ul style="list-style-type: none"> i) the Workmen's Compensation Fund (g) the Tenderer submitted Authority to Sign the tender. (h) the Tenderer submitted Financial Standing & other resources of Business Declaration. (i) the Tenderer signed the Form of Offer that is part of the Form of Offer and Acceptance. (j) the Tenderer submitted proof of Preference, if applicable. (k) the Tenderer submitted the fully completed Bill of Quantities including Final Summary at tender closing. (l) the Tenderer submitted a completed Bidder's Disclosure (SBD4). (m) the Tenderer submitted Site Inspection Certificate from the Compulsory Briefing Meeting. (n) the Tenderer submitted deliverables required to assess any stated mandatory criteria. (o) the Tenderer has incorporated all issued addenda (if applicable) into their submitted tender document and/or has complied with any instructions given through issued addenda. <p>Provided that 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.</p>
C.3.15	Tenderers are informed that any formal dispute shall be resolved by being referred to Arbitration only.



ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION

T1.3 - Annexure C - Standard Conditions of Tender

T1.3 - Annexure C - Standard Conditions of Tender

Note: Where this document refers to Bid or Bidder it shall be read as tender or tenderer

C.1 General

C.1.1 Actions

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

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

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

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

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

C.1.2 Tender Documents

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

C.1.3 Interpretation

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

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

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

- a) **conflict of interest** means any situation in which:
 - i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfil his or her duties impartially;
 - ii) an individual or tenderer is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or
 - iii) incompatibility or contradictory interests exist between an employee and the tenderer who employs that employee.
- b) **comparative offer** means the price after the factors of a non-firm price and all unconditional discounts it can be utilised to have been taken into consideration;
- c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process;
- d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels.

C.1.4 Communication and employer's agent

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

C.1.5 Cancellation and Re-Invitation of Tenders

C.1.5.1 An employer may, prior to the award of the tender, cancel a tender if-

- a) due to changed circumstances, there is no longer a need for the engineering and construction works specified in the invitation;
- b) funds are no longer available to cover the total envisaged expenditure; or
- c) no acceptable tenders are received.
- d) there is a material irregularity in the tender process.

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

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

C.1.6 Procurement procedures

C.1.6.1 General

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

C.1.6.2 Competitive negotiation procedure

C.1.6.2.1

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

C.1.6.2.2

All responsive tenderers, or at least a minimum of not less than three responsive tenderers that are highest ranked in terms of the evaluation criteria stated in the **tender data**, shall be invited to enter into competitive negotiations based on the principle of equal treatment, keeping confidential the proposed solutions and associated information. Notwithstanding the provisions of C.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

C.1.6.2.3

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

C.1.6.2.4

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

C.1.6.3 Proposal procedure using the two stage-system

C.1.6.3.1 Option 1

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

F.1.6.3.2 Option 2

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

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

C.2 Tenderer's obligations

C.2.1 Eligibility

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

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

C.2.2 Cost of tendering

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

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

C.2.3 Check documents

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

C.2.4 Confidentiality and copyright of documents

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

C.2.5 Reference documents

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

C.2.6 Acknowledge addenda

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

C.2.7 Clarification meeting

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

C.2.8 Seek clarification

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

C.2.9 Insurance

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

C.2.10 Pricing the tender offer

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

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

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

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

C.2.11 Alterations to documents

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

C.2.12 Alternative tender offers

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

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

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

C.2.13 Submitting a tender offer

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

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

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

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

- C.2.13.5** Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the employer's address and identification details stated in the **tender data**, as well as the tenderer's name and contact address.
- C.2.13.6** Where a two-envelope system is required in terms of the **tender data**, place and seal the returnable documents listed in the tender data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope shall state on the outside the employer's address and identification details stated in the **tender data**, as well as the tenderer's name and contact address.
- C.2.13.7** Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the **tender data**.
- C.2.13.8** Accept that the employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.
- C.2.13.9** Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the **tender data**.

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

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

C.2.15 Closing time

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

C.2.16 Tender offer validity

- C.2.16.1** Hold the tender offer(s) valid for acceptance by the employer at any time during the validity period stated in the **tender data** after the closing time stated in the **tender data**.
- C.2.16.2** If requested by the employer, consider extending the validity period stated in the **tender data** for an agreed additional period with or without any conditions attached to such extension.
- C.2.16.3** Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer's agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted. If the validity period lapses before the employer evaluating the tender offer(s), the contractor reserves the right to review the price based on Consumer Price Index (CPI)
- C.2.16.4** Where a tender submission is to be substituted, a tenderer must submit a substitute tender in accordance with the requirements of C.2.13 with the packages clearly marked as "SUBSTITUTE".

C.2.17 Clarification of tender offer after submission

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

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

C.2.18 Provide other material

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

C.2.19 Inspections, tests and analysis

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

C.2.20 Submit securities, bonds and policies

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

C.2.21 Check final draft

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

C.2.22 Return of other tender documents

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

C.2.23 Certificates

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

C.3 The employer's undertakings

C.3.1 Respond to request from the tenderer

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

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

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

C.3.2 Issue Addenda

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

C.3.3 Return late tender offers

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

C.3.4 Opening of tender submissions

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

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

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

C.3.5 Two-envelope system

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

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

C.3.6 Non-disclosure

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

C.3.7 Grounds for rejection and disqualification

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

C.3.8 Test for responsiveness

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

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

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

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

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

C.3.9 Arithmetical errors, omissions and discrepancies

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

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

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

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

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

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

C.3.10 Clarification of a tender offer

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

C.3.11 Evaluation of tender offers

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

Conditions of tender are by definition the document that establishes a tenderer's obligations in submitting a tender and the employer's undertakings in soliciting and evaluating tender offers. Such conditions establish the rules from the time a tender is advertised to the time that a contract is awarded and require employers to conduct the process of offer and acceptance in terms of a set of standard procedures

The CIDB Standard Conditions of Tender are based on a procurement system that satisfies the following system requirements:	
Requirement	Qualitative interpretation of goal
Fair	The process of offer and acceptance is conducted impartially without bias, providing simultaneous and timely access to participating parties to the same information.
Equitable	Terms and conditions for performing the work do not unfairly prejudice the interests of the parties.
Transparent	The only grounds for not awarding a contract to a tenderer who satisfies all requirements are restrictions from doing business with the employer, lack of capability or capacity, legal impediments and conflicts of interest.
Competitive	The system provides for appropriate levels of competition to ensure cost effective and best value outcomes.
Cost effective	The processes, procedures and methods are standardized with sufficient flexibility to attain best value outcomes in respect of quality, timing and price, and least resources to effectively manage and control procurement processes.

The activities associated with evaluating tender offers are as follows:

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

C.3.11.1 General

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

C.3.12 Insurance provided by the employer

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

C.3.13 Acceptance of tender offer

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

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

C.3.14 Prepare contract documents

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

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

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

C.3.15 Complete Adjudicator's Contract

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

C.3.16 Registration of the Award

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

C.3.17 Provide copies of the contracts

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

C.3.18 Provide written reasons for actions taken

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



ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION

PART T2 - RETURNABLE DOCUMENTS

T2.1 LIST OF RETURNABLE DOCUMENTS

Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Project Manager:	n/a	Tender no:	ZNB 5175/2024-H

STAGE 1: RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES

(Tenderer to Insert a tick (✓) in the "Returnable document" column to check which documents he/she returned with the tender)

Tender document name	Returnable document	
Invitation to Tender - SBD 1 (T2.37)	Yes	
Bidder's Disclosure - SBD 4 (T2.11)	Yes	
Authority to Sign Tender (T2.2)	Yes	
Authority for Consortia or Joint Venture's to Sign Tender (T2.3)	Yes	
Special Resolution of Consortia or Joint Venture's (If applicable) (T2.4)	Yes	
Joint Venture Involvement Declaration (If applicable) (T2.5)	Yes	
Financial Standing and other resources of Business Declaration (T2.8)	Yes	
Site Inspection Certificate as proof for attendance of compulsory briefing meeting (T2.10)	Yes	
Record of Addenda to Tender Documents (T2.12)	Yes	
Schedule of Imported Materials and Equipment (T2.14)	Yes	
Contractor's Safety, Health and Environmental Declaration. (T2.17)	Yes	
Compulsory Enterprise Questionnaire (T2.18)	Yes	
Tax Compliance Status (TCS) PIN to verify on line Compliance Supplier Status via e-Filing (T2.19)	Yes	
Proof of Good Standing with the Compensation Commissioner (Attach) (T2.20)	Yes	
Form of Offer and Acceptance (Bound into Section 1 of 2) (T2.21)	Yes	
The National Industrial Participation Programme (T2.25)	Yes	
Proof of Registration Number on the Central Suppliers Database (T2.27)	Yes	
Complete Priced Bill of Quantities	No	N/A

STAGE 2: DOCUMENTS REQUIRED FOR THE EVALUATION OF MANDATORY TECHNICAL CRITERIA (IF APPLICABLE) - T2.29

(Tenderer to Insert a tick (✓) in the "Returnable document" column to check which documents he/she returned with the Tender)

Tender document name	Returnable document	
Valid Professional Indemnity (PI) for each professional discipline or consolidated for the entire Professional team	Yes	
CV's plus valid copies of professional registration certificates, for the mandatory Professional team. The CV template should be used to complete experience. (Template is after the Annexures tab on this document)	Yes	
Note:		

>The documents, as stated in the above table if applicable, must be submitted with the tender by the closing date and time as determined by the KZN Department of Health. Should these documents not be submitted by the tenderer as required, then the tender will be declared as non-responsive and will be disqualified. Should the tenderer submit the required documentation but the evaluation committee requires further clarity/information to conduct their assessment, then the tenderer may be contacted to provide this additional information failing which the tenderer shall be eliminated from the evaluation process.

STAGE 3: DOCUMENTS REQUIRED FOR THE EVALUATION OF FUNCTIONALITY - T2.36

(Tenderer to Insert a tick (✓) in the "Returnable document" column to check which documents he/she returned with the Tender)



Tender document name	Returnable	
Submission of award letters and relevant practical completion certificates with experience on four (4) or more projects of similar value (CIDB grading of 5GB and over) - (office accommodation)	Yes	
Submission of award letters and relevant practical completion certificates with experience on four (4) or more projects of similar value (CIDB grading of 5GB and over) - (general building)	Yes	
Submission of CVs confirming that all contractors key project resources have the relevant minimum experience in the construction industry. All contractors key project resources have experience in projects of a similar value and nature. Resources are to include but not limited to Contracts Manager/Safety Agent, Site Foreman including and individual with a Quantity Surveying background	Yes	

STAGE 4: EVALUATION OF PRICE AND PREFERENCE - T2.9

The Department has identified the following specific goal:

Full points(20 points) to companies who are at least 51% Owned by Black People

Ownership verification will be conducted through Central Suppliers Database by National Treasury, through the B-BBEE scorecard attributes or Companies and Intellectual Property Commission (CIPC), using Municipal Local Economic Development Database, Confirmation Letters from Municipality and councillors

(Tenderer to Insert a tick (✓) in the "Returnable document" column to check which documents he/she returned with the tender)



Document Name	Returnable Document	
Proof of ownership in the form of printouts from CSD or CIPC clearly indicating ownership details	Yes	

T2.2 AUTHORITY TO SIGN TENDER

RESOLUTION of a meeting of the Board of *Directors / Members / Partners of:

(Legally correct full name and registration number, if applicable, of the Enterprise)

held at (town): _____ on (date): _____

RESOLVED that:

1. The Enterprise submits a Tender to the KZN Department of Health in respect of the following project:

ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION

Tender Number: **ZNB 5175/2024-H**

2.
 *Mr./Mrs./Ms: _____
 in *his/her capacity as: _____ (Position in the Enterprise)

and who will sign as follows: _____ (Authorised Signatory)

be, and is hereby, authorised to sign the Tender, and any and all other documents and/or correspondence in connection with and relating to this Tender, as well as to sign any Contract, and any and all documentation, resulting from the award of the Tender to the Enterprise mentioned above.

	Name	Capacity	Signature
1			
2			
3			
4			
5			
6			
7			
8			

Note:

- * Delete which is not applicable.
- NB. This resolution / Power of Attorney must be signed by all the Directors / Members / Partners of the Legal Tendering Enterprise authorising the Representative to make this Offer.
- Should the number of Directors / Members/Partners exceed the space available above, additional names and signatures must be supplied on a separate page.
- In the case of the tendering Enterprise being a Close Corporation, a **copy of the Founding Statement** of such corpora - tion must be attached to this tender.

ENTERPRISE STAMP (If Any)

T2.3 AUTHORITY FOR CONSORTIA OR JOINT VENTURES TO SIGN TENDER

RESOLUTION of a meeting of the Board of *Directors / Members / Partners of:

(Legally correct full name and registration number, if applicable, of the Enterprise)

held at (town): _____ on (date): _____

RESOLVED that:

1. The Enterprise submits a Tender, in consortium/Joint Venture with the following Enterprises:

(List all the legally correct full names and registration numbers, if applicable, of the Enterprises forming the Consortium/Joint Venture)

to the KZN Department of Health in respect of the following project:

**ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES
OFFICE ACCOMMODATION**

Tender Number: **ZNB 5175/2024-H**

2. * Mr. / Mrs. / Ms.: _____ in

*his/her Capacity as: _____ (Position in the Enterprise)

and who will sign as follows: _____

be, and is hereby, authorised to sign a consortium/joint venture agreement with the parties listed under item 1 above, and any and all other documents and/or correspondence in connection with and relating to the consortium/joint venture, in respect of the project described under item 1 above.

3. The Enterprise accepts joint and several liability with the parties listed under item 1 above for the due fulfilment of the obligations of the joint venture deriving from, and in any way connected with, the Contract to be entered into with the Department in respect of the project described under item 1 above.
4. The Enterprise chooses as its *domicilium citandi et executandi* for all purposes arising from this joint venture agreement and the Contract with the Department in respect of the project under item 1 above:

Physical address: _____

_____ (Postal Code)

Postal Address: _____

_____ (Postal Code)

Telephone number: (Dialling Code followed by number) _____

Fax number: (Dialling Code followed by number) _____

Email Address : _____

***BOARD OF DIRECTORS / MEMBERS / PARTNERS in Consortium of Joint Venture**

	Name	Capacity	Signature
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Note:

1. * Delete which is not applicable.
2. NB. This resolution / Power of Attorney must be signed by all the Directors / Members / Partners of the Tendering Enterprise.
3. Should the number of Directors / Members/Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

ENTERPRISE STAMP (If Any)

<u>Deemed to satisfy joint venture arrangements</u>
Grading 2 + Grading 2 + Grading 2
Grading 3 + Grading 3 + Grading 3
Grading 4 + Grading 4
Grading 4 + Grading 3 + Grading 3
Grading 5 + Grading 5
Grading 5 + Grading 4 + Grading 4
Grading 6 + Grading 6
Grading 6 + Grading 5 + Grading 5
Grading 7 + Grading 7 + Grading 7
Grading 8 + Grading 8 + Grading 8

<u>Designation</u>	
= 3	
= 4	
= 5	
= 5	
= 6	
= 6	
= 7	
= 7	
= 8	
= 9	

Tenderers who envisage entering into a Joint Venture shall complete a submit a Joint Venture Agreement (see copy of CIDB's agreement elsewhere in this document) with this Tender.

T2.4 SPECIAL RESOLUTION OF CONSORTIA OR JOINT VENTURES

RESOLUTION of a meeting of the duly authorised representatives of the following legal entities who have entered into a consortium/joint venture to jointly tender for the project mentioned below: *(legally correct full names and registration numbers, of the Enterprises forming a Consortium/Joint Venture)*

- _____
- _____
- 2. _____
- _____
- 3. _____
- _____
- 4. _____
- _____
- 5. _____
- _____
- 6. _____
- _____
- 7. _____
- _____
- 8. _____
- _____

held at: _____ (place) on _____ (date)

RESOLVED that:

- A. The above-mentioned Enterprises submits a Tender in Consortium/Joint Venture to the KZN Department of Health in respect of the following project:

ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION

Tender Number: **ZNB 5175/2024-H**

Project Code: **0**

B. Mr/Mrs/Ms: _____ in

*his/her Capacity as: _____ (Position in the Enterprise)

and who will sign as follows: _____

be, and is hereby, authorised to sign the Tender, and any and all other documents and/or correspondence in connection with and relating to the Tender, as well as to sign any Contract, and any and all documentation, resulting from the award of the Tender to the Enterprises in Consortium/Joint Venture mentioned above.

C. The Enterprises constituting the Consortium/Joint Venture, notwithstanding its composition, shall conduct all business under the name and style of:

D. The Enterprises to the Consortium/Joint Venture accept joint and several liability for the due fulfilment of the obligations of the Consortium/Joint Venture deriving from, and in any way connected with, the Contract entered into with the Department in respect of the project described under item A above.

E. Any of the Enterprises to the Consortium/Joint Venture intending to terminate the consortium/joint venture agreement, for whatever reason, shall give the Department 30 days written notice of such intention. Notwithstanding such decision to terminate, the Enterprises shall remain jointly and severally liable to the Department for the due fulfilment of the obligations of the Consortium/Joint Venture as mentioned under item D above.

F. No Enterprise to the Consortium/Joint venture shall, without the prior written consent of the other Enterprises to the Consortium/Joint Venture and of the Department, cede any of its rights or assign any of its obligations under the consortium/joint Venture and of the Department, cede any of its rights or assign any of its obligations under the consortium/joint venture agreement in relation to the Contract with the Department referred to herein.

G. The Enterprises choose as the *domicilium citandi et executandi* of the consortium/joint venture for all purposes arising from the consortium/joint venture agreement and the Contract with the Department in respect of the project under item A above:

Physical address: _____

_____ (Postal Code)

Postal Address: _____

_____ (Postal Code)

Telephone number: (Dialling Code followed by number) _____

Fax number: (Dialling Code followed by number) _____

Email Address : _____

***BOARD OF DIRECTORS / MEMBERS / PARTNERS in Consortium of Joint Venture**

	Name	Capacity	Signature
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Note:

1. * Delete which is not applicable.
2. **NB.** This resolution / Power of Attorney must be signed by all the Duly Authorised Representatives of the Legal Entities to the Consortium/Joint Venture submitting this Tender.
3. Should the number of Duly Authorised Representatives of the Legal Entities joining forces in this Tender exceed the space available above, additional names and signatures must be supplied on a separate page.
4. Resolutions, duly completed and signed, from the separate Enterprises who participate in this Consortium/Joint Venture must be attached to the Special Resolution.

T2.5 JOINT VENTURES INVOLVEMENT DECLARATION
--

Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Tender no:	ZNB 5175/2024-H	Project Code:	0

DECLARATION RELATING TO A TENDER SUBMITTED BY A JOINT VENTURE :

I/We the undersigned parties do hereby declare that our respective involvement in the Works, of which I/we tender by Joint Venture, would be as follows :-

Party No. 1	
CENTRAL SUPPLIERS DATABASE REGISTRATION NO:	
TENDERERS CIDB REGISTRATION NUMBER:	
Name	
Address	
Percentage involvement	%

Party No. 2	
CENTRAL SUPPLIERS DATABASE REGISTRATION NO:	
TENDERERS CIDB REGISTRATION NUMBER:	
Name	
Address	
Percentage involvement	%

Party No. 3	
CENTRAL SUPPLIERS DATABASE REGISTRATION NO:	
TENDERERS CIDB REGISTRATION NUMBER:	
Name	
Address	
Percentage involvement	%

**T2.8 FINANCIAL STANDING AND OTHER RESOURCES OF BUSINESS
 DECLARATION**

Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Tender no:	ZNB 5175/2024-H	Project Code:	0

- (a) Based on the track record determined on the Minimum Average Annual Turnover coupled to the assessed Works Capabilities of Contracting Enterprises, the Construction Industry Development Board (CIDB) awards Grading Designations and accordingly registers it on the system.
- This confirms that a Contractor has, at the time of registration, in the absence of any supply side interventions, sufficient working capital to commence the Works for a single contract and render due performance.
- (b) However, it regularly occurs that a Contractor will at the same time submit tenders for a number of projects that are advertised during an overlapping period. Moreover, the Contractor may be busy with a Contract that is of the registered CIDB Grading Designation (value) or is even attending to a number of smaller valued Contracts.
- (c) It therefore becomes the prerogative of a Tenderer in such instances to prove to the Department that the Enterprise has the capacity in every respect to attend to more than one (1) contract at a time.
- (d) A Tenderer who wishes to be considered for this tender Contract award, over and above other tenders that they have submitted, shall submit when requested by the DOH the necessary proof that:
- (i) he/she has access to additional finance (inclusive of a PERFORMANCE GUARANTEE BY A REGISTERED FINANCIAL INSTITUTION),
 - (ii) he/she has additional Human Resources available to successfully complete this project.
 - (iii) he/she has adequate Equipment, Plant and Machinery that all of the above can, undoubtedly, be sourced for this tender. (Please submit to the DOH the name and contact details of the supplier if the Tenderer is going to hire Equipment, Plant or Machinery, when requested.)
- (e) Tenderer to submit their latest 12 months audited financial statements with the returnable documents.

I, the undersigned, _____
(name of person authorized to sign on behalf of the Tenderer)

understand that it is the responsibility of the Tenderer to prove and provide when requested by the DOH, evidence of the good Financial Standing of the Business to complete the Contract successfully.

Furthermore, it is understood that failure to provide when requested by DOH, at least the information as stated in paragraphs (d)(i)(ii) AND (iii) above may not enable the Evaluation Team to assess the CURRENT financial standing of the Business and the failure to provide said information when requested will, therefore, invalidate the Tender.

I accept and understand that the KZN Department of Health, as representative of the Provincial Administration of KwaZulu-Natal in this tender, may act against me and the Tenderer, jointly and severally, should this declaration and/or any information provided be found to be false.

Duly signed at..... on this the..... day of..... 201.....

 Full Name of Signatory

 Name of Enterprise

 Capacity of Signatory

 Signature of authorised representative

T2.9 PREFERENCE CERTIFICATE			
Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Tender no:	ZNB 5175/2024-H	Project Code:	0

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

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

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

1. GENERAL CONDITIONS

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

- the 80/20 system for requirements with a Rand value of up to R 50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R 50 000 000 (all applicable taxes included).

1.2 The applicable scoring system for this tender is the 80/20 preference points system

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

- (a) Price points and
- (b) Specific Goals

80
20

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

	POINTS
PRICE	80
SPECIFIC GOALS	20
TOTAL POINTS FOR PRICE AND SPECIFIC GOALS	100

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

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

2 DEFINITIONS

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

3 FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1 POINTS AWARDED FOR PRICE

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

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

$$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right) \quad \text{80/20} \qquad \qquad \qquad \text{90/10}$$

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

or

Where:

- P_s = Points scored for cooperative price of Tender under consideration
- P_t = Comparative price of Tender under consideration
- P_{\min} = Comparative price of lowest acceptable Tender

4 POINTS AWARDED FOR SPECIFIC GOALS

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

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

- (a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or
- (b) 3any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

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

The specific goals allocated points in terms of this tender	Number of points allocated 80/20 system	Number of points allocated 90/10 system
Companies who are at least 51% Owned by Black People	20	

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3 Name of company/firm: _____

4.4 Company registration number: _____

4.5 TYPE OF COMPANY/ FIRM

<input type="checkbox"/>	Partnership/Joint Venture / Consortium
<input type="checkbox"/>	One-person business/sole propriety
<input type="checkbox"/>	Close corporation
<input type="checkbox"/>	Public Company
<input type="checkbox"/>	Personal Liability Company
<input type="checkbox"/>	(Pty) Limited
<input type="checkbox"/>	Non-Profit Company
<input type="checkbox"/>	State Owned Company

[Tick applicable box]

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

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

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

T2.10 SITE INSPECTION MEETING CERTIFICATE

Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Tender no:	ZNB 5175/2024-H	Project Code:	0
Site Inspection Date:		Wednesday, 13 March 2024 at 10:00 AM	

This is to certify that I, _____ (Name of authorised Representative)
 representing _____ (Name of Enterprise)
 visited the site on: _____ (Date)

I have made myself familiar with all local conditions likely to influence the work and the cost thereof. I further certify that I am satisfied with the description of the work and explanations given at the site inspection meeting and that I understand the work to be done, as specified and implied, in the execution of this contract.

I declare that the representative, named above, is my authorised representative and **not** a third party agent and that my representative's attending of this site meeting, shall be deemed conclusive proof that my Enterprise is fully aware of what was said and discussed at this meeting.

Name of Tenderer	Signature	Date

Name of DOH Representative	Signature	Date

This form is only to be completed when applicable to the tender and if a Compulsory Briefing meeting has been called.



Departmental Stamp:

T2.11 BIDDER'S DISCLOSURE - SBD 4			
Project title:	ZULULAND : PHONGOLA : ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Tender no:	ZNB 5175/2024-H	Project Code:	N/A

1. PURPOSE OF THE FORM

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder

Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

2. Bidder's declaration

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise, employed by the state? **YES / NO**

2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

FULL NAME	IDENTITY NUMBER	NAME OF STATE INSTITUTION

2.2 Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution? **YES / NO**

2.2.1 If so, furnish particulars:

¹the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

2.3. Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract? **YES/NO**

2.3.1 If so, furnish particulars:

3. DECLARATION

I, the undersigned, (name)..... in submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

3.1 I have read and I understand the contents of this disclosure;

3.1) I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;

3.2) I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;

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

3.4) In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.

3.5) 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.

3.6) There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.

3.7) 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.

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 AND 3 ABOVE IS CORRECT.

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

Signature

Date

Position

Name of Tenderer

T2.12 RECORD OF ADDENDA TO TENDER DOCUMENTS			
Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Tender no:	ZNB 5175/2024-H	Project Code:	0

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

	Date	Title or Details	No. of Pages
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			

Attach Additional Pages if more space is required

Tenderer to attach proof of receipt of above listed addenda

Signed		Date	
Name		Position	
Tenderer			

T2.14 SCHEDULE FOR IMPORTED MATERIALS AND EQUIPMENT

Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Tender no:	ZNB 5175/2024-H	Project Code:	0

This schedule should be completed by the tenderer. (Attach additional page(s) if more space is required)

Item	Material / Equipment	Quotation (Excluding VAT)
1		R
2		R
3		R
4		R
5		R
6		R

The Contractor shall list imported items, materials and/or equipment which shall be excluded from the Contract Price Adjustment Provisions (if applicable) and shall be adjusted in terms of currency fluctuations only. Copies of the supplier’s quotations for the items, materials or equipment (provided that such costs shall not be higher than the relevant contract rate as listed above) should be lodged with the Project Manager of the Department of Health within 60 (sixty) days from the date of acceptance of the tender. No adjustment of the local VAT amount, nor the contractor’s profit, discount, mark-up, handling costs, etc. shall be allowed.

These net amounts will be adjusted as follows:

FORMULA:

The net amount to be added to or deducted from the contract sum:

$$A = V \left(\frac{Z}{Y} - 1 \right)$$

A = the amount (R) of adjustment

V = the net amount (supplier’s quotation) (R) of the imported item

Y = exchange rate 14 days prior to closing date of tender submission

Z = exchange rate on the date of the Bill of Lading* of exporters invoice.

** A bill of lading (sometimes abbreviated as B/L or BoL) is a document issued by a carrier which details a shipment of merchandise and gives title of that shipment to a specified party. Bills of lading are one of three important documents used in international trade to help guarantee that exporters receive payment and importers receive merchandise. A straight bill of lading, which is referred to above, is used when payment has been made in advance of shipment and requires a carrier to deliver the merchandise to the appropriate party. It is therefore the date of the paid up invoice when the shipment leaves the exporter's location. [http://en.wikipedia.org/wiki/Bill_of_lading]*

Name of authorised representative	Signature	Date

T2.15a LATEST AVAILABLE AUDITED 12 MONTH ANNUAL FINANCIAL STATEMENT

Project title:

ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION

Tender no:

ZNB 5175/2024-H

Project Code:

0

CURRENTLY NOT APPLICABLE

T2.17 CONTRACTOR'S SAFETY, HEALTH AND ENVIRONMENTAL DECLARATION			
Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Tender no:	ZNB 5175/2024-H	Project Code:	0

In terms of Regulation 5(1)(h) of the Construction Regulations of February 2014 a Contractor may only be appointed to perform construction work if the Client is satisfied that the Contractor has the necessary competencies and resources to carry out the work safely in accordance with the Occupational Health and Safety Act, Act 85 of 1993 and the Construction Regulations of February 2014. In line with this requirement the Contractor is required to read through this document carefully, sign it and submit it with his/her Tender.

DECLARATION

1. I, the undersigned hereby declare and confirm that I am fully conversant with the Occupational Health and Safety Act, Act 85 of 1993 and the Construction Regulations of February 2014 and the Construction Safety, Health and Environmental Specifications attached to this document.
2. I hereby declare that my company and its employees has the necessary competency and resources to safely carry out the construction works under this contract in compliance with the Occupational Health and Safety Act, Act 85 of 1993, the Construction Regulations of February 2014 and the Construction Safety, Health and Environmental Specifications.
3. I hereby confirm that adequate provisions has been made in my Tender to cover the cost of all Safety, Health and Environmental duties and responsibilities imposed on me by the Occupational Health and Safety Act, Act 85 of 1993, the Construction Regulations of February 2014 and the Construction Safety, Health and Environmental Specifications.
4. I hereby undertake that if my Tender is accepted, to provide before commencement of the Works under the contract or as required by the Conditions of the Contract, a suitable and sufficiently documented Construction Safety, Health and Environmental Management Plan in accordance with Regulation 7(1)(a) of the Construction Regulations of February 2014, which shall be subject for approval by the Client.
5. I confirm that I may not commence with any part of construction work under the contract until my Construction Safety Health and Environmental Management Plan has been approved in writing by the Client.
6. I hereby confirm that copies of the following documentation will be kept on site for viewing and inspection purposes for the duration of the construction work:
 - a) Client's Construction Safety, Health and Environmental Specification.
 - b) Approved Construction Safety, Health and Environmental Plan.
 - c) Occupational Health and Safety Act, Act 85 of 1993.
 - d) Construction Regulations of February 2014.
7. I agree that my failure to complete and execute this declaration to the satisfaction of the Client will mean that I am unable to comply with the requirements of the Occupational Health and Safety Act, Act 85 of 1993 and the Construction Regulations of February 2014, and accept that my Tender will be rejected.

Duly signed at..... on this the..... day of..... 20.....

 Full Name of Signatory

 Name of Enterprise

 Capacity of Signatory

 Signature of authorised representative of Tenderer

T2.18 Compulsory Enterprise Questionnaire

Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Tender no:	ZNB 5175/2024-H	Project Code:	0

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

Section 1: Name of enterprise:	
Section 2: VAT registration number, if any:	
Section 3: CIDB registration number, if any:	
Section 4: CSD Number:	

Section 5: Particulars of sole proprietors and partners in partnerships

Name*	Identity number*	Personal income tax number*

* Complete only if sole proprietor or partnership and attach separate page if more than 6 partners

Section 6: Particulars of companies and close corporations

Company registration number	
Close corporation number	
Tax reference number	

Section 7: SBD4 issued by National Treasury must be completed for each tender and be attached as a tender requirement

Section 8: SBD6 issued by National Treasury must be completed for each tender and be attached as a tender requirement

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

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

Signed		Date	
Name			
Position			
Enterprise name			

**T2.19 TAX COMPLIANCE STATUS (TCS) PIN TO VERIFY ON LINE
 COMPLIANCE SUPPLIER STATUS VIA SARS e-FILING**

Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Tender no:	ZNB 5175/2024-H	Project Code:	0

TAX CLEARANCE REQUIREMENTS

It is a condition of Tender that the taxes of the successful tenderer must be in order, or that satisfactory arrangements have been made with South African Revenue Service (SARS) to meet the tenderer's tax obligations. It is a condition of this Offer of Commission that your practice remains in good standing with SARS (South African Revenue Services) in terms of its tax clearance.

1. In order to meet this requirement Tenderders are required to apply via e-filing at any SARS branch office nationally. The Tax Compliance Status (TCS) requirements are also applicable to foreign Tenderders / individuals who wish to submit tenders.
2. SARS will then furnish the tenderer with a Tax Compliance Status (TCS) **PIN** that will be valid for a period of 1 (one) year from the date of approval.
3. In tenders where Consortia / Joint Ventures / Sub-contractors are involved, each party must submit a separate Tax Compliance Status (TCS) PIN.
4. Application for Tax Compliance Status (TCS) PIN can be done via e-filing at any SARS branch office nationally or on the website www.sars.gov.za.
5. Tax Clearance Certificates may be printed via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.sars.gov.za.

IMPORTANT NOTICE

1. The South African Revenue Services (SARS) has phased out the issuing of paper Tax Clearance Certificates.
2. From 18 April 2016 SARS introduced an enhanced Tax Compliance (TCS) system.
3. The new system allows taxpayers to obtain a Tax Compliance Status (PIN), which can be utilised by authorised third parties to verify taxpayers compliance status online via SARS e-filing.
4. Tenderers are required to fill in clearly, legibly, in bold print and black ink the SARS (TCS) PIN number and Tax Reference number in the space hereunder:

Tax Compliance Status(TCS) PIN Number	
Company / Tendering Entity Tax Reference Number	

Name of Tenderer:

Signature of tenderer:

Date:

**T2.20 CERTIFIED PROOF OF GOOD STANDING WITH THE
COMPENSATION COMMISSIONER**

Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Tender no:	ZNB 5175/2024-H	Project Code:	0

**ATTACH A COPY OF PROOF, THAT THE TENDERER IS IN
GOOD STANDING WITH THE COMPENSATION
COMMISSIONER, TO THIS PAGE FOR ADJUDICATION
PURPOSES**

NOTE

In the case of a Tender by a Joint Venture, copies of proof of Good Standing with the Compensation Commissioner in respect of each party to the Joint Venture must be attached to this page

T2.21 - FORM OF OFFER AND ACCEPTANCE

ZNB 5175/2024-H

OFFER

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

ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION

The accommodation is to include office of the District Manager, Shift Leader, Admin Support, Surgical & advance life support storeroom. Crew room, training room, boardroom, kitchen, equipment & stationery room. Female and Male ablutions

The wash bay area is to include double wash area, sluice room, medical waste & general waste, maintenance room, cleaning store including caged storage for medical gas

The bidder is encourage to read through and understand the brief in detail in order to determine a marketed-related and realistic form of offer.

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

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

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

NEC 3 (APRIL 2013) OPTION E - COST REIMBURSABLE	
The Direct Fee and Sub-contractor Fee percentage is: Amount (in words):	
Percentage Amount in figures:	
	(Percentage is to be in two decimal places)

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 tenderer)		
Name and signature of witness		Date	

ACCEPTANCE

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

The terms of the contract, are contained in:

Part C1	Agreement and Contract Data, (which includes this agreement)
Part C2	Pricing data
Part C3	Scope of work.
Part C4	Site information and drawings and documents or parts thereof, which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the tender data and any addenda thereto as listed in the returnable 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 form of offer and acceptance. No amendments to or deviations from said documents are valid unless contained in this schedule.

The tenderer shall within two weeks after receiving a completed copy of this agreement, including the schedule of deviations (if any), contact the employer's agent (whose details are given in the contract data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of contract identified in the contract data. Failure to fulfil any of 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 (5) working days of the date of such receipt notifies the employer in writing of any reason why he/she cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.

Signature (s)			
Name (s)			
Capacity			
For the employer			
	<i>(Name and address of employer)</i>		
Name and signature of witness			

Schedule of Deviations

Notes:

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

1.1.1. Subject:
Details:

1.1.2. Subject:
Details:

1.1.3. Subject:
Details:

1.1.4. Subject:
Details:

By the duly authorised representatives signing this agreement, the employer and the tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the tender data and addenda thereto as listed in the returnable schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the tenderer and the employer during this process of offer and acceptance.

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

T2.21a CONFIRMATION OF RECEIPT

ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION

Tender no.:	ZNB 5175/2024-H	Project Code:	0
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The Tenderer (now Contractor), identified in the Offer part of this Agreement hereby confirms receipt from the Employer, identified in the Acceptance part of this Agreement, of one fully completed original copy of this Agreement, including the Schedule of Deviations (if any) today:

the _____ (day)

of _____ (month)

_____ (year)

at _____ (Place)

For the Contractor:

Signature

Name

Capacity

Signature and name of witness:

Signature

Name

T2.25 THE NATIONAL INDUSTRIAL PARTICIPATION PROGRAMME

This document must be signed and submitted together with your tender

INTRODUCTION

The National Industrial Participation (NIP) Programme, which is applicable to all government procurement contracts that have an imported content, became effective on the 1 September 1996. The NIP policy and guidelines were fully endorsed by Cabinet on 30 April 1997. In terms of the Cabinet decision, all state and parastatal purchases / lease contracts (for goods, works and services) entered into after this date, are subject to the NIP requirements. NIP is obligatory and therefore must be complied with. The Industrial Participation Secretariat (IPS) of the Department of Trade and Industry (DTI) is charged with the responsibility of administering the programme.

1 PILLARS OF THE PROGRAMME

- 1.1 The NIP obligation is benchmarked on the imported content of the contract. Any contract having an imported content equal to or exceeding US\$ 10 million or other currency equivalent to US\$ 10 million will have a NIP obligation. This threshold of US\$ 10 million can be reached as follows:
- (a) Any single contract with imported content exceeding US\$10 million.
or
 - (b) Multiple contracts for the same goods, works or services each with imported content exceeding US\$3 million awarded to one seller over a 2 year period which in total exceeds US\$10 million.
or
 - (c) A contract with a renewable option clause, where should the option be exercised the total value of the imported content will exceed US\$10 million.
or
 - (d) Multiple suppliers of the same goods, works or services under the same contract, where the value of the imported content of each allocation is equal to or exceeds US\$ 3 million worth of goods, works or services to the same government institution, which in total over a two (2) year period exceeds US\$10 million.
- 1.2 The NIP obligation applicable to suppliers in respect of sub-paragraphs 1.1 (a) to 1.1 (c) above will amount to 30 % of the imported content whilst suppliers in respect of paragraph 1.1 (d) shall incur 30% of the total NIP obligation on a pro-rata basis.
- 1.3 To satisfy the NIP obligation, the DTI would negotiate and conclude agreements such as investments, joint ventures, sub-contracting, licensee production, export promotion, sourcing arrangements and research and development (R&D) with partners or suppliers.
- 1.4 A period of seven years has been identified as the time frame within which to discharge the obligation.

2 REQUIREMENTS OF THE DEPARTMENT OF TRADE AND INDUSTRY

- 2.1 In order to ensure effective implementation of the programme, successful tenderers (contractors) are required to, immediately after the award of a contract that is in excess of R10 million (ten million Rands), submit details of such a contract to the DTI for reporting purposes.
- 2.2 The purpose for reporting details of contracts in excess of the amount of R10 million (ten million Rands) is to cater for multiple contracts for the same goods, works or services; renewable contracts and multiple suppliers for the same goods, works or services under the same contract as provided for in paragraphs 1.1.(b) to 1.1. (d) above.

3 Tender SUBMISSION AND CONTRACT REPORTING REQUIREMENTS OF TenderDERS AND SUCCESSFUL TenderDERS (CONTRACTORS)

- 3.1 Tenderders are required to sign and submit this Standard Tendering Document (SBD 5) together with the Tender on the closing date and time.
- 3.2 In order to accommodate multiple contracts for the same goods, works or services; renewable contracts and multiple suppliers for the same goods, works or services under the same contract as indicated in sub-paragraphs 1.1 (b) to 1.1 (d) above and to enable the DTI in determining the NIP obligation, successful Tenderders (contractors) are required, immediately after being officially notified about any successful Tender with a value in excess of R10 million (ten million Rands), to contact and furnish the DTI with the following information:
- Tender / contract number.
 - Description of the goods, works or services.
 - Date on which the contract was accepted.
 - Name, address and contact details of the government institution.
 - Value of the contract.
 - Imported content of the contract, if possible.

3,3 The information required in paragraph 3.2 above must be sent to the Department of Trade and Industry, Private Bag X 84, Pretoria, 0001 for the attention of Mr. Elias Malapane within five (5) working days after award of the contract. Mr. Malapane may be contacted on telephone (012) 394 1401, facsimile (012) 394 2401 or e-mail at Elias@thedti.gov.za for further details about the programme.

4 PROCESS TO SATISFY THE NIP OBLIGATION

4,1 Once the successful Tenderder (contractor) has made contact with and furnished the DTI with the information required, the following steps will be followed:

- a. the contractor and the DTI will determine the NIP obligation;
- b. the contractor and the DTI will sign the NIP obligation agreement;
- c. the contractor will submit a performance guarantee to the DTI;
- d. the contractor will submit a business concept for consideration and approval by the DTI;
- e. upon approval of the business concept by the DTI, the contractor will submit detailed business plans outlining the business concepts;
- f. the contractor will implement the business plans; and
- g. the contractor will submit bi-annual progress reports on approved plans to the DTI.

4,2 The NIP obligation agreement is between the DTI and the successful Tenderder (contractor) and, therefore, does not involve the purchasing institution.

Tender number:	_____	Closing date:	_____
Name of tenderer:	_____		
Postal address:	_____ _____		
Signature:	_____	Name (in print):	_____
Date:	_____		

T2.27 - PROOF OF REGISTRATION ON CENTRAL SUPPLIERS DATABASE

Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Bid no:	ZNB 5175/2024-H	Project Code:	0

ATTACH A COPY OF PROOF, THAT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIERS DATABASE TO THIS PAGE FOR ADJUDICATION PURPOSES

NOTE

In the case of a Tender by a Joint Venture, copies of proof of registration on the Central Suppliers Data Base in respect of each party to the Joint Venture must be attached to this page

T2.28 - PROOF OF CIDB REGISTRATION NUMBER

Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Tender no.:	ZNB 5175/2024-H	Project Code:	0

ATTACH A COPY OF PROOF, THAT THE TENDERER IS REGISTERED WITH THE CONSTRUCTION INDUSTRY DEVELOPMENT BOARD (CIDB) TO THIS PAGE FOR ADJUDICATION PURPOSES

NOTE

In the case of a Tender by a Joint Venture, copies of proof of registration with the CIDB in respect of each party to the Joint Venture must be attached to this page

T2.29 MANDATORY TECHNICAL CRITERIA

The following section contains the Mandatory Technical requirements for this bid and may include but is not limited to equipment/plant requirements, personnel requirements, minimum level of experience, professionals required, certifications required, minimum financial requirements, etc. Should the tenderer fail any of the criteria in T2.29, the tender will be deemed non-responsive and will be excluded from further evaluation. This evaluation forms part of Stage 2.

Successful tenderers must pass all technical criteria as set out below. If below table is blank then Mandatory Technical Criteria is not applicable on this tender.

Criteria	Deliverable Required	Scoring bands	Deliverable meets Criteria (YES / NO) (FOR USE BY EVALUATION COMMITTEE)		Comments (FOR USE BY EVALUATION COMMITTEE)
1 Valid Professional Indemnity (PI) for each professional discipline or consolidated for the entire Professional team (If a consolidated letter is provided it should clearly stipulate the value of cover for each individual professional discipline)	Submission of a valid Policy/Letter confirming the Professional Indemnity (PI) for each professional individual or consolidated for the entire Professional team. For each Professional discipline the applicable PI is as follows: <ul style="list-style-type: none"> • Professional Architect (PI = R7 million) • Professional Civil Engineer/Technologist (PI = R2 million) • Professional Mechanical Engineer/Technologist (PI = R2 million) - to cover all mechanical works including fire services • Professional Electrical Engineer/Technologist (PI= R2million) • Professional Quantity Surveyor (PI = R5 million) • Professional Structural Engineer / Technologist (PI = R2million) • Professional Health & Safety Agent (PI = R1 million) 	Pass/ Fail	Pass	Submission of a valid Policy/Letter stating proof of cover per discipline for each professional individual or consolidated for the entire professional team, matching or exceeding the prescribed minimum cover required.	
			Fail	Submission of a valid Policy/Letter stating proof of cover per discipline for each professional individual or consolidated for the entire professional team, NOT matching or LESS than the prescribed minimum cover required OR NO submission of a valid Policy/Letter stating proof of cover per discipline for each professional individual or consolidated for the entire professional team	
2 CV's plus valid copies of professional registration certificate, for the mandatory Professional team (CV's are to be filled and completed using the CV template attached after the Annexures Tab on this document for uniformity)	Submission of CV's on the provided "CV template" (please see Annexure 4, for the CV template) for the following mandatory Professional team. Valid professional registration certificates to be attached (as proof), to determine team experience, please indicate level of experience for each individual as stated below: <ul style="list-style-type: none"> • Professional Architect minimum of 5 years post SACAP registration • Professional Civil Engineer/Technologist minimum of 4 years post ECSA • Professional Structural Engineer/Technologist minimum of 4 years post ECSA registration • Professional Mechanical Engineer/Technologist minimum of 4 years post ECSA registration • Professional Electrical Engineer/Technologist minimum of 4 years post ECSA registration • Professional Quantity Surveyor minimum of 4 years post SACQSP registration. • Professional Health & Safety Agent minimum of 2 years post SACPCMP Professional registration 	Pass/ Fail	Pass	Submission of detailed CV's on the provided "CV template" plus valid registration certificate, for the mandatory Professional team that fully meets the prescribed minimum threshold.	
			Fail	Submission of detailed CV's on the provided "CV template" plus valid registration certificate, for the mandatory Professional team that does NOT fully meet the prescribed minimum threshold OR NO submission of detailed CV's on the provided "CV template" plus valid registration certificate, for the mandatory Professional team.	

T2.30 CONTRACT FORM - PURCHASE OF GOODS/WORKS-Part 1

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

PART 1 (TO BE FILLED IN BY THE TENDERER)

1. I hereby undertake to supply all or any of the goods and/or works described in the attached tendering documents to Head of Health (Department of Health: Province of KwaZulu-Natal) in accordance with the requirements and specifications stipulated in tender number ZNB 5175/2024-H at the price/s
2. The following documents shall be deemed to form and be read and construed as part of this agreement:
 - (i) Tendering documents, viz
 - Invitation to tender;
 - Tax Compliance Status (TCS) **PIN**;
 - Pricing schedule(s);
 - Technical Specification(s);
 - 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 Tenderder's past SCM practices;
 - Certificate of Independent Tender Determination
 - Special Conditions of Contract;
 - (ii) NEC3 April 2013 Option E; and
 - (iii) Other (specify)
3. I confirm that I have satisfied myself as to the correctness and validity of my Tender; that the price(s) and rate(s) quoted cover all the goods and/or works specified in the Tender documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.
4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfilment of this contract.
5. I declare that I have no participation in any collusive practices with any Tenderder or any other person regarding this or any other Tender.
6. I confirm that I am duly authorised to sign this contract.

NAME (PRINT): _____
CAPACITY: _____
SIGNATURE: _____
NAME OF FIRM: _____
DATE: _____

<u>Witnesses:</u>
1. _____
2. _____
Date: _____

T2.31 CONTRACT FORM - PURCHASE OF GOODS/WORKS-Part 2

PART 2 (TO BE FILLED IN BY THE PURCHASER)

1. I _____ in my capacity as _____

accepts your tender under reference ZNB 5175/2024-H dated _____ for the supply of goods/works indicated hereunder and/or further specified in the annexure(s).

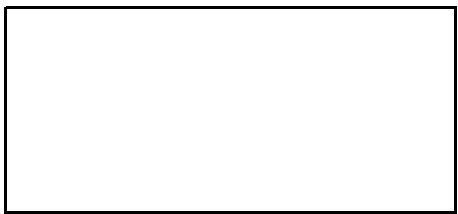
2. An official order indicating delivery instructions is forthcoming.
3. I undertake to make payment for the goods/works delivered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice accompanied by the delivery note.

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

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

SIGNED AT _____ ON _____
[Place] [Date]

NAME (PRINT): _____
 SIGNATURE: _____



OFFICIAL STAMP:

Witnesses:

1. _____

2. _____

Date: _____

T2.32 - OHSE PLAN STRUCTURE

Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Tender no:	ZNB 5175/2024-H	Project Code:	0

A detailed OHSE Plan is to be submitted by the successful tenderer as per Construction Regulation 7(1)(a). The following are the minimum standard legal documentation that must form part of the OHSE Plan based on the risks attached in executing this project titled;

ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION

TO BE DEVELOPED BY APPOINTED HEALTH & SAFETY AGENT POST AWARD

T2.33 - OHSE CLIENT SPECIFIC REQUIREMENTS

Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION
Tender no:	ZNB 5175/2024-H
Project Code:	0

TO BE DEVELOPED BY APPOINTED HEALTH & SAFETY AGENT POST AWARD

T2.34 - BASELINE RISK ASSESSMENT

Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Tender no:	ZNB 5175/2024-H	Project Code:	0

TO BE DEVELOPED BY APPOINTED HEALTH & SAFETY AGENT POST AWARD

T2.36 - Functionality Criteria

The threshold score, below which tenderers are eliminated from further consideration is 65 points

ZULULAND : PONGOLA: ITSHELEJUBA : DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE

ACCOMMODATION

TENDER EVALUATION CRITERIA AND SCORING

The weighting for Functionality 65 out of 100 sub-points is as follows:

Evaluation Criteria	Deliverables	Points	Sub-Points	Sub-Criteria
1. Competency, Experience and Resource Capacity	Tenderer to demonstrate their technical competency, human resource capacity and relevant project experience. Letters of award to be attached and practical completion certificate for completed projects in the preceding 7 years. Failure to attach both award letter with relevant accompanying completion certificate will result in zero points scoring in this section for both Office Accommodation experience and General Building experience	40 Points	40 Sub-points	Schedule of experience on 4 (Four) or more projects of similar value (CIDB grading values of 5GB and over), scope (office accommodation) - letters of award and practical completion certificates to be attached for projects completed in the preceding 7 years
			35 Sub-points	Schedule of experience on 3 (Three) projects of similar value (CIDB grading values of 5GB and over), scope (office accommodation) - letters of award and practical completion certificates to be attached for projects completed in the preceding 7 years
			30 Sub-points	Schedule of experience on 2 (Two) projects of similar value (CIDB grading values of 5GB and over), scope (office accommodation) - letters of award and practical completion certificates to be attached for projects completed in the preceding 7 years
			20 Sub-points	Schedule of experience on 1 (One) projects of similar value (CIDB grading values of 5GB and over), scope (office accommodation) - letters of award and practical completion certificates to be attached for projects completed in the preceding 7 years
			0 Sub-points	No relevant experience in projects of similar value and duration in the preceding 7 years or requested documents provided
		35 Points	35 Sub-points	Schedule of experience on 4 (Four) or more general building projects of similar value (CIDB grading values of 5GB and over) – letters of award and practical completion certificates to be attached for projects completed in the preceding 7 years
			25 Sub-points	Schedule of experience on 3 (Three) general building projects of similar value (CIDB grading values of 5GB and over) – letters of award and practical completion certificates to be attached for projects completed in the preceding 7 years
			15 Sub-points	Schedule of experience on 2 (Two) general building projects of similar value (CIDB grading values of 5GB and over) – letters of award and practical completion certificates to be attached for projects completed in the preceding 7 years
			10 Sub-points	Schedule of experience on 1 (One) general building projects of similar value (CIDB grading values of 5GB and over) – letters of award and practical completion certificates to be attached for projects completed in the preceding 7 years
			0 Sub-points	No relevant experience in projects of similar value and duration in the preceding 7 years or requested documents provided
2. Tenderer's project management structure and experience of resources proposed for the project	Tenderer to submit curriculum vitae defining roles & responsibilities of each proposed member on the project, including the number of years in experience in the construction industry	25 Points	25 Sub-points	Contractors key project resources have relevant minimum experience in the construction industry with the number of years stated on the column on the right hand side All key project resources have experience in projects of a similar value and nature. Resources are to include but not limited to Contracts Manager/ Site Agent, Site Foreman including and individual with a Quantity Surveying background • Contracts Manager/ Site Agent = 9 years' experience • Site Foreman = 10 years' experience • Quantity Surveying background individual = 9 years' experience
			20 Sub-points	Contractors key project resources have relevant minimum experience in the construction industry with the number of years stated on the column on the right hand side All key project resources have experience in projects of a similar value and nature. Resources are to include but not limited to Contracts Manager/ Site Agent, Site Foreman including and individual with a Quantity Surveying background • Contracts Manager/ Site Agent = 8 years' experience • Site Foreman = 9 years' experience • Quantity Surveying background individual = 8 years' experience
			15 Sub-points	Contractors key project resources have relevant minimum experience in the construction industry with the number of years stated on the column on the right hand side All key project resources have experience in projects of a similar value and nature. Resources are to include but not limited to Contracts Manager/ Site Agent, Site Foreman including and individual with a Quantity Surveying background • Contracts Manager/ Site Agent = 7 years' experience • Site Foreman = 8 years' experience • Quantity Surveying background individual = 7 years' experience
			10 Sub-points	Contractors key project resources have relevant minimum experience in the construction industry with the number of years stated on the column on the right hand side All key project resources have experience in projects of a similar value and nature. Resources are to include but not limited to Contracts Manager/ Site Agent, Site Foreman including and individual with a Quantity Surveying background • Contracts Manager/ Site Agent = 6 years' experience • Site Foreman = 7 years' experience • Quantity Surveying background individual = 6 years' experience
			0 Sub-points	No submission provided or submission does not comply with conditions stated • Contracts Manager/ Site Agent = 5 years or less than 5 years' experience • Site Foreman = 5 years or less than 5 years' experience • Quantity Surveying background individual = 5 years or less than 5 years' experience
TENDER EVALUATION CRITERIA AND SCORING PRICE AND BBBEE				
Evaluation Criteria	Deliverables	Points		
Price	The lowest responsive and responsible priced offer shall be allocated 80 points. All other responsive and responsible offers shall be allocated a prorated point value based on the lowest responsive and responsible priced offer.	80 Points		
Specific Goals	The points allocated to each tenderer for Specific Goals. In this regard, the points score for this criteria for each tenderer, shall be determined as follows: - full points(20 points) to companies who are at least 51% Owned by Black People	20 Points		

PART A
INVITATION TO TENDER - SBD 1

YOU ARE HEREBY INVITED TO TENDER FOR REQUIREMENTS OF THE KWA-ZULU NATAL DEPARTMENT OF HEALTH

TENDER NUMBER:	ZNB 5175/2024-H	CLOSING DATE:	02-Apr-24	CLOSING TIME:	11:00
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DESCRIPTION

THE SUCCESSFUL TENDERER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT

TENDER RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE TENDER BOX SITUATED AT *(STREET ADDRESS)*

SUPPLIER INFORMATION

NAME OF TENDERER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
	TCS PIN:		CSD No:		
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE (Tick YES or NO)	Yes		B-BBEE STATUS LEVEL SWORN AFFIDAVIT (Tick YES or NO)	Yes	
	No			No	
If YES, State the name of the verification agency accredited by SANAS					

[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?	Yes		NO		ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES	YES		NO	
	[IF YES ENCLOSE PROOF]					(IF YES ANSWER PART B:3 BELOW)			

SIGNATURE OF TENDERER	DATE
------------------------------	-------------

CAPACITY UNDER WHICH THIS TENDER IS SIGNED (Attach proof of authority to sign this tender; e.g. resolution of directors, etc.)

TOTAL NUMBER OF ITEMS OFFERED	TOTAL TENDER PRICE (ALL INCLUSIVE)
--------------------------------------	---

TenderDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO: **TECHNICAL INFORMATION MAY BE DIRECTED TO:**

DEPARTMENT / PUBLIC ENTITY		CONTACT PERSON	
CONTACT PERSON		TELEPHONE NUMBER	
TELEPHONE NUMBER		FACSIMILE NUMBER	
FACSIMILE NUMBER		E-MAIL ADDRESS	
E-MAIL ADDRESS			

PART B

TERMS AND CONDITIONS FOR TENDERING - SBD 1

1. Tender SUBMISSION:

1.1. TENDERS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE TENDERS WILL NOT BE ACCEPTED FOR CONSIDERATION.

1.2. ALL TENDERS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED (NOT TO BE RE-TYPED) OR ONLINE

1.3. TENDERERS MUST REGISTER ON THE CENTRAL SUPPLIER DATABASE (CSD) TO UPLOAD MANDATORY INFORMATION NAMELY: (BUSINESS REGISTRATION/ DIRECTORSHIP/ MEMBERSHIP/IDENTITY NUMBERS; TAX COMPLIANCE STATUS; AND BANKING INFORMATION FOR VERIFICATION PURPOSES). B-BBEE CERTIFICATE OR SWORN AFFIDAVIT FOR B-BBEE MUST BE SUBMITTED TO TENDERING INSTITUTION.

1.4. WHERE A TENDERER IS NOT REGISTERED ON THE CSD, MANDATORY INFORMATION NAMELY: (BUSINESS REGISTRATION/ DIRECTORSHIP/ MEMBERSHIP/IDENTITY NUMBERS; TAX COMPLIANCE STATUS MAY NOT BE SUBMITTED WITH THE TENDER DOCUMENTATION. B-BBEE CERTIFICATE OR SWORN AFFIDAVIT FOR B-BBEE MUST BE SUBMITTED TO TENDERING INSTITUTION.

1.5. THIS TENDER IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER LEGISLATION OR SPECIAL CONDITIONS OF CONTRACT.

2. TAX COMPLIANCE REQUIREMENTS

2.1 TENDERERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.

2.2 TENDERERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.

[2.3 APPLICATION FOR TAX COMPLIANCE STATUS \(TCS\) 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 \[WWW.SARS.GOV.ZA\]\(http://WWW.SARS.GOV.ZA\).](#)

2.4 TENDERERS MAY ALSO SUBMIT A PRINTED TCS TOGETHER WITH THE TENDER.

2.5 IN TENDERS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE PROOF OF TCS / PIN / CSD NUMBER.

2.6 WHERE NO TCS IS AVAILABLE BUT THE TENDERER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.

3. QUESTIONNAIRE TO TENDERING FOREIGN SUPPLIERS

3.1. IS THE TENDERER A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?	YES		NO	
3.2. DOES THE TENDERER HAVE A BRANCH IN THE RSA?	YES		NO	
3.3. DOES THE TENDERER HAVE A PERMANENT ESTABLISHMENT IN THE RSA?	YES		NO	
3.4. DOES THE TENDERER HAVE ANY SOURCE OF INCOME IN THE RSA?	YES		NO	

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

NB: FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER THE TENDER INVALID.

**PROVINCIAL ADMINISTRATION OF KWAZULU-NATAL
DEPARTMENT OF HEALTH**



KWAZULU-NATAL PROVINCE

HEALTH
REPUBLIC OF SOUTH AFRICA

COST REIMBURSEABLE

with NEC3 Engineering and Construction Contract - April 2013

CONTRACTUAL SECTION

ONE VOLUME APPROACH

**ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF
EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION**

Project Manager

TBC

DOH Project Leader

Nonku Dlamini
Private bag X9051
Pietermaritzburg

3201
033 940 2583

Nonkululeko.dlamini2@kznhealth.gov.za

Employer:

Head of Health
KZN Department of Health
Private Bag X 9051

Pietermaritzburg

3201
Tel Number: 033 - 940 2583
Fax Number: none

Tender Number: ZNB 5175/2024-H

CIDB Grading: 6 GB

ECDP Number: N/A

Project Code:

Document Date:

Contracting Party: _____

CIDB Registration number: _____

Central Suppliers Database Registration Number: _____



**ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY
MEDICAL SERVICES OFFICE ACCOMMODATION**

THE CONTRACT



**ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY
MEDICAL SERVICES OFFICE ACCOMMODATION**

C1 - AGREEMENT AND CONTRACT DATA



**ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY
MEDICAL SERVICES OFFICE ACCOMMODATION**

FORM OF OFFER AND ACCEPTANCE



ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION

C.1.1 - FORM OF OFFER AND ACCEPTANCE

THE OFFER AND ACCEPTANCE FORM IS BOUND INTO **SECTION 1** (See end of Returnable Documents) OF THIS DOCUMENT AS PART OF THE RETURNABLE DOCUMENTS. ONCE A CONTRACT IS CONCLUDED WITH A SUCCESSFUL TENDERER, THIS PAGE WILL BE REPLACED WITH THE FILLED AND SIGNED OFFER AND SIGN ACCEPTANCE BY THE EMPLOYER AND IT WILL BECOME PART OF THE CONTRACT.

PLEASE SUBMIT THE OFFER AND ACCEPTANCE FORM WITH THE OTHER RETURNABLE DOCUMENTS.



**ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY
MEDICAL SERVICES OFFICE ACCOMMODATION**

C1.2 - CONTRACT DATA

C 1.2 CONTRACT DATA: with NEC3 Engineering and Construction Contract Option E - April 2013	
CONTRACT DATA FOR:	
ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION	
Tender no:	ZNB 5175/2024-H
CONTRACT SPECIFIC DATA The following contract specific data are applicable to this contract:	
Part 1: CONTRACT DATA PROVIDED BY THE EMPLOYER:	
Clause	Data
1	General
	The conditions of contract are the core clauses and the clauses for main Option E, dispute resolution Option W1 and secondary Options (incorporating amendments): X2: Changes in the law X7: Delay Damages X16: Retention Z: Additional conditions of contract of the NEC3 Engineering and Construction Contract April 2013
	The works are: ZULULAND: PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION
10,1	<p>The Employer is: Head of Health (KZN Department of Health: Province of KwaZulu-Natal) Postal address: <i>Private Bag X 9051</i> <i>Pietermaritzburg</i> <i>3201</i> Tel: 033 - 940 2583</p> <p>Physical address: 35 Hyslop Road Pietermaritzburg 3201</p> <p>The Project Manager is: TBC</p> <p>Agent's service: _____ _____ _____ _____</p>
	<p>TBC Postal address: _____ _____ _____</p> <p>TBC</p> <p>Tel: TBC</p>

	<p>The supervisor is:</p> <hr/> <hr/> <hr/> <p>TBC</p> <p>Address: TBC</p> <hr/> <hr/> <hr/> <hr/> <p>Tel: TBC</p>
	<p>The Adjudicator is: <i>To be appointed by the association of arbitrators</i></p> <p>Address: TBC</p> <hr/> <hr/> <hr/> <hr/> <p>Tel:</p> <hr/> <hr/> <p>TBC</p>
11,2	<p>The Works Information is in: Part C3 'Scope of Works' section of this contract</p>
11,2	<p>The Site Information is in: Part C4 'Works Information' section of this contract</p>
11,2	<p>The boundaries of the site are: As confirmed by the DOH Project Leader</p>
13,1	<p>The language of the contract is: English</p>
12,2	<p>The law of the contract is the law of: The Republic of South Africa</p>

60,1	<p>The weather measurements to be recorded for each calendar month are:</p> <ul style="list-style-type: none"> • The cumulative rainfall (mm) • The number of days with rainfall more than 10mm • The number of days with minimum air temperature less than 0 degrees Celsius • The number of days with snow lying at 08H00 to 17H00 hours (GMT+2) <p>Note: An allowance of 3 days shall be made per month for inclement weather that disrupts works on the critical path as supported by the construction programme. Should the delay exceed 3 days, then the compensation event shall be assessed and may result in the extension of the Completion Date and/or Key Dates. There shall be no financial claims permitted due to delays caused by inclement weather. Rainfall of greater than 10mm per day is required to be proven to be considered for a delay due to inclement weather</p>										
Clause	<p>Data</p> <p>The weather measurements are supplied by:</p> <p>The contractor shall be responsible for installing and maintaining a rain gauge on site to serve as proof of quantity of rainfall. For each day of rain, the measurement must be checked, recorded and co-signed by the Project Manager or the designated individual at the facility</p>										
	<p>The weather data are records of past weather measurements for each calendar month which were recorded at:</p> <p>N/A</p> <p>And which are available from:</p> <p>N/A</p>										
	<p>Where no recorded data are available</p> <p>Rain delay claims shall be considered for days with rainfall in excess of 10mm that affect the critical path of the project. Furthermore the contractor is to allow for 3 days of inclement weather in their construction programme per month. A revision of the completion date due to inclement weather shall only be considered if in excess of 3 days per month where the affected days in excess of the 3 days may then be granted. There shall be no financial claims that will be permitted with any inclement weather claims.</p>										
8	Risk and insurance										
84,1	<p>The Employer provides these insurances:</p> <p>None</p>										
84,2	<p>The Contractor provides the insurance stated in:</p> <p>The Insurance Table below. The insurances provide cover for events which are at the Contractor's risk from the starting date until the Defects Certificate or a termination certificate has been issued.</p> <p style="text-align: center;">Insurance Table</p> <table border="1" data-bbox="376 969 1214 1330"> <thead> <tr> <th data-bbox="376 969 831 1021">Insurance Against</th> <th data-bbox="836 969 1214 1021">Minimum amount of cover or minimum limit of indemnity</th> </tr> </thead> <tbody> <tr> <td data-bbox="376 1028 831 1111">Loss of or damage to the works, Plant and Materials</td> <td data-bbox="836 1028 1214 1111">Contract Sum plus 30%</td> </tr> <tr> <td data-bbox="376 1117 831 1146">Loss of or damage to Equipment</td> <td data-bbox="836 1117 1214 1146">The replacement cost</td> </tr> <tr> <td data-bbox="376 1153 831 1261">Liability for loss of or damage to property (except the works, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the Contractor) caused by activity in connection with this contract</td> <td data-bbox="836 1153 1214 1261">R20 million for any one event with cross liability so that the insurance applies to the Parties separately</td> </tr> <tr> <td data-bbox="376 1267 831 1330">Liability for death of or bodily injury to employees of the Contractor arising out of and in the course of their employment in connection with this contract</td> <td data-bbox="836 1267 1214 1330">As prescribed by the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993</td> </tr> </tbody> </table>	Insurance Against	Minimum amount of cover or minimum limit of indemnity	Loss of or damage to the works, Plant and Materials	Contract Sum plus 30%	Loss of or damage to Equipment	The replacement cost	Liability for loss of or damage to property (except the works, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the Contractor) caused by activity in connection with this contract	R20 million for any one event with cross liability so that the insurance applies to the Parties separately	Liability for death of or bodily injury to employees of the Contractor arising out of and in the course of their employment in connection with this contract	As prescribed by the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993
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	<p>The minimum limit of indemnity for insurance in respect of loss of or damage to property (except the works, Plant and Materials and Equipment) and liability for bodily injury to death of a person (not an employee of the contract for any one event is:</p> <p>R20 million for any one event with cross liability so that the insurance applies to the Parties separately</p>										
	<p>The minimum limit of indemnity for insurance in respect of death of or bodily injury to employees of the Contractor arising out of and in the course of their employment in connection with this contract for any one event is:</p> <p>As prescribed by the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993</p>										

<p>If Option X5 is used The completion date for each section of work is:</p> <table border="1"> <thead> <tr> <th>Section</th> <th>Description</th> <th>Completion date</th> </tr> </thead> <tbody> <tr> <td>Section 1</td> <td>Design stage</td> <td>3 months from starting date</td> </tr> <tr> <td>Section 2</td> <td>Construction stage</td> <td>12 months from site access date</td> </tr> <tr> <td>Section 3</td> <td>Close-out stage</td> <td>6 months from completion date</td> </tr> </tbody> </table>			Section	Description	Completion date	Section 1	Design stage	3 months from starting date	Section 2	Construction stage	12 months from site access date	Section 3	Close-out stage	6 months from completion date			
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Section 2	Construction stage	12 months from site access date															
Section 3	Close-out stage	6 months from completion date															
<p>If Option X5 and X7 used together Delayed damages for each section of work are:</p> <table border="1"> <thead> <tr> <th>Section</th> <th>Description</th> <th>amount per day</th> </tr> </thead> <tbody> <tr> <td>Section 1</td> <td>Design stage</td> <td>R 1 875.00 / day</td> </tr> <tr> <td>Section 2</td> <td>Construction stage</td> <td>R 6 000.00 / day</td> </tr> <tr> <td>Section 3</td> <td>Close-out stage</td> <td>R 1 875.00 / day</td> </tr> <tr> <td>Remainde</td> <td>n/a</td> <td></td> </tr> </tbody> </table>			Section	Description	amount per day	Section 1	Design stage	R 1 875.00 / day	Section 2	Construction stage	R 6 000.00 / day	Section 3	Close-out stage	R 1 875.00 / day	Remainde	n/a	
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Section 2	Construction stage	R 6 000.00 / day															
Section 3	Close-out stage	R 1 875.00 / day															
Remainde	n/a																
<p>If Option X7 is used (but not if Option X5 is also used) Delay damages for Completion of the whole works are: n/a</p>																	
<p>If Option X13 (Performance Bond) is used The amount of the performance bond is: n/a</p> <p>If Option X16 is used The retention free amount is: R0,00 The retention percentage is: 10%</p>																	
<p>If Option Z is used The additional conditions of contract are:</p> <p>Z1 Identified and Defined Terms Z2.1 Add to core clause 12.3: Any extension, concession, waiver or relaxation of any action stated in this contract by the Parties, the Project Manager, the Supervisor, or the Adjudicator does not constitute a waiver of rights, and does not give rise to an estoppel unless the Parties agree otherwise and confirm such agreement in writing Page 82</p> <p>Z3 Communications Z3.1 Add to core clause 13.5: The Project Manager may also extend the period for reply to a communication if assessment/approval by the Employer (Head of Department: Health) is required but remains outstanding. The Contractor is notified of this period of extension</p> <p>Z4 The Project Manager and the Supervisor Z4.1 Amend core clause 14.2 to read as follows:The Project Manager and the Supervisor may not delegate any of their actions without first obtaining prior approval from the assigned Department of Health Project Leader. If approval is granted, and after notifying the Contractor, an action of the Project Manager or his Supervisor in this contract includes an action by his delegate Z4.2 Amend core clause 14.3 to read as follows:The Project Manager, after obtaining approval from the employer, may give an instruction to the Contractor which changes the Works Information or a Key Date</p> <p>Z5 Providing the Works Z5.1 Delete core clause 20.1 and replace with the following:The Contractor provides the works in accordance with the Works Information and warrants that the results of the Works, when complete, shall be fit for their intended purpose</p> <p>Z6 Other Responsibilities: Add the following at the end of core clause 27: Z6.1 The Contractor shall have satisfied himself, prior to the Contract Date, as to the completeness, sufficiency and accuracy of all information and drawings provided to him as at the Contract Date Z6.2 The Contractor shall be responsible for the correct setting out of the Works in accordance with the original points, lines and levels stated in the Works Information or notified by the Project Manager, Supervisor or the Employer. Any errors in the positioning of the Works shall be rectified by the Contractor at the Contractor's own costs</p>																	

Z7 The Contractor's Design

Z7.1 Amend core clause 21.2 to read as follows:

The Contractor submits the particulars of his design as the Works Information requires to the Project Manager for assessment. If the Project Manager is not satisfied that the design meets the requirements, the Project Manager will instruct the contractor to revise and resubmit. When the Project Manager is satisfied that the design meets the necessary requirements, the design is submitted to the employer's designated committee and then the Head of Department: Health or his designated authority for approval. Should the employer's designated committee assess that the design does not meet the necessary requirements, the Project Manager will instruct the Contractor to revise the design accordingly and resubmit. A reason for not accepting the Contractor's design is that it does not comply with either the Works Information or the applicable law

Z8 Acceleration

Z8.1 Amend core clause 36.4 to read as follows:

When the Employer accepts a quotation for an acceleration, he changes the Completion Date, Key Dates and the forecast of the total Defined Cost of the whole of the works accordingly and accepts the revised programme

Z9 Extending the defects date:

Add the following as a new core clause 46:

Z9.1 If the Employer cannot use the works due to a Defect, which arises after Completion and before the defects date, the defects date is delayed by a period equal to that during which the Employer, due to a Defect, is unable to use the works

Z9.2 If part of the works is replaced due to a Defect arising after Completion and before the defects date, the defects date for the part of the works which is replaced is delayed by a period equal to that between Completion and the date by when the part has been replaced

Z9.3 The Project Manager notifies the Contractor of the change to a defect date when the delay occurs. The period between Completion and an extended defects date does not exceed twice the period between Completion and the defects date stated in the Contract Data

Z10 Payment

Z10.1 Amend the first sentence of core clause 51.2 to read as follows:

Each certified payment is made within 30 calendar days from the date at which the Employer certifies the payment as being correct or, if a different period is stated in the Contract Data, within the period stated.

Z11 Compensation Events

Z11.1 Amend the first sentence of core clause 60.1 sub-clause (1) to read as follows: The Project Manager, only after applying to and receiving written approval from the Employer (Head of Department: Health), gives an instruction changing the Works Information except

Z11.2 Amend core clause 60.1 sub-clause (13) to read as follows: A weather measurement is recorded 1) within a calendar month, 2) before the Completion Date for the whole of the works and 3) at the place stated in the Contract Data.

The contractor shall allow in his programme 3 days per calendar month for inclement weather due to excessive rain (greater than 10mm) and abnormal weather conditions. Where the inclement weather days exceed 3 days in a calendar month and delay the construction of the project as determined by the latest approved construction programme, the delay may constitute a compensation event as assessed by the Project Manager and approved by the Employer (Accounting Officer). The Contractor shall not be entitled to claim for any

Z11.3 Core clause 60.1 sub-clause (15) is deleted

Z12. Notifying Compensation Events

Z12.1 Amend core clause 61.4 to read as follows: If the Project Manager decides that an event notified by the Contractor

1) Arises from a fault of the Contractor, 2) has not happened and is not expected to happen, 3) has no effect upon Defined Cost, Completion or meeting a Key Date or 4) is not one of the compensation events stated in this contract

he notifies the Contractor of his decision that the Prices, the Completion Date and the Key Dates are not to be changed. If the Project Manager decides otherwise, he notifies the Contractor accordingly and instructs him to submit quotations.

The Project Manager notifies his decision to the Contractor and, if his decision is that the Prices, the Completion Date or the Key Dates are to be changed, instructs him to submit quotations before the end of either

1) One week after the Contractor's notification or 2) A longer period to which the Contractor has agreed.

If the Project Manager does not notify his decision, the Contractor may notify the Project Manager of his failure. If the Project Manager fails to reply within four weeks of this notification is treated as rejected by the Project Manager that the event is a compensation event and an instruction to submit quotations.

Z13 Quotations for Compensation Events

Z13.1 Amend core clause 62.3 to read as follows:

The Contractor submits quotations within three weeks of being instructed to do so by the Project Manager. The Project Manager replies within two weeks of the submission. His reply is:

1) An instruction to submit a revised quotation 2) a notification that the quotation has been submitted to the Employer for their review and acceptance. Should the Employer not accept the quotation, the Project Manager may ask the Contractor to revise the quotation or make his own assessment to be submitted for approval by the Employer, 3) a notification that a proposed instruction will not be given or a proposed changed decision will not be made or 4) a notification that he will be making his own assessment.

Z14 The Project Manager's Assessments

"If the Project Manager does not reply within two weeks of this notification the notification is treated as rejected of the Contractor's quotation by the Project Manager."

Z15 Implementing Compensation Events

Z15.1 Amend core clause 65.1 to read as follows: A compensation event is implemented when

1) The Project Manager notifies the Employer's acceptance of the Contractor's quotation 2) The Project Manager notifies the Contractor of the Employer's acceptance of the Project Manager's own assessment

Z15.2 Amend core clause 65.2 to read as follows: The assessment of a compensation event is revised if a forecast upon which it is based is shown by later recorded information to have been wrong.

Z16 Employer's Risks

Z16.1 Delete the following from core clause 80.1: Loss of or damage to the works, Plant and Materials due to 1) war, civil war, rebellion, revolution, insurrection, military or usurped power, 2) strikes, riots and civil commotion not confined to the Contractor's employees or 3) radioactive contamination.

Z17 Termination

Z17.1 Add the following to core clause 91.1, at the second main bullet, fifth sub-bullet point, after the words "assets (R9) or": "business rescue proceedings are initiated or steps are taken to initiate business rescue proceedings".

Amendment to the Secondary Option Clauses

Z18 Performance Bond

Z18.1 Amend the first sentence of clause X13.1 to read as follows: The Contractor gives the Employer an unconditional, on-demand performance guarantee, provided by an insurer which the Project Manager and the Employer have accepted, for the amount stated in the Contract Data and in the form set out in C1.3 of this document

Z18.2 Add the following new clause as Option X13.2: The Contractor ensures that the performance guarantee is valid and enforceable until the end of the contract period. If the terms of the performance guarantee specify its expiry date and the end of the contract period does not coincide with such expiry date, four weeks prior to the said expiry date, the Contractor extends the validity of the performance guarantee until the end of the contract period. If the Contractor fails to so extend the validity of the performance guarantee, the Employer may claim the full amount of the performance guarantee and retain the proceeds as cash security

Z19 Limitation of liability:

Insert the following new clause as Option X18.6:

Z19.1 The Employer's liability to the Contractor for the Contractor's indirect or consequential loss is limited to R0.00

Z19.2 Notwithstanding any other clause in this contract, any proceeds received from any insurances or any proceeds which would have been received from any insurances but for the conduct of the Contractor shall be excluded from the calculation of the limitations of liability listed in the contract

Additional Z Clauses

Z20 Cession, delegation and assignment

Z20.1 The Contractor shall not cede, delegate or assign any of its rights or obligations to any person without the written consent of the Employer, which consent shall not be unreasonably withheld. This clause shall be binding on the liquidator/business rescue practitioner

Z20.2 The Employer may cede and delegate its rights and obligations under this contract to any person or entity

Z21 Joint and several liability

Z21.1 If the Contractor constitutes a joint venture, consortium or other unincorporated grouping of two or more persons, these persons are deemed to be jointly and severally liable to the Employer for the performance of the Contract

Z21.2 The Contractor shall, within 1 week of the Contract Date, notify the Project Manager and the Employer of the key person who has the authority to bind the Contractor on their behalf

Z21.3 The Contractor does not materially alter the composition of the joint venture, consortium or other unincorporated grouping of two or more persons without prior written consent of the Employer

Z22 Ethics

Z22.1 The Contractor undertakes: Z22.1.1 not to give any offer, payment, consideration, or benefit of any kind, which constitutes or could be construed as an illegal or corrupt practice, either directly or indirectly, as an inducement or reward for the award or in execution of this contract

Z22.1.2 to comply with all laws, regulations or policies relating to the prevention and combating of bribery, corruption and money laundering to which it or the Employer is subject, including but not limited to the Prevention and Combating of Corrupt Activities Act, 12 of 2008

Z22.1.3 to declare all conflicts of interest to the employer, prior to the contract date or within 1 week of the conflict becoming known, that may exist between the contractor and any of the employers' agents, project's professional team and employees of the employer involved on the project

Z22.1.4 to not enter into any undertaking and/or agreement which constitutes or could be construed as creating a conflict of interest between the contractor and any of the employer's agents, project's professional team and employees of the employer involved on the project during the course of this entire project

Z22.2 The Contractor's breach of this clause constitutes grounds for terminating the Contractor's obligation to Provide the Works or taking any other action as appropriate against the Contractor (including civil or criminal action). However, lawful inducements and rewards shall not constitute grounds for termination

Z22.3 If the Contractor is found guilty by a competent court, administrative or regulatory body of participating in illegal or corrupt practices, including but not limited to the making of offers (directly or indirectly), payments, gifts, gratuity, commission or benefits of any kind, which are in any way whatsoever in connection with the contract with the Employer, the Employer shall be entitled to terminate the contract in accordance with the procedures stated in core clause 92.2. the amount due on termination is A1

Z23 Confidentiality

Z23.1 All information obtained in terms of this contract or arising from the implementation of this contract shall be treated as confidential by the Contractor and shall not be used or divulged or published to any person not being a party to this contract, without the prior written consent of the Employer

Z23.2 If the Contractor is uncertain about whether any such information is confidential, it is to be regarded as such until otherwise notified by the Employer

Z23.3 This undertaking shall not apply to –

Z23.3.1 Information disclosed to the employees of the Contractor for the purposes of the implementation of this agreement. The Contractor undertakes to ensure that its employees are aware of the confidential nature of the information so disclosed and that they

Z23.3.2 Information which the Contractor is required by law to disclose, provided that the Contractor notifies the Employer prior to disclosure so as to enable the Employer to take the appropriate action to protect such information. The Contractor may disclose such information only to the extent required by law and shall use reasonable efforts to obtain assurances that confidential treatment will be afforded to the information so disclosed

Z23.3.3 Information which at the time of disclosure or thereafter, without default on the part of the Contractor, enters the public domain or to information which was already in the possession of the Contractor at the time of disclosure (evidenced by written records in existence at that time)

Z23.4 The taking of images (whether photographs, video footage or otherwise) of the works or any portion thereof, in the course of Providing the Works and after Completion, requires the prior written consent of the Project Manager. All rights in and to all such images vests exclusively in the Employer

Z23.5 The Contractor ensures that all his Subcontractors abide by the undertakings in this clause

Z24 Employer's Step-in rights

Z24.1 If the Contractor defaults by failing to comply with his obligations and fails to remedy such default within 2 weeks of the notification of the default by the Project Manager, the Employer, without prejudice to his other rights, powers and remedies under the contract, may remedy the default either himself or procure a third party (including any subcontractor or supplier of the Contractor) to do so on his behalf. The reasonable costs of such remedial works shall be borne by the Contractor

Z24.2 The Contractor co-operates with the Employer and facilitates and permits the use of all required information, materials and other matter (including but not limited to documents and all other drawings, CAD materials, data, software, models, plans, designs, programs, diagrams, evaluations, materials, specifications, schedules, reports, calculations, manuals or other documents or recorded information (electronic or otherwise) which have been or are at any time prepared by or on behalf of the Contractor under the contract or otherwise for and/or in connection with the works) and generally does all things required by the Project Manager to achieve this end

Z25 Liens and Encumbrances

Z25.1 The Contractor keeps the Equipment used to Provide the Services free of all liens and other encumbrances at all times. The Contractor, vis-a-vis the Employer, waives all and any liens which he may from time to time have, or become entitled to over such Equipment and any part thereof and procures that his Subcontractors similarly, vis-a-vis the Employer, waive all liens they may have or become entitled to over such Equipment from time to time

Z26 Ownership of Documents and Copyright

Z26.1 Copyright of all documents prepared by the Contractor in accordance with the relevant provisions of the copyright Act (Act 98 of 1978) relating to Project shall be vested in the Employer. The Contractor shall not be liable in any way for the use of any of the information other than as originally intended for the Project and the Employer hereby indemnifies the Contractor against any claim which may be made against him by any party arising from the use of such documentation for other purposes.

Z26.2 The ownership of data and factual information collected by the Contractor and paid for by the Employer shall, after payment by the Employer, lie with the Employer.

Z26.3 The Contractor shall, at his own expense, indemnify, protect and defend the Employer, its agents and employees, from and against all actions, claims, losses and damage arising from any negligent act or omission by the Contractor in the performance of the Services, including any violation of legal provisions, or rights of others, in respect of patents, trade marks and other forms of intellectual property such as copyrights.

Z27 Notification of a compensation event

Z27.1 In clause 61.3, delete the words "unless the event arises from the Project Manager or the Supervisor giving an instruction, issuing a certificate, changing an earlier decision or correcting an assumption"

Z28 BBBEE Certificate

Z28.1 The Contractor shall be expected to present a compliant BEE Certificate prior to signing the contract. Failure to do adhere to these requirements shall be considered a material breach of the conditions of this Contract, the sanction for which may be a cancellation of this Contract

Z29 Approvals

Z29.1 Notwithstanding any clauses contained within this contract to the contrary, the Head of Department: Health is the sole party that reserves the authority to approve any claims for additional funds, extensions to the contract completion date and all compensation events

Data for Schedule of Cost Components	The listed items of Equipment purchased for work on this contract, with an cost charge, are:		
	Equipment	time-related charge	per time period
	The rates for special Equipment are:		
	Equipment	size or capacity	rate
Data for both schedules of cost components	The percentage of Working Areas overhead is:		
	The hourly rate for Defined Cost of manufacture and fabrication outside the Working Area are:		
	category	hourly rate	
	The percentage for manufacture and fabrication overheads is :		
	The hourly rate for Defined Cost of manufacture and fabrication outside the Working Area are:		
	category	hourly rate	
The percentage for design overhead is:			
The categories of design employees whose travelling expenses to and from the Working Areas are included as a cost of design of the works and Equipment done outside of the Working Area are:			

Data for the Shorter Schedule of Cost Components	<p>The percentage for people overhead is:</p> <p>The published list of Equipment is the last edition of the list published by:</p> <p>The percentage for adjustment for Equipment in the published list is:</p> <p>The rates for special Equipment are:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Equipment</th> <th style="text-align: left; border-bottom: 1px solid black;">size or capacity</th> <th style="text-align: left; border-bottom: 1px solid black;">rate</th> </tr> </thead> <tbody> <tr><td style="border-bottom: 1px solid black;"> </td><td style="border-bottom: 1px solid black;"> </td><td style="border-bottom: 1px solid black;"> </td></tr> <tr><td style="border-bottom: 1px solid black;"> </td><td style="border-bottom: 1px solid black;"> </td><td style="border-bottom: 1px solid black;"> </td></tr> <tr><td style="border-bottom: 1px solid black;"> </td><td style="border-bottom: 1px solid black;"> </td><td style="border-bottom: 1px solid black;"> </td></tr> <tr><td style="border-bottom: 1px solid black;"> </td><td style="border-bottom: 1px solid black;"> </td><td style="border-bottom: 1px solid black;"> </td></tr> </tbody> </table>	Equipment	size or capacity	rate												
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3 SIGNATURES OF THE CONTRACTING PARTIES																
	<p>Thus done and signed at.....on of.....20.....</p>															
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ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION

PART C2 - PRICING DATA

C2.1 PRICING INSTRUCTIONS
GCC FOR CONSTRUCTION WORKS (Second Edition 2010)

Project title:

ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION

Tender no:

ZNB 5175/2024-H

Project Code:

0

Where any item is not relevant to this specific contract, such item is marked N/A (signifying "not applicable")

The adjustment of the preliminaries each item priced is to be allocated to one or more of the three categories by insertion of "F", "V", "T" as the case may be against the price in the "rate" column immediately preceding the "amount" column, where "F" denotes a fixed amount (amount not varied), "V" denotes an amount variable in proportion to value and "T" denotes an amount variable in proportion to time.

1 MASSES AND MEASURING UNITS

These shall be in accordance with the Measuring Units and National Measuring Standards Act No. 76 of 1973 and amendments thereto.

The pages of each of these documents are numbered consecutively and before the Tenderer submits his tender he should check the number of pages, and if any are found missing or duplicated, or the figures or writing indistinct, or the documents contain any obvious error, he should apply to the Head : Public Works AT ONCE and have same rectified as no liability whatsoever will be admitted by the Administration in respect of errors in Tender due to the foregoing.

2 PRICES FOR VARIATIONS

Where prices or quotations for variations are submitted by the Contractor during the currency of the Contract, it is to be clearly understood that these are for the purpose of consideration by the Head : Public Works and that there is no assumption of acceptance. The Contractor will be notified of acceptance of prices or quotations either by insertion of the amount on the variation order or by written intimation.

3 SCALE

The scale to which the Drawings are made is only to be made use of when no figured dimensions are given either on the Drawings or in the tender documents and the figured dimensions are always to be followed though they may not coincide with the scale of the Drawings, but dimensions where possible are to be taken from the buildings.

4 PROVISIONAL ITEMS

All items described as "Provisional" shall be used as directed by the Employer and measured and valued or paid for.

No work for which "Provisional" items are allowed shall be commenced without written instructions from the Head : Health

5	<p>TIMELY ORDERING OF MATERIALS</p> <p>The Contractor is warned to place all orders for materials or special articles as early as possible, as he will be held solely responsible for any delay in the delivery of such goods.</p> <p>Nevertheless this tender is conditional upon no liability being attached to the Contractor if delivery of materials is rendered impossible by reason of any act of the Government.</p>
6	<p>ELECTRICAL LIGHTING, POWER AND WATER</p> <p>The Contractor shall provide any artificial lighting which may be necessary or required for the proper execution of the works, and provide electric power and water required by all Sub-Contractors, Nominated Sub-Contractors and Sub-Contractors appointed directly by the Employer.</p> <p>The Contractor shall give all notices and pay all fees in connection with temporary electrical and water connections and shall connect temporary Electrical and Water meters for and pay for all current and water consumed.</p> <p>Tenderers are advised that the permanent light fittings and water points of any kind installed in the Works are not to be used to provide temporary lighting and supplement water requirements for construction purposes.</p>
7	<p>IMPORT PERMITS, DUTIES AND SURCHARGES.</p> <p>All tenders by means of which imported products are being called for, must use the rate of exchange 14 days prior to the closing date indicated in the tender documents. If this day falls on a weekend or public holiday, the next working day must be used.</p> <p>Furthermore, Tenderers must submit documentary proof (in the form of a certified copy) from their bank or legally recognised financial institution, clearly indicating what the rate of exchange was 14 days prior to the closing date, as mentioned above.</p> <p>Together with this, the Tenderer must confirm that the tender price relating to an imported product, was based on the rate of exchange 14 days prior to the closing date as mentioned above.</p>
8	<p>STANDARD SYSTEM OF MEASUREMENT WHERE BILLS OF QUANTITIES FORM PART OF THE TENDER DOCUMENTS</p> <p>The work executed under this Contract has been measured in accordance with the;</p> <p style="text-align: center;">Standard System of Measuring Builders Work (7th Edition)</p> <p>including all amendments unless descriptions of items indicate a deviation and it shall be understood that the system of measurement which is herein adopted is the only system of measurement which will be recognised in connection with this contract. Any contradictions to this system of measurement contained in the "Model Preambles for Trades 2008" shall be disregarded (unless same have been accommodated in the system of measurement) but applicable rates shall be included for all requirements stated and not measured separately in compliance with this system.</p>

9 PRICING OF ROCK EXCAVATIONS

It is a condition of this tender that should the tenderer elect to price the Rock Excavation included in this tender, the rates must be market related and should be identically priced for the same classification of excavations and not vary for similar billed items in the different sections.

10 BROAD BASED BLACK ECONOMIC EMPOWERMENT

1. It is the deliberate policy of the Provincial Administration of KwaZulu-Natal to foster and to encourage the economic empowerment of Black South Africans. This policy will be implemented without prescription and without prejudicing the principles and the integrity of the Provincial Administration of KwaZulu-Natal. Subject to these constraints and also subject to good business practise and commercial consideration, it is therefore considered appropriate that the Provincial Administration of KwaZulu-Natal should encourage business relationships with companies which actively pursue Affirmative Action and Black Economic Empowerment Programmes.
2. In responding to this tender you are therefore encouraged to devote attention to these two subjects of Affirmative Action and Economic Empowerment. In addition, in considering the appointment of sub-contractors, you are requested to extend the spirit of these policies.
3. The foregoing enunciations of this policy are not intended to be prescriptive nor to preclude any individual or operation from responding to this tender.

11 REGISTRATION ON THE CENTRAL SUPPLIERS DATABASE

1. In terms of the Public Finance Management Act (PFMA), 1999 (Act No 1 of 1999) Section 38 (1) (a) (iii) and 51 (1) (iii) and Section 76 (4) of PFMA National Treasury developed a single platform, The Central Supplier Database (CSD) for the registration of prospective suppliers including the varification functionality of key supplier information.
2. Prospective suppliers will be able to self - register on the CSD website: www.csd.gov.za
3. Once the supplier information has been varified with external data sources by National Treasury a unique supplier number and security code will be allocated and communicated to the supplier. Suppliers will be required to keep their data updated regularly and should confirm at least once a year that their data is still current and updated.
4. Suppliers can provide their CSD supplier number and unique security code to organs of state to view their varified CSD information.
5. Tenderers are required to fill in clearly, legibly, in bold print and black ink their CSD supplier number in the space hereunder:

Name of Supplier	
Central Supplier Database (CSD) Supplier Number:	

12 TAX CLEARANCE REQUIREMENTS

It is a condition of tender that the taxes of the successful tenderer must be in order, or that satisfactory arrangements have been made with South African Revenue Service (SARS) to meet the Tenderder's tax obligations. It is a condition of this Offer of Commission that your practice remains in good standing with SARS (South African Revenue Services) in terms of its tax clearance, during the project, which is required to process your payment certificates.

- 1 In order to meet this requirement tenderers are required to apply via e-filing at any SARS branch office nationally. The Tax Compliance Status (TCS) requirements are also applicable to foreign Tenderders / individuals who wish to submit Tenders.
- 2 SARS will then furnish the Tenderder with a Tax Compliance Status (TCS) PIN that will be valid for a period of 1 (one) year from the date of approval.
- 3 In tenders where Consortia / Joint Ventures / Sub-contractors are involved, each party must submit a separate Tax Compliance Status (TCS) PIN.
- 4 Application for Tax Compliance Status (TCS) PIN can be done via e-filing at any SARS branch office nationally or on the website www.sars.gov.za.
- 5 Tax Clearance Certificates may be printed via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.sars.gov.za.
- 6 Tax Clearance Certificates may be printed via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.sars.gov.za.

Security PIN Number	
Company / Entity Tax Reference Number	

13 BILLS OF QUANTITIES/LUMP SUM DOCUMENT

The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract documents, the Standard Conditions of Tender, Conditions of Contract, Standard Preambles to all Trades, Specifications, Drawings and all other relevant documentation.

14 VALUE ADDED TAX

The tender price must include for Value Added Tax (VAT). All rates, provisional sums, etc. in the Bills of Quantities must however be net (exclusive of VAT) with VAT calculated and added to the Total Value thereof in the Final Summary.

15 FIXED PRICE CONTRACT

Should the Bills of Quantities/Lump Sum Document be a fixed price contract, the following clause must be inserted in the Pricing Instructions:

Tenderders are to take note that the contract price adjustments are not applicable to this contract. Tenderders should therefore make provision in the Contract Sum, schedule of rates, etc. for possible price increases during the contract period, as no claims in this regard shall be entertained.



**ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY
MEDICAL SERVICES OFFICE ACCOMMODATION**

PART C3. WORKS INFORMATION

**C3.1 SCOPE OF WORKS
 GCC FOR CONSTRUCTION WORKS (Edition 2 of 2010)**

Scope of Works compiled in accordance with SANS 10403 where reference is made to this part of SANS 1921-1:2004

Pk
pr

Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
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Tender no:	ZNB 5175/2024-H	Project Code:	0
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1

SECTION 1

EXTENT OF THE WORKS

1.1 EMPLOYERS OBJECTIVES

To enhance efficient and effective service delivery for the Emergency Medical Services (EMS) staff in the rurals of KwaZulu-Natal, improve and provide conducive working environments by constructing office accommodation to house EMS staff including an ambulance wash bay and parking for ambulances and staff.

1.2 OVERVIEW OF THE WORKS

Professional services and building works relating to the design and building of EMS office accommodation in Itshelejuba Hospital. (The contractor may be requested at any time to execute works in acceleration)

1.3 EXTENT OF THE WORKS

The contractor is to procure services of professional consultants to design and building office accommodation, the scope includes offices for the management, admin support, a boardroom, training room and storage rooms for specialized Emergency Medical Services equipment. Female and male ablutions are to be designed such that lockers are included for the storage of personal belongings, for compliance a paraplegic abluion is to be accommodated within the premises. The ambulance wash bay area is to have a medical waste area, double vehicle washing bay, shower, abluion, change room, sluice room and maintenance room to store wheelchairs, stretchers ect.

*Construction of a double wash-bay with suitable drainage to accommodate waste, drive-through type. The wash bay is to have a high-pressure washing system, leaving room for ventilation as this is a high wet area

*New District Manager office with proper filing and consultation space (please refer to brief for furniture requirements)

*Crew room to accommodate 15 person/ shift

*Male & Female ablutions with showers, lockers, water closets and wash hand basins

*Life advanced support room to store equipment such as cardiac machines,

*Surgical storeroom storage room for storage of bandages, masks, gloves etc

*New boardroom for the utilization of meetings

*New kitchen for lunch breaks

*New stationery room for storage of stationery equipment

*New sluice room used for disposal of human waste and disinfection of associated items

*Medical & general waste for disposal of applicable waste (please refer to brief)

Work Stage	Duration	Responsibility
Concept & Viability (This is to include not less than 3 options which could be workable, taking into consideration the most convenient in terms of functioning of the Emergency Medical Services in relation to the site and any other factors)	3 Calendar months where submission to HIAC should be incorporated which happens bi-weekly as per the Department's schedule	•Architect •Quantity Surveyor •Electrical Engineer •Mechanical Engineer •Civil/Structural Engineer •NEC3 Project Manager •Occupational Health & Safetyety • Contractor
Design Development (This is to develop on the approved concept at HIAC, at this stage a more realistic estimate of the developed design should be included)	3 Calendar months where submission to HIAC should be incorporated which happens bi-weekly as per the Department's schedule	•Architect •Quantity Surveyor •Electrical Engineer •Mechanical Engineer •Civil/Structural Engineer •NEC3 Project Manager •Occupational Health & Safetyety • Contractor
Design Documentation (This is to include an almost mirror image of what is to be on site/ executed during construction in terms of drawings, specifications, costs etc)	3 Calendar months where submission to HIAC should be incorporated which happens bi-weekly as per the Department's schedule	•Architect •Quantity Surveyor •Electrical Engineer •Mechanical Engineer •Civil/Structural Engineer •NEC3 Project Manager •Occupational Health & Safetyety • Contractor
Works / Construction	12 Calendar Months	•Architect •Quantity Surveyor •Electrical Engineer •Mechanical Engineer •Civil/Structural Engineer •NEC3 Project Manager •Occupational Health & Safetyety • Contractor
Handover (This process is to include training of staff and handing over of manuals)	1 week	The Contractor, Infrastructure Development, EMS, End-User •Architect •Quantity Surveyor •Electrical Engineer •Mechanical Engineer •Civil/Structural Engineer •NEC3 Project Manager •Occupational Health & Safety
Close-out (This is to include but not limited to as-built drawings, final account, statement of account, certificates of compliance where applicable and all necessary information to deem the project closed and completed)	3 Calendar months where submission to HIAC should be incorporated which happens bi-weekly as per the Department's schedule	•Architect •Quantity Surveyor •Electrical Engineer •Mechanical Engineer •Civil/Structural Engineer •NEC3 Project Manager •Occupational Health & Safetyety • Contractor

1. Parts of the Work which the Contractor is to design

The Contractor is to design the whole of the works

The Contractor shall work under the strict supervision and control of a NEC 3 project manager appointed by the Department of Health KZN Province.

The Contractor is responsible for the overall design of the works, any amendments that needs to be made to his design and to prepare as-built drawings for the completed works.

The Contractor shall appoint suitably qualified and experienced professionals to carry out both the design portion and the construction portion of the works.

The Contractor shall submit to the NEC3 Project Manager and DoH Project Leader all applicable design calculations and drawings for both temporal and permanent works.

The Contractors works (both temporal and permanent) shall comply with minimum standards/requirements to both the National Building Regulations and with all Local Authority.

2. Procedure for submission and acceptance of Contractor's design

The Contractor's documentation shall be issued to the NEC3 Project Manager under cover of the Contractor's transmittal note indicating all Contract references (i.e. Project No, Contract No. etc.) as well as the Contractor's Project Document Number, Revision number, Title and chronological listing of transmitted documentation. Formats of Contractor's data submitted is dependent on the project procedure and shall be specified by the NEC3 Project Manager, upon the notified request of the Contractor.

Acceptance of documentation by the NEC3 Project Manager will in no way relieve the contractor of his responsibility for the correctness of information, or conformity with his obligation to provide the works. This obligation rests solely with the Contractor.

After review, a copy of the original review/marked-up drawing/document, with the NEC3 Project Manager's consolidated comments and document status marked on the Contractor Review Label, is scanned and the original document with comments shall be returned to the contractor under cover of the project's Transmittal Note for revision or re-submittal as instructed and to be included in the master copy data file where applicable.

The Contractor shall allow the NEC3 Project Manager 2 weeks unless otherwise stated and agreed, to review and respond to the Contractor's submission of their documentation, i.e. from time of receipt of the hardcopy to the document control office to the time of dispatch. The Contractor does not proceed with the relevant work until the NEC3 Project Manager has accepted his design.

On receipt of the reviewed documentation the contractor shall make any modifications requested/marked-up and resubmit the revised documentation to the NEC3 Project Manager within 2 working days. Queries regarding comments/changes should be addressed with the NEC3 Project Manager prior to re-submittal. Any re-submittals, which have not included the changes/comments identified, will be returned to the Contractor to be corrected. The Contractor shall re-issue the revised documentation incorporating all comments and other specified details not included in the previous issue within 2 working days of receipt of the marked-up document.

The Contractor is responsible to deliver this Design & Build project in strict accordance to the FIPDM stages, as prescribed by National Treasury.

The Department of KZN Health has a Health Infrastructure Approval Committee (HIAC) that grants approval to mark the end of a particular FIPDM stage.

3. Procedure for acquiring approval for all FIPDM stages

The Contractor is responsible to compile all reports, sketches, diagrams, drawings, reports, BOQ, specifications, HIAC checklist and other required documents that must be presented at HIAC for approval.

The Contractor is responsible to make oral presentations of the finished activities for any specific FIPDM stage to HIAC in order to achieve approval to proceed to the next FIPDM stage. The HIAC may require these oral presentations to be done either in person or virtual.

The Contractor grants the Employer a license to use the copyright in all design data presented to the Employer in relation to the works for any purpose in connection with the contraction, re-construction, refurbishment, repair, maintenance and extension of the works with such licence being capable of transfer to any third party without the consent of the contractor.

The Contractor vests in the Employer full title guarantee in the intellectual property and copyright in the design created in relation to the works.

4. As-built drawings, operating and maintenance schedules

The Contractor provides the following:

***As Built Drawings**

All as-built red line drawings must be signed-off by the Contractor's responsible person before issue to NEC3 Project Manager for acceptance.

***Installation, Maintenance and Operating Manuals**

The Contractor provides manuals in an A4 hard cover, grease and waterproof binder, using 2 ring type binders

Drawings and charts larger than A4 are properly folded and those greater than A3 are enclosed in an A4 plastic pocket of adequate strength.

The manuals are well indexed and user friendly and must include a summarized Table of Contents. The index for data packs must be submitted to the NEC3 Project Manager for acceptance at the beginning of the project to enable the Contractor to maintain and update the on a continuous basis throughout the project lifecycle.

The Contractor submits the draft Table of Contents to the NEC3 Project Manager for acceptance prior to the compilation and official submittal of the manuals and data books.

The originals of all brochures shall be issued to the NEC3 Project Manager. When a general brochure is applicable to a range of equipment, then the specific item, catalogue number or model number shall be stated, which is best achieved by introducing a separate index page, which cross references the specific item to a tag number.

The address, phone numbers, fax numbers, email addresses, and reference numbers of all Sub-Contractors is provided.

Where manuals include drawings that still need to be revised to "As-Built" status, and such manuals are required prior to As-Built" status, the manual will not be considered to be in its final form until the "As-Built" version of each such drawing has been incorporated.

The required number of copies of the manual (s) shall be as specified by the NEC3 Project Manager and submitted per type or model number of equipment included in the contract, or as specified by the NEC3 Project Manager.

All electronic copies (.pdf) of Data Packs to be properly indexed and bookmarked. All pages that make-up the data book or manual must be sequentially numbered.

5.Temporal works, Site services and Construction constraints

The site establishment area shall have a clearly visible sign posted and be compliant with the relevant safety regulation and restrictions that might be in place until the Contractor has de-established from site and comply with OHS Act 85 of 1993.

The Contractor is responsible for the security of the Works until completion and hand-over and must make his own arrangement for security and the safekeeping of his property.

Housing of the Contractor's people on site is not permitted.

Since the site shall remain live during the construction stage. It is the responsibility of the Contractor to ensure the Works are properly guarded and protected at all times and pose no safety risks to the both the property and lives of our staff, visitors and patients.

The Contractor must ensure that the working area is well lit at night and that all fences, obstacles and hazards are clearly marked.

The Contractor must make his own arrangement for telecommunication facilities, if required, for his use during the execution of the Works.

The Contractor, within fourteen days after completion, must completely remove from site all his plant, materials equipment, stores and temporal office accommodation or any other asset belonging to him and leave the site in a tidy condition to the satisfaction of the NEC3 Project Manager. No excess or discarded materials, redundant plant shall be allowed on site.

Unless expressly stated as a responsibility of the Employer, Site services and facilities, all residual requirements for the provision of facilities and all items of Equipment necessary for the Contractor to Provide the Works remains the responsibility of the Contractor.

Wherever the Contractor provides facilities (either his own or for the NEC3 Project Manager and DoH Project Coordinator/Leader) and all items of Equipment, involving, inter alia, offices, accommodation, laboratories, Materials storage, compound areas etc., within the existing premises.

Working Areas, then the Contractor makes good and provides full reinstatement to the land (including all apparatus of the Employer and Others in, on or under the land) and surrounding areas to its original standards, upon dismantling of such facilities and items of Equipment.

Unless expressly stated as a responsibility of the Employer, Site services and facilities all residual requirements for the provision of facilities and all items of Equipment necessary for the Contractor to Provide the Works remains the responsibility of the Contractor.

The Contractor will be held responsible for any damages to existing structures and services caused by him during the provision and the execution of this Contract, fair wear and tear is excluded, and shall repair damage(s) to the satisfaction of the NEC3 Project Manager and/or DoH Project Coordinator/Leader before completion of the Works.

For this purpose, a joint inspection with the NEC3 Project Manager and/or DoH Project Coordinator/Leader and the Contractor shall be carried out prior to occupation of the Works and any existing damages noted. Repair work to damaged existing structures and services may be carried out during the contract period or during the defects correction period if so authorised. The Contractor will be required to conduct a photographic site survey of the occupied area showing existing structures and services. This report must be submitted to the NEC3 Project Manager for approval and will be used in assessing the damages to structures and services if applicable.

6.People Restrictions on Site, Hours of Work, Conduct and Records

The working hours shall be in accordance with the requirements of the Department of Labour and as agreed with the relevant trade unions. Relevant documentation and information shall be provided to the NEC3 Project Manager and Supervisor on a regular basis, and prior to commencement of the Works.

The Contractor shall keep daily records of his people engaged on site and working areas, including all EPWP, Sub-Contracting, and Suppliers. The Employer and the NEC3 Project Manager shall be given unencumbered access to such daily records at all reasonable times.

7.Control of Noise, Dust and Waste

The Contractor shall take all reasonable steps to contain unacceptable levels of noise and dust, in accordance with the specified and referenced environmental, health and safety requirements.

The Contractor shall dispose of all waste products at a registered waste disposal site, to be approved by the NEC3 Project Manager. The Contractor shall provide written proof that all permits for the waste disposal site are in place.

8.Health and Safety Requirements

At all times during construction, the Contractor is responsible for the safety of all persons on the Site and on the equipment and shall have the necessary systems and procedures in place to effectively manage this in relation to H&S requirements in addition to those of the OHS Act and Regulation (85 of 1993, CR 2014).

The Contractor shall comply with all applicable legislation and regulations.

The Contractor shall comply with but not be limited to the following Acts:

*The Compensation for Occupational Injuries and Diseases Act no. 130 of 1993.

*The Contractor shall produce proof of his registration and good standing with the Compensation Commissioner in terms of the Act and submit with his offer.

*Occupational Health and Safety Act 85 of 1993.

*National Water Act 36 of 1998

*Environmental Management Act 107 of 1998

*The Provisional Ordinances and Local Authority, by-laws and all relevant regulations framed there under

Samples

The Contractor shall furnish samples and/or certificate as called for or may be called for by the NEC3 Project Manager / DoH Project Coordinator/Leader. Materials and/or workmanship not corresponding with approved samples may be rejected.

Samples for approval shall be required for paint colours, partitions, joinery with associated finishes, wall finishes, ceiling finishes, floor finishes, windows, louvres, shopfronts, all sanitary fittings and face brick sample wall (2m²). These approved samples shall remain on site for the duration of the Works.

9.Completion, Testing, Commissioning and Construction of Defects

Works to be done by the Completion Date

The Contractor shall have done everything required to provide the Works on or before the Completion Date

Hand-over Procedures

Handover procedures shall be agreed with the Employer prior to the completion of the Works.

Local labour and businesses

A 30% of the contract value shall be utilised towards the empowerment and promotion of local contractors and/or businesses.

<p>1.4</p>	<p>LOCATION OF THE WORKS</p> <p>Zululand District : Pongola : Itshelejuba Hospital : N2 north, about 30 km past Pongola. -27.2759397 : 31.346008</p>
<p>1.5</p>	<p>TEMPORARY WORKS</p> <p>All temporary work to comply with the Occupational Health and safety Act (Act 85 of 1993)</p>
<p>2</p>	<p><u>ENGINEERING</u></p> <p>2.1 EMPLOYER'S DESIGN</p> <p>Not applicable</p> <p>2.2 DESIGN BRIEF</p> <p>A brief has been compiled highlighting the requirements of the office accommodation, full concepts, detailed design, procurement documentation will be provided by the design team for the execution of the works.</p> <p>2.3 DRAWINGS</p> <p>None</p>
<p>2.4</p>	<p>DESIGN PROCEDURES</p> <p>All design drawings must fully meet the ECSA requirements</p>
<p>3</p>	<p><u>PROCUREMENT</u></p> <p>3.1 PREFERENTIAL PROCUREMENT PROCEDURES</p> <p>This tender will be subject to the implementation of the Preferential Procurement Regulations, 2022 pertaining to the Preferential Procurement Policy Framework Act, Act Number 5 of 2000 and the relevant Supply Chain Management Legislation and the KwaZulu-Natal Supply Chain Management Policy Framework published by the KwaZulu-Natal Provincial Treasury. Tenderders are referred to www.kzntreasury.gov.za for access to the relevant documents. Tenderders are advised to familiarize themselves with the contents of the KwaZulu-Natal Supply Chain Management Policy Framework regarding Preference Point Systems, evaluation of tenders appeals and other matters.</p> <p>3.2 RESOURCE STANDARD PERTAINING TO TARGETED PROCUREMENT</p> <p>NOTE : This project will be adjudicated as exceeding R 50,000 000,00</p> <p>3.3 SCOPE OF MANDATORY SUBCONTRACT WORK</p> <p>Not applicable</p> <p>3.4 PREFERRED SUBCONTRACTORS/SUPPLIERS</p> <p>Not applicable</p> <p>3.5 SUBCONTRACTING PROCEDURES</p> <p>Not applicable</p>
<p>4</p>	<p><u>CONSTRUCTION</u></p> <p>4.1 APPLICABLE SANS 2001 STANDARDS FOR CONSTRUCTION WORKS</p> <p>The Contractor is referred to the "Model Preambles to Trades - 2008", any "Supplementary Preambles", the Electrical Specifications and Mechanical Specification for full descriptions of materials and methods referred to in these Bills of Quantities/Lump Sum documents, insofar as they apply. The Contractor is advised to study the "Standard Preambles to all Trades", any "Supplementary Preambles", the Electrical Specifications and Mechanical Specification, before pricing Bills of Quantities/Lump Sum documents.</p> <p>Where the description in the Bills of Quantities/Lump Sum documents differ from those in the Standard Electrical Specifications, the descriptions in the Bills of Quantities/Lump Sum documents are to apply. No claim whatsoever will be allowed in respect of errors in pricing due to brevity of description of items in the Bills of Quantities/Lump Sum documents which are fully described when read in conjunction with the relevant Preambles and/or Specifications. Suppliers of materials and the like, whose quality systems apply with one or more of the SABS/SANS ISO 9000 Series should be used whenever possible in the absence of a particular SABS/SANS Specification Standard Mark.</p> <p>Wherever the words "shall be deemed to be included in the description", "shall be stated" or other words having the same effect, appear in the Standard System, it shall be deemed that all descriptions in these Bills of Quantities/Lump Sum documents incorporated such inclusions and statements whether specifically stated or not.</p> <p>The Contractor is hereby informed that where SABS/SANS Specifications are referred to in these Bills of Quantities/Lump Sums documents and Specifications thereto, then ONLY the Specification of Work Clauses will apply. The method of measurement and payment clauses will NOT apply to this Contract.</p> <p>The Contractor is hereby informed that risk of collapse and keeping excavations free from water (excluding subterranean water) generally are deemed to be included in the descriptions unless accommodated in the system of measurement. Please refer to the Geotechnical Investigation report when included at the end of these tender documents.</p> <p>Whenever reference is made to "Sub-Contractor", "Nominated Sub-Contractor" or the like in the specifications included or referred to in these Bills of Quantities/Lump Sums documents, it shall be deemed to mean "Contractor" as defined.</p>

<p>4.2</p> <p>4.3</p> <p>4.4</p> <p>4.5</p> <p>4.6</p> <p>4.7</p> <p>4.8</p> <p>5</p> <p>5.1</p>	<p>APPLICABLE NATIONAL AND INTERNATIONAL STANDARDS</p> <p>See above 4.1</p> <p>PARTICULAR / GENERIC SPECIFICATIONS</p> <p>The Contractor is referred to the following documents whether attached to this document or not:</p> <table border="0"> <thead> <tr> <th><u>SPECIFICATION</u></th> <th><u>PAGES</u></th> </tr> </thead> <tbody> <tr> <td>Specification for HIV/AIDS Awareness (CIDB)</td> <td>HIV1 TO HIV3</td> </tr> <tr> <td>Specific Construction, Safety, Health and Environmental Plan</td> <td></td> </tr> <tr> <td>Standard Preambles for all Trades (Rev 3) - DOH 2009</td> <td>1 to 95</td> </tr> <tr> <td>General Electrical Specification</td> <td>E/1 to E/20</td> </tr> <tr> <td>Lightning Protection Installation</td> <td>LP/1 to LP/6</td> </tr> </tbody> </table> <p>CERTIFICATION BY RECOGNIZED BODIES</p> <p>Only contractors registered with the Electrical Contracting Board of South Africa in accordance with the Regulations of the Occupational Health and Safety Act will be accepted and permitted to do work under this contract.</p> <p>AGRÉMENT CERTIFICATES</p> <p>Not applicable</p> <p>PLANT AND MATERIAL PROVIDED BY THE EMPLOYER</p> <p>Not applicable</p> <p>SERVICES AND FACILITIES PROVIDED BY THE EMPLOYER</p> <p>Not applicable</p> <p>OTHER SERVICES AND FACILITIES</p> <p>The Contractor shall provide any artificial lighting which may be necessary or required for the proper execution of the works, and provide electric power and water required by all Sub-Contractors, Nominated Sub-Contractors and Sub-Contractors appointed directly by the Administration. The Contractor shall give all notices and pay all fees in connection with temporary electrical and water connections and shall connect temporary Electrical and Water meters for and pay for all current and water consumed. The Contractor is advised that the permanent light fittings and water points of any kind installed in the Works are not to be used to provide temporary lighting and supplement water requirements for construction purposes.</p> <p>MANAGEMENT</p> <p>APPLICABLE SANS 1921 STANDARDS</p> <p>Tenderders are referred to SECTION 2 : SPECIFICATION DATA ASSOCIATED WITH SANS 1921-1:2004 IN THIS DOCUMENT</p>	<u>SPECIFICATION</u>	<u>PAGES</u>	Specification for HIV/AIDS Awareness (CIDB)	HIV1 TO HIV3	Specific Construction, Safety, Health and Environmental Plan		Standard Preambles for all Trades (Rev 3) - DOH 2009	1 to 95	General Electrical Specification	E/1 to E/20	Lightning Protection Installation	LP/1 to LP/6
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General Electrical Specification	E/1 to E/20												
Lightning Protection Installation	LP/1 to LP/6												
<p>5.2</p>	<p>RECORDING OF WEATHER</p> <p>The Contractor shall keep record of abnormal climatic conditions to facilitate the adjudication of claims for extension of the contract period.</p>												
<p>5.3</p>	<p>MANAGEMENT MEETINGS</p> <p>In order to facilitate the smooth functioning of the Works and to ensure the closest co-operation between all the parties concerned, the Employer will call for regular meetings to be held on the site, at which a senior member of the Contracting firm and the General Foreman of the Works will always be required to be present. In addition to the above, other persons will be required to attend these meetings as and when their presence is necessary, e.g., Consultants in all disciplines, representatives of the various Sub-Contractors, etc. Proper minutes of these meetings will be kept by the Employer\Principal Agent and copies will be circulated to all persons attending the meetings and to others who need to be kept informed.</p>												

<p>5.4</p>	<p>FORMS FOR CONTRACT ADMINISTRATION</p> <p>The Employer shall provide all necessary forms.</p>
<p>5.5</p>	<p>ELECTRONIC PAYMENTS</p> <p>The Contractor shall provide all required information to the Employer to facilitate electronic payments upon request.</p>
<p>5.6</p>	<p>DAILY RECORDS</p> <p>The Contractor shall keep daily records of people and equipment employed as well as a site diary in respect of work performed on the site. At the end of each week the Contractor shall provide the Principal Agent with a written record, in schedule form, reflecting the number and description of tradesmen and labourers employed by him and all Sub-Contractors on the works each day. At the end of each week the Contractor shall provide the Principal Agent with a written record, in schedule form, reflecting the number, type and capacity of all plant, excluding hand tools, currently used on the works.</p>
<p>5.7</p>	<p>BONDS AND GUARANTEES</p> <p>The Contractor shall within 10 calendar days after receiving notice from the Engineer and prior to 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.</p>
<p>5.8</p>	<p>PAYMENT CERTIFICATES</p> <p>Requirements will be in accordance with the Employers prescriptions.</p>
<p>5.9</p>	<p>PERMITS</p> <p>The Contractor is advised that, in the case of an existing building or institution, all security measures in force will remain in operation and he must acquaint himself and his Employees with them as he and his Employees will at all times be subject to these measures. The Contractor will on no account extend his operations beyond the confines of the building site as indicated by the Employer and must ensure that all his Employees are made aware of these limits. Any Employee disregarding this instruction and found outside the limit of the building site without authority, shall be redeployed immediately and shall not again be employed on this Contract. The Contractor will be responsible for ensuring that this instruction is strictly enforced and must provide and remove upon completion or when directed, such other necessary temporary barriers, fences, etc., as may be required and is to allow opposite this item for any charges he may wish to make in this connection. The Employer will accept no responsibility whatsoever for damage to or the loss of plant, materials, etc., from the site.</p>
<p>5.10</p>	<p>PROOF OF COMPLIANCE WITH THE LAW</p> <p>The following certificates must be provided before first delivery is taken:</p> <ul style="list-style-type: none"> - HIV/STI Report (Bound into this document) - Electrical Compliance Certificate - Plumbing Compliance Certificate - Lightning Certificate - Waterproofing Guarantee certificates - Electrical and Mechanical test certificates - Plumbing and drainage pressure test certificates - Fire Compliance Certificate - SANS 10400-A:2010 compliance certificates - Latest National Building Regulation
<p>5.11</p>	<p>INSURANCE PROVIDED BY THE EMPLOYER</p> <p>None</p>

SECTION 2

SPECIFICATION DATA ASSOCIATED WITH SANS 1921-2004

Clause
Numbers

4.1.7 The requirements for drawings, information and calculations for which the Contractor is responsible are:

End of each stage detailed reports for presentation and approval at the Health Infrastructure Approval Committee, shop drawings for approval where required. These are to be submitted timeously for review and approval.

4.2.1 The responsibility strategy assigned to the Contractor for the works is:

Strategy C

4.2.2 The structural engineer is:

As appointed by the Contractor

4.2.3 Drawings & other info are to be submitted in accordance with the contractors programme

State specific time

4.3 The planning, programme and method statement are to comply with the following:

N/A

4.12.1 Samples of materials

The work is to be executed with materials of the best specified and in the most substantial and workmanlike manner under the inspection of the Employer and to his satisfaction.
 The Contractor shall furnish, without delay, such samples as called for or may be called for by the Employer, who may reject all materials or workmanship not corresponding with the approved sample.

0

4.12.2 Fabrication drawings that the contractor is to provide to the employer are:

None

4.12.3 Office accommodation, equipment, accommodation for site meetings and other facilities for use by the employer and his agents are:

OFFICE FOR FOREMAN

Provide, erect, maintain and remove at completion a suitable temporary office for the Contractor or his Foreman, perfectly secured, lighted and ventilated and having a desk with drawers.

TELEPHONE

The Contractor shall provide a telephone on the site for the use of the Contractor and all Sub-Contractors for the duration of the Contract, and must make the necessary application for connection, give all notices and pay all fees, rentals and charges for the service and also for all calls.

OFFICE FOR INSPECTOR OF WORKS

Provide, erect, maintain and remove at completion a well constructed temporary office for the Inspector of Works not less than 4 x 3 m on plan and 3 m high to eaves to the approval of the Employer. The office shall be constructed of wood framing covered externally with corrugated iron or corrugated asbestos and with a lean-to roof covered with the same material as the external wall covering. The office shall be lined internally with soft board or other approved material and a ceiling shall be provided of the same material as the internal lining. A suspended wood floor shall be provided and is to finish not less than 300 mm above the ground level. A lockable door and a window, which provides adequate light and ventilation, shall be fitted.

An office constructed of 115 mm thick brick-work and provided with a screeded concrete floor and roofed and ceiled as above described may be accepted as an alternative but prior permission of the Employer will be necessary before construction of such an office is commenced and his requirements shall be stated and fulfilled by the Contractor.

The office shall be fitted in an approved manner with a sloping topped desk of height and length suitable for the laying out and studying of drawings, a desk or table with not less than two lock-up drawers, shelves, seating and wash-stand, and the Contractor shall provide all necessary attendance.

TELEPHONE IN OFFICE FOR INSPECTOR OF WORKS

The Contractor shall arrange for the installation of a lockable telephone in the Office for the Inspector of Works for the duration of the Contract. The Contractor will be required to make the necessary application for connection and give all notices on behalf of the Employer. The Employer will, however, be responsible for the direct payment of all fees, rentals and other charges by Telkom for the service for the Inspector of Works and for all calls made from this telephone.

	<p>SHED Provide, erect, maintain and remove at completion, ample temporary sheds for the proper storage of materials and for the use of the workmen, and remove when no longer required.</p>
<p>4.14.6</p>	<p>The requirement for provision and erection of signboards are: Supply, erect, maintain and remove at completion a painted notice board, size overall 2800 x 2345 mm high sign written to detail as Drawing No. T9506 which drawing is available from offices of the Department of Public Works. Only the official notice board is to be displayed on the site and no Sub-Contractor's boards will be permitted. The Contractor, at his own cost, may provide a board on which all sub-contract firms' names may be sign written. The notice board is to be to the approval of the Employer and is to be maintained in first class condition and placed where directed at the entrance to the site and remain there for the duration of the Contract.</p>
<p>4.17.1</p>	<p>Requirement for the termination, diversion or maintenance of existing services: Should the Contractor come in contact with any underground cables or pipes during excavations, immediate notification must be made to the Employer and all work in the vicinity of such cables, pipes, etc., shall cease until authority to proceed has been obtained from the Employer. Should the Contractor damage underground cables or pipes resulting in a disruption of services to an existing institution such damage shall be repaired immediately.</p>
<p>4.17.3</p>	<p>Services which are known to exist on the site: Investigate and provide detail drawings.</p>
<p>4.17.4</p>	<p>Requirement for detection apparatus None</p>
<p>4.18</p>	<p>ADDITIONAL HEALTH AND SAFETY REQUIREMENTS ARE: By the submission of a tender, any Tenderer will, if awarded the contract to which this tender document relates, be deemed to be the mandatory as envisaged by Section 37 (2) of the Act. As a mandatory the successful Tenderer will be deemed to be the "principal contractor" and an employer in his/her/their own right with duties as prescribed in the Act and accordingly will be deemed to have agreed to be solely responsible for ensuring that in connection with the service to which this tender document relates, all work will be performed and machinery and plant used in accordance with the Act. Should the Contractor, for whatever reason be unable to perform as required by the Act, the Contractor undertakes to inform the Employer accordingly. Tenderers are advised that it is a Condition of this Tender that a 'Construction Phase Safety, Health and Environmental Plan' specifically relates to the project for which tenders are being submitted and must be prepared by the Tenderer and submitted with the other tender documents at the time of tender. Failure to do so will invalidate the tender. Tenderers are therefore advised to study the 'Construction Safety, Health and Environmental Specification' which is issued as part of this tender document, the Model Preambles to Trades - 2008, any project Specification included in this tender document and any and all drawings which are referred to and issued as part of this tender document before preparing their own project specific 'Construction Phase Safety, Health and Environmental Plan'. Tenderers are also advised that such a plan which is submitted with a tender but is incomplete or considered inadequate by the Employer or his Representative will invalidate the tender. The Contractor will be deemed to have satisfied himself with his obligations in terms of the Act and to have allowed for all costs arising from compliance with the Act as no claim for extra costs arising from compliance with, and obligations in terms of the Act will be entertained.</p>

C3.2 - SPECIFICATION FOR HIV/AIDS AWARENESS

1 Scope

This generic specification contains requirements applicable to the reduction of the risk of transfer of the HIV virus between and among construction workers and the local community through the following four strategies:

- a) raising awareness about HIV/AIDS;
- b) providing construction workers with access to condoms;
- c) HIV counselling, testing and referral services; and
- d) Sexually Transmitted Infection diagnosis and treatment.

2 Normative references:

The following standard contains provisions that, through reference in this text, constitute provisions of this standard:

SANS 4074 ISO 4074, *Condom Rubbers*

3 Definitions and Abbreviations

3,1 Definitions

Construction Worker: all persons in the employ of the contractor or in the employ of any of the subcontractors contracted by the contractor.

Local Community: the communities local to the site which are most likely to have contact with the construction worker and, in particular, sex workers in those communities.

Service provider: the natural or juristic person recognised by the South African Department of Health as specialist in conducting Aids Awareness Programmes.

3,2 Abbreviations

STI: Sexually transmitted infection

HIV: Human Immunodeficiency Virus

AIDS: Acquired Immune Deficiency Syndrome

4 Objectives

The objectives are to:

- a) reduce the risk of transfer of the HIV virus between and among construction workers and the local community;
- b) raise awareness amongst construction workers and the local community of the risk of infection with the HIV virus;
- c) promote early diagnosis; and
- d) assist affected individuals to access care and counselling.

5 Requirements

5.1 General requirement

The contractor shall, in order to satisfy the objectives stated in 4:

- a) make condoms complying with the requirements of SABS ISO 4074 available to all construction workers at readily accessible points on the site, suitably protected from the elements, for the duration of the contract;
- b) either place and maintain HIV/AIDS awareness posters of size of not less than A1 in areas which are highly trafficked by construction workers, or provide construction workers with a pamphlet, in languages largely understood by construction workers, which
- c) encourage voluntary HIV/STI testing;
- d) provide information concerning counselling, support and care of those that are infected services; and
- e) comply with the requirements of 5.2.

The provisions of 5.1 c) and d) do not apply to this contract.

5.2 HIV awareness programme

5.2.1 The contractor shall:

- a) engage a qualified service provider as described in the scope of works to conduct an HIV Awareness Programme which is structured to achieve the outcomes stated in 5.2.3 for contract workers as soon as a construction workers camp is established and populated or, where no such camp is established, within two weeks of the commencement of a significant portion of the works and at subsequent intervals, if any, provided for in the scope of works; and
- b) arrange for, provide a suitable venue, and instruct all construction workers to attend the HIV Awareness Programme and notify the Employer's Representative of the date, time and venue whenever a session with construction workers is conducted.

Note: The National Department of Public Works maintains a list of qualified service providers.

5.2.2 The contractor shall do nothing to dissuade construction workers from attending such an HIV Awareness Programme and shall take all reasonable steps to ensure that a minimum of 90% of construction workers engaged in the works attend such a programme, when it is conducted.

5.2.3 The outcomes of the HIV Awareness Programme shall as a minimum, result in contract workers exposed to such a programme being able to:

- a) communicate the existence of problems of HIV and be able to outline the consequences of transmission of HIV to or from the local community;
- b) recall and communicate the mode of HIV transmission and preventative measures including the proper use of the condom.

The HIV/ Aids awareness programme described in 5.2 is to be repeated at four month intervals throughout the duration of the contract. (Four times in total, including the initial one at the start of the contract)

5,3 Reporting

- 5.3.1** The contractor shall prepare and attach to his claims for payment a brief report which outlines how the actions taken by the contractor in the period for which payment is claimed satisfy the requirements and a schedule which lists the names, identity numbers, trade / occupation and name of employer of all construction workers exposed to the programme (see **HIV/STI Compliance Report**).
- 5.3.2** The employer's representative shall certify the report and schedule described in 5.3.1 whenever a claim for payment is issued to the employer.

Note: In the event that the contractor fails to satisfy the requirements of this specification, the employer (Head: Public Works) may apply any of the sanctions provided for in the contract. Sanctions may include the application of a financial penalty of .04% of the Contract Sum.

The *HIV /Aids* awareness programme described in 5.2 shall in addition *be conducted* for the benefit of the local community on two occasions in the community centre nearest to the building site. The contractor shall be *responsible* for inviting identifiable community-based *institutions and organisations, churches, and schools to participate in the programme.*

C3.3 - HIV/STI COMPLIANCE REPORT

Pro-forma reporting format in terms of the SPECIFICATION FOR HIV/AIDS AWARENESS

Project Code:

0

Payment Claim number:

Period covered by payment claim:

1. Distribution of condoms (briefly describe where and how condoms are distributed).

2. Posters / pamphlets (briefly describe where posters were placed / how pamphlets were distributed).

3. Voluntary testing (briefly describe the actions taken / information provided to promote testing).

4. Counselling, support and care (summarise information provided).

5. HIV awareness programme (briefly describe action).



**ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY
MEDICAL SERVICES OFFICE ACCOMMODATION**

PART C4. SITE INFORMATION

C4.1 SITE INFORMATION GCC FOR CONSTRUCTION WORKS (2 Edition of 2010)			
Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Tender No.	ZNB 5175/2024-H	Project Code:	0
C4.1 Site Information			
C4.1	GENERAL		
(a)	The site is an open green field with trees, it is levelled and does not require much earthworks (cut & fill) required on it. There is an existing park home currently which will be moved during the construction phase. Adjacent buildings include the laundry, maintenance offices where careful consideration will need to be taken regarding heavy & noisy equipment / machinery during the construction phase.		
(b)	0		
(c)	0		
C4.2	GEOTECHNICAL INVESTIGATION REPORT		
(a)	Not applicable		



**ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY
MEDICAL SERVICES OFFICE ACCOMMODATION**

ANNEXURES

CURRICULUM VITAE TEMPLATE



1. Personal Details

Name:	
Date of Birth:	
Current Employer:	
Current Position Held:	
Period with Current Employer: (mm-yyyy to mm-yyyy)	
Previous Employer:	
Position Held with Previous Employer:	
Period with Previous Employer: (mm-yyyy to mm-yyyy)	

2. Education (Degrees, Diplomas, BTech and Post Graduate Qualifications ONLY)

Qualification	Year Obtained	Institution

3. Professional Registration/s

Professional Body	Year Obtained	Expiry Date	Category of Professional Registration

4. Relevant Project Experience (Provide a maximum of 3 relevant projects)

Name of Project	Client	Project Start Date	Project End Date	Project Value	Role on Project



Annexure 4
Joint Venture Agreement
(March 2004)
(First Edition of CIDB document 1017)

1. **PREAMBLE**

This agreement is made and entered into by and between

of the first part and

of the second part and

of the third part.

(allow for additional parties as necessary).

Whereas the foregoing parties have resolved to form a Joint Venture under the title of

for the exclusive purposes of securing and/or executing the Contract to be awarded by

(name of Employer)

to the KZN Department of Health in respect of the following project:

for *(brief description of Contract)*

ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION

Now it is hereby agreed as follows :

2. **DEFINITIONS AND INTERPRETATION**

2.1 Definitions

The following words and expressions shall have the meanings indicated, except where the context otherwise requires. Defined terms and words are, in general, signified in the text of the Agreement by the use of capital initial letters, but the absence of such letters does not necessarily signify that a term, or word, is not defined.

'Agreement' means the agreement between the Members of the Joint Venture and includes this model form of agreement together with the Preamble, Specific Provisions, if any, Schedules 'A', 'B' and 'C' and any relevant Documents prepared prior to the signing of the Agreement and appended thereto.

'Contract' means the contract with the Employer for the supply of the Deliverables, for the purposes of securing and executing which, the Joint Venture has been formed.

'Deliverables' means the works and/or services, equipment, materials, goods, etc. to be furnished by the Joint Venture to the Employer in terms of the Contract.

'Document' means any written, drawn, typed, printed, or photographic material, which relates to the Agreement.

'Employer' means the person, or body, which is to award the Contract and will employ the Joint Venture if it is awarded the Contract.

'Joint Venture' means the joint venture formed by the Members in accordance with the Agreement.

'Management Committee' means the body established in terms of the Agreement to manage all aspects of the work of the Joint Venture in securing and executing the Contract and in meeting the provisions for the Agreement.

'Member' means a person, or body which, being a party to the Agreement, is a member of the Joint Venture.

'Member's Interest' means the proportion expressed as a percentage, which the total monetary value of all resources provided and contributions made by a Member towards the execution by the Joint Venture of the Contract bears to the total of such values by all Members and, unless otherwise indicated in the Agreement, represents the extent to which the Member participates in the fortunes of the Joint Venture.

'Representative' means the person representing a Member on the Management Committee.

'Schedules' means Schedules 'A', 'B' and 'C' which set out general, financial and other information relating to the Members and the obligations, duties, rights, risks and benefits arising from their participation in the Joint Venture.

'Specific Provisions' means the variations, if any, required to this standard form of agreement for the specific purposes of the Agreement.

2.2 Interpretation

Unless inconsistent with the context, an expression in the Agreement which denotes:

- any gender shall include the other genders
- a natural person shall include a juristic person and vice versa
- the singular shall include the plural and vice versa

2.3 Headings

The headings to clauses of the Agreement shall not be considered part thereof, nor shall the words they contain be taken into account in the interpretation of any clause.

2.4 Law

The Agreement shall be construed in accordance with and governed by the laws of the Republic of South Africa and the English language versions shall prevail.

2.5 Language

English shall be exclusively used by the Members in the preparation of Documents unless otherwise indicated.

2.6 Conflict between Agreement and Contract

Should any provision of the Agreement be in conflict with the terms of the Contract, the Agreement shall be amended to the approval of the Management Committee so as to eliminate the conflict.

3. **JOINT VENTURE GENERAL**

3.1 Establishment and Purpose

The Joint Venture established by the Members in terms of the Agreement is an unincorporated association with the exclusive purposes of securing and executing the Contract for the benefit of the Members.

3.2 Termination

The operation of the Joint Venture and the validity of the Agreement shall terminate if and when it becomes evident that the Joint Venture will not be awarded the Contract, or, if the Joint Venture secures the Contract, when all obligations and rights of the Joint Venture and the Members in connection with the Contract and the Agreement have ceased and/or been satisfactorily discharged.

Unless otherwise decided by the Management Committee, the Agreement shall not terminate if a Member changes its name, or is taken over by, or merged with, another body.

This agreement will terminate when any one of the Members resigns, are liquidated or opts out of this agreement and the Joint Venture will be in breach of contract with the Employer and their contract could be cancelled.

3.3 Exclusivity

Unless otherwise agreed by the Management Committee, or provided for in the Contract no Member shall engage in any activity related to the Contract other than as a Member of the Joint Venture and Members shall ensure that their subsidiaries and other bodies over which they have control comply with this requirement.

3.4 Participation of Members

Except as may otherwise be stipulated in the Agreement, each Member shall be responsible for all costs incurred by it prior to the date of inception of the Agreement.

Subsequent to the date of inception of the Agreement, each Member shall, participate in the operations, risks, responsibilities and fortunes of the Joint Venture including, inter alia, the provision of funding, sureties, guarantees, insurances, human and other resources and participation in profits and losses to the extents indicated in the Schedules. Participation in any aspect not covered in the Schedules shall, if an agreement cannot be reached between the Members, be to the same extents as indicated by the Members Interests.

3.5 Management

The affairs of the Joint Venture shall be directed and controlled by the Management Committee, as set out in Section 4 hereof.

3.6 Confidentiality

All matters relating to the Agreement and the Contract shall be treated by the Members as confidential and no such matter shall be disclosed to any third party without the prior written approval of the Management Committee.

No Member shall be party to the dissemination of publicity relating to the Contract, or the Agreement, without the prior written approval of the Management Committee and the Employer.

3.7 Assignment

No Member shall cede, assign, or in any other way make over any of its rights, or obligations, under the Agreement without the prior written consent of the Management Committee.

3.8 Subcontracting

No Member shall subcontract any obligation, work or duty for which it is, itself, responsible in terms of the Agreement without the prior written consent of the Management Committee.

3.9 Variations to Agreement

No variation, modification, or waiver of any part of the Agreement shall be of any force, or effect, unless unanimously agreed by the Members and reduced to writing.

3.10 Liability

Each Member warrants that it will indemnify the other Members against all legal liabilities arising out of, or in connection with the performance of its obligations under the Agreement.

It is acknowledged by the Members that they may be held jointly and severally liable in respect of claims against the Joint Venture by the Employer or third parties.

4. MANAGEMENT OF JOINT VENTURE

4.1 General

The affairs of the Joint Venture shall be directed, controlled and managed by the Management Committee, which, within the terms of the Agreement and the Contract, shall have full authority to bind the Members in all matters relating to the affairs of the Joint Venture.

Communication between the Joint Venture and the Employer, or third parties, relating to the Contract shall be conducted exclusively by the Management Committee, or by such person as it may delegate to perform this function.

The Management Committee shall have the power to appoint a project manager and/or such other persons as it may see fit to appoint for the purpose of executing the Contract and may delegate such of its powers, responsibilities and duties as it may consider necessary, or desirable, to persons or bodies appointed or seconded for this purpose.

Such administrative functions as are necessary to ensure the effective operation of the Management Committee shall be performed by its chairman.

4.2 Management Committee

4.2.1 Composition

The Management Committee shall, unless otherwise agreed by all the Members, consist of one Representative of each Member and each Member shall be obliged, at all times, to maintain a Representative on the Management Committee.

Each member shall, not later than three working days after the signing of the Agreement, appoint its Representative and notify the other Members of the name and contact details of the Representative. Such Representative shall have the power to bind the Member that he represents in all matters relating to the execution of the Contract and the performance of the Agreement.

A Member shall be entitled, after giving the other Members not less than three working days written notice of his intention to do so, appoint, remove and/or replace, an alternate who shall, at any meeting of the Management Committee from which the Representative whom he represents is absent, be vested with all rights and powers and subjected to all the obligations of the absent Representative.

The chairman of the Management Committee shall be the Representative of the Member which has the largest Member's Interest. If two, or more, Members have the same, largest Member's Interest, the chairmanship shall rotate between the Representatives of such Members at three monthly intervals, the order of rotation to be determined by ballot.

Notwithstanding the foregoing, the chairmanship of the Management Committee may be determined, or changed, at any time by unanimous decision of the Management Committee.

4.2.2 *Meetings*
No remuneration shall be paid by the Joint Venture to Representatives or their alternates for serving on the Management Committee,

Meetings of the Management Committee shall take place at such times and places as the Management Committee may determine, provided that the chairman shall convene a meeting of the Management Committee to be held not later than ten working days after he has been requested, in writing, by a Member to do so. Not less than five working days written notice of any meeting of the Management Committee shall be given to all Representatives and their alternates.

The Management Committee may permit, or invite, persons other than Representatives or alternates to attend any of its meetings, but such persons shall not have voting rights.

4.2.3 *Decisions*

Each Representative shall have one vote on the Management Committee and where, in terms of this clause, a casting vote is required, this shall be exercised by the chairman.

All decisions of the Management Committee shall, desirably, be unanimous. Accordingly, if unanimity cannot, initially, be achieved in regard to a decision, the meeting at which that decision is sought shall be adjourned for a period of 48 hours to enable Representatives to consult with their principals. If, on resumption of the adjourned meeting, unanimity can still not be achieved, the decision, provided it is not one requiring unanimity of the Members, shall be taken by majority vote and, in the event of a tie, the chairman shall exercise a casting vote.

A Member not satisfied with a majority decision of the Management Committee may declare a dispute, to be dealt with in terms of Clause 8 hereof, but the majority decision shall, nevertheless, be implemented with immediate effect.

Decisions of the Management Committee, whether taken at a meeting, or otherwise, shall be recorded in written minutes, which shall be distributed by the chairman to reach the Representatives not later than five working days after those decisions were taken. Such minutes shall be deemed to have been affirmed by the Representatives unless written notice of dissent is received by the chairman not later than three working days after receipt of the minutes by the Representative.

4.2.4 Powers and duties

The functions, responsibilities and powers of the Management Committee shall include, inter alia, those listed below:

4.2.4.1 Formulating overall policy in regard to the achievement of the objectives of the Joint Venture.

4.2.4.2 Managing the day to day affairs of the Joint Venture.

4.2.4.3 Monitoring, directing and co-ordinating the activities of the Members to ensure that the objectives of the Joint Venture are achieved and that the obligations and responsibilities of the individual Members are met.

4.2.4.4 Monitoring and controlling the financial affairs of the Joint Venture and ensuring that proper books of account and financial records relating to affairs of the Joint Venture are maintained in an approved form and submitted to the Management Committee for approval at regular intervals, which shall not be longer than one month.

4.2.4.5 Determining the necessity for and the details of any changes in the duties and responsibilities of Members provided that any resulting changes in Members' Interests shall be unanimously approved by the Members.

4.2.4.6 Determining the terms and conditions of employment of personnel and the emoluments applicable to staff seconded to the Joint Venture by the Members.

4.2.4.7 Controlling and approving the appointment of all subcontractors.

4.2.4.8 Procuring, after the completion of the Contract and the release of all bonds, guarantees and sureties given in respect of the performances of the Joint Venture and the Members, the preparation and auditing of a final set of accounts, on the basis of which the final profits, or losses, attributable to the individual Members shall be determined and any necessary adjustments effected.

5 RESOURCES OF JOINT VENTURE

The resources to be utilised by the Joint Venture in securing and executing the Contract shall, insofar as these are to be provided directly by the Members, be as set out in the Schedules and may, from time to time, be amended by decision of the Management Committee, provided that the Member's Interests are not, except with the unanimous approval of the Members, affected thereby.

Similarly, specific areas of responsibility of the Members for the performance of work and the provision of facilities shall be as set out in the Schedules and may, from time to time, be amended by decision of the Management Committee, provided that the Members' Interest are not, except with the unanimous approval of the Members, affected thereby.

5.1 Schedule 'A' (General)

Schedule 'A' shall contain general information relating to the Joint Venture including, inter alia, the following :

1. The Employer's name and address.
2. A brief description of the Contract and the Deliverables.
3. The name, physical address, communications addresses and domicilium citandi et executandi of each Member and of the Joint Venture.
4. The Members' Interests.
5. A statement indicating whether, or not, Specific Provisions apply to the Agreement.
6. A schedule of insurance policies which must be taken out by the Joint Venture and by the individual Members.
7. A Schedule of sureties, indemnities and guarantees that must be furnished by the Joint Venture and by the individual Members.

8. Details of the persons, who, in the event of failure by the Members to reach agreement on the appointments of mediator and arbitrator, will nominate appointees to these positions in terms of Clauses 8.2 and 8.3.

5.2 Schedule 'B' (Financial)

Schedule 'B' shall contain information regarding the financial affairs of the Joint Venture including, inter alia, the following :

1. The working capital required by the Joint Venture and the extent to which and manner whereby this will be provided and/or guaranteed by the individual Members from time to time.
2. The banking accounts that are to be opened in the name of the Joint Venture and the manner in which these are to be operated.

3. The rates of interest that will be applicable to amounts by which Members are in debit, or credit, to the Joint Venture.

4. The names of the auditors and others, if any, who will provide auditing and accounting services to the Joint Venture.

5. The intervals at which interim financial accounts and forecasts will be prepared for approval by the Management Committee.

6. Insofar as not covered in Schedule 'C', the basis on which contributions of various types by the Members towards the work of the Joint Venture in securing, executing, managing and satisfactorily completing the Contract, will be valued.

7. The basis on which profits and/or surplus cash will, if available from time to time, be distributed to Members.
8. The basis upon which losses, if any, are to be apportioned to Members.

5.3 Schedule 'C' (Contributions by Members)

Schedule 'C' shall set out the contributions of various types, other than cash, that will be made by the individual Members towards the work and obligations of the Joint Venture and shall, as far as possible, indicate the monetary values to be placed on such contributions, which may include, inter alia, the following :

1. Staff seconded to the Joint Venture.
2. Work carried out and services provided to, or on behalf of, the Joint Venture.
3. Plant, equipment, facilities etc. made available for use by the Joint Venture.
4. Materials and goods supplied to, or on behalf of, the Joint Venture.
5. Licences, sureties, guarantees and indemnities furnished to, or on behalf of, the Joint Venture.
6. Joint Venture Disclosure form required for the Contract.

6. BREACH OF AGREEMENT

If a Member breaches any material provision of the Agreement, or delays or fails to fulfil its obligations in whole, or in part, and does not remedy the situation within fourteen calendar days of receipt of notice from the Management Committee, or another Member, to do so, the other Members shall have the right, without prejudice to any other rights arising from the default, to summarily terminate the Agreement and re-assign the defaulting Member's rights and obligations in the Joint Venture as they see fit and withhold any moneys due to the defaulting member by the Joint Venture.

Each Member shall indemnify the other Members against all losses, costs and claims which may arise against them in the event of the Agreement being terminated as a result of breach of the Agreement by the said Member.

7. INSOLVENCY OF MEMBER

Should a Member be placed in liquidation, or under judicial management, whether provisionally or finally, or propose any compromise with its creditors, the other Members shall be entitled to proceed in terms of Clause 6, as if the Member had breached the Agreement.

8. DISPUTES

8.1 Settlement

The Members shall negotiate in good faith and make every effort to settle any dispute, or claim, that may arise out of, or relate to, the Agreement.

If agreement cannot be reached, an aggrieved Member shall, if he intends to proceed further in terms of Clause 8.2 hereof, advise all other Members in writing that negotiations have failed and that he intends to refer the matter to mediation in terms of Clause 8.2.

8.2 Mediation

Not earlier than ten working days after having advised the other Members, in terms of Clause 8.1, that negotiations in regard to a dispute have failed, an aggrieved Member may require that the dispute be referred, without legal representation, to mediation by a single mediator.

The mediator shall be selected by agreement between the Members, or, failing such agreement, by the person named for this purpose in Schedule 'A'. The costs of the mediation shall be borne equally by all Members.

The mediator shall convene a hearing of the Members and may hold separate discussions with any Member and shall assist the Members in reaching a mutually acceptable settlement of their differences through means of reconciliation, interpretation, clarification, suggestion and advice. The Members shall record such agreement in writing and thereafter they shall be bound by such agreement.

The mediator is authorised to end the mediation process whenever in his opinion further efforts at mediation would not contribute to a resolution of the dispute between the Members.

8.3 Arbitration

Where a dispute or claim is not resolved by mediation, it shall be referred to arbitration by a single arbitrator to be selected by agreement between the Members or, failing agreement, to be nominated by the person named for this purpose in Schedule 'A'.

The Member requiring referral to arbitration shall notify the other Members, in writing, thereof, not later than thirty calendar days after the mediator has expressed his opinion, failing which the mediator's opinion shall be deemed to have been accepted by all Members and shall be put into effect.

Arbitration shall be conducted in accordance with the provisions of the Arbitration Act No. 42 of 1965, as amended, and in accordance with such procedure as may be agreed by the Members or, failing such agreement, in accordance with the rules for the Conduct of Arbitrations published by the Association of Arbitrators and current at the date that the arbitrator is appointed.

The decisions of the arbitrator shall be final and binding on the Members, shall be carried into immediate effect and, if necessary, be made an order of any court of competent jurisdiction.

9. DOMICILIUM

The Members choose domicilium citandi et executandi for all purposes of and in connection with the Agreement as stated in Schedule 'A'. A Member shall be entitled to change his domicilium from time to time, but such change shall be effective only on receipt of written notice of the change by all other Members.

Member No. 1

Thus done and signed at _____ this ____ day of _____ 20__

For and on behalf of _____ [Company]

by [name] _____ who warrants his authority to do so.

As witnesses 1. _____ As witnesses 2. _____

Member No. 2

Thus done and signed at _____ this ____ day of _____ 20__

For and on behalf of _____ [Company]

by [name] _____ who warrants his authority to do so.

As witnesses 1. _____

As witnesses 2. _____

Member No. 3

Thus done and signed at _____ this _____ day of _____ 20__

For and on behalf of _____ [Company]

by [name] _____ who warrants his authority to do so.

As witnesses 1. _____

As witnesses 2. _____

[Allow for additional parties as necessary].

Annexure 5

Occupational Health and Safety Specification

(OHSE SPEC)



KWAZULU-NATAL PROVINCE

HEALTH
REPUBLIC OF SOUTH AFRICA

Project Name:

**ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND
CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE
ACCOMMODATION**

Project Code:

0

Agent Name:

Ms. S. Ngcobo (Head Office)

Region:

Head Office

District:

Head Office

Ward no.:

??

HEALTH AND SAFETY IMPLEMENTATION COSTING

Contractor to give a breakdown of his Health and Safety costs on this sheet.

ITEM	DESCRIPTION	UNIT	QUAN- TITY	MONTHS (Indicative)	RATE	AMOUNT
			(a)		(b)	(a) x (b)
1	MEDICALS					
1.1	Pre-employment medical	Nr.	-			
1.2	Re-medicals - yearly	Nr.	-			
	TOTAL					
2	PERSONAL PROTECTIVE EQUIPMENT					
2.1	Overalls	Nr.				
2.2	Hard Hats	Nr.				
2.3	Safety boots/shoes	Nr.				
2.4	Gloves	Nr.				
2.5	Gumboots steel toe cap	Nr.				
2.6	Safety glasses	Nr.				
2.7	Reflector Bibs	Nr.				
2.8	Barricading Material	M				
2.9	Dust masks	Box	20			
	TOTAL					
3	FIRE FIGHTING					
3.1	Fire extinguishers - 4.5Kg	Nr.				
3.2	Surveys - Annual Service	Nr.				
	TOTAL					
4	HEALTH AND SAFETY PERSONNEL					
4.1	Safety Manager	Nr.				
4.2	Safety Officer	Nr.				
4.3	Construction Phase Safety, Health, Environmental and Waste Management Plan	Nr.				
	TOTAL					
5	FACILITIES					
5.1	Provision of ablution facilities	Nr.				
5.2	Service and maintenance of ablution facilities	Nr.				
5.3	Provision of eating areas	Nr.				
5.4	Cleaning of Lay down and other storage areas	Nr.				
5.5	Wash hand basin	Nr.				
5.6	Hot and Cold running water	Nr.				
5.7	Degreasing & Toilet soap	Nr.				
	TOTAL					
6	FALL PREVENTION / PROTECTION					
6.1	Safety harnesses with double lanyards	Nr.				
6.2	Safety harnesses with Scaffold hooks	Nr.				
6.3	Lifelines and vertical fall arrest systems	Nr.				
6.4	Scaffolding – material, erection and inspection (Estimate for project)	Nr.				
6.5	Temporary hand railing material and kick flats	Nr.				
6.6	Chin Straps	Nr.				
	TOTAL					

7	FIRST AID					
7.1	Replenishment of boxes and other supplies	Nr				
	TOTAL					
8	TRAINING					
8.1	SHE Representative	Nr.				
8.2	First Aid Level 1	Nr.				
8.3	Fire Fighting	Nr.				
	TOTAL					
9	SIGNAGE					
9.1	All Signage as required by Law, regulatory, warning and information	Nr.				
9.2	Posters for awareness	Nr.				
	TOTAL					
10	ELECTRICAL					
10.1	Replacement of Locks required for lockouts	Nr.				
10.2	Replacement of tags	Nr.				
10.3	Replacement for Permit books	Nr.				
10.4	Replacement of Callipers	Nr.				
	TOTAL					
11	OTHERS (Project Specific)					
11.1		Nr.				
	TOTAL					
GRAND TOTAL TO BE CARRIED TO THE PRELIMINARIES AND GENERAL IN BILL OF QUANTITIES						

WAIVER OF CONTRACTOR'S LIEN

DEFINITIONS

Contractor: _____

Employer: Head of Health (KZN Department of Health: Province of KwaZulu-Natal)

Agreement: NEC 3

Works (description):

**ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF
EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION**

Site:

N2 north, about 30 km past Pongola

AGREEMENT

The Contractor waives, in favour of the Employer, any lien or right of retention that is or may be held in respect of the Works to be executed on the Site

Thus done and signed at _____ on _____
[Date]

Name of signatory

Capacity of signatory

As witness

For and on behalf of the contractor who by
signature hereof warrants authorisation
hereto

ADDITIONAL SPECIFICATION - EPWP

SL EMPLOYMENT AND TRAINING OF EPWP BENEFICIARY ON THE EXPANDED PUBLIC WORKS PROGRAMME (EPWP) Infrastructure Projects:

CONTENTS

SL 01	SCOPE
SL 02	TERMINOLOGY AND DEFINITIONS
SL 03	APPLICABLE LABOUR LAWS
SL 04	EXTRACTS FROM MINISTERIAL DETERMINATION REGARDING EPWP
SL 05	EMPLOYER'S RESPONSIBILITIES
SL 06	PLACEMENT OF RECRUITED EPWP BENEFICIARY
SL 07	TRAINING OF YOUTH WORKERS
SL 08	BENEFICIARY (EPWP BENEFICIARY) SELECTION CRITERIA
SL 09	CONTRACTUAL OBLIGATIONS IN RELATION TO EPWP BENEFICIARY
SL 10	PROVINCIAL RATES OF PAY
SL 11	MEASUREMENTS AND PAYMENT
EXAMPLE	EPWP EMPLOYMENT AGREEMENT

SL 01 SCOPE

This project is part of the Expanded Public Works Programme aims to train young people and provide them with practical work experience as part of this programme. Youth aged between 18 and 35 will be recruited and trained in skills relevant to the work to be done on this project. These youth will have to be employed by the contractor as part of this project so that they can gain their work experience on these projects. The training of the youth will be coordinated and implemented by a separate service provider. This service provider will provide the contractor with a list of all the youth and the training each of these youth have received. The Contractor will be required to employ all of these youth for a minimum period of 6 months. Furthermore the Contractor will be required to supervise these youth to ensure that the work they perform is of the required standard. If necessary the contractor's staff will be required to assist and mentor the youth to ensure that they are able to perform the type of work they need to do to the satisfactory standards required. The contractor will not be required to employ all youth in the programme at the same time, but may rotate the youth on the project, as long as all youth are employed for the minimum duration stated earlier.

This specification contains the standard terms and conditions for workers employed in elementary occupations and trained on a Expanded Public Works Programme (EPWP) for the Infrastructure Programme.

SL 02 TERMINOLOGY AND DEFINITIONS

SL 02.01 TERMINOLOGY

- (a) EPWP The Code of Good Practice for Expanded Public Works Programmes, which has been gazetted by the Department of Labour, and which provides for special conditions of employment for these EPWP projects. In terms of the Code of Good Practice, the workers on these projects are entitled to formal training, which will be provided by training providers appointed (and funded) by the Department of Labour. For projects of up to six months in duration, this training will cover life-skills and information about other education, training and employment opportunities.
- (b) EPWP Expanded Public Works Programme, a National Programme of the government of South Africa, approved by Cabinet.
- (c) UYF Umsobumvu Youth Fund.
- (d) DOL Department of Labour.

SL 02.02 DEFINITIONS

- (a) “employer” means the contractor or any party employing the worker / beneficiary under the EPWP Programme.
- (b) “client” means the Department of Public Works.
- (c) “worker / trainee” means any person working or training in an elementary occupation on a EPWP.

SL 03 APPLICABLE LABOUR LAWS

In line with the Expanded Public Works Programme (EPWP) policies, the Ministerial Determination, Special Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of labour in government Notice No. R63 of 25 January 2002, of which extracts have been reproduced below in clauses SL 04 shall apply to works described in the scope of work and which are undertaken by unskilled or semi-skilled workers. The Code of Good Practise for Employment and Conditions of Work for Expanded Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice No. R64 of 25 January 2002 shall apply to works described in the scope of work and which unskilled or semi-skilled workers undertake.

SI 04 EXTRACTS FROM MINISTERIAL DETERMINATION REGARDING EPWP

SL 04.01 DEFINITIONS

- (a) “department” means any department of the State, implementing agent or contractor;
- (b) “employer” means any department that hires workers to work in elementary occupations on a EPWP;
- (c) “worker” means any person working in an elementary occupation on a EPWP;
- (d) “elementary occupation” means any occupation involving unskilled or semi-skilled work;
- (e) “management” means any person employed by a department or implementing agency to administer or execute a EPWP;
- (f) “task” means a fixed quantity of work;
- (g) “task-based work” means work in which a worker is paid a fixed rate for performing a task;
- (h) “task-rated worker” means a worker paid on the basis of the number of tasks completed;
- (i) “time-rated worker” means a worker paid on the basis of the length of time worked
- (j) “Service Provider” means the consultant appointed by Department to coordinate and arrange the employment and training of labour on EPWP infrastructure projects.

SL 04.02 TERMS OF WORK

- (a) Workers on a EPWP are employed on a temporary basis.
- (b) A worker may NOT be employed for longer than 24 months in any five-year cycle on a EPWP.
- (c) Employment on a EPWP does not qualify as employment and a worker so employed does not have to register as a contributor for the purposes of the Unemployment Insurance Act 30 of 1966.

SL 04.03 NORMAL HOURS OF WORK

- (a) An employer may not set tasks or hours of work that require a worker to work–
 - (i) more than forty hours in any week
 - (ii) on more than five days in any week; and
 - (iii) for more than eight hours on any day.
- (b) An employer and a worker may agree that the worker will work four days per week. The worker may then work up to ten hours per day.

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

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

SL 04.04 MEAL BREAKS

- (a) A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.
- (b) An employer and worker may agree on longer meal breaks.
- (c) A worker may not work during a meal break. However, an employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An employer must take reasonable steps to ensure that a worker is relieved of his or her duties during the meal break.

SL 04.05 SPECIAL CONDITIONS FOR SECURITY GUARDS

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

SL 04.06 DAILY REST PERIOD

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

SL 04.07 WEEKLY REST PERIOD

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

SL 04.08 WORK ON SUNDAYS AND PUBLIC HOLIDAYS

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

SL 04.09 SICK LEAVE

- (a) Only workers who work four or more days per week have the right to claim sick-pay in terms of this clause.
- (b) A worker who is unable to work on account of illness or injury is entitled to claim one day's paid sick leave for every full month that the worker has worked in terms of a
- (c) A worker may accumulate a maximum of twelve days' sick leave in a year.
- (d) Accumulated sick-leave may not be transferred from one contract to another contract.

- (e) An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.
- (f) An employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave.
- (g) An employer must pay a worker sick pay on the worker's usual payday.
- (h) Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is –
 - (i) absent from work for more than two consecutive days; or
 - (ii) absent from work on more than two occasions in any eight-week period.
- (i) A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorised to issue medical certificates indicating the duration and reason for incapacity.
- (j) A worker is not entitled to paid sick-leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Diseases Act.

SL 04.10 MATERNITY LEAVE

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

SL 04.11 FAMILY RESPONSIBILITY LEAVE

- (a) Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances -
 - (i) when the employee's child is born;
 - (ii) when the employee's child is sick;

- (iii) in the event of the death of –
 - (1) the employee's spouse or life partner
 - (2) the employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling

SL 04.12 STATEMENT OF CONDITIONS

- (a) An employer must give a worker a statement containing the following details at the start of employment –
 - (i) the employer's name and address and the name of the EPWP;
 - (ii) the tasks or job that the worker is to perform;
 - (iii) the period for which the worker is hired or, if this is not certain, the expected duration of the contract;
 - (iv) the worker's rate of pay and how this is to be calculated;
 - (v) the training that the worker may be entitled to receive during the EPWP.
- (b) An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement.
- (c) An employer must supply each worker with a copy of the relevant conditions of employment contained in this specification.
- (d) An employer must enter into a formal contract of employment with each employee. A copy of a pro-forma is attached at the end of this specification.

SL 04.13 KEEPING RECORDS

- (a) Every employer must keep a written record of at least the following –
 - (i) the worker's name and position;
 - (ii) in the case of a task-rated worker, the number of tasks completed by the worker;
 - (iii) in the case of a time-rated worker, the time worked by the worker;
 - (iv) payments made to each worker.
- (b) The employer must keep this record for a period of at least three years after the completion of the EPWP.

SL 04.14 PAYMENT

- (a) A task-rated worker will only be paid for tasks that have been completed.
- (b) An employer must pay a task-rated worker within five weeks of the work being completed and the work having been approved by the manager or the contractor having submitted an invoice to the employer. Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.
- (c) A time-rated worker will be paid at the end of each month and payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.
- (d) Payment in cash or by cheque must take place –
 - (i) at the workplace or at a place agreed to by at least 75% of the workers; and
 - (ii) during the worker's working hours or within fifteen minutes of the start or finish of work;
- (e) All payments must be enclosed in a sealed envelope which becomes the property of the worker.
- (f) An employer must give a worker the following information in writing –
 - (i) the period for which payment is made;
 - (ii) the number of tasks completed or hours worked;
 - (iii) the worker's earnings;

- (iv) any money deducted from the payment;
 - (v) the actual amount paid to the worker.
- (g) If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it.
- (h) If a worker's employment is terminated, the employer must pay all monies owing to that worker within one month of the termination of employment.

SL 04.15 **DEDUCTIONS**

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

SL 04.16 **HEALTH AND SAFETY**

- (a) Employers must take all reasonable steps to ensure that the working environment is healthy and safe and that all legal requirements regarding health and safety are strictly adhered to.
- (b) A worker must:
 - (i) work in a way that does not endanger his/her health and safety or that of any other person;
 - (ii) obey any health and safety instruction;
 - (iii) obey all health and safety rules;
 - (iv) use any personal protective equipment or clothing issued by the employer;
 - (v) report any accident, near-miss incident or dangerous behaviour by another person to their employer or manager.

SL 04.17 **COMPENSATION FOR INJURIES AND DISEASES**

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

SL 04.18 **TERMINATION**

- (a) The employer may terminate the employment of a worker provided he has a valid reason and after following existing termination procedures.
- (b) A worker will not receive severance pay on termination.
- (c) A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the employer in advance to allow the employer to find a replacement.
- (d) A worker who is absent for more than three consecutive days without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.
- (e) A worker who does not attend required training events, without good reason, will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

SL 04.19 **CERTIFICATE OF SERVICE**

- (a) On termination of employment, a worker is entitled to a certificate stating –
 - (i) the worker's full name;
 - (ii) the name and address of the employer;
 - (iii) the SPWP on which the worker worked;
 - (iv) the work performed by the worker;
 - (v) any training received by the worker as part of the EPWP;
 - (vi) the period for which the worker worked on the EPWP;
 - (vii) any other information agreed on by the employer and worker.

SL 05 **EMPLOYER'S RESPONSIBILITIES**

The employer shall adhere to the conditions of employment as stipulated in the *Code of Good Practice for Employment and Conditions of Work for Expanded Public Works Programmes*. Over and above the conditions stipulated above, he shall be responsible to:

- (a) formulate and design a contract between himself/ herself and each of the recruited EPWP beneficiary, ensuring that the contract does not contravene any of the Acts stipulated in South African Law, e.g. Basic Conditions of Employment Act, etc. (A copy of a pro-forma contract is attached at the end of this specification);
- (b) screen and select suitable candidates for employment from the priority list of EPWP beneficiary provided by the Umsobumvu Youth Fund (UYF);
- (c) ensure that the recruited EPWP beneficiary are made available to receive basic life skills training which will be conducted and paid for by the Umsobumvu Youth Fund;
- (d) ensure that all EPWP beneficiary receive instruction on safety on site prior to them commencing with work on site;
- (e) ensure that all EPWP beneficiary are covered under workmen's compensation for as long as they are contracted to the contractor. Payment to the Compensation Commissioner shall be the responsibility of the contractor;
- (f) assist in the identification and assessment of potential EPWP beneficiary to undergo advanced technical training in respective trades;
- (g) test and implement strict quality control and to ensure that the health and safety regulations are adhered to;
- (h) provide all EPWP beneficiary with the necessary protective clothing as required by law for the specific trades that they are involved in.
- (i) provide overall supervision and day-to-day management of EPWP beneficiary and/or sub-contractors; and
- (j) ensure that all EPWP beneficiary are paid their wages on time through a pre-agreed payment method as stipulated in the contract with the EPWP beneficiary.

SL 06 PLACEMENT OF RECRUITED EPWP BENEFICIARY

Employers will be contractually obliged to:

- (a) employ EPWP beneficiary from targeted social groups from the priority list provided by the Service Provider/ Umsobumvu Youth Fund.
- (b) facilitate on-the-job training and skills development programmes for the EPWP beneficiary;
- (c) achieve the following minimum employment targets:
 - (i) 55% people between the ages of 18 and 35
 - (ii) 55% women;
 - (iii) 2% people with disabilities.
- (d) brief EPWP beneficiary on the conditions of employment as specified in sub clause SL 04.09 above;
- (e) enter into a contract with each EPWP beneficiary, which contract will form part of the Employment Agreement;
- (f) allow EPWP beneficiary the opportunity to attend life skills training through DOL. This shall be arranged at the beginning of the contract;
- (g) ensure that payments to EPWP beneficiary are made as set out in sub clauses SL 04.14 and SL 04.15 above.
- (h) set up of personal profile files as prescribed by EPWP beneficiary and as set out in sub clause SL 04.13 above.
- (i) in addition to (h)
 - a copy of the I.D;
 - qualifications;
 - career progress;
 - EPWP Employment Agreement, and
 - list of small trade tools;must be included in the EPWP beneficiary's personal profile file.

SL 07 TRAINING OF EPWP BENEFICIARY

Three types of training are applicable, namely

- Life skills;
- On the job training and
- Technical Skills training.

Training will be implemented by training instructors accredited by DOL and/or CETA :

- EPWP beneficiary shall be employed on the projects for an average of 6 months.
- EPWP beneficiary shall be deployed on projects in the vicinity of their homes. The same arrangements as for other workers regarding accommodation, subsistence and travel shall be applicable to EPWP beneficiary.

(a) Life skills training

All EPWP beneficiary are entitled to undergo life skills training. Training of this module will be flexible enough to meet the needs of the employer. Training should take place immediately after site hand-over and during the period of site establishment and pre-planning before actual construction starts, alternatively this will be spread over the duration of the contract period. The contractor will be required to work closely with the person to schedule the training sessions so that the timing of the training is aligned with the contractors work schedule and his demand for workers.

(b) On-the job training

The Employer shall provide EPWP beneficiary with on-the-job training to enable them to fulfil their employment requirements. The employer shall also be expected to closely monitor the job performance of EPWP beneficiary and shall identify potential EPWP beneficiary for skills development programmes.

- (c) Technical skills training
The Employer shall assist in identifying EPWP beneficiary for further training. These EPWP beneficiary will undergo further technical training to prepare them for opportunities as semi-skilled labourers.

Such training will comprise of an off-site theoretical component and practical training on-site. The contractor will be responsible for on-site practical work under his supervision. EPWP beneficiary who graduate from the first phase of the training programme will be identified and given opportunities to register for skills development programmes. These can ultimately result in a accredited qualification. The programme will consist of theoretical instruction away from the construction site as well as on-site practical work under the supervision of the employer. Candidates will be entitled to employment to complete all training modules.

SL 08 BENEFICIARY (EPWP BENEFICIARY) SELECTION CRITERIA

SL 08.01 PREAMBLE

The *Code of Good Practise for Employment and Conditions of Work for Expanded Public Works Programmes* encourages:

- optimal use of locally-based labour in a Expanded Public Works Programme (EPWP);
- a focus on targeted groups which consist of namely youth, consisting of women, female-headed households, disabled and households coping with HIV/AIDS; and
- the empowerment of individuals and communities engaged in a SPWP through the provision of training.

SL 08.02 BENEFICIARY (EPWP BENEFICIARY) SELECTION CRITERIA

- (a) The EPWP beneficiary of the programmes should preferably be non-working individuals from the most vulnerable sections of disadvantaged communities who do not receive any social security pension income. The local community must, through all structures available, be informed of and consulted about the establishment of any EPWP
- (b) In order to spread the benefit as broadly as possible in the community, a maximum of one person per household should be employed, taking local circumstances into account.
- (c) Skilled artisans from other areas may be employed if they have skills that are required for a project and there are not enough persons in the local communities who have those skills or who could undergo appropriate skills training. However, this should not result in more than 20% of persons working on a programme not being from local communities.
- (d) Programmes should set participation targets for employment with respect to youth, single male- and female-headed households, women, people with disabilities, households coping with HIV/AIDS, people who have never worked, and those in long-term unemployment.
- (e) The proposed targets as set out in sub clause SL 06 (c)
- 55% youth from 18 to 35 years of age;
 - 55% women;
 - 2% disabled.

SL 09 CONTRACTUAL OBLIGATIONS IN RELATION TO YOUTH LABOUR

The EPWP beneficiary to be employed in the programme (EPWP) shall be directly contracted to the employer. Over and above the construction and project management responsibilities, the employer will be expected to perform the tasks and responsibilities as set out in clause SL 05 above.

SL 10 PROVINCIAL RATES OF PAY

It is stipulated that youth workers on the EPWP receive a minimum of R 1 000 per month whilst working and R 600 per month whilst on training in ALL provinces. Should EPWP beneficiary be attending training whilst employed by the contractor, the contractor will still be responsible for payment to the EPWP beneficiary whilst at training.

SL 11 MEASUREMENTS AND PAYMENT

The number of EPWP beneficiary specified for this contract that will receive life skills training is 50 and technical training is 50

**SL 11.01 PAYMENT FOR TRAINING OF EPWP BENEFICIARY
(TARGET:- 50 EPWP BENEFICIARY)**

SL 11.01.01 Skills development and Technical training for EPWP beneficiary for an average of 10 days(Prov.Sum).....Unit: R/EPWP beneficiary

The above item is only applicable if DoL does not fund the Technical Training PRIOR to site handover.

SL 11.01.02 Penalty due to not meeting the target as in SL 11.01.01.....Unit: EPWP beneficiary

LESS R 2000 per EPWP beneficiary

SL 11.02 PAYMENT FOR TRAVELLING AND ACCOMMODATION DURING OFF-SITE TRAINING

SL 11.02.01 Life skills training for 26 days:

- 01 Travelling (based on 50 km/EPWP beneficiary)Unit: km
- 02 Accommodation.....(Prov.Sum).....Unit: R/EPWP beneficiary
- 03 Profit and attendance..... Unit: %

SL 11.02.02 Skilled development and Technical training:

- 01 Travelling (based on 50 km/EPWP beneficiary).....Unit: km
- 02 Accommodation.....(Prov.Sum)....Unit: R/EPWP beneficiary
- 03 Profit and attendance Unit: %

The units of measurement for sub items SL 11.02.01 (01) and SL 11.02.02 (01) above shall be the distance travelled in km by the EPWP beneficiary trained off site. The tendered rate shall include full compensation to safely transport the youth workers to and from the training venue/s.

The unit of measurement for sub items SL 11.02.01 (02) and SL 11.02.02 (02) above shall be the amounts in Rand expended for accommodation and daily meal allowances for the EPWP beneficiary trained off site that must be arranged by the contractor. Amounts quoted shall be corrected according to re-measurement based on actual invoices.

The tendered percentages under sub items SL 11.02.01 (03) and SL 11.02.02 (03) will be paid to the contractor on the value of each payment pertaining to the accommodation and advance meal allowances to cover his expenses in this regard.

SL 11.03 ALTERNATIVE WORKERS FOR THE PERIOD OF OFF-SITE TRAINING

- SL 11.03.01** Life skills training for 26 days Unit: worker-days
SL 11.03.02 Skilled development and Technical training for EPWP beneficiary for (.....) days..... Unit: worker-days

The unit of measurement shall be the number of EPWP beneficiary replaced while in training multiplied by the number of days absent from the site.

The rates tendered shall include full compensation for additional replacement labour during periods of off-site training.

SL 11.04 EMPLOYMENT OF EPWP BENEFICIARY

- SL 11.04.01** Employment of EPWP beneficiary.....(Prov.Sum)¹/₄.Unit: R/ worker-month
SL 11.04.02 Employment of EPWP beneficiary.....(Prov.Sum)¹/₄.Unit: R/ worker-month

The unit of measurement shall be the number of EPWP beneficiary at the statutory labour rates of R multiplied by the period employed in months and the rate tendered shall include full compensation for all costs associated with the employment of EPWP beneficiary and for complying with the conditions of contract. The cost for the training shall be excluded from this item. This item is based on 6 months appointment for EPWP beneficiary.

SL 11.05 PROVISION OF EPWP DESIGNED OVERALLS TO EPWP BENEFICIARY

- SL 11.05.01** Supply EPWP designed overalls to EPWP beneficiary (Prov.Sum).....Unit: R

EPWP beneficiary overalls should be orange (top and bottom) as per EPWP specification with the exception of Correctional Services contracts where the EPWP beneficiary top would be blue and the bottom orange.

- SL 11.05.02** Profit and attendance..... Unit: %

An amount has been provided in the Schedule of Quantities under sub item SL 10.05.01 for the supply of EPWP designed overalls, as per the specification provided by the EPWP unit, arranged by the Service Provider. The Engineer will have sole authority to spend the amounts or part thereof. The tendered percentage under sub items SL 10.05.02 will be paid to the contractor on the value of each payment pertaining to the supply of overalls to cover his expenses in this regard.

SL 11.06 PROVISION OF SMALL TOOLS FOR EPWP BENEFICIARY

- SL 11.06.01** Provide all EPWP beneficiary with prescribed tools for their respective trades. Specification for the mentioned tools to be provided by the EPWP Service Provider. These tools will become the property of the EPWP beneficiary after the completion of the programme.....(Prov.Sum)....Unit: R 500-00 /youth worker

- SL 11.06.02** Profit and attendance..... Unit: %

SL 11.07 APPOINTMENT OF EPWP BENEFICIARY TEAM LEADER/S

- SL 11.07.01** Appointment of (____) EPWP beneficiary team leader/s for the duration of the contract.....(Prov.Sum)..... Unit: R / EPWP beneficiary team leader

The EPWP beneficiary Team Leader will act as CLO/PLO to facilitate the project work between the EPWP beneficiary and the contractor. Umsobumvu Youth Fund can assist with the sourcing of EPWP beneficiary Team Leader for employment by the contractor.

- SL 11.08 LIAISON WITH SERVICE PROVIDER**.....Unit: hours

The tendered rate shall include full compensation for the cost of liaising with the Service Provider and Social Facilitators on all issues regarding the works.

PAGE NO	ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
1		<u>BILL NO 2</u>				
1		<u>EMPLOYMENT AND TRAINING OF LABOUR ON THE EPWP BENEFICIARY INFRASTRUCTURE PROJECTS</u>				
1		<u>PREAMBLES</u>				
1		Tenderers are advised to study the Additional Specification SL: Employment and training of Labour on the Expanded Public Works Programme (EPWP) Infrastructure Projects as bound elsewhere in the Bills of Quantities and then price this Bill accordingly				
1		<u>TRAINING OF EPWP BENEFICIARY</u>				
1		(TARGET: 50 EPWP BENEFICIARY)				
1		Skills development and Technical training:				
1	1	Skills development and technical training for EPWP beneficiary for an average of 10 days (ref. SL11.01.01)	Item	1		
1	2	Penalty due to not meeting the target as in SL 11.01.02	Y/Work	R 2 000,00		
1		<u>TRAVELLING AND ACCOMMODATION DURING OFF SITE TRAINING:</u>				
1		Life skills training for 26 days (ref. SL 11.02.01)				
1	3	Travelling (based on 50km/EPWP beneficiary)	km	2500		
1	4	Profit and attendance on Items 1, 2 & 3	%			
1		<u>EMPLOYMENT OF EPWP BENEFICIARY</u>				
1	5	Employment of EPWP beneficiary (30 youth) [New Office Block]	Item	1		
1		The unit of measurement shall be the number of EPWP beneficiary at the statutory labour rates of R 100/day multiplied by the period employed in months and the rate tendered shall include full compensation for all costs associated with the employment of EPWP beneficiary and for complying with the conditions of contract. The cost for training shall be excluded from this item. This item is based on 6 months appointment for EPWP beneficiary				
1	6	Employment of EPWP beneficiary(40 youth) [Parking garage]	Item	1		
		TOTAL CARRIED TO SUMMARY				

		UNIT	QUANTITY	RATE	AMOUNT
2	The unit of measurement shall be the number of EPWP beneficiary at the statutory labour rates of R 110/day multiplied by the period employed in months and the rate tendered shall include full compensation for all costs associated with the employment of EPWP beneficiary and for complying with the conditions of contract. The cost for training shall be excluded from this item. This item is based on 12 months appointment for EPWP beneficiary				
2	7 Employment of EPWP beneficiary (30 youth) [Conference Centre & Canteen]	Item	1		
2	The unit of measurement shall be the number of EPWP beneficiary at the statutory labour rates of R 120/day multiplied by the period employed in months and the rate tendered shall include full compensation for all costs associated with the employment of EPWP beneficiary and for complying with the conditions of contract. The cost for training shall be excluded from this item. This item is based on 12 months appointment for EPWP beneficiary				
2	<u>PROVISION OF EPWP DESIGNED OVERALLS TO YOUTH WORKERS</u>				
2	8 Supply EPWP designed overalls to EPWP beneficiary (ref. SL 11.05.01) for 100 workers	Item	1		
2	9 Profit and attendance on Items 5 - 8 (ref. SL 11.05.02)	%	7,5		
2	<u>PROVISION OF SMALL TOOLS FOR EPWP BENEFICIARY</u>				
2	10 Supply of small tools to EPWP beneficiary. Specification to be supplied by the EPWP-NYS Serviced Provider for the respective trades (ref. SL 11.06.01) for 100 workers	Item	1		
2	11 Profit and attendance (ref. SL 11.06.02)	%	7,5		
2	<u>APPOINTMENT OF YOUTH TEAM LEADERS</u>				
2	12 Appointment of EPWP beneficiary Team Leaders for the duration of the contract (ref. SL 11.07)	Item	1		
2	13 Liaison with Service Provider (ref. SL 11.08)	Hrs	30		
2	14 Profit and attendance on Items 12 & 13	%	7,5		
FINAL TOTAL CARRIED TO PRELIMINARY AND GENERAL IN BILL OF QUANTITIES					

SCOPE OF WORKS IN RESPECT OF WORK RELATING TO THE EXTENDED PUBLIC WORKS PROGRAMME (EPWP)			
Project title:	ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION		
Project Code:	0	EPWP NO:	N/A

Introductory notes:

1. The works, or parts of the works will be constructed using labour-intensive methods only in terms of this specification. The use of plant to provide such works, other than plant specifically provided for in the scope of work, is a variation to the contract. The items marked with the letters LI are not necessarily an exhaustive list of all the activities which must be done by hand, and this clause does not over-ride any of the requirements in the generic labour intensive specification in the Scope of Works.
2. Payment for items which are designated to be constructed labour-intensively (either in this schedule or in the Scope of Works) will not be made unless they are constructed using labour-intensive methods. Any unauthorised use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment.

DESCRIPTION OF THE WORKS

Employer's objectives

The employer's objectives are to deliver public infrastructure using labour-intensive methods in accordance with EPWP Guidelines.

Labour-intensive works

Labour-intensive works comprise the activities described in the Labour-Intensive Specification. Labour-intensive works shall be constructed/maintained using local workers who are temporarily employed in terms of the scope of work.

LABOUR-INTENSIVE COMPETENCIES OF SUPERVISORY AND MANAGEMENT STAFF

Contractors shall only engage supervisory and management staff in labour-intensive works that have completed the skills programme including Foremen/ Supervisors at NQF level 4 "National Certificate: Supervision of Civil Engineering Construction Processes" and Site Agent/ Manager at NQF level 5 "Manage Labour-Intensive Construction Processes" or equivalent QCTO qualifications (See Appendix C). at NQF outlined in Table 1. (See GUIDELINES FOR THE IMPLEMENTATION OF LABOUR-INTENSIVE INFRASTRUCTURE PROJECTS UNDER THE EXPANDED PUBLIC WORKS PROGRAMME (EPWP) -THIRD EDITION 2015)

Emerging contractors shall have personally completed, or be registered on a skills programme for the NQF level 2 unit standard. All other site supervisory staff in the employ of emerging contractors must have completed, or be registered on a skills programme for the NQF level 2 unit standards or NQF level 4 unit standards. Table 1: Skills programme for supervisory and management staff.

Table 1: Skills programme for supervisory and management staff

Personnel	NQF level	Unit standard titles	Skills programme description
Team leader / supervisor	2	Apply Labour-Intensive Construction Systems and Techniques to Work Activities	This unit standard must be completed, and any one of these 3 unit standards
		Use Labour-Intensive Construction Methods to Construct and Maintain Roads and Storm water Drainage	
		Use Labour-Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour-Intensive Construction Methods to Construct, Repair and Maintain structures	

Personnel	NQF level	Unit standard titles	Skills programme description
Foreman/supervisor	4	Implement Labour-Intensive Construction Systems and Techniques	This unit standard must be completed, and any one of these 3 unit standards
		Use Labour-Intensive Construction Methods to Construct and Maintain Roads and Storm water Drainage	
		Use Labour-Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour-Intensive Construction Methods to Construct, Repair and Maintain structures	
Site Agent /Manager (i.e. the contractor's most senior representative that is resident on the site)	5	Manage Labour-Intensive Construction Processes	Skills Programme against this single unit standard
Details of these skills programmes may be obtained from the CETA ETQA manager (e-mail :gerard@ceta.co.za , tel: 011-265 5900)			

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 per task or per day will be an acceptable rate determined by the Department of Labour.
- 1.1.3 Tasks established by the contractor must be such that:
- the average worker completes 5 tasks per week in 40 hours or less; and
 - 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:
- where the head of the household has less than a primary school education;
 - that have less than one full time person earning an income;
 - where subsistence-agriculture is the source of income.
 - that 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 unskilled and semi-skilled workers is in the following proportions:
- 55% women;
 - 55% youth who are between the ages of 18 and 35; and
 - 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 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.
- 1.2.5 Variations to SANS 1914-5
- 1.2.5.1 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.
- 1.2.5.2 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 local office of the Department of Labour. This training will take place as close to the project site as practically possible. The contractor must access this training by informing the relevant regional 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 and the Department of Public Works (Fax: 012 3258625/ EPWP Unit, Private Bag X65, Pretoria 0001) must be furnished with a copy of this request.
- 1.3.3 The contractor shall do nothing to dissuade targeted labour from participating in training programmes and shall take all reasonable steps to ensure that each beneficiary is provided with two days of formal training for every 22 days worked.
- 1.3.4 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 the above.
- 1.3.5 Proof of compliance with the above requirements must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

GENERIC LABOUR-INTENSIVE SPECIFICATION

1 Scope

This specification establishes general requirements for activities which are to be executed by hand involving the following:

- a) trenches having a depth of less than 1.5 metres
- b) storm water drainage
- c) low-volume roads and sidewalks

2 Precedence

Where this specification is in conflict with any other standard or specification referred to in the Scope of Works to this Contract, the requirements of this specification shall prevail.

3 Hand excavateable material

Hand excavateable material is material:

a) Granular materials:

- i) whose consistency when profiled may in terms of table 1 be classified as very loose, loose, medium dense, or dense; or
- ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100mm;

b) Cohesive materials:

- i) whose consistency when profiled may in terms of table 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or
- ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 8 blows of a dynamic cone penetrometer is required to penetrate 100mm;

Note:

- 1) A boulder, a cobble and gravel is material with a particle size greater than 200mm, between 60 and 200mm.
- 2) A dynamic cone penetrometer is an instrument used to measure the in-situ shear resistance of a soil comprising a drop weight of approximately 10 kg which falls through a height of 400mm and drives a cone having a maximum diameter of 20mm (cone angle of 60 degrees with respect to the horizontal) into the material being used.

Table 2: Consistency of materials when profiled

GRANULAR MATERIALS		COHESIVE MATERIALS	
CONSISTENCY	DESCRIPTION	CONSISTENCY	DESCRIPTION
Very loose	Crumbles very easily when scraped with a geological pick.	Very soft	Geological pick head can easily be pushed in as far as the shaft of the handle.
Loose	Small resistance to penetration by sharp end of a geological pick.	Soft	Easily dented by thumb; sharp end of a geological pick can be pushed in 30-40 mm; can be moulded by fingers with some pressure.
Medium dense	Considerable resistance to penetration by sharp end of a geological pick.	Firm	Indented by thumb with effort; sharp end of geological pick can be pushed in upto 10 mm; very difficult to mould with fingers; can just be penetrated with an ordinary hand spade.
Dense	Very high resistance to penetration by the sharp end of a geological pick; requires many blows for excavation.	stiff	Can be indented by thumb-nail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by fingers.
Very dense	High resistance to repeated blows of a geological pick.	Very stiff	Indented by thumb-nail with difficulty; slight indentation produced by blow of a geological pick point.

4 Trench excavation

All hand excavateable material in trenches having a depth of less than 1,5 metres shall be excavated by hand.

5 Compaction of backfilling to trenches (areas not subject to traffic)

Backfilling to trenches shall be placed in layers of thickness (before compaction) not exceeding 100mm. Each layer shall be compacted using hand stampers

- a) to 90% Proctor density;
- b) such that in excess of 5 blows of a dynamic cone penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10mm and contains no isolated boulders, or
- c) such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

6 Excavation

All hand excavateable material including topsoil classified as hand excavateable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand.

The excavation of any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

7 Clearing and grubbing

Grass and small bushes shall be cleared by hand.

8 Shaping

All shaping shall be undertaken by hand.

9 Loading

All loading shall be done by hand, regardless of the method of haulage.

10 Haul

Excavation material shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150 m.

11 Offloading

All material, however transported, is to be off-loaded by hand, unless tipper-trucks are utilised for haulage.

12 Spreading

All material shall be spread by hand.

13 Compaction

Small areas may be compacted by hand provided that the specified compaction is achieved.

14 Grassing

All grassing shall be undertaken by sprigging, sodding, or seeding by hand.

15 Stone pitching and rubble concrete masonry

All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must be collected, loaded, off loaded and placed by hand.

Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.

Grout shall be mixed and placed by hand.

16 Manufactured Elements

Elements manufactured or designed by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry units and edge beams shall not individually, have a mass of more than 320kg. In addition, the items shall be large enough so that four workers can conveniently and simultaneously acquire a proper handhold on them.



(Insert Your Company Logo)

(This shall serve as the cover page on employment contracts for local labour)

EMPLOYMENT AGREEMENT

BETWEEN

[CONTRACTOR NAME].....

AND

[WORKER NAME].....

1. PARTIES

The Parties to this Agreement are -

1.1. Contractor: _____
herein represented by: _____
duly authorised thereto

And

1.2. Mr / Me: _____
[worker's name]

2. DEFINITIONS AND INTERPRETATION

2.1. In this Agreement and any Annexure thereto, unless inconsistent with or otherwise indicated by the context-

“Agreement” means the contents of this Agreement.

“Company” means the company that employs the worker

“Department” means the Department of Public Works

“Worker” is a person that performs a specific or necessary task or who completes tasks in a certain way

“EPWP” The Expanded Public Works Programme is a government programme aimed at the alleviation of poverty and unemployment. The programme ensures the full engagement on Labour Intensive Methods of Construction (LIC) to contractors for skills development. The EPWP focuses at reducing unemployment by increasing economic growth by means of improving skills levels through education and training and improving the enabling environment for the industry to flourish.

3. PURPOSE

The purpose of this agreement is to:-

Ensure that the agreement is binding to both the Worker and the Employer.

4. TERMS AND CONDITIONS

- The worker will have no entitlement to the benefits of a full time employee, namely;

- The worker should not have the expectation that this contract will be renewed or extended.
- The worker will be subject to all laws, rules, policies, codes and procedures applicable to the;

- The worker must meet the standards and requirements of the contractor
- The worker must render his/her services during normal working hours of minimum of forty to fifty five hours in any week; which comprise of an eight-hour working day in a five-day week.

5. REMUNERATION

The worker will receive compensation to the amount of R _____ 00 which must be paid by the 25th or on the last day of each month.

6. ROLES AND RESPONSIBILITIES

6.1 Employer / Worker

- Work for _____ in terms of the period as specified in the employment agreement contract.
- Be available for and participate in all learning and work experience required by the company.
- Comply with workplace policies and procedures.
- Complete any attendance or any written assessment tools supplied by the contractor to record relevant workplace experience.
- Demonstrate willingness to grow and learn through work experience.

Provide the following documentation to the employer,

- Certified identity document not longer than 3 months
- ID size photos
- Sign employment contract

6.2 Employer

- Employ the worker for a period specified in the agreement.
- Provide the worker with appropriate work based experience in the work environment.
- Facilitate payments of wages / stipends.
- Keep accurate records of workers.
- Where a worker/ learner is disabled, the employer will have to provide in the additional needs e.g. special materials, learning aids and in some cases physical or professional support (such aids remain the property of the employer).
- Keep up to date records of learning and discuss progress with the intern on a regular basis.
- Apply fair disciplinary, grievance and dispute resolution procedures to the worker.
- Prepare an orientation/ induction course to introduce worker/ learner to the workplace and specific workplace requirements.
- Ensure the daily attendance register is signed by the worker.

7. DURATION.

This agreement commences on: _____

and

expires on: _____

8. BREACH.

If either party commits any breach of the terms of this contract (and fails to rectify it within 30 days of receipt of a written notice calling it to do so, then) the other party shall be entitled to terminate the contract or to claim specific performance without prejudice to any of its other legal rights, including its rights to claim damages.

9. CONDITIONS OF EMPLOYMENT

9.1. Meal Breaks

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

9.2. Special Conditions for Security Guards (Only applicable to security Guards)

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

9.3. Weekly Rest Period

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

9.4. Work on Sundays and Public Holidays

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

9.5 Sick leave

- 9.5.1 Only workers who work more than 24 hours per month have the right to claim sick-pay in terms of this clause.
- 9.5.2 A worker who is unable to work on account of illness or injury is entitled to claim one day's paid sick leave for every full month that the worker has worked in terms of a contract.
- 9.5.3 A worker may accumulate a maximum of twelve days' sick leave in a year.
- 9.5.4 Accumulated sick-leave may not be transferred from one contract to another contract.
- 9.5.5 An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.
- 9.5.6 An employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave.
- 9.5.7 An employer must pay a worker sick pay on the worker's usual payday.
- 9.5.8 Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is
- (a) absent from work for more than two consecutive days; or
 - (b) absent from work on more than two occasions in any eight-week period.
- 9.5.9 A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorised to issue medical certificates indicating the duration and reason for incapacity.
- 9.5.10 A worker is not entitled to paid sick-leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Diseases Act.

9.6. Maternity Leave

- 9.6.1 A worker may take up to four consecutive months' unpaid maternity leave.
- 9.6.2 A worker is not entitled to any payment or employment-related benefits during maternity leave.
- 9.6.3 A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work.
- 9.6.4 A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife or qualified nurse certifies that she is fit to do so.
- 9.6.5 A worker may begin maternity leave as follows;
- (a) four weeks before the expected date of birth; or
 - (b) on an earlier date

(i) if a medical practitioner, midwife or certified nurse certifies that it is necessary for the health of the worker or that of her unborn child; or

(ii) if agreed to between employer and worker; or

(c) on a later date, if a medical practitioner, midwife or certified nurse has certified that the worker is able to continue to work without endangering her health.

10.6 A worker who has a miscarriage during the third trimester of pregnancy or bears a stillborn child may take maternity leave for up to six weeks after the miscarriage or stillbirth.

9.7. Family responsibility leave

9.7.1 Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances;

(a) when the employee's child is born;

(b) when the employee's child is sick;

(c) in the event of a death of

(i) the employee's spouse or life partner;

(ii) the employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling.

9.8. Keeping Records

9.8.1 Every employer must keep a written record on site for the duration of the project and three (3) year after completion records should consists of at least the following;

(a) the worker's name and position;

(b) copy of an acceptable worker identification

(c) in the case of a task-rated worker the number of tasks completed by the worker;

(d) in the case of a time-rated worker, the time worked by the worker;

(e) payments made to each worker in a form of Proof of Payment, Payroll registers and the acknowledgement of payment receipt signed by the worker.

9.8.2 The employer must keep this record for a period of at least three years after the completion of the EPWP.

9.9. Payment

9.9.1 An employer must pay all wages at least monthly in cash or by cheque or into a bank account.

9.9.2 A worker may not be paid less than the Ministerial Determination wage rate.

9.9.3 A task-rated worker will only be paid for tasks that have been completed.

9.9.4 An employer must pay a task-rated worker within five weeks of the work being completed and the work having been approved by the manager or the contractor having submitted an invoice to the employer.

9.9.5 A time-rated worker will be paid at the end of each month.

9.9.6 Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.

9.9.7 Payment in cash or by cheque must take place

- (a) at the workplace or at a place agreed to by the worker;
- (b) during the worker's working hours or within fifteen minutes of the start or finish of work;
- (c) in a sealed envelope which becomes the property of the worker.

9.9.8 An employer must give a worker the following information in writing

- (a) the period for which payment is made;
- (b) the numbers of tasks completed or hours worked;
- (c) the worker's earnings;
- (d) any money deducted from the payment;
- (e) the actual amount paid to the worker.

9.9.9 If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it.

9.9.10 If a worker's employment is terminated, the employer must pay all monies owing to that worker within one month of the termination of employment.

9.10. Inclement weather

If no work has begun on site, and if an employee has reported for work, the employee will be paid for four hours. Should work be stopped after the first four hours, the employee will be paid for the hours worked. Where the employer has given employees notice on the previous working day that no work will be available due to inclement weather, then no payment will be made.

9.11. Deductions

9.11.1 An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.

9.11.2 An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.

9.11.3 An employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement of Law; court order or arbitration

9.11.4 It is the responsibility of the employers to arrange for all persons employed on a Project to be covered in terms of the Unemployment Insurance Fund Contributions Act, 2002 (Act No. 4 of 2002)

9.11.5 An employer may not require or allow a worker to

- (a) repay any payment except an overpayment previously made by the employer by mistake;

- (b) state that the worker received a greater amount of money than the employer actually paid to the worker; or
- (c) pay the employer or any other person for having been employed.

9.12. Health and Safety

9.12.1 Employers must take all reasonable steps to ensure that the working environment is healthy and safe.

9.12.2 A worker must;

- (a) work in a way that does not endanger his/her health and safety or that of any other person;
- (b) obey any health and safety instruction;
- (c) use any personal protective equipment or clothing issued by the employer;
- (d) report any accident, near-miss incident or dangerous behaviour by another person to their employer or manager.

9.13. Compensation for Injuries and Diseases

9.13.1 It is the responsibility of the employers to arrange for all persons employed on a Project to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993 as amended by COIDA Act 61, 1997.

9.13.2 A worker must report any work-related injury or occupational disease to their employer or manager.

9.13.3 The employer must report the accident or disease to the Compensation Commissioner.

9.13.4 An employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.

9.14. Termination

9.14.1 The employer may terminate the employment of a worker for good cause after following a fair procedure.

9.14.2 A worker will not receive severance pay on termination.

9.14.3 A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the employer in advance to allow the employer to find a replacement.

9.14.4 A worker **who is absent for more than three consecutive days** without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available.



The Attendance Register for on-site Workers

Reporting month: _____ Cell No: _____
 Surname: _____ First Name: _____
 Project Name: **ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY
 MEDICAL SERVICES OFFICE ACCOMMODATION**
 Project Code: **0** Tender No **ZNB 5175/2024-H**

IDENTITY NUMBER:

Day	Date	Time In	Signature	Time Out	Signature	Report On Any Formal Training Provided In The Reporting Month
WEEK 1						
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
WEEK 2						
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
WEEK 3						
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
WEEK 4						
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
WEEK 5						
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
Total Days worked						

BUSINESS PLAN

Reference No	
Profile ID	
Project Name	
Project Details	
Project Name	
Project Reference Number	
Project description	
Project Start Date	
Project End Date	
Estimated Budget	
Project Location	
Province	
District/Metro Municipality	
Local Municipality/Metro Region	
Latitude (in decimal format)	
Longitude (in decimal format)	
Public Body Details	
Public body sphere	
Reporting public body that is the project owner (and will report on the project)	
Implementing public body type	
Public body that will implement the project	
IDP reference number allocated to the project	
EPWP Details	
EPWP Sector	
EPWP Program	
EPWP Sub programme	
Budget Amount	
April 2014/March 2015	
April 2015/March 2016	
Total Budget Amount	
Wages	
UIF	
COIDA	
Training	
Administration	
Equipment and materials	
Other	
Describe other	
Outputs and Training	
Output	
Description	
Target Quantity	
Number of persons to be trained	
Contact person	
Title	
Initials	
First Name	
Surname	
Email	
Tel (Office)	
Fax Number	
Cell Number	
Physical Address 1	
Physical Address 2	
Physical Address 3	
Physical Address 4	
Postal Address 1	
Postal Address 2	
Postal Address 3	
Postal Address 4	

KZN PUBLIC WORKS



Worker payment capture form for LOCAL Labour

Name of Contractor: _____

Project Code: _____ -

Name of Project: **ZULULAND : PONGOLA: ITSHELEJUBA:
 DESIGN AND CONSTRUCTION OF
 EMERGENCY MEDICAL SERVICES OFFICE
 ACCOMMODATION**

Reporting month: _____

Payment Upload

No.	First Name	Initials	Surname	Identity No.	D.O.B	Job Description	Daily Wage Rate	Total Paid Days	Total Amount Paid	Total days Worked Days
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Contractor sign: _____
 Designation: _____
 Date: _____
 Contact no: _____

DPW Official/Consultant sign: _____
 Designation: _____
 Date: _____
 Contact no: _____

EPWP Official sign: _____
 Designation: _____
 Date: _____
 Contact no: _____

KZN HEALTH

Worker Training capture form for LOCAL Labour



Name of Contractor: _____
 Name of Project: **ZULULAND : PONGOLA: ITSHELEJUBA: DESIGN AND CONSTRUCTION OF EMERGENCY MEDICAL SERVICES OFFICE ACCOMMODATION**

Project Code: _____

Reporting month: _____

Training														
No	Name	Surname	ID No.	Job description	Course Name	Was training Accredited or Non - accredited by a relevant SETA	Start date on current month	End date on current month	Training Days Paid	Training Days Not Paid	Total Number of Training Days	Cost per trainee	Is training complete or on - going	Name of Training Provider
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														

Contractor sign: _____

DPW Official/Consultant sign: _____

EPWP Official sign: _____

Designation: _____

Designation: _____

Designation: _____

Date: _____

Date: _____

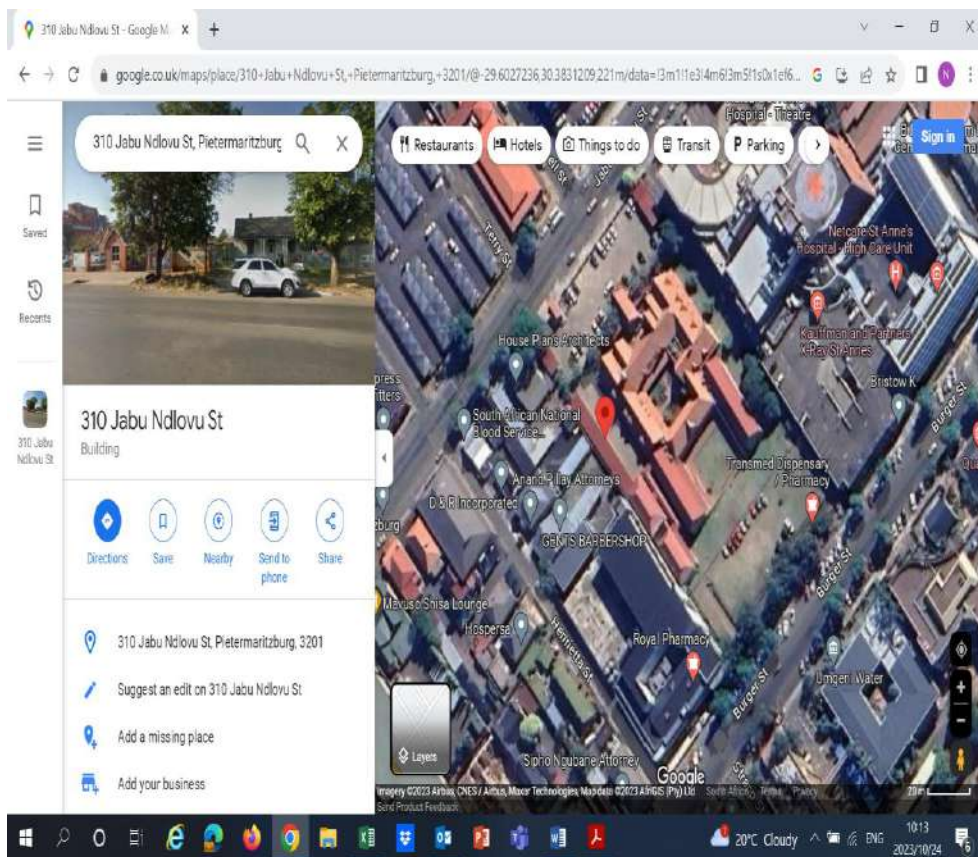
Date: _____

Contact no: _____

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Contact no: _____

Location	
Locality Name	Mngungundlovu
Municipality	
Subplace	
Ward	
Government Facility	Supply Chain Management
Latitude	
Longitude	
Physical Address/Location	310 Jabu Ndlovu Street, Pietermaritzburg





KWAZULU-NATAL PROVINCE

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REPUBLIC OF SOUTH AFRICA

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PROJECT TECHNICAL BRIEF

ITSHELEJUBA EMS BASE

PROPOSED CONSTRUCTION OF BASE AND WASHBAY

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PURPOSE OF THIS DOCUMENT

The purpose of this document is to define the scope of the Proposed Construction of Itshelejuba EMS Base and Wash-Bay.

Proposed Construction of new office accommodation - project technical brief. The objective is to provide the design team with adequate information to produce concept, detail design and implement the project.

Acronyms

AIDS	Acquired Immune Deficiency Syndrome
BSC	Bid Specification Committee
BEC	Bid Evaluation Committee
BAC	Bid Adjudication Committee
CVD	Cerebrovascular Disease
CHC	Community Health Centre
DPME	Department of Planning, Monitoring and Evaluation
DM	Diabetes Mellitus
DHIS	District Health Information System
EMS	Emergency Medical Services
FIDPM	Framework for Infrastructure Delivery and Procurement Management
GVA	Gross Value Added
HP	High Pressure
HFRG	Health Facility Revitalisation Grant
HIAC	Health Infrastructure Approval Committee
HIV	Human Immunodeficiency Virus
HTH	Hypertensive Heart Disease
HIS	Hospital Information System
HH	Households
HVAC	Heating, Ventilation, and Air Conditioning
IHRM-F	Ideal Hospital Realisation and Maintenance Framework
ISH	Ischaemic Heart Disease
IPV	Interpersonal Violence
IUSS	Infrastructure Unit Support Systems
IDMS	Infrastructure Delivery Management System
IEQ	Indoor Environment Quality
IPC	Infection Prevention Control
IPMP	Infrastructure Programme Management Plan
KZN	Kwazulu-Natal
LI	Labour Intensive
LP	Low Pressure
LV	Low Voltage
MDG	Millennium Development Goals
MTSF	Medium Term Strategic Framework

MEC	Member of the Executive Council
NDP	National Development Plan
NDOH	National Department of Health
NHLS	National Health Laboratory Services
OOM	Order of Magnitude
OHSC	Office of Standards Compliance
PAS	Patient Administration System
PACS	Picture Archiving and Communication System
PSP	Professional Service Provider
PG	Procurement Gate
RIS	Radiology Information System
SPLUMA	Spatial Planning and Land Use Management Act
SDG	Sustainable Development Goals
SCM	Supply Chain Management
TB	Tuberculosis
UPS	Uninterrupted Power Supply
YLL	Years of Life Lost

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EXECUTIVE SUMMARY

Emergency Medical Services operates at the frontline of the health service system and therefore has a direct impact on the possible outcome of a patient in an emergency situation. The purpose of the EMS Programme is to ensure rapid and effective emergency medical care and transport, and efficient, planned patient transport in accordance with agreed national norms and standards.

EMS consists of various components of which the largest and most important is the emergency Service, which is currently delivered in all 11 districts within KZN.

The EMS Programme is outlined as follows:

- Sub-Programme 3.1: Emergency Patient Transport (EPT)

Provide emergency response (including the stabilization of patients) and transport to all patients involved in trauma, medical/ maternal/ and other emergencies through the utilization of specialized vehicles, equipment and skilled Emergency Care Practitioners.

- Sub-Programme 3.2: Patient Transport Services (PTS)

Provide transport services for non-emergency, planned referrals between hospitals, and from PHC Clinics to Community Health Centres and Hospitals for indigent persons with no other means of transport.

- Sub-Programme 3.3: Disaster Management

Mass casualty incident management. Conduct surveillance and facilitate action in response to Early Warning Systems for the Department and activate effective response protocols in line with the provisions of the Disaster Management Act, 2002.

TECHNICAL BRIEF

1. INTRODUCTION

The Department has embarked upon the Rationalization of Health facilities in order to maximize services at the appropriate levels of service delivery in accordance with the classification of the health facilities. This will improve the quality of services, access to services and contribute to the overall health and wellbeing of the communities we serve.

The Department's aim was to maintain the gains already made and further focus on interventions to accelerate health system effectiveness and further improve health outcomes and public satisfaction.

With improved leadership and clinical governance, the Department will do this by ensuring that it will robustly monitor implementation of the Turn-Around Strategy to inter alia, improve audit outcomes; improve financial and supply chain management and human resource management services; rationalize hospital services to improve efficiencies and equitable access to clinical services; strengthen governance, leadership and oversight; and re-position infrastructure development as integral part of improved service delivery.

2. STRATEGIC BACKGROUND

The proposed Itshelejuba EMS Base and Wash Bay is a new facility and will be serving the Zululand District.

2.1. STRATEGIC SERVICE GOALS AND OBJECTIVES

2.1.1. SUSTAINABLE DEVELOPMENT GOALS

The government's National Development Plan (NDP) 2030 envisions a health system that works for everyone and produces positive health outcomes, accessible to all, "A long and Healthy Life for All South Africans"¹. Key interventions to improve life expectancy include addressing the social determinants of health, promoting health as well as reducing the burden of disease from both Communicable Disease and Non-Communicable Diseases. The plan asserts that health care can be improved through decreasing mortality by combating infectious disease such as tuberculosis and HIV/AIDS and emerging tide of non-communicable diseases. The government's objective is aimed at reducing child and infant mortality, maternal mortality and combating HIV/AIDS and other diseases by 2030.

There are 17 SDG built on Millennium Development Goals, Goal 3 is about ensuring healthy lives and wellbeing of all ages.

.

¹ National Department Of Health, 2007



Figure 1: Sustainable Development goals

2.1.2. NATIONAL DEVELOPMENT PLAN

The National Development Plan charts a new path for South Africa and seeks to eliminate poverty and reduce inequality by 2030. It defines a desired destination and identifies the role different sectors of society need to play in order to achieve its goals. With specific reference to health the NDP goals are:

- Life expectancy of at least 70 years for men and women
- A generation of under-20s that is largely free of HIV and AIDS
- The quadruple burden of disease that is radically reduced compared to the two previous decades
- An infant mortality of less than 20 deaths per 1,000 live births
- An under five mortality rates of less than 30 per 1,000
- A significant shift in equity, efficiency, effectiveness and quality of health care provision
- Availability of universal health care coverage; and
- Significant reduction of risks posed by social determinants of diseases and adverse ecological factors

The National Development Plan proposes to achieve these health goals by:

- Addressing social determinants of health
- Reducing disease burden to manageable levels
- Building human capital
- Strengthening the National Health System with particular reference to eliminating infrastructure backlogs and increasing the use of ICT to treat and manage health conditions; and
- Implementing the National Health Insurance Scheme with particular reference to improving the quality and care at public health care facilities

Universal health coverage has been shown to contribute to improvement in key indicators such as life expectancy through reduction in morbidity especially maternal and child mortality.

Table 1: The SDGs and NDP Alignment

SDGs Goal:	Goal 3. Ensure healthy lives and promote well-being for all at all ages²
NDP Goal:	Chapter 10. Healthcare for all
SDGs Targets	NDP Objectives
3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births	Reduce maternal, infant and child mortality
3.2 By 2030, end preventable deaths of new-borns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under 5 mortality to at least as low as 25 per 1,000 live births	Reduce maternal, infant and child mortality
3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases	Progressively improve TB prevention and cure
3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and wellbeing	Significantly reduce prevalence of non-communicable chronic diseases
3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol	
3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents	Reduce injury, accidents and violence by 50 percent from 2010 levels
3.7 By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes.	
3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.	Increase average male and female life expectancy at birth to 70 years. Deploy primary healthcare teams provide care to families and communities
3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	

DOH contributes directly to the realisation of Priority 3 (education, skills and health) of government's 2019-2024 Medium Term Strategic Framework (MTSF), and the vision set out in chapter 10 of the National Development Plan (NDP).

DOH is the custodian of South Africa's national health system, and contributes to the goals, indicators and actions of chapter 10 of the NDP. This includes reducing the burden of disease and strengthening the provision of healthcare to improve the lives and lifespans of the country's citizens. As per the National Health Act of 2003, provincial departments of health are mandated to provide healthcare services. The National department is responsible for policy formulation, coordination and support to provincial departments, as well as the monitoring, evaluation and oversight of the sector.

² <https://sdgs.un.org/goals>

2.1.3. PROVINCIAL STRATEGY ALIGNMENT TO THE REVISED DRAFT DEPARTMENT OF PLANNING, MONITORING AND EVALUATION (DPME) PLANNING FRAMEWORK

The following Impact and Outcomes were adopted by The KwaZulu-Natal Department of Health for the 2020/21 to 2024/25 planning cycle. The Impact and Outcomes are listed below:

- o Impact: Increased Life Expectancy
- o Outcome: Universal Health Coverage
- o Outcome: Improved Client Experience of Care
- o Outcome: Reduced Morbidity and Mortality

The impact and outcomes were confirmed through consultations at cluster planning workshops (Cluster sessions held between 21 August 2019 and 6 September 2019) and the Provincial Strategic planning workshop (12-13 October 2019).

2.1.4. HEALTHCARE SERVICES IN SOUTH AFRICA

Healthcare services for all South Africans are underpinned by the National Health Act, 61 of 2003 (as amended). In 2011 the National Department of Health published the National Core Standards for Health Care Establishments, The NCS has 7 key Domains:³

- (i) Patients' Rights
- (ii) Patient Safety, Clinical Governance and Care
- (iii) Clinical Support Services
- (iv) Public Health
- (v) Leadership and Corporate Governance
- (vi) Operational Management and
- (vii) Facilities and Infrastructure

2.2. KWAZULU-NATAL

The following information is extracted from the KZN Health Strategic Plan 2020/21 – 2024/25

"KwaZulu-Natal is located in the south-east of South Africa bordering the Indian Ocean. It also borders on the Eastern Cape, Free State and Mpumalanga provinces, as well as Lesotho, Swaziland and Mozambique. The 'Garden Province' of South Africa stretches from the lush subtropical east coast washed by the warm Indian Ocean, to the sweeping savannah in the east and the majestic Drakensberg Mountain Range in the west."

³ ohsc.org. (Office of Standards Compliance)

2.2.1. DEMOGRAPHIC DATA

⁴ "KwaZulu-Natal covers an area of 94 361km², the third-smallest in the country, and has a population of 11 289 086 (Statistics South Africa, 2019), making it the second most populous province in South Africa following Gauteng. The capital is Pietermaritzburg and the largest city is Durban. Other major cities and towns include Richards Bay, Port Shepstone, Newcastle, Estcourt, Ladysmith and Richmond.

The province's manufacturing sector is the largest in terms of contribution to GDP. Richards Bay is the centre of operations for South Africa's aluminium industry. The Richards Bay Coal Terminal is instrumental in securing the country's position as the second-largest exporter of steam coal in the world. The province has undergone rapid industrialisation owing to its abundant water supply and labour resources.

Agriculture is also central to the economy. The sugar cane plantations along the coastal belt are the mainstay of KwaZulu-Natal's agriculture. The coastal belt is also a large producer of subtropical fruit, while the farmers inland concentrate on vegetable, dairy and stock farming. Another source of income is forestry in the areas around Vryheid, Eshowe, Richmond, Harding and Ngome.

KwaZulu-Natal is divided into one metropolitan municipality (eThekweni Metropolitan Municipality) and 10 district municipalities, which are further subdivided into 43 local municipalities (National Department of Health, 2019)."

Table 2: KwaZulu-Natal Demographic Data (National Department of Health 2019)

Demographic Data	KZN	Unit of Measure
Geographical area	94,361	km ²
Total population (Statistics South Africa, 2019)	11,289,086	Number
Population density (Based on SA Mid-year estimates 2019)	120	Per km ²
Percentage of population with medical insurance (General Household Survey, 2017)	12.6	%

2.2.2. DEMOGRAPHIC PROFILE

The South African and KZN population statistics shows a decline in the birth rate. The 2030 projections show that the Province appears to be more youthful than the Country profile with the under 19 population being a larger percentage of the population compared to the South African norm. The child health programmes in KZN need to cater for this under-19 age dynamic. The growing percentage of the population over 60 in the Province is evident of the increasing life expectancy and also points to the need for programmes around palliative care and chronic diseases of lifestyle.

Source: KZN Health Strategic Plan 2020/21 – 2024/25

2.2.3. SOCIAL DETERMINANTS OF HEALTH

The following information is extracted from the KZN Health Strategic Plan 2020/21 – 2024/25:

"Globally, it is recognized that health and health outcomes are not only affected by healthcare or access to health services. They result from multidimensional and complex factors linked to the social determinants of health which include a range of social, political, economic, environmental, and cultural factors, including human rights and gender equality (National Department of Health, 2019).

South Africa is classified as an upper-middle-income country with a per capita income of R55 258. Despite the perceived wealth, most of the country's households are plagued by poverty. Although significant progress was made prior to the economic crisis in addressing poverty, many South African households have fallen back or still remain in the trap of poverty through inadequate access to clean water, proper health care facilities and household infrastructure (Provincial Treasury, 2019).

⁴ KZN Health Strategic Plan 2020/21 – 2024/25

Health is influenced by the environment in which people live and work as well as societal risk conditions such as polluted environments, inadequate housing, poor sanitation, unemployment, poverty, racial and gender discrimination, destruction and violence (National Department of Health, 2019).

Comparing 2011 and 2016 data, there is a decline in people living in informal dwelling and an increase in traditional dwellings. The Province has made gains in the access to piped water and electricity but uMkhanyakude still remains at unacceptably high percentages of households with no access to piped water and electricity for lighting, food preparation and storage.

In 2012, Statistics South Africa published a suite of three important national poverty lines for measuring poverty: The food poverty line (FPL), the lower-bound poverty line (LBPL) and the upper-bound poverty line (UBPL). The absolute poverty line is a measure of the minimum level of resources that individuals should have access to in order to meet their basic needs (Provincial Treasury, 2019)."

And

"Poor people suffer worse health and die younger. People affected by poverty tend to have higher than average child and maternal mortality, higher levels of disease and more limited access to health care and social protection. When a member from a poor household is affected by poor health, the entire household can become trapped in a downward spiral due to lost income and healthcare costs (World Health Organisation, 2003)."

2.2.4. EPIDEMIOLOGY AND QUADRUPLE BURDEN OF DISEASE

The following information is extracted from the KZN Health Strategic Plan 2020/21 – 2024/25:

"Epidemiologically South Africa is confronted with a quadruple burden of disease (BOD) because of HIV and TB, high maternal and child morbidity and mortality, rising non-communicable diseases and high levels of violence and trauma (National Department of Health, 2019).

The causes of death in KwaZulu-Natal reflect the fact that the province continues to grapple with a complex burden of disease. This consists of communicable diseases such as pneumonia which have long been important causes of death, as well as relatively new health problems which have emerged over the past few decades, such as HIV and trauma, and finally, tuberculosis, which has been important cause of death globally for centuries but which, in the presence of HIV, has developed into a new and refractory epidemic. "

And

"KZN has been the home of important health research that has revolutionized the treatment of both these diseases; however, in both HIV and TB, an important challenge in control is the retention of patients within the treatment programmes. Similarly, the continued presence of pneumonia and viral diseases on the list of priority causes of death in KZN reflects slow change in the conditions of life for the majority of people in the province. Under-nutrition and poor housing conditions with over-crowding, poor ventilation and poor sanitation increase the risk and spread of pneumonia and other viral diseases, and require the intervention of a number of government departments, including the Department of Health.

The increasing importance of non-communicable diseases, particularly diabetes mellitus (type 2) and hypertension reflect the ageing of the population as well as changing lifestyles (reduced physical activity and increasing consumption of foods high in salt and sugar). Both diabetes and hypertension contribute directly to the development of cardio- and cerebrovascular diseases which are becoming increasingly important causes of death in the province. The high incidence of injury (both intentional and unintentional) has complex aetiologies but reflects the sub-optimal conditions of society, as well as the poor safety on the province's roads. Again, interventions to address these causes of death should come not only from the department of health but from numerous other government departments.

This complex burden of disease, illustrated by the priority causes of death, requires the provision of a complex set of health services. Whilst the community and primary levels of health care have been strengthened in the past few years, and remain the most important level of care for many communicable diseases, HIV and TB, the hospital level of care needs strengthening in response to the increasing importance of cardio- and cerebra-vascular diseases, and injury.”

And

“Communicable diseases together with perinatal, maternal and nutritional conditions are a leading cause of death in under 5s for both sexes in all districts. One of the most noticeable differences in cause of death between women and men in the 15 to 24 age group is that deaths due to injury is much higher in males compared to females who have a high percentage dying from HIV and TB related diseases. Non-Communicable diseases is the major cause of death of people aged 50 and above.”

2.3. ZULULAND DISTRICT DATA

The following is extracted from the Zululand District Health Plan 2020/21 – 2024/25:

“ The Zululand District Municipality is a Category C municipality situated in the north-eastern part of KwaZulu-Natal. It is the district with the largest landmass in the province, making up 16% of its geographical area. It comprises five local municipalities, which are Ulundi, Nongoma, uPhongolo, eDumbe and AbaQulusi. Vryheid and Ulundi are two urban centres of note in the district, respectively serving as a regional service and a regional and provincial administrative centre. The town of Vryheid is a commercial and business hub, while Ulundi is mainly an administrative centre and also the headquarters of the Zululand District Municipality. It is primarily a rural district. About half the area falls under the jurisdiction of traditional authorities, while the remainder are privately owned commercial farms or protected areas.”

Area: 14 799 km²

Population (2018/9) c: 877,285

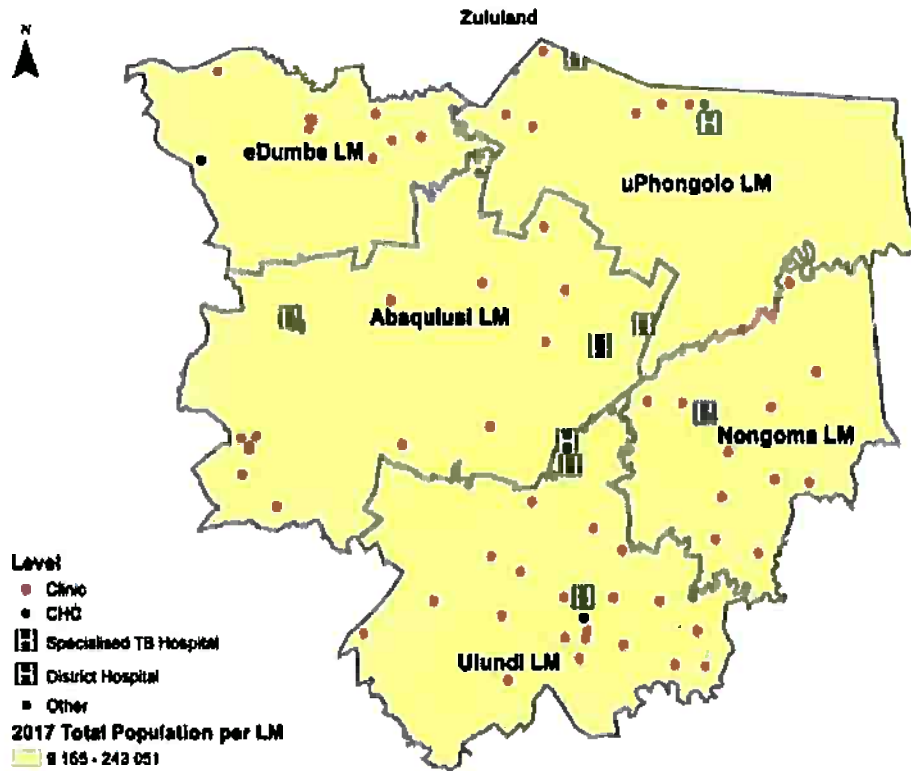
Population density (2018/19): 58/km²

Estimated medical scheme coverage: 6.0%

Cities/Towns: Louwsburg, Nongoma, Paul Pietersburg, Pongola, Ulundi, Vryheid.

Table 3: Table: District Population Density – 2018/19

Local Municipality	Area km	Population	Population Density per km ²
kz AbaQulusi Local Municipality	4,185 km ²	239 375 (27.3%)	50/ km ²
kz Nongoma Local Municipality	2,182 km ²	196 416 (22.4%)	89/ km ²
kz Ulundi Local Municipality	3,250 km ²	199 992 (22.8%)	58/ km ²
kz eDumbe Local Municipality	1,943 km ²	93 704 (10.7%)	42/ km ²
kz uPhongolo Local Municipality	3,239 km ²	147 798 (16.8%)	39/ km ²
District:	14 810 km²	877 285	58/ km²



Map 1: Mid-year Population Estimates 2016, StatsSA

2.3.1. SOCIAL DETERMINANTS OF HEALTH

The following is extracted from the Zululand District Health Plan 2020/21 – 2024/25

" Percentage unemployment (U/E) rate is high at 51.2% which is 9% above the province (33%) and 12% above the country (29.6%). The high unemployment rate poses a high risk of social ills as is the case in issues of sexual assault which is related to high use of marijuana and other drug related substances especially at UPhongolo, Abaqulusi and Nongoma sub districts. As the number of unemployment increases, more people become uninsured (6%) requiring public health service interventions resulting in overstretching of the public service purse. Unemployment contributes to low food security and subsequent malnutrition (PEM) (DHB 2015, as is the situation with a high severe malnutrition incident within the district of 1.6% (189/115824) DHIS 2018/9

There is a high percentage of youth ages 14-24 years unemployment rate of 41.1%. This category of the community is very active, but unemployable as they also lack skills as 72.6% of them are without higher education qualification. This also may be contributing to the high teenage pregnancy rate ages 10-19 years of 23% (DHIS 2018).

Percentage of households with flush toilets connected to sewerage is only 18%, which puts more pressure to the municipality that at least households be provided with pit latrines for them to have access to safe sanitation, to a level at least equal to half (20%) that of the Province which is at (40.3%).

Only 51.2% of the population has access to drinking water system far below both the Provincial and National rates of 86% and 79.6% respectively, this has a contributory factor in the high diarrhoea with dehydration incidence of 5.9% (680/115824) (DHIS 2018/19DHIS) although it has decreased from 37% (1000/102145) in 2015/16. The district needs to plan for community services to improve on early identification and management though the utilisation of the Outreach Program – ward-based outreach teams (WBoTs) and community education on the prevention and management of diarrhoeal diseases at a community level to reduce the incidence as well as mortality due to diarrhoea..."

Table 4: Social determinants of health (source stats SA Local government handbook)

	Source /Year	District
Percentage of female-headed households (%)	Stats SA (Local Government Handbook)	53.8%
Unemployment rate (%)		41.1%
Youth unemployment rate (15 – 34 years) (%)		51.2%
Percentage of population 20 years and older with no schooling (%)		24%
Percentage without matric (%)		67.6%
Percentage without higher education (%)		72.6%
Formal dwellings (%)		62.1%
Percentage of households using electricity for lightening (%)		84.9%
Percentage of households with flush toilet connected to sewerage (%)		18.7%
Percentage of households with weekly refusal removal (%)		22.3%
Percentage of households with piped water inside dwellings (%)		14.6%
Drinking water system (Blue Drop) Performance rating (%)		51.2%

2.3.2. BURDEN OF DISEASE

The following is extracted from the Zululand District Health Plan 2020/21 – 2024/25:

“Key observations on burden of disease:

- (a) TB is curable, but is still a leading cause of death within the district*
- (b) HIV/AIDS is still the second killer disease despite all the efforts put in place to control it*
- (c) Prematurity is the 4th leading cause of death despite being preventable...*”

2.4. EMERGENCY MEDICAL SERVICES

Emergency Medical Services (EMS) operates at the frontline of the health service system and therefore has a direct impact on the possible outcome of a patient in an emergency. The purpose of the EMS programme is to ensure rapid and effective emergency medical care and transport and efficient, planned patient transport in accordance with agreed national norms and standards.

EMS consists of various components of which the largest and most important is the emergency ambulance service, which is currently delivered in all 11 districts within KwaZulu-Natal. Ambulance Base stations for the accommodation of vehicles, personnel and equipment forms part of the critical infrastructure needs for the EMS to offer a quality service.

Hangers for the parking of Air Ambulance helicopters, Landing pads and Emergency Management Centres are some of the infrastructure needs for Emergency Medical Services. In addition to the above, satellite stations that do not require buildings were identified.

According to the APP Error! Bookmark not defined. the programme purpose and sub-programmes are as follows:

- Programme Purpose

Rendering pre-hospital Emergency Medical Services, including Inter-hospital Transfers and Planned Patient Transport - The previous structure included Sub-Programme 3.3: Disaster Management which is a Municipal function.

- Sub-Programme 3.1: Emergency Transport

Render Emergency Medical Services including Ambulance Services, Special Operations, and Communication and Air Ambulance services.

- Sub-Programme 3.2: Planned Patient Transport

Render Planned Patient Transport including Local Outpatient Transport (within the boundaries of a given town or local area) and Inter-City/Town Outpatient Transport (into referral centres).

The purpose of EMS is to ensure rapid and effective Emergency Medical Care and Transport and deliver efficient Planned Patient Transport in accordance with agreed national norms and standards. In terms of Section 27(1) (3) of the Constitution, no one may be refused emergency medical treatment which, in the broader sense, includes services provided by EMS.

EMS operates at the frontline of the health care system and has a direct impact on health outcomes of a patient in an emergency. Responding to emergencies within the "golden hour" is therefore of paramount importance to maintain seamless high-quality health care from community to tertiary level of care. EMS is currently centralised to standardise service delivery and improve equity, management and service delivery.

Hospitals within the Province were covered with inter-district Planned Patient Transport (PPT) services, however infrastructure to deal with patients waiting is limited.

The Department are institutionalising EMS to improve equitable resource allocation/distribution based on service demands, improve flexibility to respond to changing disease patterns and reconfiguration of health services and to improve coverage of emergency medical services and patient transport in the province and have determined the following EMS package of services will be provided throughout the Province:

- Emergency Primary Response - response to an emergency by a Practitioner with a qualification in BLS or ALS.
- Emergency Ambulance Response – availability of an ambulance and suitably trained crew to further treat and transport patients.
- Aero-Medical Assistance - provided by a contracted private service provider as required by the clinical condition of patients and accessibility to the patient.
- Major Medical Incident Command and Control service.
- Special events management service.
- Inter-facility transport services including:
 - Planned Patient Transport services - transportation of elective patients between healthcare facilities;
 - Inter-facility transfer ambulances;
 - Obstetric ambulance service - specifically aimed at the efficient transport of obstetric patients;
 - Inter-facility Intensive Care Units for transportation of patients between facilities.
- Training and Development of Specialist Emergency Physicians.
- Rescue Services.

In addition to the standard package of services, the Department will incorporate the following components incrementally over the next 10 years:

- Trauma counselling and critical incident stress management.
- Public awareness and improving chain of survival.
- Advanced Medical Rescue services.
- Emergency Service Career Development.
- Research & development in EMS and emergency systems.

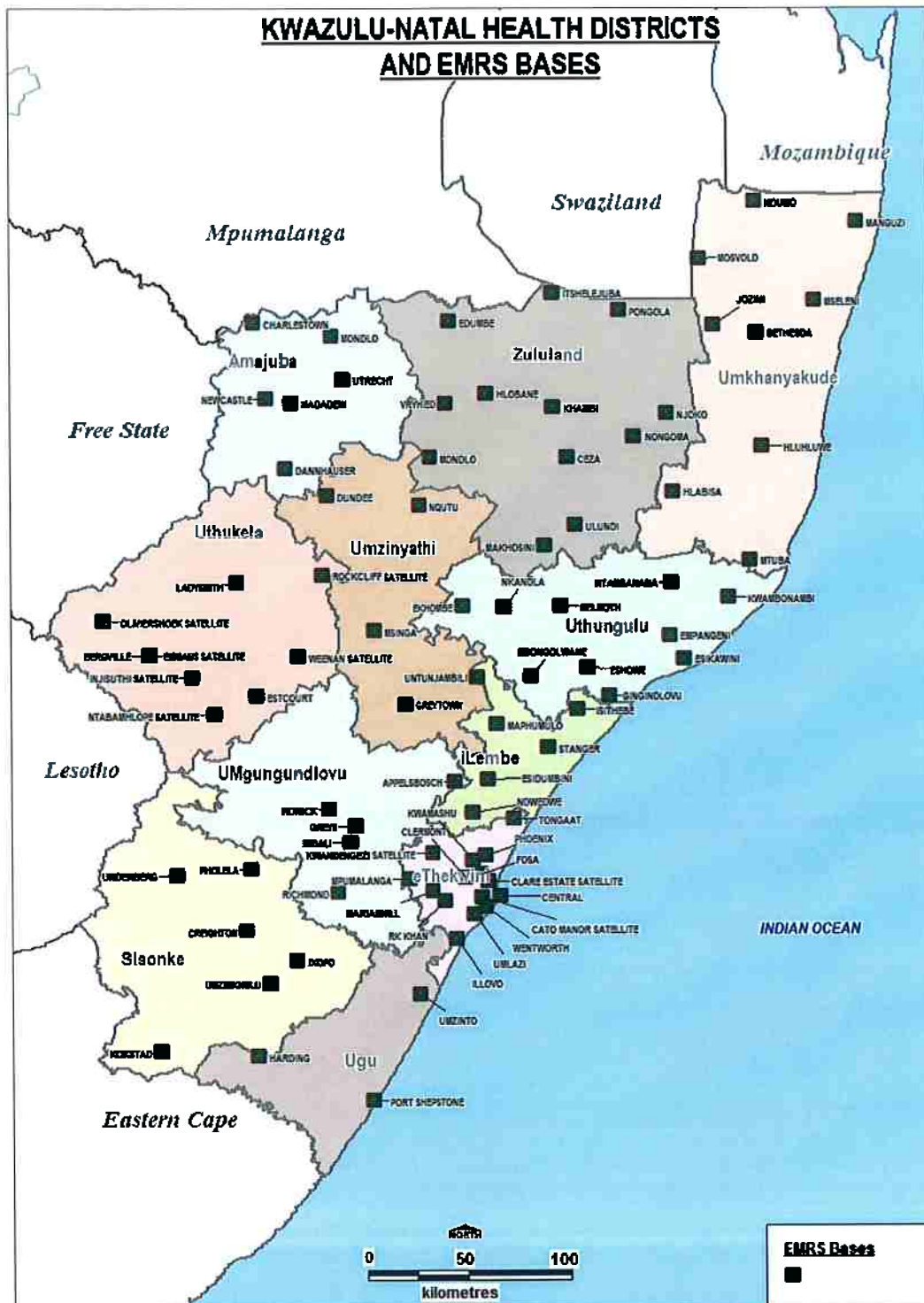
2.4.1. EMERGENCY BASES ⁵

Base stations are required for the safe parking and cleaning of vehicles, provision of administrative and other support to staff and storage facilities for equipment and consumables. At present KZN has 79 Ambulances Bases – as indicated in Map below. The majority of these bases are on the premises of existing healthcare facilities. There are no current custom-built base stations with 50% of the bases being in park homes. These structures are high maintenance and considered a temporary fixture which will have to be replaced with suitable fixed structures. EMS will, with expansion of health services, determine:

- The appropriate number and location of large, medium and small ambulance bases (using drive time polygons or travel/ refer analysis – GIS software) and include in the Infrastructure Plan.
- Appropriate sites for satellite bases.
- Resource allocation to large bases will be aligned with service delivery needs of smaller bases and dissemination will be strictly monitored.
- Ambulance bases will make adequate provision for safety of vehicles, storing facilities for equipment, wash bays for ambulances.
- Placement of ambulance bases will serve as additional strategy to improve access to health services, especially in sparsely populated/rural areas where communities fall outside the 5km footprint. Arrangements for transport of these clients to health facilities will form part of patient transport between community and clinic level and will be a component of the revitalisation of PHC.

Below is the current bases and the priority for new/replacement bases.

⁵ Source: EMS and Map developed by the KZN Department of Health GIS Component



Map 2: EMS Bases in KwaZulu-Natal - 2010/11

The table below shows both existing and new required bases for the Zululand District.

Table 5: Existing EMS Bases

Name of Base	Is the base located within the clinic / CHC / Hosp / Stand-alone or leased facility	Size
Zululand District		
Itshelejuba	Hospital	Small
eDumbe	CHC	TBC
Pongola	Hospital	Small
Vryheid	Leased facility	TBC
Nongoma	Stand-alone	TBC
Ceza	Hospital	TBC
Ulundi	Stand-alone	TBC

2.4.1.1. EMS Wash bays

Ambulance wash bays are a crucial requisite since the blood products cannot be allowed to flow into the normal drainage system. A new standard type is currently in development. Bases will at a minimum comply with the following:

- Is available 24 hours per day;
- Permanent, plumbed, clean and hygienic ablution facilities;
- A suitable wash bay with proper drainage and washing services; and
- Secure undercover parking

2.4.2. ZULULAND DISTRICT EMS

The Zululand District Municipality is a Category C municipality situated in the north-eastern part of KwaZulu-Natal. It is the district with the largest landmass in the province, making up 16% of its geographical area. It comprises of five local municipalities, which are Ulundi, Nongoma, uPhongolo, eDumbe and AbaQulusi. Vryheid and Ulundi are two urban centres of note in the district, respectively serving as a regional service and a regional and provincial administrative centre. The town of Vryheid is a commercial and business hub, while Ulundi is mainly an administrative centre and also the headquarters of the Zululand District Municipality. It is primarily a rural district. About half the area falls under the jurisdiction of traditional authorities, while the remainder are privately owned commercial farms or protected areas.

The location for the proposed Zululand District EMS Base is located within Itshelejuba Hospital premises and is on the outskirts of the hospital fence. Connections to provide water and electricity to the new facility are available as they currently serve the existing park home. The location is at the back of the facility which is an advantage as no disruptions will be caused by the staff of EMS.

Currently each office/ sub-district has approximately 30 staff members which rotate per shift. The existing pre-fabricated units have become uncondusive in terms of space requirements. Most EMS sub-district bases are also stationed at Hospitals and generally EMS staff is sharing working space with Hospital personnel due to insufficient dedicate offices being available. Engagements with EMS management has taken place and they have raised their challenges regarding the office space in their sub district offices.

EMS staff is required to be trained bi-weekly and currently this cannot be done due to insufficient space, and there are no dedicated boardrooms within the prefabricated units.

In accordance to the space norms and standards, staff should have a working space between 6 – 8m² in open plan layouts and between 12 – 16m² in individual offices. In general, at EMS sub-districts staff share office space of 5m² with hospital personnel and the distance in between working stations are less than 1.5 meters which is preferable.

Table 5: Zululand EMS Base sub-division

ZULULAND DISTRICT	
EMS base	Serving areas
eDumbe Municipality	PaulPietersburg
UPhongolo Municipality	Pongola
AbaQulusi Municipality	Louwsburg & Vryheid
Nongoma Municipality	Nongoma
Ulundi Municipality	Ulundi

2.4.2.1. Location

The location for the proposed Itshelejuba EMS Base and Wash-Bay is located within Itshelejuba Hospital premises in uPhongolo.



Map 3: Location of Itshelejuba Hospital

Source: Google Maps

District Municipality : Zululand District

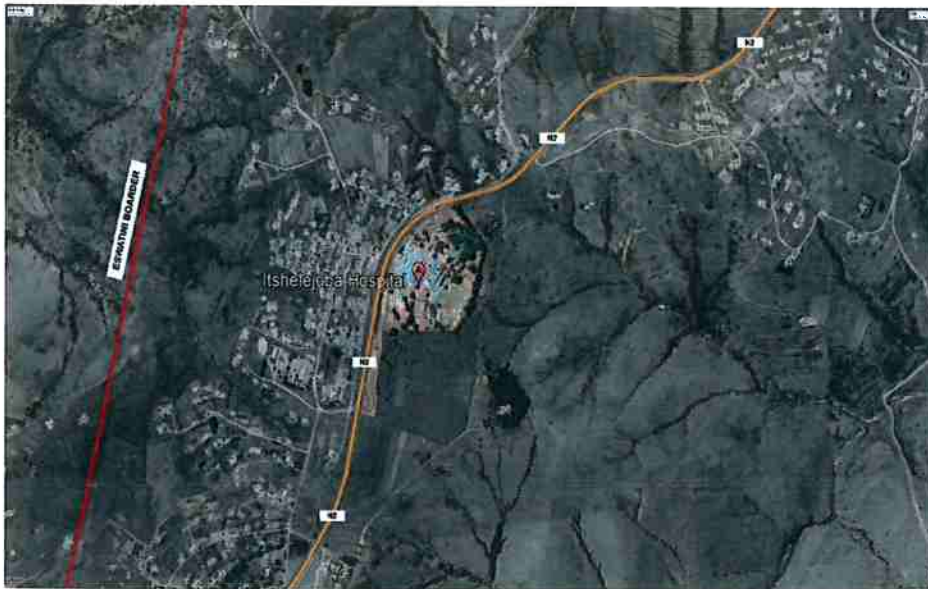
Local Municipality : uPhongolo

Town : Pongola

Cadastral description : -27.275939, 31.346008

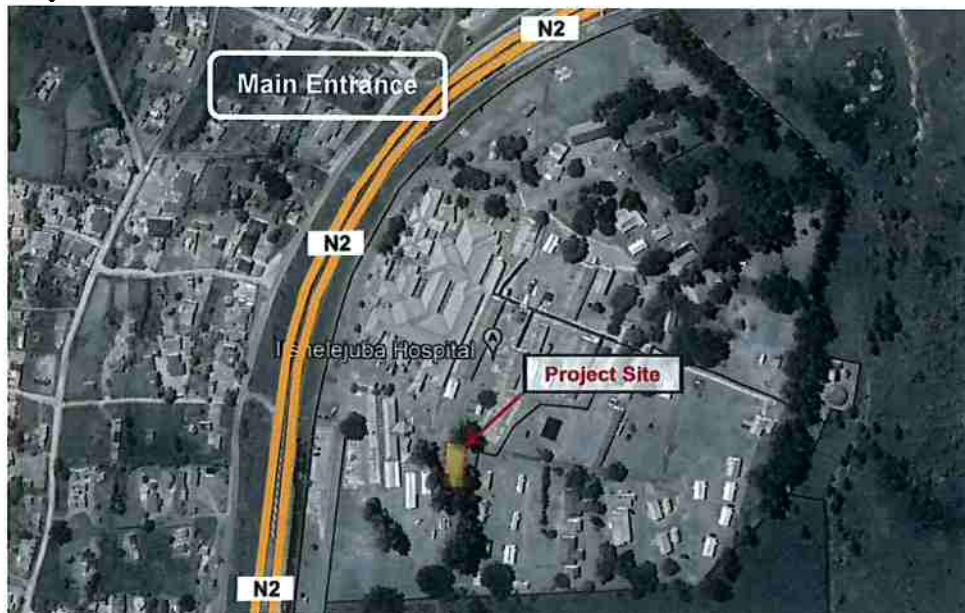
• Address : N2 North, about 30 km past Pongola, Kwa-Zulu Natal, South Africa

A. Locality – Macro Scale:



Map 4: Itshelajuba Hospital positioning at the town of uPhongolo

B. Locality – Medlum Scale:



Map 5: Proposed site

2.4.2.2. Proposed Package of Service


Current Situation





Zululand Health District is situated in the northern part of the Province of KwaZulu-Natal. It is neighboured by King Cetshwayo District in the south. The district is deep rural with many hard to reach areas. Some areas have poor road infrastructure resulting in clients having to walk long distances to access health care services. The services provided by EMS currently are being compromised as staff are, at times, compelled to attend to emergencies without a proper change of clothing as there are no showers. This has a negative impact regarding the spread of diseases as they may have to treat patients with contaminated clothing.

There is one boardroom with very limited space that is used to conduct staff meetings as well as it is also used as a breakfast and lunch area for the EMS staff members. This is not conducive as should there be a meeting in progress, EMS staff members cannot take their lunch hour.

EMS staff requires training by the EMS District Trainer between 2 – 4 times a week and at the current moment these training sessions cannot proceed as frequently as required due to insufficient space for training. Monthly sessions are organised via available venues at times but this has a negative impact as staff does not receive the required skills timeously.

EMS has reported that the current working conditions for Zululand EMS staff are not conducive as staff members have to share confined working spaces in offices. This requires urgent intervention as the current space is a dilapidated temporary structure. The floors are worn out, the ablution facility is insufficient and storage is inadequate.

Itshelejuba Hospital Premises	Illustration and description of current condition of the location of the new Itshelejuba EMS Base
	Proposed area for the construction of the new EMS office and Wash-Bay. All trees to be removed.
	

Existing EMS Base Premises	Illustration and description of current condition of existing Zululand EMS Base	
	Existing unit currently being utilized which is a 10 x 5.5m. The unit is connected to existing services i.e. electricity, water, sewer etc.	Image shows area being used as an office/ storage for stretcher beds.
		
	There is no confidentiality of staff's personal belongings as the lockers are placed in an open area; over and above the lockers are used to store certain equipment as well. Ideally lockers should be in semi-private spaces (closer to change rooms).	The existing medical equipment storage space is clustered and all equipment is stored inappropriately due to space shortage. The area is also used to store archive records.
		
	The area is utilised as stationery storage area and filling as well. The room is not being utilized by any staff currently as it has been reported that there are roof leaks.	The unit only accommodates one ablution facility which is shared between male and female staff (A total of 12 staff per shift share the one ablution).



The filing racks used are not suitable to be used in prefabricated structures; the unit could be damaged should the racks continue to be packed with files.



Oxygen tanks do not have proper storage and are exposed to all weather conditions.



The room shown below is used as both a kitchenette and equipment storage. There is no kitchen sink for staff to utilize.



The Itshelejuba EMS Base needs to accommodate 15 EMS staff members per shift consisting of:

- Offices
- Ablutions
- Staff support areas
- Training areas
- Recreation areas
- Storage
- Waste areas
- Roads and parking
- EMS Wash Bay

2.5. SERVICE COMMISSIONING PROCESS

The project is envisaged to be done as a single project and will not require any decanting plans.

2.6. OCCUPATIONAL DEVELOPMENT PLAN

Human Resource provisioning will not require adjustment to the existing HR Plan but the operational budget will require adjustment. The organizational development, quality assurance and change management interventions discussed under Organizational Development and Quality Assurance below.

2.7. COMMUNICATION AND CONTROL

The following guidelines is provided Communication and Communication systems:

- Planning should take into consideration the fact that telephones are required throughout the facility to facilitate good communication. This needs to be planned in conjunction with the system to be used throughout the EMS base / office;
- Phones need to be accessible;
- Effective communication system and information systems that will support body management and administration (radio or telephone). Personal telephones replacing some aspects of call systems;
- Reception must be immediately visible upon entry should contains a small waiting area;
- IT & communication requirements especially related to the digital platform;
- Appropriate communication, whether radio or telephone, should be in place, so that EMS vehicles can be called to transport patients as the need arise as well as.
- Other systems required include:
 - WI-FI
 - Bar coding for equipment
 - Computer network connections in all management and patient administration and information system

- Electronic Patient Records
- Patient Administration System (PAS)
- Communication System (PACS)
- Alarm - HVAC

3. PROJECT OVERVIEW

3.1.1. OVERALL STRATEGY

3.1.1.1. Project Management Life Cycle

The Project Management Life Cycle is a structure with a set of stages that will be required to transform the idea of the Maternity and Neonatal Units into reality in an organised and efficient manner. The project will follow the Infrastructure Delivery Management System (IDMS) and the Framework for Infrastructure Delivery and Procurement Management (FIDPM).

3.1.1.2. PROJECT LOGISTICS

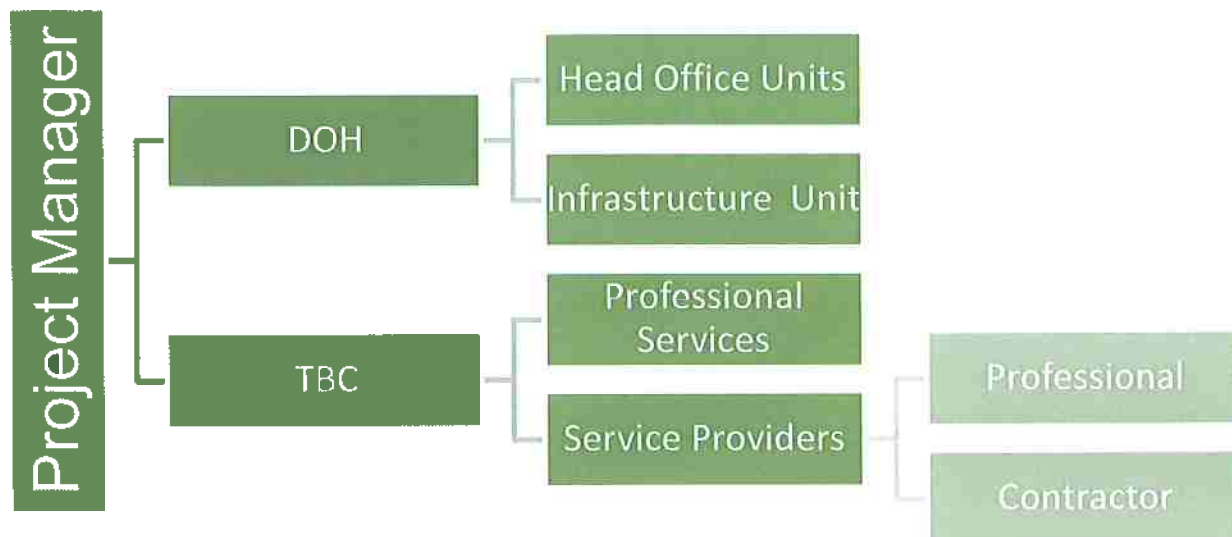
Project logistics involve the managing of resources, which will have a bearing on the project finance, including the following:

- **Project Team:** the right mix of stakeholder, professionals, contractors and administrative resources that is required for the project;
- **Physical Infrastructure:** the best suited spaces for the office team to perform duties in relation to the project;
- **Computing infrastructure:** required integrated business management system for the project execution phase;
- **Communication infrastructure:** required communication systems and facilities to allow communication at all levels;
- **Accessibility:** required access to transport, housing, commerce (all related) and medical facilities
- **Waste management:** requirement for proper waste management; including sustainable practices

3.1.2. PROJECT ORGANIZATION

The project organization is structured to facilitate the coordination and implementation of project activities thereby creating an environment that fosters interactions among the team.

The following structure is proposed which need to be developed further:



3.1.3. ASSUMPTIONS

The following assumptions have been made:

- Implementing Agent: KZN-DOH - It is assumed that DOH will implement this project by making all necessary resources available as set out in item 4.1.6.1 below; through a Design and Build contracting strategy
- Supply Chain Management (SCM) - It is assumed that KZN-DOH Central SCM will be responsible for the management of procurement processes and Contract Management; and will provide support in developing the necessary tender and contractual documentation;
- Department of Health Head Office - It is assumed that KZN-DOH Head Office staff, as identified under items 4.1.6 and 4.1.6.1 below, will be accessible to be able to provide input on designs quickly and respond to queries timeously;
- EMS Management - It is assumed that the Management will be accessible to be able to approve designs quickly and respond to queries timeously;
- KZN-DOH Infrastructure Unit - It is assumed that the required complement of staff will be available to provide project services as indicated in item 4.1.6.1 below;
- Operational budget - It is assumed that the required additional operational budget will be available to run unit after completion;
- KZN-DOH staff - It is assumed that the required complement of staff will be available to provide service and to manage the unit after completion of the infrastructure works; and
- Project funding - It is assumed that Project funding will be available to fund this project.

3.1.4. CONSTRAINTS

The main constraint of the project is time as the existing facility is very dilapidated and service delivery is impacted.

3.1.5. DEPENDENCIES

No particular dependencies have been identified at this time.

3.2. PROJECT REQUIREMENTS

Stakeholders have been consulted and the following requirements have been identified:

- Provision of an EMS Sub-district base including offices space, training facilities, recreation facilities, storage and support facilities
- EMS Wash Bay
- Parking and roads
- All support building services

3.2.1. PLANNING-, DESIGN GUIDELINES AND FUNCTIONAL SPATIAL RELATIONSHIP

The project objective is to:

- To build a replacement, fully resourced Itshelejuba EMS Base and Wash-Bay
- To enhance Zululand District EMS services.
- To ensure compliance EMS guidelines.
- To ensure that the environment is conducive in terms of OHS for staff working at the facility
- The success criteria of this project will be the reduction delays in EMS service.

3.2.2. PLANNING AND DESIGN GUIDELINES

The planning and design of The Itshelejuba EMS Base and Wash-Bay shall be informed by consultation with stakeholders and all the relevant bodies during the planning and design phase. The following principles will apply:

- Meet legal compliance (deemed to satisfy or rational design). Right sized to avoid over or under capacity and over or under utilisation.
- Designed to deliver appropriate levels of emergency preparedness and resilience. Design that is flexible and adaptable to future change
- Ensure building respond to the climate and the ventilation requirements for such a facility and application of "Green design" principals. Designing close relationships with nature
- Integrated external and internal Recreation areas
- Functional zoning
- Appropriate space norms and room design. The design of a building that is appropriate for the functions intended to be carried out within the spaces designed
- An ergonomically safe and risk-free work environment

- Compliance with quality assurance principals
- Design that balance requirements for need and capital, and recurrent budget considerations
- Be physical accessible and welcoming and facilitates access to and within the area for physically and sensory impaired people, consideration should be given to a wide range of disabilities
- Ensuring that the functional and aesthetic requirements of furniture and fittings, fabric and finishes are met
- Use of latest technology and innovations
- Promote occupational health, wellbeing and motivation to staff

A. GENERAL ASPECTS

- Enough space to walk freely inside
- Finishes for easy maintenance without moving through the user areas
- Windows and doors to be burglar proofed
- Main entrance to be security controlled
- Glass should be safety glass
- Windows to allow for enough natural lighting
- Rooms to be well ventilated
- Floors: slip resistant
- Electrical fittings: water resistant in wet areas
- Toilets and showers: privacy
- Toilets, baths and showers: tamperproof
- Hot water: in designated areas only
- Staff rest room & ablutions
- Infection control policies to be observed and implemented

B. NON-NEGOTIABLE REQUIREMENTS

- Fire detection systems
- Panic buttons
- Central / electrical lock/release mechanism for all doors
- Fire protection equipment such as fire-hose reels and fire extinguishers
- Fire / disaster plan
- Uninterrupted power supply
- CCTV monitoring in areas of the users
- Non-combustible materials
- Electrical distribution boards to be built into walls and locked

3.2.3. DIVISION OF CARE AND AREA SUBDIVISION

Division of care provides a differentiation between care in terms of type as well as applicable security measures. See details in table below:

Table 6: Division of Care for the uMgungundlovu EMS Base and Wash Bay

Type of Service	Service Area	Security grading
Administration	Reception/ Waiting Work station Ablutions	Medium security
Training	Training rooms	Medium security
Unit Support	Utilities, stores and cleaning services	Medium security

The EMS Base will generally be functional 24-hours a day.

3.2.3.1. INTRADEPARTMENTAL RELATIONSHIPS AND FUNCTIONAL ZONES

The EMS Base and Wash bay will be separated into functional zones or specific spaces that support flow patterns in the office accommodation:

- (i) Public zone - Waiting areas, reception, kitchen, Boardroom, ablutions
- (ii) Semi-public zone - Training room, crew room
- (iii) Semi-private zone – offices, storage
- (iv) Private Zone – Management offices
- (v) Service support spaces- utilities, stores and housekeeping services, roads and parking, wash-bay.

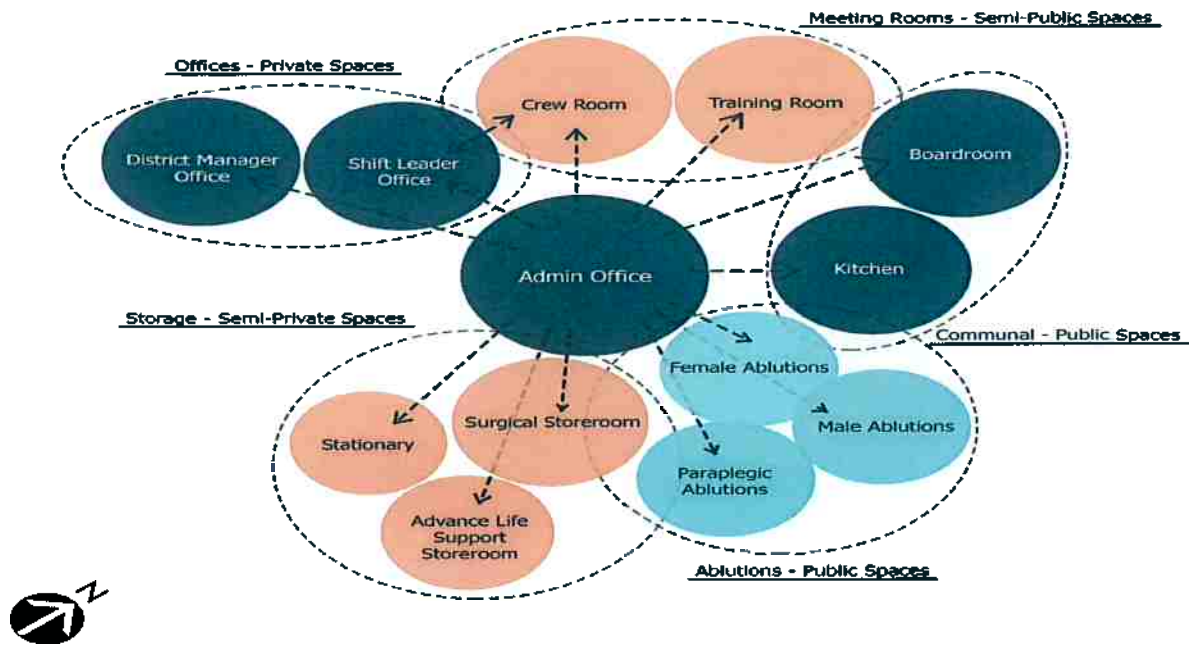


Diagram 1: Functional zones

3.2.3.2. FUNCTIONAL AREAS

All areas can be differentiated from each other based on the specific functions. The clinical areas can be further subdivided. See details in tables below:

Table 7: Functional Areas

Public zone	Semi-public zone	Semi-private zone	Private Zone	Support Zone
Waiting areas Reception Kitchen Boardroom Ablutions	Training room, Crew room	Offices Storage	Management offices	Utilities Stores Housekeeping Roads and Parking Wash Bay.

3.2.3.1. Key Adjacencies

The adjacencies are as follows: -

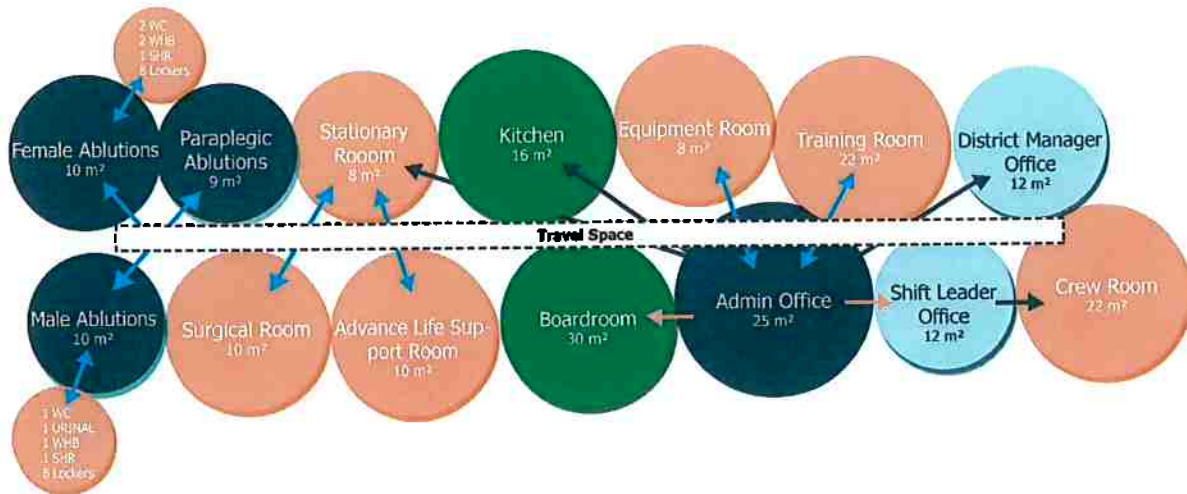


Diagram 2: Key adjacencies

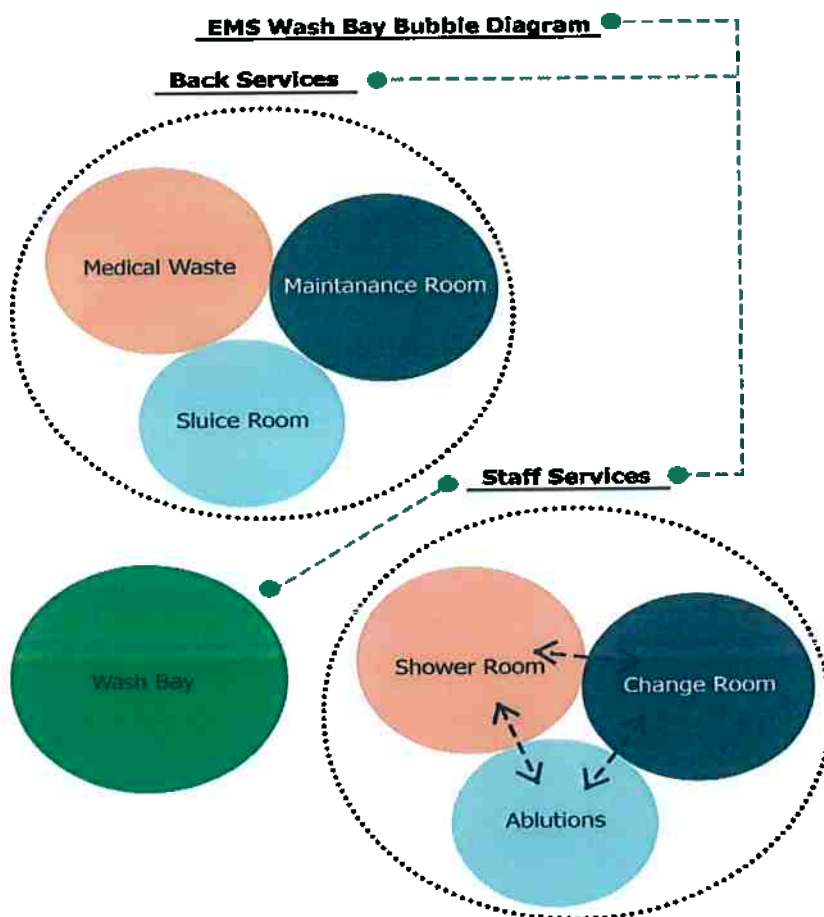


Diagram 3: Key adjacencies for Wash-Bay

3.2.4. ORIENTATION AND RATIONAL PLANNING PRINCIPALS

For the purpose of this section, a designated facility is required

- All designated facilities are primarily controlled and managed in accordance with the provisions of the National Health Act, 2003 and the Occupational Health and Safety Act.
- All designated facilities must comply with the provisions of the section 8(1) of the Occupational Health and Safety Act No of 1993 which states that the employer shall provide and maintain a working environment that is safe and without the risk to the health of his / her employee.
- The EMS is to be erected, equipped and maintained to serve as a base for EMS services

The following principals must be applied:

- Basic Human Rights
- Meet legal compliance (deemed to satisfy or rational design).
- Safe And secure environment with differentiated security features.
- Designed to deliver appropriate levels of resilience.
- Ensure building respond to the climate and the ventilation requirements of the facility;
- Appropriate space norms and room design;
- The design of a building that is appropriate for the functions intended to be carried out within the spaces designed;
- An ergonomically safe and risk-free work environment;
- Compliance with quality assurance principals;
- Design that balance requirements for clinical need and capital, and recurrent budget considerations;
- Designing close relationships with nature;
- Design with enviro-friendly efficiency as primary goal;
- Design that is flexible and adaptable to future change;
- Be physical accessible and welcoming to the community they serve, facilitates access to and within the area for physically and sensory impaired people, consideration should be given to a wide range of disabilities
- Ensuring that the functional and aesthetic requirements of furniture and fittings, fabric and finishes are met;
- Use of latest technology and innovations to aid in healing;
- Integrated external and Internal Recreation areas; and
- Promote occupational health, wellbeing and motivation to staff.

3.2.4.1. PHASING, CONTINGENCIES AND REDUNDANCIES

A. Phasing

The project will be in one phase:

- i. Construct a new Base and Wash Bay

B. Contingencies

No specific contingencies are required.

C. Redundancies

No redundancy has been identified.

3.2.4.2. ARCHITECTURAL CHARACTER

Architectural character of the facility needs to be kept low key using standard building materials and building elements as per the standard Health specifications. Materials are expected to be readily available in all areas of the province.

The main elements of the building should consist of face brick outer skin with plaster and paint inner skin walls, metal sheeting roof, aluminium windows with integrated burglar bars where required and screens (where applicable), External doors with security gates and internal solid core timber doors.

The simple finishes will allow a blank canvas to introduce colour and art to the walls and floors.

In order to respond to the **climate and the ventilation** requirements the buildings is to be orientated on the East/West contour axis. This takes advantage of the all-day sunlight from the North and the South, while minimising the earthworks.

Due to the climate of exposure sun and rain, verandas, courtyards and covered circulation spaces are encouraged. Roof levels are to be kept low and will be properly insulated with large overhangs for protection. The external waiting areas consist of open verandas.

Integrated external and internal areas are to be connected by way of the central spine with access to all areas from this spine. Sufficient windows and doors should allow for cross ventilation.

Ergonomically the design the design is to be safe and includes a minimum risk work and healing environment with sufficient design for universal design. Spaces are to be clearly defined and have sufficient access to windows for light and ventilation. Garden areas will be planted with low maintenance indigenous plants and will be visible from the waiting areas and central corridor.

Compliance with quality assurance principals

The facility is to be fully compliant with quality assurance principals as per DoH Standard requirements, SANS 10400 Building Regulations and IUSS guides.

Designing with a close relationship with nature, enviro-friendly efficiency and a design that is flexible and adaptable to future change. Cross ventilation to allow for maximum natural ventilation. To design around trees and kept where indigenous. The site contours to be used a design tool for separation of services.

3.2.4.3. SPACE REQUIREMENTS AND APPROPRIATE SPACE NORMS

It is important to adhere to certain general considerations. This includes considerations pertaining to layout and design, to the building itself, to accessibility, to the patient, to the staff, to security, to fire fighting and prevention, to general aspects, and to information technology. Please take note that these general considerations are applicable to all areas and buildings. Reference must be made to all current legislation, policies and guidelines in order that compliance is achieved.

Below is a table illustrating space norms / requirements for office spaces:

Table 8: Space norms and requirements

Function	Spatial Requirements	Norm	Current Condition
Administration	Open-plan with some local storage.	Workspace should be between 6-8m ²	There is no dedicated space for administration
Technical & Management	Open-plan including layout space and or space for large equipment such as drawing boards	Workspace should be between 8 – 16m ²	Staff is sharing congested working spaces which do not accommodate all staff on duty simultaneously.
Senior Management	Open-plan or cellular offices. Requirement for some privacy and space for small meetings.	Workspace should be between 16 -20m ²	The shift leader uses a space which is also used a kitchenette as an office

Source: Space planning norms and standards for office accommodation used by organs of state.

Further reference is to be made the Space norms regulations for detail and elaboration on office space requirements including paraplegic necessities.

3.2.4.4. CONSIDERATIONS FOR LAYOUT & DESIGN

The EMS Base and Wash bay is a replacement facility and the dimensions, health technology, mechanical, electrical and wet services, lighting, HVAC, finishes and colour will be determined in relation to KZN-DOH specifications and IUSS guidelines.

3.2.4.5. AREA REQUIREMENT AND RELATED COSTING GUIDANCE

The EMS Base and Wash bay is a replacement facility and area requirement and related costing guidance, must be determined in relation to KZN-DOH specifications and IUSS guidelines.

3.2.4.6. STANDARD SPECIFICATIONS FOR THE USE OF MATERIALS IN THE BUILDING

The EMS base is a replacement facility and specifications for the use of materials in the building must be determined in relation to KZN-DOH specifications and IUSS guidelines.

Material and construction technology are dependent on availability, applicability, labour intensives, maintenance requirements and innovative use of materials. Energy considerations are also to be adopted in the construction technology and material use.

3.2.4.7. BRANDING/AESTHETIC DESIGN PREFERENCES AND REQUIREMENTS

The EMS Base and Wash bay is a replacement facility and the branding/aesthetic design preferences and requirements must be determined in relation to KZN-DOH specifications. Language preference will be both English and isiZulu.

3.2.4.8. FUTURE EXPANSION AND ADAPTABILITY

The EMS Base and Wash bay is a replacement facility and should be designed to be adaptable, flexible in use, to respond to change and to enable possible future expansion or repurposing.

3.2.4.9. DIGNITY, PRIVACY, SATISFACTION OF INDIVIDUALS

The design of the building must be primarily be focused on staff and visitors. Services to be integrated so that they experience service excellence.

Spaces are required offer privacy, where dignity is respected. The spaces should be reasonably soundproof, partitioned and screened from activities in the units.

Information technology should be maximised to ensure that where possible information is shared efficiently between all clinicians in a patient-focused manner.

3.3. SCOPE OF THE WORKS

3.3.1. THE SITE

The identified site for the Itshelejuba EMS Base and Wash bay is at the back of the hospital located near the laundry. This is to ensure that interruption is minimised between hospital activities and EMS staff. The offices are located furthest away from wards to create a buffer zone to reduce noise between the two facilities.

Strategic location of site:



Photo 1: Proposed site in relation to existing buildings



Photo 2: Earmarked location for the proposed EMS Base

3.3.1.1. SITE ORIENTATION

The site is located on the north-eastern side of Itshelejuba Hospital Main entrance, adjacent to the N2. There is no alternative entrance dedicated for EMS vehicle, all the vehicles enter through main entrance.

3.3.1.2. PLANNING RESTRICTIONS

No planning restrictions are known but must be verified by the Project Team.

3.3.1.3. LAND USE DEFINITION

Land use definition must be verified by the Project Team.

3.3.1.4. HERITAGE COMPONENTS

There are no known heritage components on the site but must be verified by the Project Team.

3.3.1.5. THE CONDITIONS OF THE SITE

A full cadastral survey and general site inspection will be required.

3.3.1.6. GEO-TECHNICAL INFORMATION

A Geo-tech investigation will be required prior to planning commencing.

3.3.1.7. TRAFFIC IMPACT STUDY

A traffic impact study has not been done but will be required to determine the impact of the emergency vehicular use.

3.3.1.8. SPLUMA APPLICATION

The need for a SPLUMA application must be verified the Project Team

3.3.1.9. CLIMATIC CONDITIONS

- General Climate: Heat waves during the summer months
- Temperature: Temperatures go up to 38 degrees between December and February, during the months of winter they range between 15 and 18 degrees at their lowest.
- Rain fall: N/A
- Wind direction: N/A

3.3.1.10. AVIATION FOR EMERGENCY AIRCRAFT

Not required for this service however position of and access to the hospital helipad must be noted and verified.

3.3.1.11. SEISMIC ACTIVITY

No known significant seismic activity.

3.3.1.12. RADIO TOWERS

No known radio towers but this must be verified and any impact on the EMS communication systems are to be noted and discussed with EMS.

3.3.1.13. EXISTING INFRASTRUCTURE

There are a number of other masonry, temporary and alternative structure buildings on the hospital site. It is not expected that this will impact on the project.

3.3.1.14. BULK SERVICES

Bulk services are available on site and the facility will connect into the existing services however all services must be tested and verified to ensure that the existing services are functional and sufficiently sized to accommodate the extra load. If insufficient, provision must be made for upgrading. Services required (not inclusive) include:

- Electrical systems
- Water
 - Potable water
 - Fire Water
 - Sewer
 - Storm water

- Telecommunications
- IT Communications

3.3.1.15. DEPARTMENT ORIENTATION AND POSITIONING RELATIVE TO ENTRANCES

The buildings are to be orientated to utilise natural lighting and ventilation as applicable to various areas.

3.3.2. PHYSICAL INFRASTRUCTURE PLANNING AND DESIGN

3.3.2.1. SPECIAL DESIGN CONSIDERATIONS

A. General Aspects

- Choice of materials, finishes and workmanship must be durable and cleanable especially in wet areas.
- Landscaping of the gardens must be built into the contract to ensure gardens are both easy to maintain. This should be accommodated in the landscape plans, and sited correctly.
- All areas must be well ventilated, if possible, air conditioned. Care should be taken when designing HVAC systems to accommodate higher and lower pressure areas both for infection prevention and also odour control.
- Good use of familiar non institutionalised materials, colour and finishes.
- Appropriate, durable and cost-effective finishes are required. It is important that the types and quality of finishes are researched and approved by the service practitioners who can also advise on the colour and colour scheme suitable.
- Buildings also need to be efficient and cost effective and should not accommodate redundant or concealed areas. Maintenance must be considered when planning the building. Building with face bricks, although more expensive, saves on painting in the future. Ensuring that pipes are accessible will assist with future maintenance, the safety of the maintenance staff must also be considered in the design. Electrical, plumbing and mechanical fittings must be vandal-proof. Electrical fittings must be tamper proof.
- Adequate housekeeping spaces must be provided in appropriate and secured spaces. The building should be easy to clean and to maintain. Finishes and detail should not collect dirt in crevice's and joints.
- Normal differently-abled design to be implemented.
- The facility must have proper and good illumination at night
- The site preparation, construction and operation / maintenance of the building itself must be environmentally friendly and compliant with all environmental legislation
- Energy and water efficiency and the use of solar to be considered in the design
- Paint used on walls to be washable paint
- Internal layout of the building must be such that the number of internal spaces requiring forced ventilation shall be minimised. While this would be the preferred design option, it must at all times be taken into account that the provision of open window spaces and the design thereof are restricted and limited by the nature of the service provided and that security and safety

standards according to the level of daily operations, must at all times outrank the requirement for reduced forced ventilation.

Orientation

Maximisation of building orientation is necessary for thermal control and building usage. The thermal control, maximising the relationship between external and internal views is important for staff and visitors. Thus, all staff areas, including waiting areas may offer un-obstructed visual and physical access to the external environment.

Wind direction will play an important role in building orientation when ventilation calculations are done.

D. Building Construction Technology and Material Usage

Material and construction technology are dependent on availability, applicability, labour intensives, maintenance requirements and innovative use of materials. Energy considerations are also to be adopted in the construction technology and material use.

KwaZulu-Natal specification documents must be used in determining material and construction technology usage.

E. Structure

The structure is expected to consist of a single-storey brick and mortar structure. Foundations are to be determined on site depending on the geotechnical information. KZN DOH Infrastructure policies are applicable; however, the following must be noted as applicable:

Roofs

- Care to be taken to design for extreme weather events as applicable including severe hail storms.
- Roof designs to be as simple as possible and promote ease of maintenance.
- Provision to be made for all necessary rainwater goods that promote ease of maintenance.
- Timber roof trusses to be supplied with relevant TR1 and TR2 certificates.
- Structural steelwork trusses are to be specifically designed and must also be supplied with relevant Engineers Design drawings and certificates.
- Roof pitches for metal roof coverings to be a minimum of 10° and for Concrete Roof Tiles a minimum of 17½°. In snowfall areas additional Design Criteria is required from a certificated Structural Engineer.
- Roofs material and insulation to be metal sheeting as per KZN DOH specifications
- Flat roofs are not permitted. No box gutters are allowed. Roof (sky) lights must be avoided.
- All valleys to have a minimum of 50mm width between roof finish for ease of cleaning.
- There should be ease of access into the roof space and a minimum of 450mm wide walkway with lighting shall be provided for maintenance personnel within the roof void. Enough headroom shall be provided to allow for maintenance personnel. The required roof space configuration should allow:
 - Space for the electrical spine.

- Space for hot and cold-water pipe work.
- Space for ventilation fans and ductwork.
- Space for hide-way air conditioning unit and ductwork.
- Access to all the above for servicing, maintenance and additional services (long life and loose fit).
- Thermal regulation of the accommodation below by adequate natural ventilation of the roof space.

Walls

- Brickwork to comply with KZN DOH specifications
- Wall finishes to comply with KZN DOH specifications
- Where chasing has occurred in plaster, the wall is to be skimmed feathering to existing surface.

External Openings

Adequate natural daylight is required. External doors to be protected, as the doors are vulnerable to damage and need adequate protection.

All doors to be access controlled except for dedicated fire escape door that must be fitted with the required access control systems.

All windows, doors, frames, gates to comply with KZN DOH specifications

Internal Openings

Doors and door frames to comply with KZN DOH specifications.

Ceilings

Wet areas to receive fibre cement skimmed ceilings.

Admin areas to received ceiling grid and drop-in ceilings size 600x1 200mm.

F. Clean and dirty areas

The base and wash bay must be demarcated into 'wet' or dirty (potentially infectious) and 'dry' or clean areas, in line with health and safety regulations.

Areas in the base or wash bay, where there may be a risk of acquiring an occupationally related infection, should be designated as 'wet/dirty' areas. There should be a clear demarcation between the dry and wet working areas of the designated facility. This will be provided by a form of physical barrier and should be adequate to deter casual entry by unauthorized persons.

It will be necessary for all persons entering wet areas in the designated facility to change into appropriate protective clothing. Types of clothing and protective equipment to be used will be specified in local rules for the various duties and locations.

G. Administration, changing and washing facilities

The EMS staff and management, and their assistants will require office space. The size of this accommodation will vary with the number of EMS staff and others likely to be employed at any one time in the designated facility. The same considerations will apply to the provision of washing and changing facilities.

H. Accessibility

External circulation should maximise safety and security, convenience, demarcation of spaces, external entrance and exits, fire control designs as well as efficient and effective vehicle movement.

Design of delivery, emergency, non-emergency, pedestrian movement should be designed in such a way that it's separated but co-ordinated.

Use of signage should emphasize and inform, control and direct movement.

Approach from road to building entrance

- The surface must be a compact surface
- Where required kerb cuts must be provided
- The kerb cuts must have a slip-resistant surface

Parking for people with disabilities

- There must be at least one parking space reserved for every 25 (or less) parking bays
- The parking space must be not less than 3,5m wide
- The parking space must be situated on a level surface
- The parking space must be as close as possible to the nearest accessible entrance
- The parking space must be clearly demarcated as being intended for the use of disabled persons only (Sign at the front of the space and on the ground surface in yellow road marking)

Ramps

- The gradient of the ramp or walkway must not be more than 1:12
- The ramp must have an unobstructed width of not less than 1100mm
- The ramp must have a landing at the top and the bottom of the ramp not less than 1,2m in length (clear of any door swing) and the width not less than the ramp
- The surface of the ramp must be slip-resistant
- The angle of approach to the ramp must be zero
- The ramp must have a handrail 850 – 1000mm above the surface
- The end of the handrail must extend beyond the end of the ramp by at least 300mm
- No door leaf or window shall open onto a ramp or landing

Entrance

- There must be at least one entrance accessible for use by a person in a wheelchair
- The accessible entrance must be identified by the international symbol of Accessibility
- The door handle must be pull / lever type
- If the main entrance is not accessible, then there must be directional signs to the accessible entrance and a sign "Not Accessible for wheelchairs"

Path of travel between rooms

- If there is a difference in floor level of more than 25mm, there must be a suitable ramp
- Where there is hanging signs, lights, awnings or protruding objects, there must be a clearance of at least 2000mm above the trafficable surface
- If the protrusion is unavoidable, there must be a cane detectable barrier not more than 300mm above floor level
- If there is a difference in floor level, it must be indicated by means of different floor covering
- All walking surfaces must have a minimum of 900mm clear width
- All the floors must be non-slip
- All areas must be well-lit
- All light switches must be not higher than 1 200mm above floor level

Signage and signals

- All signs must be clear and legible with large characters / numbers / pictures
- All numbers etc. must provide a strong contrast to the background
- The signs must be continuous in all routes
- All emergency warning signals must be both audible and visual
- Do signs that provide information on permanent routings and direction must have raised tactile lettering

Doors

- The door handles must be pull / lever type
- The door handles must be situated not more than 1 200mm above floor level
- Thresholds must not be more than 15mm in height
- Doors must not open across a hallway, corridor, stair or ramp so that it obstructs circulation

Stairs

- The handrails and tread noses must have a contrast in colour to the surface
- The handrails must have a minimum extension of 300mm beyond the top and bottom of the staircase
- The stairs must have handrails on both sides

I. Staff areas

- Ensure efficiency of staff by minimizing distances travelled between different areas.
- Redundant spaces and concealed areas to be avoided as these can result in ambush situations.
- Panic buttons to be positioned in appropriate areas.
- The safety of the maintenance staff must be considered in the design and maintenance should be possible from the exterior of the building.
 - Plumbing must be on the exterior face of the building and therefore due consideration in the design shall be given to eliminating all internal pipe work.
 - Flat roofs and box gutters must be avoided. All roofs to be suitably pitched and a service walkway provided inside the roof space for effective maintenance of the building.
 - The pitch at the roof trusses must be at least 2 m high to walk up right along the length of the building.
 - Routing of wastewater pipe work in ceiling spaces, overhead voids or through occupied spaces must be avoided.

J. Ablution facilities

- Non slip low maintenance floor covering is required in bathrooms and wall tiles in ablution areas. All toilets to be low maintenance and vandal-proof (i.e. Geberit type or similar).
- Toilet cubicles to provide for privacy.
- Bathroom facilities and appliances to be especially tamper proof. Shower facilities to ensure privacy but at the same time safety and security

Universal Toilet facilities

- There must be at least one unisex toilet available (per floor) for use by people with disabilities
- The toilet must clearly be signposted with the international symbol for Accessibility
- The toilet cubicle must be a minimum of 1 800mm x 1 700mm in size
- The door of the toilet must be a sliding door OR outward opening door of at least 750mm wide
- The door must have lever type handles with a height of 800 – 1 200mm above floor level
- Where a locking device is fitted, it must have an external emergency override facility
- It must have a suitable means of indicating if the toilet is occupied
- There must be a distance of 450mm – 500mm between the centre line of the toilet pan and the nearest side wall
- There must be grab rails fixed to the wall closest to the toilet and the rear wall
- The handrails must not be more than 800mm above floor level
- The distance from the front edge of the pan to the rear wall must be a minimum of 660mm
- The top surface of the seat pan must be between 460mm and 480mm above the floor level

- The lid and seat must remain upright when raised – only admin areas
- The flush handle must be lever type and extended
- The toilet paper holder must be on the side wall closest to the toilet seat within easy reach
- The height of the washbasin from the floor to the top edge must not be more than 830mm
- The washbasin must have a vertical clearance of 650mm from under the basin to the floor
- The water tap must have lever handles
- The water taps must be clearly marked hot / cold
- The cold-water tap must be within easy reach of the person sitting on the toilet
- There must be a fixed mirror above the washbasin with the lower edge not higher than 900mm above floor level
- The hand drying facilities must be accessible from a wheelchair

K. Plant Rooms

The number and sizes of plant rooms will be determined by the engineers. Refer to IUSS guidelines "Engineering Services" Plant rooms comprise all areas housing mechanical, electrical and civil services.

L. External Circulation to Site, Roads and Parking

Existing Entrances

Itshelejuba Hospital main entrance is off the N2, on to Highlands a small narrow road that leads you directly into the hospital. The N2 is a national road and access to the site is not shared with any commercial entities. The road is often clear and without traffic.



Figure 2.2.5 Entrance and Exit onto site

Vehicular and Pedestrian Access and Parking

The scope of the project includes access roads as required, official vehicles, staff and visitor's parking. Also refer to Part B - Clinical Brief above for circulation and movement.

Parking

Staff and visitor parking areas will be required and this must be clearly signposted to direct traffic to appropriate parking areas. The Maternity and Neonatal Unit should be designed in a manner that, there is easy access and waiting space for ambulant patient's transport.

Secure staff parking located separately but integrated with existing staff parking.

EMS vehicles and Official Parking

Access for EMS vehicles be separate from visitors and staff

Manoeuvring areas and parking area for vehicles be designed to allow vehicles to enter and exit in a forward direction and allow the largest vehicle or disaster vehicles using the facility to turn around.

Lockable, undercover bays to be provided as required.

Public Parking

Visitor's parking must be provided on site (integrated with existing visitor's parking)

Staff Parking

Secure staff parking located separately from visitor's parking. The staff parking area must be secure with well-lit adequate walkways to the unit. It is proposed that staff parking be undercover with metal sheet cover as per KZN DOH specifications.

Roads

New roads to be considered as required.

M. Aesthetics

All materials used, must comply to the SANS requirements and other legislative instruments applicable. Durable, sustainable and applicable aesthetic finishes should be applied.

N. Finishes and Materials

The goal of the design is to provide an interior that is salutogenic. Design concepts should create a calming atmosphere. This can be achieved by using materials that are based on nature and have subtle colour following evidence-based theory.

- It must be agreed at the beginning of the contract, that the type of finishes, fixtures and colour schemes, to be used in the facility must be approved.
- Finishes should be customised to the area, i.e. in the admission area, wet areas.

- All fixtures and finishes must be firmly fixed and secured.
- Colour used on walls and fabrics must be therapeutic and compatible. The architect can suggest colour schemes, but the ultimate decision will rest with EMS Management and staff.
- Durability, cleanliness and timelessness are qualities that should be incorporated into all material selections.
- All finishes and materials to comply with KZN DOH specifications.

O. Joinery

Work surfaces at desk height should be made of solid surface materials which resist chipping and staining. Co-ordinate locations of computers, printers, keyboards, power and data ports as required by unit's needs. Provide accessible countertop heights for wheelchair users. Hardware accessible type should be used throughout. Joinery to comply with KZN DOH specifications.

P. Safety and Controlled Access Systems

The EMS base will require security. Security Services from Department of Health must be consulted to finalise requirements

- Security services and related physical infrastructure of the site must provide a safe environment to staff and the public at large, on a 24-hour basis. Security personnel will be responsible for the safety and control of the flow of between entrances and public spaces and service spaces.
- Building must have electronic access control with smart identity cards. Biometrics will be required for high security areas and where items of high value or sensitive nature are located within the building. Offices within a building which meet the same criteria will also have to be secured with biometrics.
- All buildings must have security cameras that can monitor movement within buildings and all movement leading into and from the building. All patient, storage, drop off and dispatch areas (excluding ablution facilities) will be monitored with cameras. These cameras will be recording on a Digital Video Recorder (DVR henceforth) and will link to the DVR at the security station.
- Panic buttons to be provided
- All windows to have burglar bars and external door security gates
- Privacy to be observed as required
- Fire resistant materials to be used
- Glass should be safety glass
- The KZN Department of Health security specifications are to be applied

Q. Fire Fighting, Prevention & Detection

- It is important to design the fire detection, fighting / prevention and control system.
- An evacuation plan to be drafted together with the architect and Management of FSPC.
- The necessary signage and escape routes to be identified in the plan.
- Fire-fighting equipment and fire hose fittings should not be accessible to patients and should be recessed.
- Smoke detectors, fire sprinkler system and fire alarm system to be installed.

R. Way Finding

The way finding and signage design must be fully compliant with the KZN Department of Health Communications requirements and must be bilingual as approved.

- Way finding and signage must be considered from inception and be integrated with the Interior Decorating. It must cater for the needs of different groups of people that will access the facility.
- The use of cost-effective, electronic signage systems in main admission/wait areas must complement the overall way-finding strategy.
- Signage must be clear and according to universal signage, to assist the illiterate as well as accommodate the blind.
- A direction-finding system should be posted near the entrance / lifts and must indicate the route to each building.
- Signage to be standard as far as possible and must accommodate possible future changes

S. Interior Design

The interior design strategy must reflect the public, semi-public, and private nature of the base. The creation of individual identities or themes for the different areas in the base is encouraged.

Holistic and creative approaches must be applied to the selection of colours, symbols, artwork, graphics, soft furnishings, fixtures and fabrics. The procurement, durability, maintenance and cleaning of specified interior design materials and elements is critical. Consideration also to be given to performance of materials to reduce the risk of heat trapment and transfer by convection and conduction due to the choice of materials and their properties.

T. Information- and Communication Technology

- The building must have emergency power.
- All rooms must have double power skirting in with the bottom channel used for wall boxes and the top channel used for power supply.
- All buildings must have saturated cabling, meaning that there must be enough network points in each office for one computer, one telephone and one network printer, and in open offices each workstation must have two network points (one for the PC/laptop and one for the telephone) and one wall box per workstation on the power skirting for printers.
- Ceilings must have rodent stations in to prevent rodents from destroying the cables.

3.3.2.2. BUILDING SERVICES

The base is a replacement facility requiring a number of systems. Existing systems must be investigated to determine suitability and capacity and should it be found to be inadequate, provision to be made for augmentations or upgrades.

The following building services is to be considered (not inclusive) bearing in mind that all exiting services must be investigated and upgraded if required:

A. Mechanical Services

- Mixed mode operation uses mechanical systems when ambient and internal conditions require this, but otherwise rely on passive system to maintain thermal comfort and meet ventilation rate requirements.
- Natural ventilation needs to take cognisance of the geographical location, surrounding infrastructure and the site orientation of the base.
- A wind load and pattern study be conducted justify the choice of ventilation design. Furthermore, the temperature profile must be provided to investigate and advise on suitability of natural ventilation.
- Consideration should also be given to utilise solar water heating systems to heat the domestic water.

B. Air-Management

- Air-conditioning must be provided to offices, selected stores, meeting rooms, and so on.

Air Quality and Distribution

In general, clean areas shall be maintained at positive air balance and dirty area shall be maintained at negative air balance with respect to the adjoining areas.

The focus must remain on natural ventilation which can be augmented with ventilation and extraction as required.

Corridors may not be used to supply or exhaust/return air from adjacent rooms.

Heating, Ventilation and Air-conditioning

General Air conditioning system may be provided to heat, cool and ventilate the clinical service areas as required by SANS 10400. The air-conditioning system shall be designed to operate in occupied and unoccupied modes to suit applicable schedule. **VRV systems may not be used.**

The focus must remain on natural ventilation which can be augmented with ventilation and extraction as required.

Exhaust System

Controlling odour with proper exhaust is critical with dirty areas. The HVAC design shall provide for exhaust air from spaces to control the transfer of odours and provide proper room pressurization and proper air changes per hour that may be required per code standards.

The focus must remain on natural ventilation which can be augmented with extraction as required.

Table 9: Risk Allocation for Airborne Transmission

RISK ALLOCATION FOR AIRBORNE TRANSMISSION		
LOW	MEDIUM	HIGH
Cleaners Room	Reception	Training rooms
Dirty Utility	Waiting areas	Crew rooms
Storerooms	Drop-off	
Record room	Dispatch	
Staff rooms		

Table 10: Risk Allocation for Droplet and Contact Transmission

RISK ALLOCATION FOR DROPLET AND CONTACT TRANSMISSION		
LOW	MEDIUM	HIGH
Storerooms	Reception	Training rooms
Offices	Waiting areas	Crew rooms
Record rooms	Drop-off	
Staff rooms		

Medical Gases

No Medical gases required.

C. Electrical Services

Power supply to be provided from existing services.

The main distribution board shall be split into essential and non-essential supplies. All the space heating and cooling shall be connected to the non-essential side of the main distribution boards and shall not be supplied from the standby power generator. All electrical power to the rest of the facility shall be deemed essential and shall be connected to the standby generator.

Low Voltage (LV)

- The Low Voltage (LV) switchgear must be installed in accordance with SANS 10142- Part 1: Code of Practice for The Wiring of Premises: Low Voltage installations.
- The LV board shall be split into essential and non-essential supplies.
- All the space heating and cooling shall be connected to the non-essential side of the main distribution boards and shall not be supplied from the standby power generator.
- All electrical power to the rest of the facility shall be deemed essential and shall be connected to the standby generator.

Standby Power

The provision of a generator must be subject to the capacity.

The standby generator must serve loads, such as lighting systems, air handling units, alarms (fire, medical gases, nurse call, burglar/intruder), socket outlets in the critical areas, exit signs, plant rooms, communications systems (Public Address, IT server rooms, access control / CCTV, PABX), ventilation and smoke removal systems, sewage disposal, fire-fighting operations, pumps (generator fuel, sewage, water, sumps), X-Ray machines, and body storage.

The standby generator has to comply with the following:

- The standby diesel generator shall be housed in a weather-proof with sound proof attenuated canopy.
- The standby diesel generator shall be provided complete with an Automatic Mains Failure (AMF) Panel with a changeover switch.
- The engine shall have sufficient capacity to start up and shall within 15 seconds from mains failure, supply the full rated load at the specified voltages and frequency.
- Bulk fuel tank and day tank incorporated into the generator base which enables the generator to run at full load for 72 hours.
- The standby diesel generator has to be remote monitored and operated for maintenance purposes.
- The standby diesel generator bulk tank and canopy shall be of the rust resistant type for coastal area to avoid rust.

Uninterrupted Power Supply (UPS) Power

The UPS system must be installed in the administration area to provide continuous power supply. The UPS system must be supplied by essential supply and provide power for least 30-minute backup on full load. The UPS unit shall be housed in an air-conditioned environment and shall have a separate battery cabinet. The system shall comprise of a Rectifier/charger, inverter, bypass switch, control and monitoring all contained in a free-standing floor mounted panel. This unit shall operate as a fully on-line automatic system.

Solar voltaic panels should be considered to charge the UPS batteries during daytime if failed the backup generator should take over.

IT Switches and Servers in Mini IT Suite

- Under floor air conditioner under raised floor
- UPS power to each unit
- Data terminals

Communication Services

Communication systems to be provided at every desk/workstation and the business centre. The following must be provided:

- **Radio network**
 - As per provincial requirements for EMS

- **Telephone Service**
 - Cabling & telephone terminals as per provincial requirements for telephones
 - PABX/VOIP to be provided as per provincial requirements and integrated to the existing Hospital system. The telephone receiving room to be placed in an area that is occupied 24/7
- **Data Network**
Data cabling and terminals as per provincial requirements for computers, printers
- **Wi-Fi**
A Wi-Fi system may be considered for the base
- **Lightning Protection**
The Lightning Protection system shall be installed to provide external structural protection. The system shall consist of a number of earth electrodes that connect to a lattice of conductors forming an earth mat. The earth mat shall be connected to the re-enforcing steel of the structure.

D. Fire Prevention and Control

The system shall comply with the requirements of the SABS 0313:1999 and SANS 10142.

- National Building Regulations and the SANS 10400:(ex. SABS 0400:1990)
- Code of Practice for the Application of the National Building Regulations
- The designer must obtain the approval of the Local authority during documentation. Records to be obtained of approvals etc.
- All necessary signage is to be provided and to comply with SANS1186 and SANS 10400.
- Fire extinguishers and fire hose reels must be clearly indicated in buildings by means of 300mm x 300mm signs in accordance with the SANS and OHSA regulations. Signs to be fixed approximately 2, 500mm above floor level and must be visible from all angles.
- Fire extinguisher handles height to be positioned at 1,500mm above floor and shall be installed with a timber backing plate.
- It is recommended that fire extinguishers should not exceed 4,5Kg in weight for ease of handling.

E. Water

Domestic Water

The base has or must have access to a 72-hour domestic water tank.

Solar Heating

Serious consideration should be given to utilize solar water heating systems to heat the domestic warm water.

Heat pumps

Heat pump systems can be considered for water heating.

Fire Water

A fire water reservoir that complies with the relevant local authorities' regulation is available.

Sewer system

Sewer to be connected to the existing system. If natural gravitation will not provide the required pressure, booster pumps must be installed.

Storm Water Drains

The storm water drains must be designed and constructed that they can be cleaned of ground, sand and other waste with relative ease.

3.3.2.3. INFECTION PREVENTION AND CONTROL

Design and development on infection prevention and control are to be based on optimal space integration, surface finishes and ventilation systems. Optimal space integration and separation must assist with the control of the disease spread and promote the demarcation of various spaces, support services, clean and dirty spaces.

The zoning of different spaces must integrate with a circulation system to ensure efficient access to and between the spaces. The use of finishes must meet the standard IUSS requirements, KZN specifications and other applicable regulations.

Natural ventilation should be maximised in the design of the facility, and an open window policy is encouraged although it may be difficult in areas with extreme weather conditions.

General hygiene supported by strategically positioned hand wash basins and / or sanitising stations in "dirty" areas and in public ablutions are key components in the reduction of cross contamination in the facility.

Clinical hand wash basins are to be provided in accordance with the following:

- No integral splash backs
- Passive infra-red taps are not acceptable
- Faucets should not be fitted with low-flow, aerating devices which may increase the rate of aeroionisation
- Water flow from tap must be directed away from drain
- No overflows
- Elbow-action faucets, preferably separate hot and cold taps

The waste from the base will be classed as general waste or medical waste and should be disposed of according to the department's waste policy.

Clean in, dirty out principle, is required where possible. Clean supplies should enter be stored in clean storage spaces. The resultant waste products discarded into a medical waste area which should be positioned close to the exit doors, to enable waste removal staff to readily retrieve waste without entering the core clinical areas in the facility.

3.3.3. ACCOMMODATION

The following is not inclusive and must be verified:

Table 11: Accommodation schedule

ROOM/AREA	NO	SIZE	TOTAL	NOTES
		m ²	m ²	
Main office accommodation				The office accommodation with all needs of the EMS staff.
Sub-District Manager	1	16	16	Responsible District Manager office space.
Shift Leader	1	16	16	Supervisor for the crew in shift, space is for one on one meetings with semi-privacy.
Admin Support	1	25	25	Support of all administration of the EMS office, this includes archiving of files, ordering of stationery & life support equipment.
Surgical Storeroom	1	10	10	Storage of bandages, masks, gloves etc.
Advance life support storeroom	1	12	12	Storage of incubators, oxygen masks,
Crew room	1	24	24	For staff on duty to await for call outs.
Training room	1	32	32	Demonstrations of how to deliver life support / interaction between staff and supervisors.
Boardroom	1	36	36	For staff meetings under the UMhlabuyalingana sub-district.
Kitchen	1	16	16	To be utilized by staff during tea breaks and lunch breaks.
Equipment Room	1	13	13	Stretchers, etc.
Stationery Room	1	6	6	All office equipment necessary.
Female Ablutions	1	15	15	To enable female staff members to shower & change when required, with the inclusion of lockers. External access from Wash Bay is required
Male Ablutions	1	15	15	To enable male staff members to shower & change when required, with the inclusion of lockers. External access from Wash Bay is required
SUB TOTAL			236	
Wash bay area				For the decontamination and washing of ambulances / medical rescue vehicles.
Sluice Room	1	12	12	Also referred to as a dirty utility room, used for the disposal of human waste products and disinfection of associated items.
Medical Waste	1	8	8	For the disposal of any solid waste that is generated in the diagnosis, treatment or immunization of humans.
General Waste	1	6	6	For the disposal of any general waste that is generated in the diagnosis, treatment or immunization of humans.
Maintenance Room	1	12	12	Used to store degraded EMS equipment, wheelchairs, old tyres etc.
Cleaning Store	1	8	8	To store cleaning supply for the use of washing of ambulances
Bottle store	1	6	6	To store gas bottles to restock ambulances
Wash Bay	1	60	60	For the decontamination and washing of ambulances / medical rescue vehicles.
SUB-TOTAL			112	
TOTAL			348	

3.4. GREEN BUILDING DESIGN

The climate of the world is changing and therefore it is crucial that the construction industry as well as Department of Health adapt accordingly.

It is not a requirement for this project to achieve a Green Star rating, however it is proposed that the essence of a 4-Star green rating be applied, with specific focus on the following:

- Indoor Environment Quality (IEQ)
- Energy
- Water
- Materials
- Emissions
- Innovation

3.5. HEALTH TECHNOLOGY SERVICES

The Health Technology Unit is responsible for providing a professional, cost effective and safe Clinical Engineering Service to all Health Institutions and Auxillary Medical Services in the Province of KwaZulu-Natal, in line with the Departmental vision of ensuring quality health-care for all citizens of the Province.

Health Technology covers a wide range of apparatus, consumables, devices, equipment and instruments. Planning and budgeting have to be considered jointly for it to be effective and need to take place within the context of policy, financial, and other constraints.

Based on this information, the Essential Service Packages must be developed into:

- human resource requirements, and training needs;
- space requirements, and facility and service installation needs; and
- equipment requirements.

3.5.1. STANDARD EQUIPMENT LIST

The tool used in the process of defining what equipment is needed for the Maternity and Neonatal unit is a Standard Equipment List. This is:

- a list of equipment typically required for each healthcare intervention (such as a healthcare function, activity, or procedure). This list will show all equipment required organised by activity space or room and by department;
- developed for the relevant level of healthcare delivery
- usually made up of everything including furniture, fittings and fixtures, in order to be useful for planners, architects, engineers and purchasers, and
- a tool which allows healthcare managers to establish if it economically viable.

The Standard Equipment List reflect the level of technology of the equipment and describe only technology that the facility can sustain (in other words, equipment which can be operated and maintained by existing staff, and for which there are adequate resources for its use).

It is important that any equipment listed:

- will fit into the rooms and space to be provided and reference is made to any building norms defining room sizes, flow patterns, and requirements for water, electricity, light levels and so on;
- will indicate the necessary utilities and associated plant (such as the power, water, waste management systems) to be made available for it
- can be operated and maintained by existing staff and skill levels, or for which the necessary training is available and affordable.

The Standard Equipment List is an aid to the planning process. In order to plan what equipment to purchase, awareness of any shortfalls in equipment is needed. To determine such shortfalls, the existing equipment Inventory needs to be compared with the Standard Equipment List. This will indicate whether any equipment is currently missing or needs to be purchased. It will thus assist in determining what equipment, is:

- necessary;
- surplus;
- extravagant; and
- missing

The initial HTS list is below and will be required to be updated and/or revised.

Table 12: Preliminary HTS Equipment list

PHASE 1: PLANNING (PART A)				
SECTION	DESCRIPTION	QTY	ESTIMATED COST	
			Per each	Total
MAIN OFFICE ACCOMMODATION				
Sub-District Manager	4-Drawer Lockable Filing Cabinet, Stainless Steel	2	R 3 500	R 7 000
Sub-District Manager	6-shelf, 2-Door Lockable Stationery Cupboard, Stainless Steel	1	R 4 000	R 4 000
Sub-District Manager	Bin - 8 Litre waste paper, stainless steel	1	R 500	R 500
Sub-District Manager	Chair Mid Back, Height Adjustable, Swivel with arm rest	1	R 3 000	R 3 000
Sub-District Manager	Chair, Mid Back with no arm rest, Steel base	2	R 2 500	R 5 000
Sub-District Manager	Desktop Computer	1	R 15 000	R 15 000
Sub-District Manager	Laser Printer	1	R 6 000	R 6 000
Sub-District Manager	L-shaped Office Desk with mobile lockable drawers	1	R 8 000	R 8 000
Sub-District Manager	Notice Board	1	R 1 000	R 1 000
Sub-District Manager	Wall Clock	1	R 250	R 250
Sub-District Manager	White Board	1	R 1 000	R 1 000
Shift Leader	4-Drawer Lockable Filing Cabinet, Stainless Steel	2	R 3 500	R 7 000

PHASE 1: PLANNING (PART A)				
SECTION	DESCRIPTION	QTY	ESTIMATED COST	
			Per each	Total
Shift Leader	6-shelf, 2-Door Lockable Stationery Cupboard, Stainless Steel	1	R 4 000	R 4 000
Shift Leader	Bin - 8 Litre waste paper, stainless steel	1	R 500	R 500
Shift Leader	Chair Mid Back, Height Adjustable, Swivel with arm rest	1	R 3 000	R 3 000
Shift Leader	Chair, Mid Back with no arm rest, Steel base	2	R 2 500	R 5 000
Shift Leader	Desktop Computer	1	R 15 000	R 15 000
Shift Leader	Laser Printer	1	R 6 000	R 6 000
Shift Leader	L-shaped Office Desk with mobile lockable drawers	1	R 8 000	R 8 000
Shift Leader	Notice Board	1	R 1 000	R 1 000
Shift Leader	Wall Clock	1	R 250	R 250
Shift Leader	White Board	1	R 1 000	R 1 000
Admin Support	4-Drawer Lockable Filing Cabinet, Stainless Steel	4	R 3 500	R 14 000
Admin Support	6-shelf, 2-Door Lockable Stationery Cupboard, Stainless Steel	4	R 4 000	R 16 000
Admin Support	Bin - 8 Litre waste paper, stainless steel	4	R 500	R 2 000
Admin Support	Chair Mid Back, Height Adjustable, Swivel with arm rest	4	R 3 000	R 12 000
Admin Support	Chair, Mid Back with no arm rest, Steel base	8	R 2 500	R 20 000
Admin Support	Desktop Computer	4	R 15 000	R 60 000
Admin Support	L-shaped Office Desk with mobile lockable drawers	4	R 8 000	R 32 000
Admin Support	Notice Board	1	R 1 000	R 1 000
Admin Support	Wall Clock	1	R 250	R 250
Admin Support	White Board	1	R 1 000	R 1 000
Surgical Storeroom	6-shelf, 2-Door Lockable Stationery Cupboard, Stainless Steel	1	R 4 000	R 4 000
Advanced life support storeroom	Infusion Pump Docking Station	2	R 10 000	R 20 000
Advanced life support storeroom	Syringe Driver Docking Station	2	R 10 000	R 20 000
Crew room	Coffee Table	1	R 2 000	R 2 000
Crew room	Couch, 1-seater	1	R 2 500	R 2 500
Crew room	Couch, 2-seater	2	R 4 000	R 8 000
Crew room	Notice Board	1	R 1 000	R 1 000
Crew room	Wall Clock	1	R 250	R 250
Crew room	White Board	1	R 1 000	R 1 000
Training room	60" Smart Television Set, Wall-mounted	1	R 10 000	R 10 000
Training room	Bin - 8 Litre waste paper, stainless steel	1	R 500	R 500
Training room	Chair, Mid Back with no arm rest, Steel base	8	R 2 500	R 20 000
Training room	Notice Board	2	R 1 000	R 2 000
Training room	Wall Clock	1	R 250	R 250
Training room	White Board	1	R 1 000	R 1 000

PHASE 1: PLANNING (PART A)				
SECTION	DESCRIPTION	QTY	ESTIMATED COST	
			Per each	Total
Boardroom	70" Smart Television Set, Wall-mounted	1	R 15 000	R 15 000
Boardroom	Bin - 8 Litre waste paper, stainless steel	1	R 500	R 500
Boardroom	Boardroom Table, 16-seater	1	R 20 000	R 20 000
Boardroom	Chair Mid Back, Height Adjustable, Swivel with arm rest	16	R 3 000	R 48 000
Boardroom	Notice Board	1	R 1 000	R 1 000
Boardroom	Wall Clock	1	R 250	R 250
Kitchen	Bin - 8 Litre waste paper, stainless steel	1	R 500	R 500
Kitchen	Dining Chair, Stackable	8	R 500	R 4 000
Kitchen	Dining Table, 4-seater	2	R2 500	R 5 000
Kitchen	Microwave Oven, 30L	1	R 1 500	R 1 500
Kitchen	Refrigerator, 400L	1	R 8 000	R 8 000
Kitchen	Sandwich Maker	1	R 500	R 500
Kitchen	Toaster	1	R 400	R 400
Equipment Room	Infusion Pump Docking Station	3	R 10 000	R 30 000
Equipment Room	Syringe Driver Docking Station	3	R 10 000	R 30 000
Equipment Room	Wall clock	1	R 250	R 250
Stationery Room	3-Step Ladder	1	R 1 000	R 1 000
Female Ablutions	Bin - 8 Litre waste paper, stainless steel	1	R 500	R 500
Female Ablutions	She Bins	3	R 500	R 1 500
Male Ablutions	Bin - 8 Litre waste paper, stainless steel	1	R 500	R 500
Maintenance Room	None	0	R 0	R 0
Cleaning Store	Cleaning equipment and materials	1	R 30 000	R 30 000
			TOTAL	R 550 650

4. PROJECT MANAGEMENT PLAN

4.1. PROJECT MANAGEMENT AND CONTROLS

4.1.1. PROJECT INTEGRATION MANAGEMENT

It is important that this project and the various processes be integrated and managed as a holistic whole. Project integration management is necessary so that the project team will work together seamlessly. The Integration management plan must include the various processes, systems, and methodologies that follow to develop cohesive strategy.

The Project Integration Management plan must identify, describe, combine, unify, and coordinate the project processes and related activities with project team. The following processes have been identified for this project:

- Scope Management
- Time Management
- Cost Management
- Quality Management
- Resource Management
- Communication Management
- Risk Management
- Stakeholders Management
- Change Management

Also included is the Procurement Strategy and Management plan

The project will be managed, and will required sign-off and/or approvals, utilising the Infrastructure Delivery Management Systems which included seven (7) stages, as detailed in the Framework for Infrastructure Delivery and Procurement Management (FIDPM) below:

Table 13: IDMS Stages

Stage	Name	End of Stage Deliverables
1	Initiation	Initiation Report or Prefeasibility Report
		<i>(i) The Initiation Report, which defines project objectives, needs, acceptance criteria, department's priorities and aspirations, procurement strategies, and which sets out the basis for the development of the Concept Report.</i>
		Or
		<i>(ii) A Prefeasibility Report, is required on mega capital projects to determine whether or not to proceed to the Feasibility Stage, where sufficient information is presented to enable a final decision to be made regarding the implementation of the project.</i>
		Stage 1 for this project is complete when the Clinical brief and project brief has been approved.
2	Concept	Concept Report or Feasibility Report
		(i) The Concept Stage represents an opportunity for the development of different design concepts to satisfy the project requirements, as developed during Stage 1. It also presents, through the testing of alternative approaches, an opportunity to select a particular conceptual approach. The ultimate objective of this stage is to determine whether the project is viable to

Stage	Name	End of Stage Deliverables
		<p>proceed, with respect to available budget, technical solutions, time-frame and other information that may be required.</p> <p>(ii) The Concept Report should as a minimum, provide the following information:</p> <p>a) Document the initial design criteria, cost plan, design options and the selection of the preferred design option, or the methods and procedures required to maintain the condition of infrastructure for the project.</p> <p>b) Establish the detailed brief, scope, scale, form and cost plan for the project, including, where necessary, the obtaining of site studies and construction and specialist advice.</p> <p>c) Provide an indicative schedule for documentation and construction or maintenance services, associated with the project.</p> <p>d) Include a site development plan, or other suitable schematic layouts of the works.</p> <p>e) Describe the statutory permissions, funding approvals and utility approvals required to proceed with the works associated with the project.</p> <p>f) Include a baseline risk assessment for the project, and a health and safety plan, which is a requirement of the Construction Regulations, issued in terms of the Occupational Health and Safety Act.</p> <p>g) Contain a risk report linked to the need for further surveys, tests, other investigations and consents and approvals, if any, during subsequent stages and identified health, safety and environmental risk.</p> <p>(iii) A Feasibility Report shall, as a minimum, provide the following information:</p> <p>a) Details regarding the preparatory work covering:</p> <ul style="list-style-type: none"> • A needs and demand analysis with output specifications. • An options analysis. <p>b) A viability evaluation covering:</p> <ul style="list-style-type: none"> • A financial analysis. • An economic analysis, if necessary. <p>c) A risk assessment and sensitivity analysis;</p> <p>d) A professional analysis covering:</p> <ul style="list-style-type: none"> • A technology options assessment. • An environmental impact assessment. • A regulatory due diligence. <p>e) An implementation readiness assessment covering:</p> <ul style="list-style-type: none"> • Institutional capacity. • A procurement plan. <p>Stage 2 for this project is complete when the Concept Report (utilising the prescribed HIAC Stage 2 report) is complete and approved.</p>
3	Design Development	<p>Design Development Report</p> <p>(i) The Design Development Report shall as necessary:</p> <p>a) Develop in detail the approved concept to finalise the design and definition criteria.</p> <p>b) Establish the detailed form, character, function and costings.</p> <p>c) Define all components in terms of overall size, typical detail, performance and outline specification.</p> <p>d) Describe how infrastructure or elements or components thereof are to function, how they are to be safely constructed, how they are to be maintained and how they are to be commissioned.</p> <p>e) Confirm that the project scope can be completed within the budget or propose a revision to the budget.</p> <p>Stage 3 for this project is complete when the Design Development Report (utilising the prescribed HIAC Stage 3 report) is approved.</p>

Stage	Name	End of Stage Deliverables
4	Design Documentation	Design Documentation
		(i) Design documentation provides the:
		a) production information that details, performance definition, specification, sizing and positioning of all systems and components that would enable construction;
		b) manufacture, fabrication and construction information for specific components of the work informed by the production information.
		Stage 4 for this project, is complete when the Design Documentation Report (utilising the prescribed HIAC Stage 4 report) is approved.
5	Works	Completed Works capable of being used or occupied
		(i) The following is required for completion of the Works Stage:
		a) Completion of the works is certified in accordance with the provisions of the contract; or
		b) The goods and associated services are certified as being delivered in accordance with the provisions of the contract.
		Stage 5 is complete when the Works Completion Report (utilising the prescribed HIAC Stage 5 report) is approved.
6	Handover	Works which have been taken over by user or owner; completed training; Record Information
		(i) The following activities shall be undertaken during the handover stage:
		a) Finalise and assemble record information which accurately reflects the infrastructure that is acquired, rehabilitated, refurbished or maintained;
		b) Hand over the works and record information to the user organisation and if necessary, train end user staff in the operation of the works.
		Stage 6 is complete when the Handover/Record Information Report (utilising the prescribed HIAC Stage 6 report) is approved.
7	Close-Out	Defects Certificate or Certificate of Final Completion; Final Account; Close-Out Report
		(i) The Close-Out Stage commences when the end user accepts liability for the works. It is complete when:
		a) Record information is archived;
		b) Defects certificates and certificates of final completion are issued in terms of the contract;
		c) Final amount due to the contractor is certified, in terms of the contract;
		d) Close-Out Report is prepared by the Implementer and approved by the Client Department.
		Stage 7 is complete when the Close-out Report (utilising the prescribed HIAC Stage 7 report) is approved.

4.1.2. PROJECT SCOPE MANAGEMENT

The following broad Scope Management Plan has been formulated:

4.1.2.1. PROJECT OUTCOME

- Promote safer facility to carry out emergency medical services
- Provide conducive working environment
- Improve staff morale
- Improve service delivery
- Training sessions which are required weekly will be conducted through an appropriate training room

- Meetings can be held as frequently as required with an appropriate boardroom as currently the hospital boardroom is utilized with limitations.

4.1.2.2. PROJECT OBJECTIVES, DELIVERABLES AND CRITICAL SUCCESS FACTORS

The project objectives include the following:

- It is to create a sound working environment through an established EMS Base and Wash bay; and to bring efficiency and rapidness in office work for EMS staff.
- Job creation during construction and for operation of the EMS office accommodation
- Increase productivity in staff and relationships amongst staff through provision of recreational and rest areas.
- Promote health care through thoroughly washed EMS vehicles with a compliant wash bay
- Provide a dedicated waste area for the disposal of medical waste as there is currently no medical waste area
- Provide a dedicated storage area for specialized equipment like cardiac rest measure which are not be near wet surfaces nor hot areas. There is currently no dedicated storage which has impacted negatively on equipment.

The project deliverables have been identified as follows:

- (i) To complete the Project Technical brief and received approval thereof;
- (ii) To appoint Implementing Agent (Consultants) to undertake the implementation of the project;
- (iii) To develop a feasibility study and concept development and received approval thereof;
- (iv) To Design and document the project for work implementation and received approval thereof;
- (v) To construct the new EMS Base/ office and received approval of the works;
- (vi) To finalise the hand over, completion and close out of the project.

The following success factors will be applied to this project:

- The project must be lead, managed and planned to ensure that the objective is met. This will be monitored in line with the Department's reporting systems;
- The correct and suitable persons be appointed to the project team to ensure the successful completion of the project and to ensure that opportunities be created at all levels for learning and development;
- Operations and Work processes must be put in place to ensure smooth, integrated and managed project implementation on all levels;
- Sufficient Stake holder engagements to take place so that the project is implemented successfully; and
- Project finances as managed to ensure appropriated application thereof.
- Efficient service delivery by EMS staff
- Completion of project within the agreed time-scales, budget and required quality.

4.1.2.3. SCOPE CONTROL AND CLOSE-OUT

Scope control involves the tracking, managing and monitoring the progress of the project and include tracking and filing documentation, managing scope creep, monitor the work during each phase, and disapproving/approving any deviation/changes along the way and at the end of each stage. The project will be presented to HIAC at the end each stage and the required prescripts need to be adhered to including requirements included in the "End-of-Stage" reports.

The scope of the works will be "closed" at the end of each stage. It is not expected that the scope will change beyond IDMS Stage 3. Deviations will be approved at the end of each stage. During the Close-out Stage of the project, the "wrap up" part of the process, which involves an audit of the project deliverables, lessons learned and the development of a Post Occupancy Report.

4.1.2.4. WORK BREAKDOWN STRUCTURE

A Work Breakdown Structure must be developed to include required structures.

4.1.2.5. ROLES AND RESPONSIBILITIES OF THE PROJECT TEAM

The following expectations by KZN-DOH are highlighted:

Appointment of External Service Providers

The KZN-DOH will enter into a legally binding agreement with the Professional Service Provider (PSP) team. However, over and above the agreement, the following expectations by KZN-DOH from the PSP's are highlighted:

- Cost effective proposals including where possible alternative economical proposals
- A Maintenance conscious facility and including a baseline maintenance plan at the end of the project
- An Environmental conscious facility
- A Facility to promote healing
- A Facility that will stand the test of time
- Consideration to alternative, but tested and accepted construction methods, systems and installations
- Timeous response time and provision of documents including the following:
 - Programmes and milestones
 - Designs, reports and specifications
 - Cost reports
 - EPWP reports
 - Completion certificates
 - As-built drawings, specifications, manuals, baseline maintenance plan, certificate
 - Close-out report

- Compliance to Legislative requirements
- Compliance to Policies
- Compliance to Norms and Standards (both National and Provincial)

Appointment of Contractors or Suppliers

The KZN-DOPW will enter into a legally binding agreement with the Contractor or Supplier. However, over and above the agreement, the following expectations by KZN-DOH from the Contractor or Supplier are highlighted:

- Effective Time management
- Effective Project Management
- Effective Cost Management
- Effective Resource Management
- Effective Communication
- Adherence/Compliance to all applicable Legislation
- Adherence/Compliance to all applicable policies
- Adherence/Compliance to all applicable norms and standards

4.1.2.6. ROLES AND RESPONSIBILITIES OF THE DEPARTMENT OF HEALTH

Over and above the SLA as noted under A. above the following roles and responsibilities are highlighted:

- Effective management and co-ordination of all stages of the project
- Effective management and co-ordination to all legislative requirements
- Quality control and compliance.
- Effective manage Procurement preparation processes in terms of the PFMA, SIPDM and Treasury Regulations.
- Contract and project management
- Effective Financial management.
- Effective Time Management
- Manage completion processes and retention periods.
- Manage timeous and complete Close-out of Project including as-built documentation, manuals compliance certificates and related documentation.
- Manage all required reporting, documentation and archiving of documents
- KZN-DOH will have an oversight role

4.1.2.7. APPROVAL PROCESS

The approval process involves the tracking, managing and monitoring the progress of the project and include tracking and filing documentation, managing scope creep, monitor the work during each phase, and disapproving/approving any deviation/changes along the way and at the end of each stage. The project will be presented to the Health Infrastructure Approval Committee (HIAC) at each stage and the required prescripts need to be adhered to including requirements included in the Stage reports.

The scope of the works will be “closed” at the end of each stage. It is not expected that the scope will change beyond stage 3. Deviations will be approved at the end of each stage. During the Close-out Stage of the project, the “wrap up” part of the process, this involves an audit of the project deliverables, lessons learned and the development of a Post Occupancy Report.

4.1.2.8. CHANGE REQUESTS

Any change request must be a formal submission that is submitted to KZN-DOH for approval. Changes may include: Scope changes, budgetary changes or time changes.

The approval process will follow the guidelines as is contained in the Project Procedure Manual & IDMS Guidelines as approved on 04 April 2020.

4.1.3. PROJECT TIME MANAGEMENT

The project will rely on several different timelines and the schedules of multiple people. Therefore effective time management is critical. A Time Management plan is required and a tool such a Gantt chart is recommended to augment the plan. It is recommended that the plan be monitored on a bi-weekly basis.

The following time line is recommended

Table 14: Milestones and Tasks

Milestone	Anticipated Completion Date	Target % Complete
PROJECT INITIATION DATE	04/01/2022	100%
STAGE 1B BRIEF (current stage)	30/06/2023	100%
APPOINTMENT OF CONTRACTOR	29/12/2023	100%
APPOINTMENT OF DESIGN TEAM	31/01/2024	100%
STAGE 2 CONCEPT & VIABILITY	15/05/2024	90%
STAGE 3 DESIGN DEVELOPMENT	30/09/2024	95%
STAGE 4 PROCUREMENT DOCUMENTATION	13/12/2024	98%
STAGE 5 CONSTRUCTION START	28/02/2025	100%
CONSTRUCTION 0 - 25%	30/05/2025	100%
CONSTRUCTION 26 - 50%	31/08/2025	100%
CONSTRUCTION 51 - 75%	30/11/2025	100%
CONSTRUCTION 76 – 100%	05/02/2026	90%
PRACTICAL COMPLETION	28/02/2026	100%
HANDED OVER	28/02/2026	100%
WORKS COMPLETION	31/03/2026	100%
FINAL COMPLETION	30/06/2026	100%
CLOSE OUT	15/12/2026	100%

4.1.4. PROJECT COST MANAGEMENT

The project budget is estimated however throughout the project various estimates will be required and will conclude with the final account/s. As a minimum, the following minimum will be required as part of the End Stage reports:

Stage 1:	Initial estimate as per item
Stage 2:	Preliminary Estimate (OOM)
Stage 3:	Detailed Estimate (Elemental estimate)
Stage 4:	Bill of Quantities
Stage 5:	Monthly Payments Monthly Cash flows Variations Draft re-measurements
Stage 6:	Nil
Stage 7	Final Account/s

4.1.4.1. BUDGET CONTROL

The following amounts are included for reference purposes and adjusted estimates will be approved during the various End Stage approvals. The cost is reflected as follows:

Infrastructure component

- Fees, Building and related infrastructure bulk services
- HT (furniture, medical equipment, IT hardware and software, linen & crockery and cutlery)
- Commissioning costs
- Operating costs

The Project Manager will be responsible to ensure that necessary controls are in place and that the budgets are not exceeded without a fully motivated and approved submission to the KZN-DOH CFO and HOD.

4.1.4.2. FEES, BUILDING AND RELATED INFRASTRUCTURE BULK SERVICES

The Funding Source for the project is the Health Facility Revitalisation Grant.



KZN DEPARTMENT OF HEALTH

EMS ACCOMODATION

							7500
A	DESCRIPTION	UNITS	QTY	RATE	AMOUNT	%	
	New EMS staff accomodation	m2	391	R 8 275.86	R 3 235 861.26	100	
	Wash bay	m2	74		R 5 000 000.00		
	Ambulance Parking	m2	190	4500	R 855 000.00		
	SUB-TOTAL				R 9 090 861.26		
B	DESIGN DEVELOPMENT AND PROJECT CONTINGENCY ADD 5%					R 454 543.06	
				SUB-TOTAL	R 9 545 404.32		
C	ESCALATION						
	Pre -tender		0.07		R 868 178.30		
				SUB-TOTAL	R 10 213 582.63		
	Post -tender	Cash flow	Escalatable	CPAP			
		0.6	0.85	0.06	R 312 535.63		
	total escalation				R 980 713.93		
				TOTAL	R 10 526 118.25		
	TOTAL ESTIMATED CONSTRUCTION COST(EXCL VAT)					R 10 526 118.25	
D	PROFFESIONAL FEES			Add 18.5%	R 1 947 331.88		
E	DISBURSMENT		5% of proffessional fees		R 97 366.59		
	TOTAL ESTIMATED CAPITAL EXPENDITURE (EXL VAT)					R 12 570 816.72	
F	VALUE ADDED 15%				R 1 885 622.51		
	TOTAL ESTIMATED CAPITAL EXPENDITURE (INCL VAT)					R 14 456 439.23	

4.1.4.3. Health Technology

HT (Furniture & Equipment) Cost (incl. VAT)

Funding source		
Budgetary Item	Amount	Explanatory Notes
Current estimate for HT (Equipment)	R 0.00	
Current estimate for Furniture	R 550 650.00	
Provision for Escalation	R 0.00	
Estimated fees	R 0.00	
Estimated Commissioning Cost	R 0.00	
Estimated escalation	R 0.00	
Estimated additional Operational Cost	R 0.00	
Estimated HT (Furniture & Equipment) Cost (incl. VAT)	R 633 247.50	

4.1.4.4. Commissioning

Commissioning (incl. VAT)

Funding source		
Budgetary Item	Amount	Explanatory Notes
Current estimate for Commissioning (Salaries only)	R	
Provision for Escalation	R	
Estimated fees	R	
Estimated Commissioning Cost (incl. VAT)	R	

4.1.4.5. Operational Cost

The estimated additional operational cost for the Itshelejuba EMS is as follows:

Annual Operating Cost (incl. VAT) – 2022/23 Financial Year

Funding source		Budget control head office
Budgetary Item	Amount	Explanatory Notes
Salaries		
Electricity, water, medical gases, fuels		
Food, catering services		
Rates & taxes		
Lease costs		
Legal		
Consumables		
Estimated Annual Operating Cost (incl. VAT)		

4.1.4.6. Multi-year budget for the project

The estimated budget (excluding Operational Cost) for the MTEF is as follows:

MTEF and beyond	Fees	Construction	Total
Yr. 22/23	R 0.00	R 0.00	R 0.00
Yr. 23/24	R 408 939.69	R 0.00	R 408 939.69
Yr. 24/25	R 1 226 819.08	R 7 894 588.65	R 9 121 407.73
Yr. 25/26	R 408 939.69	R 2 631 529.55	R 3 040 469.24
Sub-total	R 2 044 698.46	R 10 526 118.20	
TOTAL INCL. VAT			R 14 456 439.23

4.1.5. PROJECT QUALITY MANAGEMENT

Project Quality Management is required to continually monitor the quality of all activities and taking corrective action if need be. Quality management include cost control of the project, establishment and requirement to achieve standards, which will lower the risks. Project Quality Management must include the following:

4.1.5.1. QUALITY CONTROL

The Quality Management Plan must monitor and document the successful completion of the Maternity and Neonatal unit that is fully compliant to specification and guidelines.

The plan must monitor the following:

- Compliance to standards (Please refer to the IUSS HEALTH FACILITY GUIDES as applicable)
- Deviations
- Variations
- Acceptance by End-User
- Patient satisfaction

4.1.5.2. QUALITY ASSURANCE

Quality assurance requires documentary evidence that the project activities are implement as defined and promised. A measurement system must be developed to monitor

- Data accuracy for Precision
- Data to measure
- Successive measurements of Reproducibility – different appraisers measuring the same item get the same result

4.1.5.3. QUALITY CONTROL

Quality control involves the required operational techniques meant to ensure quality standards. This includes identifying, analysing, and correcting problems.

While quality assurance occurs before a problem is identified, quality control is reactionary and occurs after a problem has been identified, and suggests methods of improvement.

Quality control monitors specific project outputs and determines compliance with applicable standards. It also identifies project risk factors, their mitigation, and looks for ways to prevent and eliminate unsatisfactory performance.

Quality control can also ensure that the project is on budget and on schedule. Monitoring the project outputs can be done through peer reviews and testing. By catching deliverables that aren't meeting the agreed upon standards throughout, you'll be able to simply adjust your direction rather than having to entirely redo certain aspects.

Benefits of project quality management:

- Quality products
- Customer satisfaction
- Increased productivity
- Financial gains
- Removes silos/better teamwork

4.1.6. RESOURCE MANAGEMENT

It is expected that the Project Manager will manage all resources that would be required to complete the project, including People, Equipment, Facilities, and Budget. The required resources must be deployed to achieve the planned outcome. A resource plan must be prepared and managed accordingly.

4.1.6.1. PROJECT TEAM

The project team must, as a minimum, consist of the following, but this must be adjusted throughout the duration of the project as applicable:

KZN Department of Health - Infrastructure Development

Team Member	Skill level required
Project Leader	Project Management skill required
Architect	Level 10: Architect
Electrical Engineer	Level 10: Engineer
Mechanical Engineer	Level 10: Engineer
Civil/Structural Engineer	Level 10: Engineer
Quantity Surveyor	Level 10: Quantity Surveyor
Health and Safety Liaison	Level 10: Health and Safety Officer
Administrative support	Finance, Admin and PMIS skills required

KZN Department of Health – General

Team Member	Skill level required
Specialised and Clinical Support Liaison	Must have knowledge of provincial and departmental policies Emergency Medical Services
Emergency Medical Services Liaison	Must have knowledge of provincial and departmental policies re Emergency Medical Services
IT Services Liaison	Must have knowledge of provincial and departmental policies re IT services
Security Services Liaison	Must have knowledge of national, provincial and departmental policies re security, level of security required
Infection Prevention Control (IPC) Liaison	Must have knowledge of national, provincial and departmental policies re IPC, materials and fittings for accommodation
Zululand Health District Liaison	Must have decision-making delegations Must have knowledge of provincial and departmental policies re Emergency Medical Services Must have knowledge of Hospital Infrastructure and Maintenance plans

External Resources may only be procured if there are insufficient in-house skills available within the Implementing Agent. Justification must be provided in terms of National Treasury Instruction No 2 of 2017/2018 and specifically item 4. Should external resource be required, it is recommended that the following be considered (as is required to augment any In-house capacity):

Team Member	Skill level required
Principal Agent	University degree, Professional registration and 6 years post registration experience Project Management skill required. 5 years' experience in the Health planning environment
Architect	University degree, Professional Architect registration and 5 years post registration experience in the health field
Electrical Engineer	University degree, Professional registration and 4 years post registration experience
Mechanical Engineer	University degree, Professional Engineer registration and 4 years post registration experience in the health field
Civil/Structural Engineer	University degree, Professional Engineer registration and 4 years post registration experience
Quantity Surveyor	University degree, Professional QS registration and 4 years post registration experience
Land Surveyor	4 Years' Experience in the Surveying Field
Geotechnical Engineer	University degree, Professional Engineer registration and 3 years post registration experience
Sustainable Specialist	4 Years' Experience in the Infrastructure environment
General building contractor	CIBD 6GB
Community Liaison Officer	Experience and knowledge of applicable legislations and policies Management capabilities is recommended

4.1.7. PROJECT COMMUNICATION PLAN

The Project Manager must develop a Project Communication Plan that must be managed throughout the project. As a minimum the plan must cover the following

- Strategies

In order to ensure good communication, frequent engagement will take place though out the project life cycle. The engagements include:

- Stakeholder engagement meetings
- Planning meetings
- Update meetings
- Report back meetings
- Site meetings
- No media communication except by KZN-DOH Communication

- Methodologies

Communication will be done through the following methods:

- Meetings that will either be Face to Face or via on-line programme MS Teams
- Minutes (all meetings to be minuted)
- Telecommunication
- E-mails
- Reports
- Letters
- Feedback information
 - Delivery

Communication will be delivered through:

- Telecommunication
- E-mails and other on-line systems
- Internal registry services
 - Personnel

Communication will be between KZN-DOH Infrastructure Development and: -

- National Department of Health
- KZN-DOH Head Office directorates
- Itshelejuba Hospital
- KZN Department of Public Works
- Professional Service Provider team
 - Communication is expected to take place between:
 - KZN-DOH Zululand District and EMS Services as well as surrounding Communities
 - Between Professional Service Providers
 - Media

Communication will be delivered through:

- E-mails and other on-line systems - Ms Outlook MS Teams
- Documents – Hard copy and electronic (Micro Soft Word, Excel, Project), Adobe Acrobat PDF
- Drawings – Autodesk AutoCAD, Revit
- Bills of Quantities – Win QS

4.1.8. RISK MANAGEMENT PLAN

Informed decision-making is critical to the success of any project. Crucial to this success is the identification of risks and how they will be managed through the Risk Management Plan. The risk plan will deal with current issues as well as identified risks.

4.1.8.1. IDENTIFIED RISKS

The following is some of the risk identified for this project. These risks are not all inclusive and the log needs to be monitored, updated and revised as required for the duration of the project.

Table 15: Risk Log

Risk Category	Identified Risk	Risk Analysis			
		Probability	Consequence	Impact	Risk Mitigation Measure
Institutional Arrangements	Changing Environment, i.e. Changing National & Departmental Policies and Norms	Low	Changes to designs and cost implications decision	Low	Ensure proper signoff by National, e.g. Peer Review, and Provincial structures; Adequate lead time is being built into planning and execution
	Poorly defined relations between the stakeholder	Low	Delays in obtaining input and approvals	High	Roles & responsibilities to be to clearly defined .Sufficient planning and consultation meetings
Project Procurement	Delays with procurement processes	High	Delays to project	High	Suitable procurement strategies to be followed and well-prepared documentation to be compiled
Project Procurement	Experienced and qualification of consultants	Medium	Inappropriate and/or costly structures Delays to project Poorly run projects	Medium	Clear requirements and functionality requirements to be included in procurement documents. Also refer to item 4.1.6.1 above
	Experienced and qualification of contractors	Medium	Delays to project Poorly run projects Substandard workmanship	Medium	Clear requirements and functionality requirements to be included in procurement documents
Project implementation	Contractor Default; Contract cancellation	Medium	Project delays	High	Provide appropriate and reasonable assistance to contractors Re-tender as soon as possible
	Delays: Inclement weather Strikes, political, acts of God, litigation etc	Medium	Project delays	Medium	Plan ahead for projects to start outside of the highest rain months where possible; Tight management of the programme
	OHS & Construction Regulations non-compliance	Low	Safety compromised Delays due to problems with Labour	Low	Monthly monitoring and evaluation
	Delays in supply of materials (long lead times) and cost increases	Low	Project delays	Low	Proper planning for such items. Ensure proper controls and monitoring of projects
Financial management	Increasing Budget constraints; Over/under delivery and expenditure	Low	Requirement for Variations	Low	On-going management of Project and estimate Ensure proper controls and monitoring of project

Risk Category	Identified Risk	Risk Analysis			
		Probability	Consequence	Impact	Risk Mitigation Measure
	Delays in payments to consultants and contractors	Low	Hardship to contractors and consultants and possible project delays	Low	Ensure timeous payments to consultants and contractors
Human Resources	Inadequate human resources in terms of capacity and skills	Medium	Delays to project	Medium	Project team to be appointed as per item 4.1.6.1 above Clear requirements and functionality requirements to be included in procurement documents.
	Labour relations	Low	Poor labour relations result in labour disturbances and poor labour productivity; Strikes on site will delay projects	Low	Ensure good labour relations by compliance with the relevant Act/s and ensuring that the working conditions are satisfactory and disciplinary procedures are applied where appropriate
Programme systems	Updating the PMIS systems on the part of project office staff; incl inaccurate capturing of data	Medium	Incomplete project database	Medium	Continuous management of project updating
Environmental	Adverse site conditions as it is a green fields site Non approval of PDA, EIA's, etc	Low	Delays to project Costly solutions	Low	Careful planning and monitoring; Site investigations to be done
Beneficiary management	Employment within communities	Low	Unacceptable interference from the community affecting progress on the project	Low	Effective communication of the project activities and programme addressed with the community
Litigation	Disputes	Low	Delays and budget impact	Low	Careful planning and effective monitoring and communication
Programme closure	Poor documentation, failure to acknowledge lessons learnt & no proper closure Delays in preparation of Final accounts	Medium	Effect on general administration efficiency; Effect on future project planning	Medium	Ensure proper controls and monitoring of projects
	Delays in getting defects attended to in the defect's liability period	Medium	Maintenance problems for the client & inconvenience for the users	Medium	Ensure that defects are attended to by careful checking and ensuring that Draft retention payments are not made until the defects have been rectified

4.1.9. PROCUREMENT MANAGEMENT PLAN

4.1.9.1. FIDPM PROCUREMENT GATES

The FIDPM procurement gates must be implemented. The FIDPM states:

6.1.1 *Infrastructure procurement shall be undertaken in accordance with all applicable Infrastructure Procurement-related legislation and this Framework.*

6.1.2 *Infrastructure procurement shall be implemented in accordance with procurement gates prescribed in clause 6.2 and the CIDB prescripts. If deemed necessary by the institution, Accounting Officer or Accounting Authority can, over and above procurement gates prescribed in clause 6.2, introduce additional procurement gates.*

6.1.3 *Procurement Gate 1 and 2 shall be informed by the Programme Management Control Point Deliverables in terms of Section 5.2 above.*

6.1.4 *Given the peculiarity of the institution, the procurement of Professional Service Providers (PSPs) and Contractors can occur at any points in the IDM Processes.*

6.1.5 *The Accounting Officer or Accounting Authority must ensure that a budget is available and cash flow is sufficient to meet contractual obligations and pay contractors within the time period provided for in the contract.*

6.1.6 *Procurement gates provided in 6.2 shall be used, as appropriate, to:*

Infrastructure Procurement Requirements

- a) *Authorise commencement to the next control gate;*
- b) *Confirm conformity with requirements; and/or*
- c) *Provide information, which creates an opportunity for corrective action to be taken.*

The following Procurement gates are applicable to the project:

Table 16: Procurement Gates

FIDPM Gate	Procurement Gate	Description	Approval process
Stage 1	PG 1	Obtain permission to start with the procurement process	IPMP document
	PG 2	Obtain approval for procurement strategies that are to be adopted	Approval of Project brief HIAC approval certificate Stage 1
Stage 4	PG 3	Obtain approval for procurement documents	Approval of Project Design Development, HIAC approval certificate Stage 4
	PG 4	Confirm that cash flow is sufficient to meet projected contractual obligations	Infrastructure Cash flow Committee (minuted) NSI issued
	PG 5	Solicit tender offers	SCM – Adverts, quotations, etc Bid specification Committee (BSC) (minuted meeting)
	PG 6	Evaluate tender offers in terms of undertakings and parameters established in procurement document	SCM - Evaluation Departmental Bid Evaluation Committee (BEC) (minuted meeting)
	PG 7	Award the contract	SCM - Award Departmental Bid Adjudication Committee (BAC) (minuted meeting) Signed by Accounting Officer
Stage 5 Stage 6 Stage 7	PG 8	Administer the contract and confirm compliance with all contractual requirements	Approval of stages 5 - 8 HIAC approval certificates Stages 4 to stage 8

4.1.9.2. PROCUREMENT GATE 1 (PG1): OBTAIN PERMISSION TO START WITH THE PROCUREMENT PROCESS

The following need to be procured:

- Professional Service Providers (if required). Please refer to item 4.1.6.1 above
- Contractors and Sub-Contractors
- Suppliers and installers

F. The scope for the project is as defined under item 3 above.

G. Estimate costs are as follows:

▪ Professional Service Providers	R 2 100 000.00
▪ Contractors and Sub-Contractors	R 12 000 000.00
▪ HTS	R 560 000.00
▪ Commissioning	R 0

H. The project is included in the B5

I. PG 1 will be complete when HIAC approves gate 1.

4.1.9.3. PROCUREMENT GATE 2 (PG2): APPROVAL FOR PROCUREMENT STRATEGIES THAT ARE TO BE ADOPTED

Due to the deteriorating of the existing facility it is proposed that the project be accelerated as far as possible;

Preferential procurement in line with legislative provisions and the Construction Sector Code must be included in the procurement documents

Procurement Strategy

The Procurement Strategy is prepared by the Department of Health as part of the annual Infrastructure Programme Management Plan (IPMP). It sets out the Delivery Management Strategy as well as the Procurement and Contracting Arrangements proposed for each project requiring the procurement of Consultants (Professional Services) or Contractors (Works) during the ensuing 3-year period.

Formulation Process

The 5-step process for the preparation of the Delivery Management Strategy and the Procurement and Contracting Arrangements is summarised below:

- Establish the Base Information
 - The scope of the project is described in item **Error! Reference source not found.**
 - The CIDB grading for the Contractor will be 6GB
- Delivery Plan information
- Expenditure Analysis – This project does not form part of a programme and shall be implemented as an individual project

- Organisational Analysis – The project shall be reviewed against organisational goals and priorities to ensure it is consistent with the strategic plans of the Department
- Market Analysis – Tenders shall be based on an open procedure to test the market for both professional services and construction.
- Procurement objectives
 - Delivery procurement objectives:

The primary objective of the project is the delivery of functional infrastructure including buildings, plant and equipment, roads, electricity supply, water supply and so on; within budget, to the required standard and within the specified timeframe.
 - Developmental procurement objectives

The project must, where possible, incorporate secondary (or developmental) socio-economic objectives as follows:

- Promotion of black economic empowerment
- Promotion of gender equality
- Promotion of work opportunities for SMMEs
- Alleviation poverty
- Promotion of local economic development
- Development of CIDB registered contractors
- Skills development
- Reduction of environmental impacts
- The Delivery Management Strategy for Works

It must be noted that this project cannot be done in a package as there is not similar project in the area, thus it will be done as an individual project.

- Delivery management arrangements

It is expected that this project will be delivered through:

- Implementing Agent
- Outsourcing (Works)
- Outsourcing (Professional Services)
- Contracting Arrangements for Works
 - Service Requirements Options for Works: General contractor
 - Contracting Strategy: Design and Build strategy
 - Pricing Strategy: Cost Reimbursable – Option
 - Form of Contract: NEC3

Procurement Strategy for Works

- Procurement Arrangements for Works Contractors
 - Functionality Criterion Requirements:
 - Skills
 - Experience
 - Previous work successfully complete
 - Resources
- Procurement Procedure: Public Open Tender
- Targeted Procurement Procedure: Standard DOH SCM Targeted Procurement
- Procurement Document: Standard DOH Bid Document
- Tender Evaluation Criterion:
 - Responsiveness
 - Quality Evaluation
 - Price and Preference
 - Minimum score must be 70%
- Contracting Arrangements for Services
- External Resources may only be procured if there are insufficient in-house skills available within the Implementing Agent. Justification must be provided in terms of National Treasury Instruction No 2 of 2017/2018 and specifically item 4.
- Should external resource be required, it is recommended that the following be considered (as is required to augment any In-house capacity):
 - Contracting Arrangements for Professional Services
- Professional Service Areas: Full Service
- Contracting Strategy: Design and Build, separate as per item 4.1.6.1 above
- Pricing Strategy: Gazetted rates
- Form of Contract: CIDB PSP Document

Procurement Strategy for Professional Services

- Procurement Arrangements for Service Providers
 - Functionality Criterion Requirements (also refer to item 4.1.6.1 above):
 - Skills
 - Experience with Health projects
 - Previous work successfully complete
 - Resources
- Procurement Procedure: Public Open Tender
- Targeted Procurement Procedure: Standard DOH SCM Targeted Procurement
- Procurement Document: Standard DOH Bid Document
- Tender Evaluation Criterion:
 - Responsiveness
 - Quality Evaluation
 - Price and Preference
 - Minimum score must be 70%

- Updating and Revising the Delivery Management Strategy

The above Procurement Strategy deviates from the IPMP because the existing facility is deteriorating rapidly and this project is to be implemented as soon as possible.

PG 2 is complete when procurement strategies that are to be adopted are approved at the approval of Stage 2.

4.1.9.4. PROCUREMENT GATE 3 (PG3): APPROVAL FOR PROCUREMENT DOCUMENTS

The Implementation Agent must prepare procurement documents that are compatible with the approved procurement strategies.

PG 3 is complete when the procurement document is approved at the approval of Stage 4.

4.1.9.5. PROCUREMENT GATE 4 (PG4): CONFIRMATION OF CASH FLOW

The Implementation Agent must confirm sufficient cash flow to meet contractual obligations prior to proceeding to tender

The Implementation Agent must also establish control measures for payment of contractors within the time period provided for in the contract.

PG 4 is complete when cash flow is approved

4.1.9.6. Procurement Gate 5 (PG 5): Solicit tender offers

The Implementation Agent must solicit tender as follows and within the recommended timeframes:

- | | |
|---------------------------------------|------------------|
| • Prepare tender specification report | 2 weeks |
| • Submit tender specification to BSC | 3 weeks |
| • Approval by BSC | 1 week |
| • Invite tenders | 1 week |
| • Receive tenders | 1 week |
| • Record tenders | 1 day concurrent |
| • Prepare report on tenders received | 1 week |

PG 5 is complete when all received tender offers are duly accounted for

4.1.9.7. Procurement Gate 6 (PG 6): Evaluation of tender offers in terms of undertakings and parameters established in procurement documents.

- | | |
|--|---------|
| • Verify completion of tenders | 1 week |
| • Determine if tenders are responsive | 1 week |
| • Evaluate tenders | 3 weeks |
| • Perform risk assessment | 1 week |
| • Prepare tender evaluation report | 2 weeks |
| • Submit tender evaluation report to BEC | 1 week |
| • Recommendation by BEC | 1 week |
| • Prepare submission to BAC | 1 week |
| • Submit submission to BAC | 1 week |
| • Recommendation by BAC | 2 weeks |
| • Prepare submission to HOD | 1 week |
| • Submit submission to HOD | 1 week |
| • Approved by HOD | 2 weeks |

PG 6 is complete when the evaluation report is reviewed and recommendations is ratified.

4.1.9.8. Procurement Gate 7 (PG7): Award the contract

- | | |
|--|---------|
| • Notify tenderers of outcome | 1 week |
| • Appeals period | 2 weeks |
| • Acceptance by contractor | 1 week |
| • Receive compulsory documentation | 1 week |
| • Prepare contract documentation | 1 week |
| • Accept and Sign Contract documentation by Contractor | 1 week |
| • Sign Contract documentation by HOD | 1 week |

PG 7 is complete when the tenderer has provided evidence of complying with all requirement stated in the tender data and formally accepts the tender offer in writing and issues the contractor with a signed copy of the contract

4.1.9.9. PROCUREMENT GATE 8 (PG 8): ADMINISTER THE CONTRACT AND CONFIRM COMPLIANCE WITH ALL CONTRACTUAL REQUIREMENTS

This gate will include:

- Capturing of the contract award data
- Administration contract in accordance with the terms and provisions of the contract
- Ensuring compliance with contractual requirements.

PG 8 is complete when contract completion/termination data is captured.

4.1.10. STAKEHOLDER MANAGEMENT

The stakeholder management plan outlines how the project team plans to manage the goals and expectations of key stakeholders during the project lifecycle.

Stakeholders have been identified as defined by their interests, involvement, interdependencies, influence, and potential impact on the project success. The early identification benefit is that it will enable the project team to identify the appropriate focus for engagement of each stakeholder or group of stakeholders. This process must be revised periodically throughout the project as needed. The Stakeholder Management Plan must be monitored, updated and revised as required but at least on a monthly basis.

4.2. ORGANISATIONAL DEVELOPMENT

The specific interventions for EMS Services include care and treatment. These interventions are rendered through a multidisciplinary approach by EMS officials, etc.

EMS Bases are managed by professional unit managers, supported by EMS staff and support at unit.

4.2.1. KEY ELEMENTS FOR A SUCCESS

- Prompt and accurate diagnoses, treatment and care
- Guidelines or protocols for clinical management
- Effective advocacy, communication and social mobilisation

4.2.2. STAFFING SITUATION AND ADDITIONAL STAFFING REQUIRED

Table 17: Existing Staff Establishment

STAFF ESTABLISHMENT: PROPOSED ITSHELEJUBA EMS BASE			
DETAIL	SERVICE AREA	NO OF STAFF	RANK OF STAFF
Sub District Manager	Office	1	Assistant Director Level 09
Station Manager	Office	0	Station Manager Level 08
Shift Leader	Office	2	Shift Leader Level 07
EMS staff / Crew	(Crew/rest room)	15/ shift (31 in total)	Crew Members (Permanent Staff)

STAFF ESTABLISHMENT: ISTHELEJUBA EMS BASE					
DETAIL	SERVICE AREA	NO OF STAFF (clinical)	RANK OF STAFF	NO OF STAFF	RANK OF STAFF (non-clinical)
Admin	Admin office			1	Admin Clerk level 05
General Orderly	Office - Cleaning materials			1	G.O level 4

4.3. CHANGE MANAGEMENT

Change management is a systematic approach to successfully implement changes that this project will bring about. The purpose of change management is to implement steps to effect change, control change and to help people to adapt to the change.

The Change Management plan will consist of:

- Preparing the EMS Service, District and the Department for the change,
- Developing a plan for the change,
- Implement for the change,
- Entrench the change in the Department.
- Review progress and analyse results.

Change can be a time of exciting opportunity for some and a time of loss, disruption or threat for others. Change is an inherent characteristic of any organisation, all organisations whether in the public or private sector must change to remain relevant. Change can originate from external sources through technological advances, social, political or economic pressures, or it can come from inside the organisation as a management response to a range of issues such as human resource issues or reconfiguration of the Infrastructure e.g. construction of the new EMS Base/ office accommodation. It can affect one small area or the entire organisation. Nevertheless, all change whether from internal or external sources, large or small, involves adopting new mind-sets, processes, practices and behaviour.

Irrespective of the way the change originates, change management is the process of taking a planned and structured approach to help align an organisation with change. In its most simple and effective form, change management involves working with an organisation's stakeholder groups including staff to help them understand what change means for them, helping them make and sustain the transition and working to overcome any resistance. The basic goal of all change management is to secure buy-in to the change, and to align individual behaviour and skill with the change.

Ultimately, the goal of change is to improve organisation by altering how work is done. Change impacts the following four parts of how the organisation operates:

- Processes
- Systems
- Organisational Structure, and
- Job roles

The new EMS base and Wash-Bay will require the new ways of operating and a common understanding between management and the staff has to be developed. It is therefore important that Change Management Plan be developed and implemented to create a common understating amongst all end users. Staff management plan ensures the organisation has an adequate human capacity to support its post change needs. The plan should also address the issue of redirecting resources in situations where the change creates a gap in the skills and needs of the Hospital. Planning for change implementation generally involves understanding where the organisation is currently and identifying aspects that need to change in order to take the organisation from its current state to its desired state.

4.4. OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT

"The aim of the OHS Act is to provide for the safety and health of persons at work and in connection with the use of plant and machinery. It further provides for the protection of people other than people at work from hazards arising out of or in connection with the activities from people at work."

Source: <https://www.labourguide.co.za>

A Safety plan will be required from the start of the project and must be managed and reported on a monthly basis. The following minimum Occupation Health and Safety requirements is applicable to this project:

- The project must comply with the requirements of the Occupational Health & Safety Act 85 of 1993 and its regulations, and subsequent revisions.

The following reporting requirements must be adhered to:

- Employment Contracts for construction staff
- Copies of Identity documents
- Half cut photographs of employees
- Proof of daily attendance
- Proof of wage payments

4.5. STATUTORY REQUIREMENTS

Legislation: Minimum applicable

- The South African Constitution
- CIDB
- PPPFA 2017
- EPWP Guidelines
- All applicable building environment acts
- 85 of 1993 Occupational Health and Safety Act
- Hazardous Substances Act (HAS) and Regulations
- National Water Act (NWA)
- Waste Act 59 of 2008
- Occupational Health & Safety Act No. 85 of 1993
- National Building Regulations and Building Standard Act 103 of 1977

Policies: Minimum applicable

- KZN Applicable Health Policies such as Structural Installations for KZN DOH Rev. 2013
- KZN Applicable Health Policies: Physical Facilities Planning Policy (April 2001)

Norms and Standards: Minimum applicable

SANS 10400 – K: 2011. The application of the National Building Regulations. Part K, Walls
KZN Health Design for Structural Policy Rev. January 2013

SANS 10400 – L: 2011. The application of the National Building Regulations. Part L, Roofs
KZN Health Design for Structural Policy Rev. January 2013

4.5.1.1. STATUTORY PERMISSIONS REQUIRED

- SPLUMA approval May be required
- Environmental Impact Assessment: N/A
- AMAFA approval: N/A
- Access to Provincial /National Roads: N/A
- Water Affairs: May be required
- National Environmental Management Act: May be required

4.6. SOCIAL IMPACT MANAGEMENT

Social Impact Management covers a wide field but for the purpose of this project the focus is on the following:

4.6.1. EXPANDED PUBLIC WORKS

In the National Development Plan 2030, the EPWP is positioned to contribute to Government's goals of alleviating poverty, developing local communities, providing work opportunities and enhancing social protection. The Department of Health is actively involved in the EPWP programme since 2011.

The project team must develop a plan to manage the EPWP component of this project and have to report as follows:

Table 18: EPWP Requirements

EPWP Minimum Requirement Between	100 Million and above
Reporting	All required
Local Area	South Africa 80% KwaZulu-Natal 60% District Municipality 40% Local Municipality
Branding	Site, Uniform and tender documentation
Recruitment	According to DOPW Recruitment guideline document
PSC	Full PSC, CIDB Guidelines to be followed
CLO	Required
Tender Specification	Required

4.6.2. TARGETED JOB OPPORTUNITIES

Over and above, the project must report on the following:

- No. of local people employed
- No. of local youth employed
- No. of person days of employment
- No. of Woman employed
- No. of differently-abled people employed
- Total payments to local communities
- Total payments to local material suppliers
- Total no. of DPI Contractor / Sub-contractor

The report must be done monthly and is not exclusive to contractors.

4.6.3. CAPACITATION

While employment goes a long way, it is also important that the workforce and the team be capacitated. Therefore, the team must report on the following as applicable:

- Project Management training
- Construction Management training
- Financial management training
- Construction skills training HIV/AIDS awareness training
- GBV awareness training

The list above is not inclusive

5. ACKNOWLEDGEMENTS

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DOH Zululand District End User Department: Tel.: Mobile: Email:		Emergency Medical Services (EMS) Ms. B Buthelezi 072 319 8361 TBC TBC


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PART D – SIGNATURES

Signatories

The following Facilities, Programmes and their Managers, Directors or Leaders have been fully advised and have read and understood the contents of this document.

Name: Dusangani Daphney Buthelezi
 Designation: EMS DISTRICT MANAGER
 Date: 07/08/2023 07 AUGUST 2023

Signature: 

Name: BRIDGET NIKIWE ZUNGU
 Designation: DIRECTOR
 Date: 08/08/2023

Signature: 

Name:

Designation

Date:

Signature:



KWAZULU-NATAL
DEPARTMENT OF HEALTH

STANDARD PREAMBLES TO ALL TRADES

REV 3 – JANUARY 2009

**Compiled by:
Department of Health
Infrastructure Development
Engineering Services
Private Bag X9051
PIETERMARITZBURG
3201**

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NOTE:

Only those clauses or portions of clauses in the following preambles, which refer to items in the Bills of Quantities, shall be considered as applying to the performance of this Contract.

2.

1.

ALTERATIONS

SITE VISIT: — Tenderers are advised to visit the site prior to tendering and satisfy themselves as to the nature and extent of the work to be done, also to examine the condition of all existing buildings as no claim will be entertained on the grounds of ignorance of the conditions under which the work was to be executed.

MATERIALS FROM THE ALTERATIONS: — unless otherwise stated, will become the property of the Contractor and all these materials, together with all rubbish and debris must be carried away and the site left clean and unencumbered.

Items described as “removed” shall mean removed from the site.

Credit for the value of materials from the alterations is to be allowed for on the Summary/ Final Summary page.

Items described as to be re-used or to be handed over to the Administration are to be dismantled where necessary and stacked on site where directed, and the Contractor will be responsible for their removal and storage until required, and shall make good all items missing, damaged or broken at his own expense.

Unless otherwise described, no materials from the alterations shall be re-used in any new work without the written approval of the Department.

Prior to the removal of any timbers from the site, these are to be inspected by Government Entomologists. If any of these timbers are infested by wood destroying agencies, these timbers are to be disposed of in the manner prescribed by the Government Entomologist.

In taking down and removing existing work, particular care must be taken to avoid any structural or other damage to the remaining portions of the buildings.

ASBESTOS REGULATIONS 2001:

In terms of Asbestos Regulations 2001, no individual person, contractor or agent shall remove, demolish or strip any building containing asbestos or products containing asbestos (including asbestos roof sheeting, ceilings, guttering and down pipes) unless the work is performed by a “**Registered Contractor**”, registered with the **Department of Labour**. All asbestos work shall be carried out under the supervision of an “Approved Inspection Authority”.

It is a requirement that before any work involving asbestos removal is carried out, the following procedure and documentation is followed: -

1. Prior to the commencement of any demolition work, written notification shall be given to the Assistant Manager (Inspection and Enforcement), Durban Labour Centre, Masonic Grove, Durban, stating the name, address and details of the person(s) removing or stripping the asbestos. The notification shall include the date, time and place where the proposed work is to be carried out. (Regulation 3).
2. The name and details of the Approved Inspection Authority that is to supervise and confirm that the work is being carried out according to the specific requirements of the Asbestos Regulations 2001 (as amended), including the approved “written work procedure” document. This document shall be submitted and signed at least 14 days prior to commencement of demolition work by the Approved Inspection Authority. (Regulation 21).
3. The production of valid accreditation certification of training for all employees involved in the asbestos removal work.

4. On completion of the asbestos related work a "Clearance Certificate" which includes the asbestos disposal certificate shall be forwarded to the Department by the Approved Inspection Authority.

In terms of the above regulations, it is an offence to carry out any asbestos work as defined in the above regulations without the necessary approval / requirements being met.

Individual persons or contractors found to contravene these regulations will be issued with a **PROHIBITION NOTICE** which in effect will stop all work on site and the offenders will then be liable for prosecution.

Any employer found guilty under the Asbestos Regulations 2001 may be liable to a fine and or imprisonment not exceeding 12 months.

NOTICE OF DISCONNECTIONS: — The Contractor is to give ample notice to the Department and Local Authorities regarding any disconnections necessary prior to the removal or interruption of electrical or telephone cables, water supply and sanitary services, etc.

DUST: — The Contractor is to allow in his rates for taking all precautions necessary to prevent any nuisance from dust whilst carrying out the works.

SHORING: — Rates for shoring are to include for the use and waste of all props, needles, wedges, braces, nails and screws, etc. required and for all cutting, notching, framing and fitting, maintaining in position for the required periods and removing at completion. All shoring is to be executed in a manner approved by the Department.

MATCHING EXISTING WORK: — The terms "make good" or "making good" to existing work as described in the items shall mean making good with materials to match, all joined to existing.

FORMING NEW OPENINGS, ETC. IN EXISTING WALLS: — Rates for items of forming new or altering existing openings are, unless otherwise stated, to include for the following: -

- a) Breaking out for and inserting adequate lintels over the new openings (except where stated in the items as being below an existing beam, slab or lintel), to the approval of the Department. The lintels are to be of in-situ concrete Class C, or of pre-cast pre-stressed concrete or of brickwork in 1:3 cement mortar, with a minimum bearing of 230mm at each end and suitably reinforced, and rates are to include for all necessary formwork, turning pieces, etc. and for wedging and pinning up to existing brickwork over in 1:3 cement mortar.
- b) All shoring and propping required.
- c) Facing up jambs in new brickwork in cement mortar properly bonded to existing,
- d) Building up the portions of the openings stated in the items in new brickwork in cement mortar properly bonded to existing.
- e) Formwork for concrete sills and thresholds where required.
- f) Making good only to the finishes as stated in the items. (Note: — The making good of paint finishes has been measured separately).
- g) Forming rounded angles, throats on external plastered soffits, mitres, etc. where required in all new plaster, render and granolithic finishes.

The supply, building in, fixing, etc. of all windows, doors, frames, etc. to the newly formed openings and the removal of all existing windows, doors, frames, etc. from openings to be altered, have been elsewhere measured.

2. EARTHWORKS

SITE CLEARANCE: —The item given in the Bills of Quantities for site clearance shall be deemed to include the removal from the site, or burning if permitted by the Local Authority, of shrubs and trees with trunks under 200mm girth measured at 1m above ground level,

hedges, bushes, other vegetation, rubbish and debris.
Holes left by roots are to be backfilled with earth and rammed.

EXCAVATIONS: — Rates for excavations are to include for forming and trimming to the correct levels, falls, slopes, curves, etc. for trimming sides, stepping, levelling and ramming bottoms, staging and disposing of the excavated material as described in the items. Rates for excavations to reduce levels over site are also to include for forming and trimming banks to the required batter. The Contractor is to allow in his rates for the bulking of excavated material.

The term “excavate”, unless otherwise stated, shall mean excavate in “soft excavation” as defined below and for the purpose of classifying excavations the following will apply: —

- a) **Soft excavation:** — shall be excavation in material that can be efficiently removed by a back-acting excavator of flywheel power approximately 0,10 kW per millimetre of tined-bucket width without the assistance of pneumatic tools such as paving breakers, or that can be efficiently loaded without prior ripping or stockpiling by a rubber tired front-end loader of approximately 15t mass and a flywheel power of approximately 100 kW.
- b) **Intermediate excavation:** — shall be excavation in material that requires a back-acting excavator of flywheel power exceeding 0,10kW per millimetre of tined-bucket width and the assistance of pneumatic tools prior to removal by equipment equivalent to that specified in (a) above.
- c) **Hard rock excavation:** — shall be excavation in material that cannot be efficiently removed without blasting or without wedging and splitting prior to removal.
- d) **Class A Boulder excavation:** — shall be excavation in material containing more than 40% by volume of boulders of size between 0.03m³ and 20m³ in a matrix of softer material or smaller boulders.
Note: — Excavation of solid boulders or lumps of size exceeding 20m³ will be classed as hard rock excavation. (2) Excavation of fissured or fractured rock will not be classed as boulder excavation but as hard rock or intermediate excavation according to the nature of the material.
- e) **Class B Boulder excavation:** — shall be excavation of boulders only in a material containing 40% or less by volume of boulders of size between 0.03m³ and 20m³ in a matrix of softer material or smaller boulders.
Note: — Those boulders requiring individual drilling and blasting in order to be loaded by a back-acting excavator as specified in (a) above, or by a track type front-end loader, will each be separately measured as Class B boulder excavation.
The excavation of the rest of the material will be classed as soft or intermediate excavation according to the nature of the material.

Method of Classifying: —The Contractor may use any method he chooses to excavate any class of material but his chosen method of excavation shall not determine the classification of the excavation. The Department will decide on the classification of the materials. The classification will be based on inspection of the material to be excavated and the criteria given in (a) to (e) above, as applicable. The decision of the Department shall be, subject to the relevant provisions of the contract, final and binding.

Should the Contractor consider that the excavation is other than “soft excavation” he must notify the Department immediately in order that an inspection be made and a decision arrived at by the Department as to the category of such excavation. Should the Contractor fail to give such notification, the excavation shall be deemed to be “soft excavation” and shall be measured and valued accordingly.

Blasting will only be permitted with the written authority of the Department, if and when permission is granted, it is to be executed only by persons holding the necessary Government Blasting Certificate and subject to all regulations imposed by the Department and/or Local Authority. In addition, the Contractor is to indemnify the Provincial Administration against all claims in respect of damage to persons and property resulting from such blasting operations.

Before commencing any excavations, the Contractor must satisfy himself as to the accuracy of any levels indicated on the drawings, as no claim will be entertained at a later date for any alleged inaccuracy in such levels.

Excavation shall be carried down to such depths as are necessary to obtain firm foundations, but before proceeding to greater depths than are shown on the drawings, the Department's approval must be obtained.

The Contractor will be responsible if he excavates wider or deeper than shown or required. If the excavations are deeper than shown or required such extra excavations are to be filled in with mass concrete at the Contractor's expense. If the excavations are wider than shown or required, any form-work or mass concrete filling required to the side of the concrete foundations is to be executed at the Contractor's expense and to the approval of the Department.

Depths of excavations as approved shall be checked and recorded by the a Departmental Official and the Contractor's Foreman before any concrete is laid or the excavations are otherwise covered or filled in.

Notwithstanding such approval, any excavations which become waterlogged or otherwise spoilt after approval, shall be cleaned out and reformed, at the Contractor's expense and to the satisfaction of the Department, before any concrete, etc. is laid.

WATER: — The Contractor shall keep all excavations free from water or mud by pumping, baling or otherwise.

WORKING SPACE: — The Contractor is to allow against the items of "excavate to provide working space" for excavating beyond the extent of the net excavations measured to provide the necessary working space for the carrying out of such work as is described in the items. Rates are to include, in addition to the extra excavation, for any additional risk of collapse so incurred and for filling back and compacting the excavated material.

No separate item for working space is provided or will be considered where the face of the measured excavation is 750mm or more away from the finished face of the structure. Separate items for working space for the building of brick foundation walls on ordinary concrete wall footings will not be considered.

In the case of column base and pile cap excavations, where the dimensions between the column face and the excavation face is less than 500mm, working space has been measured for the width of the column face from the commencing level of excavation to the top of the column base or pile cap only where the top of the column base or pile cap exceeds 1.5m below the commencing level of excavation.

RISK OF COLLAPSE: — The Contractor shall maintain all excavated faces affecting the safety of the works and workmen. He must either provide all necessary temporary planking, strutting or shoring to all vertical excavated faces or carry the risk of collapse of these faces with all its implications. He must assume full responsibility in this connection and must allow in his rates accordingly. In addition, all excavated faces exceeding 1.5m deep are to be maintained in accordance with Government Regulations.

Quantities reflect the total superficial areas of the vertical excavated faces and will be subject to variation only in so far as these areas may vary, notwithstanding whether any temporary supports are used or not.

FILLING, ETC.: — All backfilling and filling under floors and paving must be of selected material from the excavations, unless otherwise stated, returned and compacted in layers as later described and with the top surface dressed to the correct levels and grades, all to the approval of the Department. Under no circumstances will the Contractor be allowed to use clay, peat or other unsuitable material for filling.

Rates for all items of filling with material from the excavations are to include haulage not exceeding 100m from the perimeter of the excavations.

Any filling supplied by the Contractor is to be of suitable material approved by the Department.

COMPACTION OF FILLING ETC.: — All filling and backfilling is to be done in layers not exceeding 200mm thick before compaction, with the layers level to ensure uniform compaction. Each layer is to be thoroughly compacted over the whole of the area to a dry density not less than 90% of Mod. A.A.S.H.O. density. The surface of each compacted layer shall be uniform and tightly bonded. Care is to be taken that no damage is done to foundation walls, drains and other services.

The densities of compaction referred to are to be determined by tests carried out in accordance with A.S.T.M. Designation D 1557-58 and at an optimum moisture content of not more or less than 5% of the required Mod. A.A.S.H.O. The Contractor shall be responsible for having sufficient tests taken of the density of the compacted filling to ensure that the required compaction is being attained to the satisfaction of the Department. These tests are to be undertaken by an independent testing authority nominated by the Contractor to the approval of the Department. The costs of all tests in this connection shall be borne by the Contractor and shall be allowed for in his rates.

PROTECTION AGAINST SUBTERRANEAN WOOD-DESTROYING TERMITES: — Where protection against termites is to be provided: —

- a) Remove vegetable matter
All dead roots and other vegetable matter likely to encourage termites must be removed from the ground under, against the building and from all filling material.
- b) Treating the ground
The ground under surface beds, and below suspended wood floors, must be treated by the application of Soil Insecticides of Chlordane or Aldrin types complying with SANS Specifications 1165 and 1164 respectively, mixed with water and applied at the rate of not less than 5 litres of solution per square metre uniformly over the whole surface. The concentration of the solution must be strictly in accordance with the manufacturer's instructions and to the approval of the Department.

The Department reserves the right to take samples of the diluted solution, at any time, in order to test the concentration of the chemicals used.

Where the ground to be treated is of earth filling, the upper 50mm layer of filling must be levelled by raking, but must not be rammed until after the solution has been applied, and where of natural ground, it must be loosened to a depth of not less than 50mm and similarly levelled, in order to enable the solution to penetrate into the soil. After the solution has been applied and allowed to penetrate the surface, the soil must be well rammed and consolidated.

Before applying the solution to the ground under the floors, splay back earth for a depth and width of 75mm from the internal faces of walls enclosing the floors, against internal walls, sleeper piers, etc. and thoroughly saturate with the solution. After the solution has soaked into the earth, the splayed grooves must be filled with earth and consolidated.

The treated layer of soil under suspended wood floors must be protected with a 75mm thick layer of approved clean gravel, finished to an even surface.

The treated layer of soil under concrete surface beds must be protected with a 25mm thick layer of well-consolidated approved grit prior to laying the waterproofing membrane.

Great care must be taken when laying concrete surface beds, protective layers, etc. in order to avoid rupturing the treated layer of soil. Should the treated layer be ruptured at any

point it must be made good and the area affected re-treated with the soil insecticide.

Contractors are advised that:

- a. Special precautions must be taken to protect the workmen whilst using the soil insecticide.
- b. The treatment of filling or ground under floors shall be done as soon as practicable, so that treatment may dry out before the floors are laid.
- c. The treatment of the ground must be carried out under the supervision of the Department.
- d. The soil insecticide to be delivered to the site in sealed drums clearly labelled or stamped with the name of the product.
- e. In addition to the foregoing the application of the soil insecticide to be carried out in accordance with SANS Code of Practice 0124 — the application of Certain Soil Insecticides for the Protection of Buildings.
- f. The protective layers of gravel or grit have been measured separately.

RE-USE OF EXCAVATED MATERIAL: — Material of any kind that may be discovered on the site during the excavation shall remain the property of the Administration. Such material may, if approved, be used for aggregate. Material so used shall be valued and the value deducted from the Contract Sum.

DEMOLITIONS: — The Contractor is referred to the preambles for “Alterations” insofar as they apply and the following: —

The demolition of existing buildings is to be done in a practical and safe manner, under the continuous supervision of a competent Foreman. Rates for the demolition of existing buildings are to include for breaking up and removing all external screen walls, steps and ramps, surface water channels, rainwater sumps, gulleys, etc. and grubbing up and removing all foundation walls and footings, disconnecting and removing all services to a point not less than 1m beyond the perimeter of the buildings, plugging off ends of all remaining pipes, and for filling in all holes with clean earth and ramming up to ground level. All movable fittings and furniture, fire extinguishers and electrical and other equipment in the buildings to be demolished are to remain the property of and will be removed by the Administration prior to the commencement of the demolition.

Before commencing the demolitions, the Contractor shall comply with any Local Authority regulations in force in respect of rodent extermination, etc. and he shall obtain the required Clearance Certificate. Items to cover the cost of obtaining the certificate and the fumigation, etc. of the buildings to be demolished have been provided elsewhere in the Bills of Quantities, and the fumigation is to be carried out by a firm specialising in this type of work. The fumigation of the buildings to be demolished shall only be carried out if called for by the Local Authorities and if not required the value of the relevant items in the Bills of Quantities will be deducted from the Contract Sum.

After handing over the site to the Contractor, the risk of any loss or damage to the buildings to be demolished and the materials therein, caused by theft, vandalism, etc. shall be the responsibility of the Contractor and he shall take such precautions as he deems necessary against such loss or damage.

GRASS PLANTING AND TURFING: — Is to be “Cape Kweek” or “Umgeni” grass scientifically known as *Cynodon dactylon* or other local fine grass approved by the Department. In areas where fine grass does not grow readily, Kikuyu grass *Pennisetum clandestinum* may be substituted. The areas must be identified and the approval of the Department obtained before Kikuyu grass is to be planted.

Grass Planting To Level Areas: — The areas to receive grass are to be weeded and raked free of stones and other superfluous matter and all depressions left by the earthworks plant are to be filled in with approved topsoil. The planting of grass is to be carried out in continuous root planting in rows 200mm apart. The method of planting called “sprigging” may be used as an alternative.

Immediately after completion of each strip or square, the area thus grassed is to be thoroughly watered and lightly rolled. Any drifting or piling up of the top soil due to wind or any other cause must be prevented as far as possible and should such piling up of soil against newly planted grass occur the soil must immediately be raked level and lightly rolled.

Turfing: — Banks are to be carefully trimmed to an even surface and weeded and raked free of stones, etc. and all depressions filled in with approved topsoil as before described. Turfing of banks is to be carried out with 25mm thick maximum 500mm x 1000mm weed-free grass sods, of grass as before described, and as approved by the Department. The grass sods are to be set in position in horizontal rows to broken bond and closely fitted together and tamped flat with a timber pummel, a maximum of two sods in every square metre of area covered being staked to the bank to maintain position, with and including one sharpened wood or bamboo skewer 250mm long and with all cavities between sods filled in with approved top soil and the whole area lightly top soil dressed on completion.

Established Lawn: — The use of established lawn in pieces size approximately 500mm x 1000mm x 25mm thick in lieu of grass sods on banks will be permitted provided that the established lawn is supplied and laid by a firm experienced in this type of work and to the approval of the Department. The fitting, tamping, staking and top dressing must all be as described for turfing, except that one piece per square metre is required to be staked as described.

Fertilizer: — An approved fertilizer of the following types— Type 2:3:2 for grass planted levelled areas and Type 3:2:1 for turfed or established lawn covered banks is to be supplied and applied by the Contractor at the rate of 400 kg per hectare. In the case of grass planted levelled areas the fertilizer is to be applied either before or after grass planting and in the case of turfed or established lawn covered banks the fertilizer is to be applied after the sods or pieces have been laid.

The fertilizer above described is to in addition to any fertilizer which may have been specified to be applied during either the operation of scarifying and grading the area to be grassed or the re-spreading of top soil.

A sample of the existing topsoil or the topsoil to be re-spread is to be sent to an approved fertilizer manufacturer for testing and advice on the acid or alkaline content of the soil. The cost of this test is to be borne by the Contractor if this is not provided free by the fertilizer manufacturer.

The requisite quantities of limestone ammonium nitrate for acidic soil or ammonium sulphate for alkaline soil as determined by the soil test will be supplied to the Contractor by the Department and the cost thereof is to be included in a Provisional Sum elsewhere in the Bills of Quantities. The application of this treatment is to be undertaken by the Contractor and his rates for grassing, etc. must include for same.

Weed killer: — “Weed Master or Turf Master” or other approved weed killer is to be applied to the entire grassed or turfed areas at a rate of 4 litres mixed with 200 litres of water per hectare, this being equivalent to 40-45 millilitres mixed with 5 litres of water per fifty square metres. The solution is to be sprayed on with a suitable spraying apparatus to achieve an even distribution. Six to eight weeks later, the operation is to be repeated. The application of weed killer is not to take place during wet weather. Weather conditions should be such as to allow a minimum of two hours or absorption before the likelihood of rain.

Watering and Rolling: — The entire turfed area is to be kept clear of weeds, lightly rolled and thoroughly watered throughout the period of the Contract and or at least three months from the time of acceptance of the grounds or until the grassing or turfing is well established if that is sooner, all to the satisfaction of the Department.

In the absence of rain, the initial watering of grassed or turfed areas is to be carried out as follows: —

Grass planted levelled areas: - at least twice a week.

Established lawn areas: - at least once a week.

Turfed areas: - at least once a day for the first ten to fourteen days, thereafter at least once a week.

The Contractor must allow in his rates for providing and removing at completion all necessary temporary water piping complete with fittings, sprinklers, hoses, etc. as required for the proper watering of the grassed or turfed areas of the plateaux and banks.

Cutting of Grass: — The Contractor must commence mowing as soon as possible once turfed areas have become established and undertake regular mowing at approximately one-week intervals up to the date of final delivery, except that, during the maintenance period, the mowing of the plateaux will be undertaken by the Institution.

Note: — All stages of grass planting and turfing are to be supervised on a full time basis by a competent person with the necessary experience and knowledge.

It shall be the responsibility of the Contractor to advise the Department when the following operations are to be carried out in order that his representative may be present: —

- a) the application of fertilizer
- b) the application of weed killer.

Should the Contractor fail to do so, the Department shall have the right to instruct the Contractor to repeat the operation at his own expense.

3. **CONCRETE, FORMWORK AND REINFORCEMENT**

GENERAL: — This specification applies to concrete work formed into its final shape and position in-situ.

All concrete and formwork shall be carried out in accordance with SANS Specification 1200 G — Concrete (Structural) (a copy of which the Contractor will be required to keep on the site so that it can be referred to at all times during the Contract), with the following amplifications and amendments: —

INTERPRETATIONS: — Clauses 2.1 and 2.2 of SANS Specification 1200G refer. This preamble, together with any other supplementary preambles appearing in these Bills of Quantities shall be deemed to be the project specification and are the "Portion 2" referred to in Clause 2.2.

DEFINITIONS: — Clause 2.3 of SANS Specification 1200 G refers. All references to the Engineer shall be deemed to mean the Department.

MATERIALS

Cement: — unless otherwise specified, shall be one or more of the following and shall, in each case, comply with the requirements of the relevant standard specification: —

Portland cement and rapid-hardening cement to SANS 471 Specification

Portland blast-furnace cement to SANS Specification 626.

Portland cement 15 to SANS Specification 831.

Nevertheless, no cement other than ordinary Portland cement shall be used without the approval of the Department. Cement containing more than 15% blast-furnace slag will not be permitted in columns or in members less than 50mm thick.

In addition (for the abovementioned items) where Ordinary Portland cement is used, blast-furnace slag (from separate containers) **must not** be added in any proportion whatsoever.

No mixing of two different types of cement in the same batch will be allowed, and unless otherwise approved by the Department, the same brand and type shall be used in all exposed concrete.

Lumpy cement, broken sacks and sweepings shall not be used.

Cement supplied in sacks shall be used in the order in which it was delivered and shall not be kept in storage for longer than six (6) weeks without the approval of the Department.

Water: — Shall be clean and free from injurious amounts of acids, alkalis, sugar, organic matter and other substances that could impair the strength or durability of the concrete. If so required by the Department, the suitability of the water shall be proved by tests carried out by an approved laboratory.

Aggregates: — Unless otherwise specified both the coarse aggregate (stone) and the fine aggregate (sand) shall comply with the requirements of SANS Specification 1083. The Contractor is to prove compliance by means of either a certificate from the supplier or by grading analysis tests.

Admixtures: — i.e. materials other than cement, aggregate and water shall not be used in the concrete mix without the approval of the Department. The onus for proof of satisfaction to the Department for any admixture proposed shall be with Contractor.

Reinforcement: — for concrete shall be as specified and shall, in each case, comply with one of the following: —

- a) Type A hot rolled mild steel bars of plain round cross section to SANS Specification 920
- b) Type C Class 2 hot rolled high yield stress Grade 1 deformed bars to SANS Specification 920
- c) Type D Grade 1 cold worked deformed bars to SANS Specification 920.
- d) Welded steel fabric to SANS Specification 1024 manufactured from plain hard-drawn mild steel wire.

A sample reinforcing rod, approximately 600mm long, may be taken from each consignment of rods of similar diameter, for testing. If any sample is found unsatisfactory the whole consignment of rods from which the sample was taken will be rejected.

No substitution of the bars specified shall be made without the prior approval of the Department.

REINFORCEMENT

Bending: — Reinforcing bars shall be cut and bent according to the dimensions shown on the working drawings and in accordance with SANS Specification 82.

Except as allowed for below, all bars shall be bent cold and bending shall be done slowly, a steady even pressure being used without jerk or impact.

If approved by the Department, hot bending of bars of diameter at least 32mm shall be permitted, provided that the bars do not depend for their strength on cold working. When hot bending is approved, the bars shall be heated slowly to a cherry red heat (not above 840 C°) and after bending shall be allowed to cool slowly in air. Quenching with water shall not be permitted.

Fixing: — All steel reinforcement, at the time of placing of the concrete, must be free from loose rust, scale, oil and other agents which will reduce the bond between the steel and the concrete or initiate corrosion of the reinforcement. Reinforcement exposed to sea spray shall be washed down, and the formwork drained, just prior to concreting.

Reinforcement shall be positioned as shown on the working drawings or as directed by the Department and maintained in those positions within the tolerances given in the Specification for Tolerances. It shall be secured against displacement by tying at intersections with 1.6 or 1.25mm diameter annealed wire or by the use of suitable clips or, if permitted by the Department, by welding in accordance with SANS 1856. Welding will not

be permitted on cold worked bars. Reinforcement shall be supported in its correct position by hangers, saddles or cover blocks and aligned by chairs and spacers all of approved design and material. Where such hangers, saddles, chairs or spacers are of steel, they will be detailed on the drawings or in bending schedules.

Cover: —The minimum cover of concrete over reinforcement, excluding any applied finish, shall be as shown on the working drawings, or as directed by the Department.

Cover shall be maintained by using cover blocks, which shall be made of small aggregate concrete, not mortar, using the same cement and aggregate type and ratio as the parent concrete. Alternatively, cover blocks may be of the plastic type provided that sufficient number are used to prevent their collapse, that they are of a colour compatible with that of concrete and that the prior approval of the Department is given. Metal cover blocks shall not be used.

If the concrete face has a Class F2 smooth finish or some other special finish as is described elsewhere, hemispherical or pyramid shaped concrete cover blocks shall be used unless otherwise specifically approved by the Department.

Splicing: — or joining of reinforcing bars shall be made only as and where shown on the working drawings or as otherwise approved. The length of the overlap in a splice shall be not less than that shown on the working drawings or forty-five times the diameter of the bar if not shown.

Protection of Exposed Bars: — If left exposed for future bonding of extensions to the works, reinforcement shall be protected from corrosion as specified by the Department.

Electric Current: — Reinforcement shall not be used as a means for conducting electric current unless there is conformity with the requirements of SANS Code of Practice 03.

Inspection of Reinforcement: — Reinforcement shall be subject to inspection by the Department after the Contractor is satisfied that it has been completely and correctly fixed. The amount of notice given by the Contractor to the Department before concreting commences that reinforcement is ready for his inspection shall be agreed between the Department and the Contractor at the commencement of the Contract.

FORM WORK

Design: — Formwork shall be so designed and constructed by the Contractor that the concrete can be properly placed and compacted and that the required shapes, finishes, positions, levels and dimensions shown on the working drawings are maintained, subject to the tolerances given in the Specification for Tolerances. Unless otherwise directed by the Department, all formwork to beams and slabs shall be evenly cambered, unless otherwise specified or shown on the drawings, to the mid-point of the span of the member at the rate of 2mm per metre of span, all to the approval of the Department and the full cross section of the member shall be maintained after placing of concrete.

The formwork and joints shall be capable of resisting the dead load and pressure of the wet concrete, effect of vibration equipment, wind forces and all other superimposed loads and forces it is necessary for it to carry.

Should it be necessary to support formwork off suspended or ground bearing slabs, the manner of execution of the support shall be agreed with the Department so that overstress of, or damage to, those members is prevented.

In structures having, in whole or part, two or more reinforced concrete floors, props to the approval of the Department shall be provided under the soffits of beams and slabs of any floor which is being used to support the formwork and new concrete of the floor above. These props shall not be removed until the formwork for the new concrete has been struck.

Wedges and clamps shall be used in preference to nails. Joints in forms shall be tight enough to prevent leakage of cement paste.

Finish: — The quality of the finished surface of the concrete shall be as shown on the working drawings or as otherwise specified, and the type of formwork used shall be adequate to provide such finishes.

Ties: — The type of ties used and their position shall be such that the finish required in terms of the clause “Finish” is achieved. Tie rods are preferable to wire ties and the forms shall not be secured to the reinforcement. No corrodible tie rod or wire tie shall be allowed within the depth of concrete cover, and in the case of water-retaining or tanked structures, no removable tie rod or wire shall pass right through the concrete member.

Preparation of Formwork: — Surfaces that are to be in contact with fresh (wet) concrete shall be so treated by coating with a non-staining mineral oil or other approved material, or, in the case of timber forms, by thoroughly wetting surfaces so as to ensure easy release and non-adhesion to formwork during stripping. If any substance other than water is used, every precaution shall be taken to avoid contamination of the reinforcement.

Re-use of Formwork: — Before re-use, all formwork shall be reconditioned, and all form surfaces that are to be in contact with the concrete shall be thoroughly cleaned without unduly damaging the surfaces of the formwork.

Openings: — Where necessary for the proper placing of the concrete, temporary openings for cleaning, inspection or placing purposes shall be provided, taking cognisance of the finishes specified.

Removal of Formwork: — Formwork shall not be removed before the concrete has attained sufficient strength to support its own mass and any loads that may be imposed on it. Except where the Contractor can prove by means of cube tests, at his own expense to the satisfaction of the Department that, because of its strength development characteristics the concrete has attained sufficient strength and that shorter periods are practicable, formwork shall not be removed within shorter periods than those given in Table A. The number of cube tests required shall be equal to the number required for testing at 28 days. Where full design loads are carried, no soffit forms and props may be removed until the full design strength is attained.

In structures having, in whole or part, two or more reinforced concrete floors, props to the approval of the Department shall be provided under the soffits of beams and slabs of any floor which is being used to support the formwork and concrete of the new floor above. These props shall not be removed until the formwork for the new concrete has been struck.

All formwork props shall have been removed from under beams and slabs before the commencement of construction of brickwork thereon, unless otherwise agreed with the Department. Formwork shall be removed carefully so that shock and damage to the concrete are avoided.

TABLE A—REMOVAL OF FORMWORK (MINIMUM TIMES IN DAYS (24 hrs))

1	2	3	4	5	6	7	8	9	10
Type of structural member or formwork	Type of cement used								
	Portland cement and Portland cement 15			Rapid-hardening Portland cement* and rapid-hardening Portland cement 15			Portland blast-furnace cement		
	Weather								
	Hot or normal	Cool	Cold	Hot or normal	Cool	Cold	Hot or normal	Cool	Cold
(a) Beam sides, walls, and unloaded columns.	0,75	+	1,5	0,5	+	1	2	+	4
(b) Slabs with props left underneath	4	+	7	2	+	4	6	+	10
(c) Beam soffits with props left underneath, and ribs of a ribbed floor construction	7	+	12	3	+	5	10	+	17
(d) Slab props including cantilevers	10	+	17	5	+	9	10	+	17
(e) Beam props including cantilevers	14	+	21	7	+	12	14	+	21

* Shorter periods may be used for sections of thickness 300mm or more.

+ In cool weather, stripping times shall be determined by interpolation between the periods specified for normal and cold weather.

CONCRETE QUALITY

General: — Concrete shall comply with the requirements for “Strength Concrete” as specified. The type of aggregate and cement, and their sources of supply, shall not be altered during the currency of the Contract without the prior written agreement of or instruction from the Department.

Strength Concrete: — The Contractor shall be responsible for the design of the concrete mix and for the proportions of its constituent materials, measured as described, necessary to produce concrete that complies with the requirements specified by the Department thus:-

- a) For each section of the work, the class of concrete and position on the Works, as shown on the drawings:
- b) For each class of concrete:
 - i) the minimum compressive strength at 28 days as shown in Table B
 - ii) the maximum nominal size of coarse aggregate as shown in Table B

- iii) the slump as shown in Table D
- iv) the maximum cement/water ratios as shown in Table C.

At the earliest possible stage in the Contract, at least 35 (thirty-five) days before the first concrete is placed, or as otherwise agreed with the Department, the Contractor shall submit samples of the aggregates which he proposes to use on the works to the Department.

The Contractor, under the supervision of the Department, shall prepare trial mixes using these same aggregates, to establish his ability to achieve the strengths specified, and satisfactory workability of the concrete. The Contractor shall provide all necessary equipment for, and carry out tests of moisture content of aggregates at the time of preparation of the trial mixes, tests of the slump of the mixes and at the same time cast not less than six standard cubes from each mix for compression tests.

The target strengths to be achieved under trial mix procedure shall exceed the specified minimum compressive strengths by a factor which is acceptable to the Department.

The Contractor shall also, when required to do so, prove the concrete yield obtained per sack of cement by suitable measurement of batches after placing.

No structural concrete work shall be poured until trial mix procedure has been properly followed and satisfactory 7 (seven) day compression strengths achieved. (Equivalent 28 (twenty-eight) day strength = $4/3 \times 7$ day strength + 5 MPA).

Thereafter, the materials, preparation of and method of manufacture of subsequent concrete shall conform accurately to those used in the trial mixes. If materials vary in the course of the Contract from the samples first submitted, the Contractor shall, on the instructions of the Department, repeat the trial mix procedure and vary the proportions to attain the specified qualities.

The costs of preparation of trial mixes, with tests associated with them, shall be borne by the Contractor and must be allowed for in the pricing of the concrete.

A valid concrete test result shall be the average obtained from the testing of three test cubes of concrete in accordance with SANS Method 863.

TABLE B—CONCRETE CLASSES: STRENGTH, AGGREGATE SIZE AND COMPACTION

Class	Minimum 28 day cube compressive strength (MPA)	Maximum nominal size of coarse aggregate (mm)	Method of Compaction
50/26 50/19	50	26,5 19,0	Mechanical (see clause "Compaction")
45/26 45/19	45	26,5 19,0	
40/26 40/19	40	26,5 19,0	
35/26 35/19	35	26,5 19,0	
30/37 30/26 30/19 30/13	30	37,5 26,5 19,0 13,2	
25/37 25/26 25/19 25/13	25	37,5 26,5 19,0 13,2	
20/37 20/26 20/19 20/13	20	37,5 26,5 19,0 13,2	
15/37 15/26 15/19	15	37,5 26,5 19,0	Non- mechanical (See clause "Compaction")
10/37 10/26 10/19	10	37,5 26,5 19,0	

The Contractor shall be deemed to have satisfied himself, before tendering, of his ability to produce concrete of the required quality with available materials conforming to the specification, and mixed in the proportions on which his tendered rates are based. Any subsequent alterations of the mix proportions to meet these requirements shall be at the Contractors expense.

If, in the opinion of the Department, the concrete proportions are likely to lead to excessive segregation, honeycombing, bleeding or shrinkage cracking, he shall have the right to order the Contractor to amend the proportions at the Contractors own cost.

TABLE C — MAXIMUM CEMENT / WATER RATIOS FOR DIFFERENT CONDITIONS OF EXPOSURE

1	2	3	4	5
Type of structure	Exposure Conditions			
	Mild	Moderate	Severe	Very Severe
Thin sections; reinforced piles; all sections with less than 25mm cover reinforcement.	*	0.53	0.48	0.40
Moderate sections; retaining walls, piers, beams	*	*	0.53	0.43
Exterior portions of mass concrete	*	*	0.53	0.43
Concrete slabs laid on ground	*	0.53	0.48	*
Concrete protected from the weather, inside buildings, or in ground below frost level	*	*		*

* In these cases the ratio will be based on the strength for the workability desired.

Consistency and Workability: — Slump measurements taken in accordance with SANS Method 862 shall be within the limits given in Table D appropriate to the type of construction, or within such other limits as are laid down by the Department.

The concrete shall be of such workability that it can readily be compacted into the corners of the formwork and around reinforcement without segregation of the materials or excessive “bleeding” of free water at the surface.

TABLE D—SLUMP LIMITS

1	2	3	4	5
Type of construction	Slump, mm			
	Non-mechanical compaction		Mechanical compaction	
	Max.	mm.	Max.	mm.
Paving and pre-cast units	75	50	50	30
Heavy mass construction	75	25	50	20
Reinforcing foundation walls and footings	125	50	80	30
Slabs, beams, columns, and reinforced walls	125	50	80	30
Slabs and industrial floors on ground	125	75	80	50
Plain footings, caissons, and substructure walls	100	25	60	20

Ready-mixed Concrete: — This may be used subject to the approval of the Department. This approval may be withdrawn on 24 (twenty-four) hours notice to the Contractor if at any time if documents do not conform to the requirements of this Specification. Ready-mixed concrete shall also comply with the requirements of SANS Specification 878. Details of the

mix ingredients and tests thereon, the mix designs and relevant tests shall be forwarded to the Department for his approval. Ready-mixed concrete shall be cast within 3 (three) hours of placing all the ingredients in the mixing plant. Ready-mixed concrete shall be subject to the same sampling and testing at the site as that mixed on site and only the results of these tests will be regarded as valid.

TRANSPORTATION AND PLACING

Transportation: — Unless agreed with the Department, concrete shall not be pumped into its final position.

The Contractor must provide suitable runways for the distribution of concrete to the various parts of the structure and these must be solidly constructed in such a manner so as to obviate the possibility of interference with the steel reinforcement.

Placing: — Unless otherwise agreed with the Department, the Contractor shall give the Department at least 24 (twenty-four) hours notice of his intention to place concrete. No concrete shall be placed without the prior approval of the Department and without a representative of the Department being present. Concrete shall be placed within one hour of the time of its discharge from the mixer. Concrete shall not be re-tempered by the addition of water or other material. The forms to be filled shall be clean internally. All excavations and other surfaces of an absorbent nature that are to come into contact with the concrete shall be dampened with water. There shall be no free-water on the surface against which concrete is to be placed. Wherever possible, the concrete shall be deposited directly into its final position to avoid segregation and displacement of reinforcement and other items that are to be embedded. Deposited concrete shall not be so worked (whether by means of vibrators or otherwise) as to cause it to flow laterally in such a way that segregation occurs. Where possible, the concrete shall be brought up in horizontal layers of compacted thickness not exceeding 450mm and heaping shall be avoided.

Where a chute is used to convey the concrete, its slope shall be such as will not cause segregation, and a suitable spout or baffles shall be provided for the discharge of the concrete. Concrete shall not be allowed to fall freely through a height of more than 3 m, unless otherwise approved. Concrete shall not be placed during periods of heavy or prolonged rainfall.

Compaction: — The concrete shall be fully compacted by approved means during and immediately after placing. It shall be thoroughly worked against the formwork and around reinforcement and other embedded fittings without displacing them.

The concrete shall be free of honeycombing and planes of weakness. Successive layers of the same lift shall be thoroughly worked together.

The method of compaction shall be as specified. Mechanical compaction shall be undertaken by means of high frequency immersion vibrators of minimum frequency of 6000 vibrations per minute and a maximum acceleration of 4 g when under load, being capable of visibly affecting concrete over a radius of at least 500mm. Vibrators shall be inserted at about 500mm centres and withdrawn slowly to close the hole formed by the vibrator.

Non-mechanical compaction shall be undertaken by means of spading, rodding or forking.

Over-compaction resulting in segregation, surface laitance or leakage (or any combination of these) shall not be allowed.

Vibrators shall not be allowed to come within 30mm of the face of the formwork in the case of formed finishes, nor within 75mm of the face of the formwork in the case of special finishes.

Construction Joints: — Concreting shall be carried out continuously up to the construction joints shown on the working drawings or as prior approved by the Department, except that

if, because of an emergency (such as a breakdown of the mixing plant or the occurrence of unsuitable weather), concreting has to be interrupted a construction joint shall be formed at the place of stoppage in conformity with the detail shown on the drawings for construction joints generally and in the manner which will least impair the durability, appearance and proper functioning of the concrete. The Department shall approve the method adopted for forming the construction joints, one of the following methods being adopted, as relevant: —

- a) Construction joints when concrete is not more than 24h old: — The surface of the concrete shall be brushed with a steel wire brush before new mortar and concrete are placed as specified in (b) below.
- b) Construction joints when concrete is more than 24h but not more than 3 days old: — The surface of the concrete shall be sand-blasted or chipped with a light hammer, swept clean, and thoroughly wetted and covered with a 10mm thick layer of mortar composed of cement and sand mixed in the same ratio as the cement and sand in the concrete mixture. This mortar shall be freshly mixed and placed immediately before the new concrete is placed.
- c) Construction joints when concrete is more than 3 days old: — The procedure specified in (b) above shall be followed, except that the old surface shall be prepared and kept continuously wet for at least 24h before the mortar and new concrete are placed.
- d) Construction joints at tops of columns: — The procedure for brushing or cleaning specified in (a) or (b) above, as applicable, shall be followed before the steel reinforcement of the slab or floor to be cast on the columns is placed in position.

Curing and protection: — Formwork shall be retained in position for the appropriate period given in the clause “Removal of Formwork” and shall be considered as providing adequate curing on those surfaces for that period. Should this curing period still be less than that specified, alternatively, should surfaces not be cured by forms then all such concrete shall immediately be protected from contamination and loss of moisture by one or more of the following methods: —

- a) ponding the exposed surfaces by means of water, except where atmospheric temperatures are low, i.e., less than 2°C,
- b) covering the concrete with sand, or mats made of a moisture-retaining material, and keeping the covering continuously wet;
- c) continuous spraying of the exposed surfaces with water;
- d) covering with a waterproof or plastic sheeting firmly anchored at the edges,
- e) using a prior approved curing compound applied in accordance with the manufacturer’s instructions, provided that in this case, the presence of the compound is not detrimental to subsequently applied finishes.

Whatever method of curing is adopted, its application shall not cause staining, contamination, or marring of the surface of the concrete.

The curing period shall be at least 5 days for concrete made with Portland cement, at least 2 days for that made with rapid-hardening Portland cement and at least 7 days if Portland blast-furnace cement is used. When atmospheric temperatures are below 5° C these minimum curing periods shall be extended by 72, 36 and 72 hours respectively.

CONSTRUCTION DETAILS

Holes, Chases and Fixing Blocks: — No holes or chases other than those shown on the working drawings or approved by the Department shall be cut or otherwise formed in the concrete. No blocks for the attachment of fixtures shall be embedded in the concrete unless approved by the Department.

Pipes and Conduits: — No pipes or conduits other than those shown on the working drawings shall be embedded in the concrete without the approval of the Department. The clear space between any such pipes and the clear distance between such-a pipe and any reinforcement shall be at least 25mm or the maximum size of the coarse aggregate plus 5mm, whichever is greater. The amount of concrete cover over pipes and fittings shall be at least 25mm.

Honeycombing and Other Defects: — After removal of the forms, if the concrete shows any defect in terms of the Specification for Finishes for that concrete, the Contractor shall, on the instructions of the Department, make good the defect at his own cost, by either removing and replacing the defective concrete, or by patching, all as approved by the Department and to the standard of finish required. No remedial work shall be carried out by the Contractor without the prior approval of the Department.

Building on Concrete Footings: — No structural load shall be imposed on concrete footings until at least three days after depositing the concrete in the case of mass concrete footings and after seven days in the case of reinforced concrete footings, or as may be directed by the Department.

RECORDS: —The Contractor shall maintain written records indicating: —

- a) the date on which each section was concreted, the time taken to place the concrete, and the position of that section in the Works and its construction joints;
- b) daily weather conditions with temperatures being recorded by maximum and minimum thermometers and
- c) the nature of samples and dates on which they were taken. In the case of cubes these shall also state the identification marks, test results and age, minimum strength required and position of parent concrete.

TESTS

Compressive Strength: — During the time in which each class of concrete, having a specified 28 day compressive strength equal to or greater than 20 MPA, is being placed, samples of the concrete shall be taken from the point of deposit at the rate of at least one sample from each 5m³ of concrete placed in columns, and from each 30 m³ or part thereof of concrete placed elsewhere, but in either case, nevertheless at least once a week. A group of at least three 150mm test cubes shall be made from each sample for testing at 28 days age. If the Contractor plans to execute further work which relies on previously completed work for support but for which the results of 28 day tests are not available, he is to prove the strength of that concrete by taking and testing at 7 days age an equal number of test cubes to that which is to be tested at 28 days age, prior to the commencement of the planned further work.

The cost of the necessary extra test cubes and testing will be for the Contractor's account. Each group of test cubes shall be deemed to represent the whole of the concrete from which sample was taken and shall be identifiable with the concrete.

The Contractor shall provide, at his own expense, sufficient moulds to keep pace with the rate of concreting. He shall also perform all tasks in respect of compressive strength testing except the actual crushing.

If ready-mixed concrete is used, site testing as specified herein shall still be undertaken, and only the results of such site testing shall be considered in determining the acceptance or otherwise of the concrete.

Grading Analysis: — If so directed by the Department, a grading analysis shall be made for each 40m³ of fine aggregate to be used and for each 75 m³ of the coarse aggregate to be used. The analysis shall be made by the method given in SANS Specification 1083.

Determination of Consistency: — When the slump test is used to measure the consistency of the concrete mix, it shall be carried out by the method given in SANS Method 862 with samples taken in accordance with SANS Method 861.

Costs of Tests: — to concrete, trial mixes, cement, aggregates, water and reinforcing steel shall be borne by the Contractor. The Contractor shall also bear the costs of any other tests (including load tests), which are required as a result of failure on the part of the Contractor to meet the requirements of the Specification.

An item against which the Contractor may allow for all costs in connection with tests on concrete cubes has been included elsewhere in these Bills of Quantities.

Testing Authority: — The crushing of cubes and testing of other samples except in the case of the clause “Determination of Consistency” shall be undertaken by an independent Authority as approved by the Department. The Contractor shall arrange with the Authority that copies of the results of all tests are sent direct to the Department.

ACCEPTANCE CRITERIA FOR STRENGTH OF CONCRETE: — Should any test result obtained from a set of three test cubes of concrete of a specific grade that have been made and tested as specified show that the strength is more than 3 MPA below the specified strength, the concrete represented by such results shall be deemed to have failed to meet the Specification. Should an examination carried out in terms of the clause “Procedure in the event of failure” satisfy the Department that the structural adequacy and durability of that part of the structure where the concrete concerned has been used, is not impaired, the concrete will be acceptable. The Contractor will however be required to review the mix design and any other factors influencing the quality to ensure that further concrete is acceptable.

Where three or more consecutive valid test results (i.e., results of sets of three test cubes that have been made and tested as specified) become available, the following criteria shall apply: —

- a) The average of any three consecutive valid test results obtained on concrete of a specific grade must exceed the specified strength by at least 2 MPA.
- b) If the criterion given in (a) above is not met but the average is at least equal to the specified strength, the concrete cast will be acceptable but the Contractor will be required to adjust the mix design and standard of control.
- c) Should the average result be less than the specified strength, an examination must be carried out in terms of the clause “Procedure in the event of failure” on that part of the structure in which concrete represented by the result has been used.

Alternatively, should a concreting operation be of such size or the testing be of such frequency that thirty or more valid test results (i.e., results of sets of three test cubes that have been made and tested as specified) become available within three months, the Contractor may choose, subject to the approval of the Department, to have the results assessed statistically. In such a case, the average of all the test results of a specific trade of concrete at *any stage* must exceed the specified strength by at least 1,7 standard deviations, failing which the Contractor will be required to adjust the mix design to ensure compliance with this criterion.

PROCEDURE IN THE EVENT OF FAILURE: — If after the evaluation of the test results in terms of the clause “Acceptance criteria for strength concrete” an examination of the concrete in the structure is necessary, one or more of the following procedures in the sequence given may be adopted at the discretion of the Department, and for the account of the Contractor, to determine the acceptability or otherwise of the concrete in that particular part of the structure: —

- a) An assessment of the stress level in the structure concerned in relation to the test result obtained.
- b) Non-destructive testing, subject to the availability of similar concrete of proven acceptable quality in comparable members in the same construction as a reference.
- c) The testing of drilled cores in accordance with the relevant SANS Standard Methods.
- d) Full scale load tests in accordance with Section 6 of SANS Code of Practice 0100: Part II.

Where load tests are, in the opinion of the Department, unsuitable or impracticable, and if an examination carried out in terms of the above does not show the concrete strength

to be acceptable, or if a tested portion of the structure fails to pass the tests, the Contractor shall, on the instructions of the Department, replace or strengthen by approved means: —

- a) each portion that failed or contains concrete that failed, as relevant, and
- b) any other portion, irrespective of strength, the functional purpose of which is affected by the portion or concrete referred to in (a) above.

NON-STRUCTURAL PRESCRIBED MIX CONCRETE: — Concrete for non-structural purposes shall be “Prescribed mix concrete” produced in accordance with the requirements indicated in the table below, and the Contractor is also referred to the foregoing Preambles insofar as they apply: —

TABLE E – PRESCRIBED MIX CONCRETE FOR NON-STRUCTURAL PURPOSES

Class of Concrete	Estimated minimum compressive strength in MPA at 28 days	Maximum nominal size of coarse aggregate in mm	Proportion of Constituents		
			Cement (Parts)	Fine Aggregate (Parts)	Coarse Aggregate (Parts)
A	1	37,5	1	4	8
B	15	19,0	1	3	5
C	20	19,0	1	2 ½	3 ½

Cement and aggregates shall be mixed by volume and the contents of a 50 kg sack of cement shall be taken to be 0.033 m³

The cement / water ratios and the maximum and minimum slumps for concrete shall be as previously listed in Tables C and D.

The Department shall have the right to vary the proportions of the constituents in any of the prescribed mixes as necessary to obtain the required compressive strength, optimum density and workability of the concrete. Any variation in the rates of the concrete will only be considered if the proportion of cement to the total volume of aggregate, in each case, is varied from that Specified.

Notwithstanding any requirements previously described, the Department may permit certain items of non-structural concrete in small quantities to be mixed by hand.

Where concrete is mixed by hand, the coarse aggregate shall be spread out on a timber, concrete or metal platform in a flat heap, the sand then spread evenly over the heap, followed by the cement also spread evenly, and the whole thoroughly mixed by shovelling from the centre to the side to form a ring, then back to the centre and again to the side. Water shall then be poured into the ring and the materials mixed into it and then back into the ring, the remainder of the water then added slowly as materials are mixed into it. Mixing shall continue until the colour is uniform and the consistency the same throughout the pile.

“NO-FINES” CONCRETE: — shall consist of one part of cement to eight parts of 19mm aggregate (1:8— 19mm stone) with a water/cement ratio of approximately 0,46. This water/cement ratio may be varied slightly to suit conditions on approval by the Department.

The quantity of water used shall be just sufficient to form a smooth grout, which shall completely coat every particle of aggregate, and also to ensure that the grout is just wet enough to form a small fillet at each point of contact between the stones. “No-fines” concrete mixed with excessive water, which results in a thin grout which drops off the aggregate, will be rejected.

“No-fines” concrete shall be placed in its final position within 20 minutes of mixing and shall be placed in continuous horizontal layers. “No-fines” concrete shall be spade worked sufficiently to ensure that it fills the forms but vibrating, tamping or ramming will not be permitted.

BREEZE CONCRETE: — shall consists of one part cement to eight parts clean dry furnace ashes, the ashes being free from all coal or other foreign matter and graded up to particles which will pass a 26. 5mm ring from a minimum which passes a 4.75mm mesh. The finer materials from the screening to be first mixed with the cement into the mortar and the ashes added afterwards and thoroughly incorporated. The breeze concrete is to be mixed in batches not exceeding 0, 1 in 3 and each batch is to be immediately placed in position. The ashes for breeze concrete are to be obtained in an unscreened state and are to be kept dry so that sufficient fine material will be obtained from the screening to make the mortar.

FINISHES TO IN-SITU CONCRETE

Formed Finishes: — are the concrete surface finishes developed using formwork and whose standard of finish in each class shall be as described.

The Department shall be informed by the Contractor of any defect in terms of this Specification, and no remedial work shall be carried out by the Contractor without the prior approval of the Department. Any defect shall be made good at the Contractor's expense by either removing and replacing the defective concrete, or, in certain instances only, by patching, all as approved by the Department and to the standard of finish required.

Class F1 Ordinary Finish: — Formwork panels shall be of such quality that upon removal, the concrete is true and even, free from fins and recesses greater than 5mm size, honeycombing, large air holes and the like. Bolt holes shall be filled if so required by the Department.

Class F2 Smooth Finish: —This class of finish requires a high standard of concrete work, formwork and technique.

Concrete placed in any one structure to give this finish shall be made from cement and aggregates from the same source, and similarly, the grading of the aggregate shall be kept constant.

Formwork shall be metal or wrot timber in a new condition designed and constructed to suit the particular job in hand and with shutter bolts and joints between panes in a pattern approved by the Department. Joints between panels shall be watertight, but the use of sealing tape, which marks the concrete, shall not be permitted.

Construction joints shall be in the position and of the detail shown upon the working drawings. Should the Contractor wish to incorporate further construction joints or amend the position of those shown to suit his own requirements or technique, this may be allowed provided that all design considerations are met, that the prior approval of the Department is obtained and that any extra costs are borne by the Contractor. In the case of horizontal construction joints, the top edge of the concrete on the Class F2 smooth finish side is to be struck true and level with a trowel.

Special care shall be taken to ensure that forms are clean of all pieces of tying wire, nails and other debris at the time of concreting.

The standard of finish shall be such that, upon removal of the formwork, no further treatment, other than treatment of bolt holes if required shall be found necessary to provide a straight, smooth and uniform finish of good quality and consistent colour and texture, free of all honeycombing and large air holes.

UNFORMED FINISHES: — are those concrete surface finishes developed without the use of formwork -

Class U1 Ordinary Finish: — Immediately after placing, the concrete shall be finished by screeding with the edge of a wooden board of straight and true line and working between guides set accurately to level. No mortar shall be added and noticeable surface

irregularities caused by the displacement of coarse aggregate shall be made good by re-screeding after removing or tamping down the offending aggregate.

Class U2 Wood Float Finish: — The concrete surface shall first be brought to the standard Class U1 ordinary finish and then floated with a wood float. Floating shall be started as soon as the screeded finish is stiffened sufficiently and the bleed water has evaporated or been removed and it shall be the minimum necessary to produce a surface free from screed marks and uniform in texture.

Class U3 Steel Trowel Finish: — The concrete surface shall first be brought to the standard of Class U2 wood float finish with floating being continued until a small amount of mortar without excess water is brought to the surface and then when the floated surface has hardened sufficiently to prevent any more excess fine material from being drawn to the surface, troweling with a steel trowel. Troweling shall be performed with firm pressure such as will flatten the sandy texture of the floated surface and produce a dense uniform surface free from blemishes and trowel marks. Gradual surface irregularities shall not exceed 5mm over any 3m. The sprinkling of sand and/or neat cement on the surface to absorb excess moisture shall not be permitted.

Class U4 Power Float Finish: — The concrete surface shall first be brought to the standard of Class U1 ordinary finish using wooden screeding boards or steel rollers. After evaporation or removal of all bleed water and immediately the concrete is stiff enough to support the machine the surface shall be closed with a mechanical power float and then finished with a mechanical power trowel. The texture of the finished surface shall be either non-slip or polished as shown on the drawings. Irregularities shall be of long wavelength not exceeding a curvature of 2mm in 600mm. Under no circumstances shall sand and/or neat cement be sprinkled over the surface either to absorb excess moisture or to fill surface blemishes or irregularities. Power floats and trowels shall be operated by skilled operators.

TOLERANCES: — Clause 6 of SANS Specification 1200G refers. Unless otherwise agreed by the Department, 'Degree of Accuracy' shall apply to all concrete work and steel reinforcing.

SUPERVISION: — The construction of all concrete work shall, at all times, be under the supervision of a competent person experienced in the production and placing of high-grade concrete. He shall personally supervise all work relating to the concrete construction and pay special regard to: —

- a) The quality, testing and mixing of materials.
- b) The finish, stability and cleanliness of formwork and excavations.
- c) The cleanliness, correct positioning and maintenance in position of steel reinforcement.
- d) The transporting, placing, compacting and curing of the concrete. The construction and stripping of formwork.
- e) The production of samples, test cubes, slump and other tests.

GENERAL

Measurement and Payment: — The provisions of Clause 8 of SANS Specification 1200G will NOT apply and the system of measurement that is adopted in these Bills of Quantities is the only system of measurement that will be recognised in this Contract.

No deductions have been made for pipes not exceeding 200mm internal diameter, reinforcement, conduits, structural steel, bolts and the like.

Rates for Concrete: — are to include for mixing, handling and depositing (by hoisting or lowering) in the forms. Rates for items of reinforced concrete are to include for thoroughly working and packing around the steel reinforcement. All reinforcement, except where otherwise described, has been measured separately.

Rates for concrete surface beds are to include for laying in suitable size panels not exceeding 20m² or as may be directed. The Contractor is to allow in his pricing of the concrete for all construction joints.

Striking off and Curing: — of concrete slabs and surface beds has been measured separately. The rates for all other items of concrete including stairs and landings and concrete bindings, are, except where otherwise described, to include for all necessary striking off of surfaces and curing.

The rates for items of striking off and curing top surfaces of concrete shall, unless otherwise described, apply to level surfaces.

Where exposed sloping surfaces of concrete do not exceed the limits of pitches laid down for the measurement of back shuttering, the striking off and curing of the sloping top surfaces has been measured in the case of concrete slabs and surface beds, and in other-cases provision has been made for dressing the concrete surfaces to splay.

Where items of striking off and curing are described as to falls or ramps this shall include cross-falls, etc.

The rates for striking off and curing of surface beds formed in panels must also include for all necessary temporary formwork in forming the panels.

Rates for Formwork: — are to be for use and waste only (except where described as “permanent”) and are to include for fitting together in the required forms, propping, strutting, shoring, wedging, plumbing and fixing to true angles and surfaces, cambering formwork to slabs and beams where required, preparation and treatment of surfaces as necessary to ensure easy release during stripping, reconditioning as necessary before re-use, providing necessary temporary openings for the purpose of cleaning, inspection and placing of concrete, and for all straight cutting, splayed edges, intersections, notching and narrow widths, including waste and properly fitting at intersections, maintaining in position for periods as directed and for striking and removing.

Rates for items of formwork to soffits of slabs and to sides and soffits of beams, lintels and the like are to include for horsing exceeding 1,5m and not exceeding 4,5m high unless otherwise stated in the items.

Rates for formwork to soffits of stairs and landings are to include for all necessary horsing.

Rates for Permanent Formwork: — are to include for leaving in all formwork, props, etc. as permanent formwork shall be regarded as not being recoverable.

Rates for Steel Fabric Reinforcement: — are to include for lapping the reinforcement at all edges, as specified, for all cutting and waste, notching, etc. bending where required, wiring together at laps and for maintaining in position during placing of concrete.

Rates for Steel Bar Reinforcement: — are to include for all cutting, bending, hooked ends, wiring together at passing points, hoisting or lowering to the required levels, fixing in accordance with the detail drawings, cover blocks and maintaining in position during placing of concrete. The mass of mild and high yield stress steel bars shall be based on the values shown in Table E1 of SANS Specification 920— Appendix E (with no allowance being made for rolling margin and waste).

The mass of the binding wire required for fastening the reinforcement together is not included in the mass of the reinforcement. Provision for the cost of this wire shall be deemed to have been made by the Contractor in calculating the unit rate for the net mass (i.e. excluding the mass of binding wire) of the reinforcement.

4. **BRICKWORK**

SAND: — shall comply with the requirements of SANS Specification 1090, washed where necessary and screened through a 2360 micrometer mesh sieve.

CEMENT: — shall be Portland cement of normal setting quality complying with SANS

Specification 471 or Portland cement 15 complying with SANS specification 831. Cement containing more than 15 % blast furnace slag will not be permitted to be used.

LIME: — shall be hydrated lime complying with SANS Specification 523.

WATER: — shall be clean and free from injurious amounts of acids, alkalis, and other organic substances. If so required by the Department, the suitability of the water shall be proved by tests carried out by an approved laboratory.

CEMENT MORTAR: — unless otherwise described, shall be composed of one part by volume of cement to five parts by volume of sand.

COMPO MORTAR: — unless otherwise described, shall be composed of one part by volume of cement, one part by volume of lime to ten parts by volume of sand.

STRENGTH MORTAR: —where required, shall be of the class specified and as defined in Table C-I of SANS Code of Practice 0164—Part I.

MIXING OF MORTAR: — the materials are to be mixed dry on a non-absorbent and close jointed timber or iron platform until the mixture is of uniform colour with water added and the mixture turned over until the ingredients are thoroughly incorporated.

No cement mortar that has once commenced to set will be allowed to be used. Mixing platforms are to be cleaned and old mortar removed before any new batch of mortar is prepared for mixing. No mortar mixing by adding additional materials is permitted after 5 (five) hours.

TESTING OF STRENGTH MORTAR: — During the time brickwork is being laid samples shall be taken of the mortar being used as shall be directed by the Department. A group of three 70mm x 70mm x 70mm test cubes shall be made from each sample for testing at 28 days of age. Each group test cubes shall be deemed to represent the whole of the batch from which the sample was taken and shall be identifiable with the batch.

The testing shall be undertaken by an independent firm or institution nominated by the Contractor to the approval of the Department. An item for the testing of mortar cubes has been provided elsewhere in these Bills of Quantities.

BURNT CLAY COMMON BRICKS: — shall comply with SANS Specification 227 and are to be good quality, sound, hard, well burnt bricks, uniform in size and shape.

A sample load of bricks is to be approved by the Department and all subsequent loads are to be equal thereto.

BRICKS FOR FOUNDATIONS: — are to be as above but extra hard burnt bricks. Reject facing bricks may be used in lieu of extra hard burnt foundation bricks provided they are equal to a sample to be submitted to and approved by the Department. These bricks are also to be used for septic tank walls.

BRICKWORK: —unless otherwise described is to be in burnt clay common bricks and wherever practicable is to be in stretcher bond with the skins tied together with and including galvanized crimped wire wall ties in accordance with SANS Specification 28. The wire ties are to be of sufficient length to allow each end to be built into brickwork built into every fourth course and spaced at 450mm staggered centres (seven ties per square metre). The bricks are to be well wetted before being laid and the course of bricks laid last is to be well wetted before bedding the next course of bricks upon it. The brickwork is to have all perpends flushed up solid and each course is to be laid on a solid bed of mortar. No false headers are to be used. Whole bricks are to be used except where bats or closers are legitimately required to form bond.

Unless otherwise described one brick walls are taken at a nominal thickness of 230mm.

The joints of all walls to be plastered are to be raked out as the work proceeds to form key for plaster. All walls are to be carried up regularly so that no part is built more than 1,2m higher than the adjoining walls.

Mortar joints generally are not to exceed 10mm thickness unless otherwise indicated on the drawings. If a specific brick scale is indicated on the drawings, either drawn or written, it must be adhered to.

Solid bricks to X-Ray Room walls are to be used. If hollow core bricks are used, these are to be grouted up solid.

HOLLOW WALLS: — are to be formed of two thicknesses of brickwork as specified with cavity between, tied together, unless otherwise specified, with and including A.I.S.I. Type 304 stainless steel wire butterfly type wall ties in accordance with SANS Specification 23, of sufficient length to allow each end to be built into brickwork, built into every fourth course and spaced at 450mm staggered centres (seven ties per square metre). Cavities are to be kept clear of all rubbish, mortar droppings and projecting mortar.

BRICK LININGS TO CONCRETE: — unless otherwise described are to be tied to concrete with and including A.I.S.I. Type 304 stainless steel wire wall ties complying with SANS Specification 28 with one end embedded is to deep into concrete and other end built into the brick joints and spaced not less than seven ties per square metre.

REINFORCED BRICK LINTELS: — unless otherwise detailed are to be constructed in accordance with KZN Public Works Type Drawing.

PRE-CAST AND PRE-STRESSED CONCRETE LINTELS: — where specified, are to be of approved manufacture and the Contractor is to provide the Department with a certificate issued by the manufacturer certifying that the lintels are adequate for the purpose in terms of span, loading and number of courses and construction of brickwork above the lintel. The manufacturer is also to specify the minimum bearing required at each bearing end and the nature and period of temporary propping required. Rates or pre-cast pre-stressed concrete lintels are to include for any cement mortar filling required and for temporary propping in accordance with the manufacturer's instructions.

BAGGING DOWN BRICKWORK: — shall be carried out when the mortar in joints is still soft by rubbing over with wet rough sacking until all joints and crevices are evenly filled, including additional mortar if necessary to obtain an even surface or, when the mortar in joints is set, by rubbing over as described but including cement grout as necessary to fill up the joints and crevices.

CRAMPS: — for timber door frames shall be 1.6mm thick galvanized hoop iron 32mm wide with one end turned up 50mm and twice screwed to stile of frame and built 450mm deep into wall with other end turned up into brick joint and cranked as necessary where built into cavity wall. Cramps shall be built in approximately 330mm from top and bottom of stile and intermediately at not exceeding 825mm.

TIES TO WALL PLATES, RAFTERS, ETC.: — shall be 1.6mm thick galvanized hoop iron 32mm wide and at least 1500mm long with one end turned up and built in not less than ten courses deep into brickwork or embedded in concrete beams or slab and with end left projecting and wrapped around timber rafter and spiked to timber wall plate. Where ties are embedded to concrete beam or slab, they must be wrapped around the bottom steel bar reinforcement of the beam or slab.

WELDED MESH BRICK REINFORCEMENT: — shall be 55mm, 80mm, 155mm or 235mm wide consisting of two 3.55mm main high tensile steel wires at 50mm, 75mm, 150mm or 230mm centres respectively with 2.80mm high tensile-steel cross wires electrically welded at 300mm centres, lapped 150mm at end joints, 75mm at angles and built 110mm into connecting walls. No allowance has been made for laps.

BITUMEN EMULSION WATERPROOFING TO BRICKWORK: — The inner thickness of external superstructure walls whether hollow or solid, behind facing bricks, is to be bagged and painted with two coats of approved bitumen emulsion waterproofing compound.

FACING BRICKS. PAVING BRICKS, QUARRY TILES, ETC.: — Facing bricks shall comply with SANS specification 227. Facing bricks, paving bricks, quarry tiles, terra cotta grille blocks, etc. are to be of the types and colours specified, specially selected, free from blemishes, square on all faces, uniform in size, shape and colour and equal to a sample to be deposited with and approved by the Department.

Special care must be taken to preserve the arrases and faces of facing bricks, paving bricks, quarry tiles, etc. during transit and handling.

FACED BRICKWORK: — Facing bricks shall be sorted to ensure proper mixing of the bricks within the colour range of each type of facing bricks. Sudden changes in the general colour of faced brickwork in any one type of facing brick will not be acceptable. Sand used in mortar for faced brickwork is to be clean washed sand and sand from the same source is to be used throughout to maintain a uniform appearance. Faced brickwork is to be pointed as specified as the work proceeds. Keyed-in joints are to be formed with a round jointing tool and square recessed joints are to be approximately 6mm deep formed with a square jointing tool. All perpends are to be accurately kept. The bond is to be broken, if necessary, in the centre of panels above and below windows, above doors, between openings and in the centre of sides to piers. No broken bond will be allowed at reveals or quoins. All cutting to face bricks is to be done with a carborundum or other approved high-speed brick saw. Faced brickwork is to be protected from injury, mortar splashes, etc. and cleaned down with spirits of salts and scrubbed down with water at completion to the approval of the Department.

PAVING BRICKS AND QUARRY TILES: — unless otherwise described are to be pointed as the work proceeds with 6mm wide keyed-in joints. Paving bricks and quarry tile paving, sills, etc. are to be protected from injury, mortar splashes, etc. and cleaned down with spirits of salts and scrubbed down with water at completion to the approval of the Department.

FIBRE CEMENT SILLS: — are to be of approved manufacture without fixing lugs, even in shape, uniform in colour, free from cracks, twists and other defects, in single length between reveals and of the thickness and colour specified and equal to approved sample.

RATES

Brickwork Generally: — Rates for brickwork are to include for hacking the face, or raking out the joints, of brickwork where necessary to form key for plaster, etc. and for plumbing angles and surfaces, all square cutting, wedging and pinning against columns, beams, slabs, etc. for all waste in cutting and wire ties required in tying skins together as described.

Rates for hollow walls are to include in addition to the above for keeping the cavities clean and free of mortar droppings and for butterfly type wall ties, all as described.

Where items are described as cut and pinned, built in, bedded, wedged and pinned, etc. rates are to include for grouting in or bedding solid with 1:3 cement mortar, unless otherwise stated.

Where window units, etc. are described for building in as composite, rates are to include for assembling of units as required and, unless otherwise described, for tap screwing to coupling mullions or transoms, including holes:

Faced Brickwork, etc.: — Rates for all fair and faced brickwork, brick paving, grille block walls and the like are to include in addition to the foregoing for building or laying to true surfaces and angles, all fair square cutting and fitting and cleaning down to approval at

completion.

Rates for brick sills, copings, steps, margins, thresholds and the like shall include for fair ends and angles unless different bricks or tiles are used or special cutting is required.

Rates for items described as “Extra over ordinary brickwork” are to be for the extra cost of the facing bricks specified over common brickwork built in stretcher bond, and are to include for building in cement mortar consisting of one part cement to five parts clean washed sand and for pointing as described.

Rates for items described as “Labour and Material” are to be for the full cost of the facing bricks specified, and otherwise as above described.

Rates for all cut face brick linings are to include for cutting and bonding at ends.

Quarry Tiles: — Rates are to include for all square cutting and fitting, bedding and jointing in cement mortar consisting of one part cement to three parts clean washed sand, for pointing as described as the work proceeds and cleaning down to approval at completion.

Rates for treads, sills, copings, cappings, skirtings etc. are to include for pointing to exposed edges, ends and projecting soffits.

Air Bricks: — Rates for air bricks and air vent, gratings are to include for forming openings through the walls, for all necessary jack arches and turning pieces, for plastering all round the openings in cement mortar, and where in hollow walls, for building cavity solid all round in addition.

Fibre Cement Sills: — Rates are to include for all square cutting, waste, and fitting and for bedding in an approved epoxy adhesive.

Terra Cotta Grille Blocks: — Rates are to include for all square cutting and waste and fitting, bedding and jointing in cement mortar consisting of one part cement to three parts clean washed sand and for pointing with keyed in joints on both faces and into reveals of openings as the work proceeds.

5. **WATERPROOFING**

GENERAL: — All measurements are nett — no allowance being made for laps in sheet materials or for waste in cutting.

WORKMANSHIP: — All work is to be carried out to the approval of the Department by skilled and qualified workmen and in accordance with the methods prescribed in SANS Code of Practice 021 for waterproofing of buildings.

All work is to be executed in accordance with the instructions issued by the manufacturer of the material being used. Roof coverings and linings are to be laid to the falls, cross falls, etc. provided in the screeds or other surfaces to which they are to be applied.

Surfaces to be waterproofed are to be dry and cleaned of all dust, chips, etc. immediately prior to the commencement of this work and are to be free of any contaminating substances or projections that may damage the waterproofing materials being used.

POLYETHYLENE SHEETING: — is to comply with SANS Specification 952 and bear the SANS mark. The sheeting is to be laid with a minimum lap of 150mm, unless otherwise specified, at angles and junctions with laps sealed in accordance with the manufacturer’s instructions.

MASTIC ASPHALT ROOFING: — is to conform to SANS Specification 297 and is to be laid hot in two or three layers, as stated, with each layer of minimum 4mm thickness and laid to break joint with the underlying layer by not less than 150mm.

Prior to the commencement of any work, the specialists who lay the mastic asphalt roofing are to satisfy themselves as to the acceptability of the surfaces upon which the mastic asphalt is to be laid, as the said specialists will be held fully responsible therefore.

Mastic asphalt to surfaces not exceeding 10-degree slope is to be laid in two layers on and including one layer of approved reinforced waterproof building paper lapped 75mm at all edges. Rates are to include for all cutting and waste on building paper.

Mastic asphalt to surfaces exceeding 10 and not exceeding 20 slope is to be laid in two layers on surfaces which have been hacked, grooved or scoured to provide an adequate key. Rates are to include for the necessary preparation of the surfaces.

Mastic asphalt to vertical surfaces and surfaces exceeding 20-degree slope is to be laid in three layers on and including any necessary expanded metal lathing securely fixed to the surfaces to prevent creeping. Where vertical surfaces do not exceed 300mm in height the surfaces to receive mastic asphalt may alternatively be prime coated with a latex based bitumen emulsion primer prior to the application of the mastic asphalt.

Anile fillets to all internal angles are to be run in one operation.

Finishing coats of bituminous-based aluminium paint on mastic asphalt roofing have been measured separately.

FLEXIBLE GLASS-FIBRE REINFORCED POLYESTER WATERPROOFING: — shall be of the type specified, or other approved, supplied and laid in-situ by a specialist sub-contractor, all to the approval of the Department and shall carry a written 10 (ten) year guarantee.

The waterproofing applied in-situ shall consist of one layer of three-ply bituminous felt underlay bonded to the substrate and covered with flexible glass-fibre reinforced polyester waterproofing comprising a chopped strand glass-fibre mat having a minimum mass of 450g / m², impregnated with flexible unsaturated polyester resin and finished with two coats of abrasion-resistant flexible unsaturated polyester surface coating which shall not show any sign of the glass-fibre reinforcement. The total mass of the waterproofing (excluding the bituminous felt underlay) shall be not less than 1.8kg / m².

Chopped strand glass-fibre mat reinforcement is to comply with the requirements of SANS Specification 419.

All unsaturated polyester resins are to be suitable for their intended use and comply with SANS Specification 713 and are to be ultra-violet ray stabilised.

All flexible glass-fibre reinforced polyester waterproofing is to be finished to approved opaque colours (excluding red or orange tints), is to be properly cured, and is to be free from porosity, blisters, cracks, surface crazing or other defects which may affect its appearance or its performance, with the surface colours consistent throughout.

Samples of flexible glass-fibre reinforced polyester waterproofing are to be submitted to and approved by the Department and all work executed is to be equal to the approved samples.

EXPANSION JOINT SEALANTS: — Polysulphide sealants, where specified, are to be approved polysulphide sealants complying with SANS Specification 110 Type 2, well compacted into joint.

Rates are to include for priming joints where recommended by the manufacturer of the sealant being used with a suitable and approved primer.

All work is to be executed by the manufacturer of the material, or other specialist firm, all in accordance with the manufacturer's instructions.

RATES: — for all roofing and linings are to include for cleaning and preparing the surfaces to be waterproofed as before described, for protecting from damage and cleaning down, flood-testing if required and handing over in an acceptable and guaranteed watertight condition at completion.

Rates for sheet waterproofing materials are to include for all dressing, bending, narrow widths, angles, intersections, cutting and waste and where applicable for the extra material required for lapping and for sealing laps as described.

Rates for roofing described as laid on “flat” roofs are to include for laying to slopes not exceeding 100mm from the horizontal.

6. ROOF COVERINGS

CONCRETE ROOFING TILES: — shall conform to SANS Specification 542. The tiles are to be of pattern and colour specified and is to be even in thickness, uniform in shape and colour and free from cracks and blemishes. The tiles are to be laid to “straight bond” in accordance with SANS Code of Practice 062 with vertical joints and bottom edges of each course ranging perfectly straight.

Unless otherwise specified each tile in every third course, all tiles in eaves and ridge courses and tiles in every course on each side of hips and valleys shall be secured with copper clout headed nails driven into the battens or with approved non-corrodible tile clips and nails in accordance with the manufacturer’s instructions. Where nail holes in tiles have been cut off at hips, valleys, top edges, etc. new holes are to be drilled.

All ridge and hip cappings are to be of the types specified and of colour to match the roofing tiles. The cappings are to be bedded, jointed, pointed and torched up over roofing tiles in 1:3 cement mortar tinted to match the tiles. Where cappings having butt jointed ends are specified, an approved damp proof course conforming to Type C of SANS Specification 952 is to be fixed under, laid over the roofing tiles in accordance with the manufacturer’s instructions.

Barge cappings are to be of the types specified and of colour to match the roofing tiles. The barge capping tiles are, unless otherwise specified, to be bedded, jointed, pointed and touched up over roofing tiles in 1:3 cement mortar tinted to match the tiles with every tile drilled and secured with copper clout headed nails to timber barge boards or bearers (elsewhere measured).

Concrete tiles to residential units in non hail area’s are permitted.

“CHROMODEK” ROOFING SHEETS: - Shall be the secret fixed type, supplied with all fittings in full-length sheets in the profile and colour as specified. Sheets shall be a minimum of .58mm and maximum of .8mm thickness. When .58 thick sheets are used, purlin spacings shall be a maximum of 1.2mtrç and maximum 1.5mtrç for .8 thickness. Sheets shall leave the factory in the specified colour and any scratches etc., due to handling are to be ‘touched up’ on site after installation. All fixings, valleys, cappings and securing clips shall be to manufacturers’ recommendations and no variations shall be accepted without prior approval from the department.

0,58mm thick roof sheeting for purlins up to 1,2m spacing and 0,8mm thick roof sheeting for purlins exceeding 1,2m – 1,5m spacing.

In area’s up to 30Km from the coast, metal roof sheeting to be 0,58mm thick with special corrosion protection as supplied in “Global- Duro” roofing sheets. All other area’s to be 0,58mm as “Global-Tech corrosion protection. 0,58mm “Klip Lock 700 “ or “Craflock “ and 0,8mm “ Brownbuilt “. (0,8mm is recommended for high rainfall and snow fall area’s due to deeper trough.)

RATES: — for roof coverings, are to include for all necessary half tiles at verges and for all square cutting and waste at verges, abutments, and top and bottom edges and to both sides of ridges.

Rates for cappings, etc. are to include for all short lengths, cutting, waste and fitting at intersections.

All measurements are nett. No allowances have been made for overlaps.

CORRUGATED IRON ROOFING, CLADDING AND FITTINGS: — are to be of an approved brand and are to be manufactured from galvanized steel sheets of the thickness specified after galvanising and having a galvanized coating of "Isacor Coating Designation Z275" for inland areas and 'Z600" for coastal areas as specified.

Roofing, etc. shall be lapped one and a half corrugations at sides and 30mm at ends unless otherwise specified. Roofing, etc. shall be fixed to timber purlins, rails etc. with standard galvanized drive screws 65mm long and to steel purlins, etc. with 8mm galvanized hook bolts of the lengths stated.

Each screw or bolt shall be fitted with one lead washer and one bituminous felt washer and shall be spaced not less than one screw or bolt to every alternate corrugation across the width at end laps and ends of sheets and at each intermediate purlin or rail.

Rates for roofing, cladding and fittings are to include for: —

- a) Fixing as described.
- b) Bedding washers in an approved mastic sealing compound
- c) Coating projecting ends of hook bolts and nuts with bitumen after fixing
- d) All square notches, square cutting and waste, laps, fitting and drilling. All measurements are nett. No allowance has been made for laps.

FLUTED STEEL ROOFING, CLADDING AND FITTINGS: — are to be approved galvanized fluted steel sheets and fittings manufactured from galvanized steel sheets of the thickness specified after galvanising

(a) **Galvanized steel sheets and fittings:** — are to be manufactured from galvanized steel having a galvanized coating of "Isacor Coating Designation Z275" for inland areas and of "Z600" for coastal areas as specified with the sheets having a plain galvanized finish and the fittings an embossed galvanized finish.

Roofing, etc. shall be fixed to timber purlins, rails, etc. with standard drive crews of the lengths stated and to steel purlins, rails, etc. with 8mm galvanized hook bolts of the lengths stated. Each fixing screw or bolt shall be fitted with washers as recommended by the manufacturer of the roofing

Vertical cladding shall be fixed with broad flutes externally - unless otherwise described - to timber rails with standard galvanized drive screws 50mm long and to steel rails with 6mm diameter x 25mm long galvanized sheet bolts. Each fixing screw or bolt shall be fitted with washers as recommended by the manufacturer of the cladding including drilling steel rails as necessary.

(b) **Baked enamel finished galvanized steel sheets and fittings:** — are to be manufactured from un-passivated galvanized steel having a galvanized coating of "Isacor Coating Designation Z275" and finished where described in the items, with approved factory applied baked enamel finish of colours to be selected by the Department.

Roofing, etc. shall be fixed to timber purlins, rails, etc. with sherardised or stainless steel drive screws of the lengths stated and to steel purlins, rails, etc. with 8mm diameter sherardised or stainless steel hook bolts of the lengths stated. Each fixing screw or bolt shall be fitted with washers as recommended by the manufacturer of the roofing.

Vertical cladding shall be fixed with broad flutes externally, unless otherwise described, to timber rails with sherardised or stainless steel drive screws 50mm long and to steel rails with 6mm diameter x 25mm long sherardised or stainless steel sheet

bolts. Each fixing screw or bolt shall be fitted with washers as recommended by the manufacturer of the cladding including drilling rails as necessary.

- (c) **Generally:** — where sheet lengths are in excess of 12m these have been measured separately.

Roofing, etc. shall be lapped one flute at sides and 230mm at ends unless otherwise specified. Fixing roofing sheets are to be spaced one every crest along purlins at top and bottom edges of roof slopes and one to every alternate crest along intermediate purlins. Fixings to vertical cladding are to be spaced one to even alternate trough to each rail.

Fittings, unless otherwise specified, are to be lapped a minimum of 150mm and where necessary are to be drilled for and fixed with the fixings securing the roofing and cladding sheets.

Rates for roofing, cladding and fittings are to include for: —

- (a) Fixing as described and in accordance with the manufacturer's instructions.
- (b) Seam bolting all side laps at not exceeding 450mm centres with 6mm diameter x 25mm long sheet bolts or with 20mm x No. 14 self-tapping screws and each screw or bolt is to be fitted with washers as recommended by the manufacturer of the roofing.
- (c) Fixing of fittings where described as fastened to roofing, cladding, etc. with approved pop rivets spaced at not more than 340mm centres.
- (d) Sealing side and end laps of sheeting and end laps of fittings with one continuous strip of approved 5mm diameter pre-formed flexible sealant strip.
- (e) Coating the exposed heads of fixings and fasteners to baked enamel finished materials and cut edges of sheets and fittings with matching touch-up compound supplied by the manufacturer of the sheeting and in accordance with his instructions.
- (f) All square notches, square cutting and waste, laps fitting and drilling. No punched holes will be permitted.
- (g) Taking special care at all times to prevent damage to the finished surfaces of the baked enamel finished materials.

All measurements are nett. No allowance has been made for laps.

7. CARPENTRY AND JOINERY

NOMENCLATURE OF TIMBERS: — Timber described as "softwood" is to be South African softwood of the relevant type, grade, etc. as specified.

The names used for imported timbers are those given in Supplement No. 1 to SANS Code of Practice 12 under "Nomenclature of Standard Trade Names of Imported Commercial Timbers used in South Africa" and the Contractor is referred thereto.

TIMBER SIZES: — Sawn and wrot timbers are to be of the full sizes stated.

Where "out of" sizes have been shown for wrot timbers on the drawings, an allowance of 4mm for each wrot face off the sizes shown has been made.

Doors, fanlight, sashes, manufactured boarding, plywood, veneers, etc. must be of the full thickness specified.

Where doors, door frames, fanlights and frames; sashes, windows and frames are measured as numbered items, the overall sizes are given to the nearest 10mm.

Tolerances in nominal dimensions for imported timber shall not exceed the following:

- a) For nominal dimensions up to 76mm the actual dimension may be 2.5mm under for each 25mm
- b) For nominal dimensions 76mm and over the actual dimension may be 1.6mm under for

each 25mm.

STORAGE OF TIMBERS: — Timber delivered to the site is to be properly stacked above ground, either on bearers or platforms under cover and protected from inclement weather.

ORDERS: — for timber, are to be placed immediately after the Contract is signed, as the Contractor will be held responsible for any delay in delivery.

PRE-TREATMENT OF TIMBERS: — All permanent timbers installed in the buildings are to be treated against borer, cryptoterms, termites, and all wood destroying agencies with an approved preventative, all in accordance with SANS Code of Practice 05.

Any surface subsequently exposed by cutting or planing must be touched up with the same preservative solution and rates are to include for all preservative required.

The Contractor is to obtain a certificate from the merchants supplying the treated timber, to the effect that the timber has been treated against wood destroying agencies. The Department has the right to remove samples of the treated timber to have tests carried out by the Division of Entomology or any other Authority.

Temporary timber on the site, e.g. shuttering props, etc. must be free from wood destroying agencies. Any timber so affected is to be immediately removed from the site.

Materials which do not comply with the above requirements or are in any way damaged or discoloured by the pre-treatment must be replaced by the Contractor at his own expense, if so directed by the Department.

STRESS GRADING OF SOFTWOOD TIMBER: —The Mechanical Stress Grading of Softwood Timber (Flexural Method) shall be in accordance with SANS Code of Practice 0149.

STRUCTURAL TIMBER: — for carpentry is to be South African softwood in accordance with SANS Specification 563 and, unless otherwise specified, of Stress Grade V4, and branded accordingly. If it is necessary to use sizes that have to be re-sawn, these shall be re-graded and stamped with the respective SANS stress grade mark. Unless this is done, timber which is re-sawn is no longer considered as complying with the specification and shall on no account be used.

BRANDERING / BATTENS: — of cross-sectional size 50 x 50mm and under shall be South African softwood in accordance with SANS Specification 653 and branded accordingly.

JOINERY AND SHELVING: — Softwood for joinery and shelving shall be South African softwood (S. A. Pine) in accordance with SANS Specification 1359 and branded accordingly. All timber for joinery is to be air or kiln-dried to a moisture content of approximately 12 %.

Shelving to linen stores to be timber slatted with wall bands or free standing units as specified.

STRUCTURAL LAMINATED TIMBERS: — are to be of the sizes detailed, wrought on all faces and are to be manufactured by an experienced fabricator to the approval of the Department. Adhesives used must meet the requirements of the current SANS 1204 for external use.

The surface appearance of members shall be Class C (Constructional) or Class S (Selected) as defined in SANS Specification 876 and as stated in the items

FINGER-JOINTED TIMBERS: — are to be manufactured in accordance with SANS Code of Practice 096— “The manufacture of finger-jointed structural timber”.

Contractors wishing to use finger-jointed timber must supply a guarantee that the finger jointing complies with the above Code of Practice and that the glue is suitable for the particular member.

JOINTING OF PURLINS, FASCIAS, RAILS, BEAMS, ETC.: —shall, unless otherwise detailed, be as follows: —

Purlins, slating battens, etc. of cross-sectional size 50 x 76mm and under shall be jointed over the rafter. Larger sized purlins may be dealt with in the same way or by using some other suitable, recognised method. All purlins and battens shall be fixed to the supporting rafter by at least one nail skew driven from the direction of the ridge. Where the purlin or batten is fixed at more than 900mm centres, at least two nails shall be used at every fixing point.

Fascias shall be jointed over rafters.

Beams, rails, etc. shall be jointed over a support or at 1/5th span with a recognised joint using bolts, etc.

Roof and floor plates are to be halved at joints, angles and intersections and nailed together.

Floor joists and bearers are to have splayed heading joints nailed together and staggered to occur over bearers and sleeper piers respectively.

Sawn brandering is to be butt-jointed at heading joints and angles and where wrot, is to have splayed heading joints and mitred angles over all point of support.

HARD WOODS: — (Red Meranti and Sapele) are to be best quality, specially selected and well seasoned, free from all sapwood to the approval of the Department and are to be well kiln-dried.

Red Meranti is to be even in grain and colour, selected from “Standard and Better” grade from Malaysia. Sapele is to be *Entaindrophragma cylindrium* of F..A.S. grade.

PREFABRICATED TIMBER ROOF TRUSSES: -

Design: —The design of prefabricated roof trusses, bracing, and secondary members forming part of the total timber roof construction shall be prepared by a professional structural engineer (Truss Systems Engineer) strictly in accordance with SANS Code of Practice 0160 and the superimposed loading, unless otherwise specified, is to be taken as that for inaccessible roofs.

Analysis: — From the configuration and mechanism shown on the tender drawings the Truss System Engineer shall submit, through the Contractor, to the Department detailed calculations and working drawings showing timber sizes, connections, truss dimensions, etc.

This submission must include details of both trusses and bracing as specified below:

- a) **TRUSSES:** The analysis of the truss system is to include diagrams of the trusses with marked up members and nodes showing dimensions, positions of supports and positions and values of applied loads, which, if not specified in the tender documents, must be derived from an approved source of reference which shall be indicated in the analysis. Due account must be taken of any eccentricity particularly at supports.

The analysis must also indicate allowable stresses, internal axial forces, moments and resulting stresses, as well as timber sizes and grades and detailed plate sizes

- (b) **BRACING:** Bracing must be designed to withstand the forces specified in SANS Code of

Practice 0163 clauses 6 and 7.

If the bracing system incorporates trusses, the additional forces must be shown in the analysis of the trusses.

The drawings must give all the information necessary for the construction of the bracing.

An outline of the bracing system, including temporary bracing must be shown on a working drawing giving clear details of fixings and anchorages into the supporting structure at wall plate level. Interference of bracing with truss members must be taken into account. Moments caused by forces applied between node points of bracing trusses and the axial forces must be given in the bracing calculations, also sizes and fixings of the bracing system.

Submissions: — A copy of letter reference TR1 (attached at the end of this document) completed and signed by the Truss System Engineer must be submitted by the Contractor at the same time as the list of Sub-Contractors. Two sets of calculations and drawings with pertinent erection instructions for the whole roof construction as presented by the Truss System Engineer must be submitted to the Department for consideration and permission to proceed.

This in no way absolves the Contractor of his responsibilities.

Any modifications to design or drawings are to be arranged directly between the Truss System Engineer and the Department. It will be the Contractor's responsibility to ensure that information is presented to the Department in good time and no claims will be entertained in respect of any delays resulting from the late approval of drawings, etc.

Any difference in cost between the roof system initially submitted by the Contractor and the finally accepted system to meet the original design requirements will be for the account of the Contractor.

The Truss System Engineer will be required to inspect the roof structure and certify on letter reference TR2 (attached at the end of this document) that the construction is in conformity with his design, and any costs in this respect must be included in rates for the truss system.

If, in the opinion of the Department, further visits are necessary due to errors or omissions on the part of the Contractor or the Truss System Engineer the costs of these inspections will be for the account of the Contractor.

Fabrication and Storage: — Fabrication shall not commence until written permission has been given by the Department. The prefabricated roof trusses shall be manufactured, supplied and delivered to site by an approved manufacturer with all members accurately mitre cut, close butted and rigidly fixed together by approved galvanized metal spike connectors applied simultaneously to both sides of every joint by use of a mechanical press in accordance with SANS Code of Practice 0163.

Permissible deviations in fabrication of trusses are to be as specified in SANS Code of Practice 0155.

The following will not be permitted at joints: —

- b) knots, splits or finger joints
- c) varying member thicknesses
- d) plates not fully pressed into timber
- e) gaps between members exceeding 1.5mm average over the width of the mitred members.

Stress grade marks must be clearly visible on all members.

Relevant dimensions must be checked on site before fabrication. Trusses must be stored off the ground and under cover both at the factory and on site.

Erection and Bracing: — Unless otherwise instructed, erection must be carried out as described in “The Erection and Bracing of Timber Roof Trusses” published by the Truss Plate Association of South Africa and the National Timber Research Institute - CSIR.

Where the overall lengths of trusses exceed 13 m, complete braced bays are to be assembled on level ground and lifted into position suspended at maximum 3m intervals from a spreader bar. Alternatively, braced bays may be assembled in position on a minimum of two lines of temporary intermediate supports below node joints. Temporary supports must be removed before roof covering is placed.

The erector must be suitably qualified and must satisfy the Department that he can meet the specification.

Where the roof incorporates a hipped end, the construction is to commence with the hip, otherwise erection is to be commenced with a fully braced bay.

Temporary bracing must be installed as erection proceeds in accordance with the accepted design.

The Contractor must notify the Department in sufficient time in order that an inspection may be made before the roof covering is placed.

The trusses will be subject to the following tolerances: —

- a) maximum out of straight — length/400
- b) maximum out of vertical at any point—height/200.

Rates: — The Contractor is to allow in his rates for the roof trusses for the design, manufacture, supply, hoisting and fixing of the roof trusses and permanent bracing, any necessary temporary bracing, and for the costs of all inspections by the Truss System Engineer.

Purlins or battens for roof coverings have been measured elsewhere. Rates for roof trusses are also to include for the exposed rafters at eaves overhangs to be wrot all round and trimmed and splay cut as required.

INSULATION, WATERPROOFING AND DUST PROOFING MATERIAL FOR ROOFS: — shall be of an approved aluminium foil faced both sides laminated Kraft Paper and synthetic reinforced material fixed in accordance with the manufacturer’s instructions, lapped 150mm at all edge, unless otherwise specified.

GYP SUM PLASTERBOARD: — is to be in accordance with SANS Specification 266.

GYP SUM COVERED CORNICES: — are to be in accordance with SANS Specification 622.

FIBRE CEMENT SHEETS: — are to be in accordance with SANS Specification 685.

FIBRE CEMENT CELLULOSE SHEETS: — are to be in accordance with SANS Specification 803.

HARDBOARD: — is to be in accordance with SANS Specification 540. Tempered and un-tempered hardboard is to be conditioned in accordance with the manufacturer’s instructions before fixing in position.

VENEERS: — All decorative face veneers are to be selected kiln dried of best quality of the respective timbers, free from knots, cracks, patchwork, sapwood and other defects and bonded under heat and hydraulic pressure with water-resistant synthetic resin adhesive.

Commercial veneers are to be selected rotary cut hardwood veneers and otherwise as

described above.

PLYWOOD: — is to be long grain three or five-ply type manufactured with hardwood veneers with selected face veneers as described, bonded under heat and hydraulic pressure with water-resistant synthetic resin adhesive and sanded to a smooth finish.

CHIPBOARD: — All joinery fixtures shall be manufactured from 18mm Moisture resistant V313 Melamine Faced Chipboard (Particle Board) only with 32mm worktop as specified.

BATTEN BOARDING: — is to be long grain three-ply boarding manufactured with kiln-dried South African Meranti softwood core formed of laminations not exceeding 45mm wide and faced on both sides with selected veneers as described, bonded under heat and hydraulic pressure with water-resistant synthetic resin adhesive and sanded to a smooth finish.

DECORATIVE LAMINATE LININGS: — are to be 1.2mm thick approved general purpose quality high pressure decorative melamine laminate sheeting with satin finish and of selected colours and patterns, and rates are to include for all square cutting and waste and square notching, close cut and mitred external angle intersections where required and for bonding to the timber backings with an approved adhesive in accordance with the manufacturer's instructions.

The linings are to be cut out of single sheets in obviate joints but where joints are unavoidable, the sheets are to be butted to form a tight inconspicuous joint.

NAILS AND SCREWS: — Mild steel nails are to be in accordance with SANS Specification 820. Mild steel and brass screws are to be round headed, countersunk, etc. as appropriate and are to be in accordance with SANS Specification 1171. Nails and screws shall be of the size, length and type appropriate to their respective uses.

PLUGS, ETC.: — Where items of woodwork are described as "plugged", these may be nailed to timber plugs or slips built into the structure, and where described as "plugged and screwed" these may be screwed to timber or approved patent fixing plugs.

SHOT FIXING: — Where items of woodwork are described as "shot fixed" these are to be fixed with an approved cartridge-assisted tool, and rates are to include for all nails, spikes, blanks, washers, cartridges, accessories, etc.

CARPENTRY: — Timbers are to be the best of their respective kinds, free from sap, shakes, large, loose or dead knots, wavy edges and other defects and thoroughly seasoned. Wrot surfaces are to be finished clean, smooth and free from tool marks.

Timbers shall be in as long lengths as possible.

Rates for sawn and wrot structural timbers are to include for notching, splay and birds mouth cutting, housing, halving, scarfing, cutting timbers to the required lengths, spiking and clinching and or hoisting and fixing timber in position.

CEILINGS: — are to be of the types described, fixed to timber branderling, bearers etc. as described and with panels set out so as to give even width panels not less than half a sheet wide at edges. Branderling shall be spaced at not more than 400mm c/c and fixed at right angles to sheets.

FLUSH PLASTERED CEILINGS: — are to be formed of gypsum plaster board of the thickness stated, generally in 1200mm widths and long lengths, fixed grey side down to timber branderling, bearers, etc. as described, with butted joints between the boards covered with 65mm wide strips of galvanized wire scrim fixed along both edges, including all square notches and square cutting and waste, and the ceiling finished with two coats of approved retarded hemi hydrate gypsum plaster applied in accordance with the manufacturer's instructions to a finished thickness of not less than 6mm, including pressing into scrim over joints and finished to a smooth polished surface.

TRAP DOORS:- 900 x 600 Prefabricated hinged trap door.

SUSPENDED CEILING BOARDS: — are to be of the types described or as specified – normally 6mm x 600mm x 1200mm embossed fibre cement boards - and inclusive of their component parts must be of sufficient strength to perform the function for which they are to be used, manufactured from best quality materials and conform to the requirements of the Fire Master. The exposed surfaces of all ceiling panels and supporting members are to be uniform in colour and free from surface blemishes.

Hangers are to be galvanized and are to be at maximum 1, 2mtr centres to meet the requirements of the specification, each with one end fixed to the suspension grid main bearers and the other end fitted with suitable galvanized fixing straps to the roof structure. Fixing points must be agreed to by the Department before any power shot fixings are made. Hangers must not be suspended from air-conditioning ducts. Hangers to be provided at all four corners of recessed light fittings.

Component parts and fixings other than aluminium must be non-corrosive and able to withstand atmospheric pollution. Surfaces of aluminium which are in contact with other materials when fixed, particularly ferrous metals, are to be suitably insulated to prevent electrolytic corrosion.

All work is to be executed by specialists in accordance with the manufacturer's instructions, and to the approval of the Department.

Rates for ceilings are to include for hangers, suspension systems, ceiling panels, for constructing the ceilings in a manner suitable for carrying air conditioning diffusers and light fittings in the positions required, for setting out the ceilings to layouts approved by the Department, for all non-standard size panels, for modifications to standard suspension systems as necessary to work around any air-conditioning ducts or pipes or light fittings, for all necessary square cutting and waste, notching and fitting around projections, columns, etc.

EXPOSED TEE-SYSTEM SUSPENDED CEILINGS: — are to be of the type described with main tees and cross tees spaced at the required centres to suit the sizes of panels used, with the cross tees fitted between and notched to form a flush fit with main tees unless otherwise described. All suspended ceilings to be fitted with shadow line trimming to perimeters.

Main and cross tees shall be holed as necessary and provided with timber wedges or steel clips to prevent ceiling panels from lifting.

CONCEALED TEE-SYSTEM SUSPENDED CEILINGS: — are to be of the type described with main and cross tee section bearers spaced at the required centres and all properly fitted together at intersections.

ALUMINIUM TRIMS TO CEILINGS: — are to be of extruded aluminium of 6063-TF or equivalent quality and temper, of the sections described. Anodised trims are to be of the colour stated.

Rates are to include for all cutting, fitting at intersections, mitres, etc. and rates for items described as fixed with screws are to include for countersunk drilling and fixing with approved countersunk stainless steel screws.

INSULATION MATERIAL FOR CEILINGS: — shall be 75mm thick resin bonded glass wool / mineral wool thermal insulation blanket complying with SANS Specification 1381 of the thickness specified, delivered to the site in unopened rolls in its original factory wrappings over solid gypsum boards or styrene of 25mm thickness as specified glued to suspended ceiling tiles.

DOORS: —

Flush Doors: - Semi-solid and solid laminated flush doors are to be of approved manufacture complying with SANS Specification 545.

The doors are to be finished on both sides with the facing veneers specified and concealed on both stiles unless otherwise specified, with hardwood edge strips and where doors are required to receive a transparent finish, the edge strips are to match the facing veneers.

Doors with rebated meeting stiles are to have edge strips to the meeting stiles not less than 19mm thick.

Each door or leaf of double door, described as hung to swing, is to be fitted with necessary hardwood reinforcing blocks for bottom shoe and top centre of spring hinge.

Unless otherwise specified, all flush doors are to be interior quality, but, where exterior doors are specified, the glue used must comply with Type WBP of SANS 2304.

FRAMED, LEDGED AND BRACED BATTEN DOORS, ETC.: — Doors described as filled in with V-jointed boarding are to be filled in flush on one side with tongued and grooved vertical boarding, V-jointed on one or both sides and of the thickness stated. The boarding is to be in narrow widths, closely cramped up, rebated on outer edge and housed to grooves in stiles and rails and twice brass countersunk screwed at each intersection.

Ledges and braces and inner edges of the abutting stiles and rails are to be chamfered to form a V-joint at junction with the boarding. Braces to fall from lock to hinge side.

ENTRANCES TO SECLUSION WARDS: - Entrances to seclusion ward buildings shall be fitted with remote controlled full height 'Man Trap' Security Cubicles with bell pushes fitted to both entry and exit sides and remote unlocking / release operation enabled from security booth.

Doors to Seclusion Rooms: - Doors to seclusion rooms are to be steel lined solid core units with 100mm x 100mm viewing panel, glazed with 40mm bullet proof glass in a steel frame. Steel lining for doors is to be epoxy laminated to doors and around edges. Internal steel lining to be primed and finished with approved epoxy paint. External face of doors to be finished in veneer as per DOH standard details. Doors to be hung to open inward on special 6mm galvanized steel door frames with lugs pre welded to frame to fit every third course of brickwork. The complete unit is to be hot dip galvanized and built into surrounding 230mm solid brick walls. No welding to be done on site.

NOTE: - Above Anti-Bandit Security doors are solely supplied by "Chubb" and "Bitcon Industries" as a complete unit with all fittings and ironmongery.

DOORS TO X-RAY UNITS

Entrance doors to X-Ray rooms shall be top hung sliding door size 1830 x 2032 x 40mm, complete with heavy duty sliding door track – 'Henderson' or other approved -, 2.2mm lead insert between panels and four door stoppers. Door is to overlap door opening 100mm each side when closed.

JOINERY: — All timbers shall be in as long lengths as possible. Lengths for joinery shall be single where possible and where joints are unavoidable, they shall be made as inconspicuous as possible.

Timber for grounds, firrings, blocks, plugs, etc. shall be sound and free from defects.

All joinery work is to include for work in connecting by mortise and tenon, dovetailing, housing, flush pinning, etc. as may be by required and for all screws, nails and glueing

together and for sinking flush all exposed screws unless otherwise specified.

Wrot surfaces and edges are to be steel scraped and sandpapered before and if necessary, after fixing.

Edges are to be arras rounded unless specified to be angle rounded.

“Arras rounded” denotes that the sharp edges are slightly rounded off and that no mitring is required.

“Angle rounded” denotes rounded from 3mm to 10mm radius and is to include for housed and mitred joints.

Hardwood doors, frames, jamb and soffit linings, etc. are to be treated on all surfaces with one coat of approved sealer before building in, etc. and rates for these items must include for this. Batten doors with tongued and grooved battens are to have the tongues and grooves well sealed before assembling. The sealer used shall be compatible with the finishing coats to be applied.

Horns of door frames are to be checked and splayed back where frames are fixed projecting or flush with surface and built in.

Where doors, fanlights or sashes are described as hung to butts on steel or aluminium frames, rates are to include for supplying necessary steel, brass or stainless steel screws.

Panel work is to be secured to the grounds, etc. with screws concealed behind the mouldings or by sinking the screws and pelleting as directed.

Joinery is to be framed up, but not glued or wedged, immediately the order is given to commence work. Wherever possible, joinery shall not be placed or fabricated in position until the plaster has dried out. Reasonable tolerance shall be provided at all connections between the joinery and building carcass so that any irregularities, settlements or other movements shall be adequately compensated. All joinery shall be accurately scribed to fit the contour of any irregular surface. Should the joints of any joinery open or give, such defective work is to be taken down, refitted and redecorated or replaced by new joinery at the Contractor's expense.

Only brass screws may be used for hardwood joinery.

The Contractor is to allow for cross-tonguing all solid wood sections unobtainable in single widths.

No joinery is to be primed until it has been inspected and approved by the Department.

All joinery liable to injury must be protected to the satisfaction of the Department. Rates must include for this temporary protection.

Rates for timber frames, mullions, transoms, linings, standards, rails, fascias, cornices, skirtings, beads, picture rails, etc. are to include for mitres, etc.

Rates for all items of timber-are to include for fixing and planting on as may be required with necessary panel pins or nails.

PARTITIONS:

These are to be of an approved system of standard construction, with an average sound rating of not less than 30 decibels taken over the whole face area.

Framing is to be natural finish anodised aluminium comprising posts at 1200mm centres unless otherwise described, with transom rails where specified, fitted between the posts, a

rail against ceiling and an aluminium standard skirting on each side at base, all neatly and securely fixed together.

Provision is to be made at the base of the partitions and in the ceiling rails and posts for electrical wiring, which will be installed under the electrical sub-contract, and the ceiling tails and end posts are to be fitted with continuous removable access plates.

Solid panelling is to be approved solid chip core panels of the thickness specified faced on both sides as described in the items.

Glazed panels are to be glazed as required, complete with all necessary natural finish anodised aluminium glazing beads and vinyl glazing strips.

Louver panels where specified are to be approved natural finish anodised aluminium adjustable louver sets each comprising head and sill weather bars and two jamb strips each fitted with louver brackets with spring loaded clips for and fitted with and including louvers as required and complete with tilt bars and operating lever handles. Where the openings are not the correct size to suit a full number of standard width louver blades, an alternate head weather bar must be provided to suit a fixed louver blade of the required width. The louver sets are to be fitted with the jamb strips positioned horizontally so that the louvers will be fixed vertically.

Partitions are to be in 1200mm modules, unless otherwise specified, except at ends where the odd lengths are to be made up by a narrow width at one end of the partition.

Ends of partitions against walls, window frames, etc. and the top edge of partitions against ceilings are to be fitted on both sides of partition with approved vinyl scribing sections fitted between the structure and the end post or top rail of the partition.

Plain openings are to have aluminium frames similar to door openings neatly fitted into the framing.

Doors are to be solid laminated flush doors complying with SANS Specification 545. The doors are to be finished on both sides with veneer as described in the items and concealed on both stiles with matching hardwood edge strips.

Where doors are described as having observation openings, these openings are to be of the sizes stated, glazed as specified with all edges bedded in approved neoprene gaskets and fixed with 10 x 25mm wrot matching hardwood rebated glazing beads mitred round and bradded to both sides.

Rates for doors are to include for all necessary additional aluminium framing to form door openings, and for hanging the doors on and including one and a half pairs of 102mm satin chrome finish brass hinges to each door.

All locks to doors in demountable partitions are to be supplied with two keys, and are to be controlled by the same master key as the mortise locks used elsewhere in the Contract when specified.

Unless otherwise specified all veneered solid panelling and doors are to be finished as follows: —

Prepare, stop with tinted stopping, apply an approved stain as necessary to achieve uniform colour appearance, and three coats of approved clear matt polyurethane finish including burnishing with steel wool between coats.

Rates for demountable partitions are to include for supplying, assembling, erecting, finishing, glazing and fixing complete between finished surfaces of concrete floors, plastered walls and ceilings, and all in accordance with the manufacturer's instructions.

DEMOUNTABLE PARTITIONS 50MM (NATURAL ANODISED).

Extruded Aluminium Sections

Supply and fit demountable "Kappa" partition system comprising anodized aluminium U-Channel fitted to suspended ceilings. Vertical split-post (mullion) to be fitted between floor and ceiling U-Channel at 1225mm c/c with angle brackets. Once framing is fixed, fit panels into place and secure with clip-on cover plates.

All aluminium sections may be anodized or powder coated in a variety of colours.

Panels

41mm thick semi solid core panels 2032 x 1200mm. The panels are made up of two outer skins of 3.2mm hardboard cladding. Lower panels to be provided with a 150mm wide solid mid-rail 850mm from the base of the panel to the centre of the mid-rail built in as part of the construction. The panels to be prepared before applying the final finish as specified.

Construction

Right angled corners to be formed with natural anodized aluminium radiused corner post fitted from floor to ceiling. Floor fixing to be angle brackets and ceiling fixing to be hidden block. The ceiling U-Channel butts up against radiused corner post.

Door Frames

Door frames to be natural anodized aluminium pre-fitted with woolpile gaskets, clipped into H-Profile at head and clipped into combination split post and cover plate at styles. The rebate on the door frame caters for standard doors of a thickness between 40mm and 44mm.

Glazing

Glazed panes to be framed with H-Profile fitted horizontally at top and bottom, butted against side of split-post and clip on cover plate combination and fixed with angle brackets. Glazing sections pre-fitted with woolpile gaskets and set into H-profiles and into post / cover plate combinations to form a neat glazing opening. Glazing beads pre-fitted with woolpile gaskets and then clipped into glazing section.

Termination

Openings for louver frames, sliding doors and windows, serving hatches and partition ends are to be lined with the aluminium termination section.

Skirtings

76mm high aluminium skirting to be glued to panels.

DRYWALL PARTITIONS:

Studs

50mm x 33.5mm x 0.5mm thick drywall galvanised steel studs are used. The studs to receive aluminium extrusions clipped onto both sides of the stud. Framing to be securely fixed to walls, floor and ceilings where necessary. Stud connectors to be used to join horizontal studs to vertical studs.

Floor Track

52mm x 25mm x 0.6mm galvanised sheet steel track to be used.

Panels

12,7mm thick tapered edged gypsum plasterboard panels used and decorated in situ with panels secured to either side of framework.

Patient care areas to be 12mm Supa Wood panels in framework as specified.

Construction

Internal walls are constructed by fixing drywall studs to floor track @ 600mm c/c. Wall and ceiling junctions are formed by fixing 84mm x 19mm aluminium ceiling and wall channel to wall or ceiling. The floor track is then fixed into this; alternatively, these components may be fixed simultaneously. The studs are then fixed to floor.

The partitions, unless otherwise described are to be 75mm thick and covered both sides with 12,7mm thick tapered edged gypsum board in 1200mm widths to height specified.

The gypsum boards are screwed @ +/- 300mm c/c at all intersections to the floor and head wall tracks and vertical studs.

Using self-drilling, self-tapping, rust proofed countersunk screws, with screw heads and joints between boards and between abutting edges of boards flushed up with an approved jointing material.

Exposed Aluminium Framing

Door frames, glazing termination and ceiling and wall channels to be natural anodised aluminium. 25 x 25 x 1.5 aluminium angle stuck to external corners of partitioning. 80mm high aluminium skirting glued in position.

Glazing

Aluminium glazing section is clipped onto the flanged end of the stud around the glazing perimeter. The glazing section has a recess to accept a rectangular clip-in glazing bead which enables 3mm-8mm thick glass to be received in the system. The glass is retained with various sizes of PVC glazing gasket.

Termination

Openings for louver frames, sliding doors and windows, serving hatches and partition ends are to be lined with the aluminium termination section.

Skirting

The system is designed to accept recessed base, female, 60mm high aluminium skirting.

Sound Insulation

75mm Fibreglass Cavity Bat with a 35g glass tissue or 75mm Isotherm "Acoustisorb" mineral wool blanket is to be installed between studding before fixing final outer panel.

All work is to be executed by a firm specialising in this type of work and all to the approval of the Department.

8. FLOOR COVERINGS, PLASTIC LININGS, ETC.

FLOOR SHEETING: — are to be of the composition, type, size and thickness specified with colour, pattern, graining, etc, consistent throughout, all to the approval of the Department.

Thermoplastic floor tiles: — are not to be used.

Fully flexible vinyl floor sheeting: — are to comply with SANS Specification 786 and is to be 2.5 mm nominal thickness.

Recessed entrance mats with brass frame at main entrance into a health facility as "Belgotex" Grimbuster or other approved. This to be positioned outside before entering.

In patient care area's, no perforations to floor covering is to be made. Eg door stops, door barrel bolt floor keeps etc.

Where the specified sizes and/or thicknesses of floor sheeting differ from those in the SANS Specifications, such items of floor sheeting shall comply in all other respects with the relevant SANS Specifications.

SKIRTINGS, STAIR NOSINGS, EDGING STRIPS, ETC.: —are to be of the types and sizes specified and are to be of approved manufacture

CARPET TILES AND SHEETING: — are to be of the types specified and of approved colours and patterns all to approval of the Department.

LAYING: —

Vinyl Floor covering laying procedure and polishing.

Site conditions required before the layer commences an installing of a Resilient Floor covering. Some of these conditions may appear obvious, but they are not always complied with. If any of the following recommendations are ignored, it is likely that a number of problems will arise during or after installation of the flooring.

1. All building materials and equipment, e.g. sand, scaffolding, tools, etc. should be removed. (Do not allow heaps of sand, concrete, etc., to remain on the surface of the sub-floor since moisture transfer to the sub-floor takes place).

2. All resilient flooring materials require a smooth, hard, clean and level surface, not only for appearance but also for achieving a satisfactory adhesive bond and long-term durability. The Specifier and the Main Contractor shall ensure that the sub-floor is acceptable to receive the resilient flooring specified in respect of levelness, smoothness, soundness and cleanness. (The SANS Code of Practice 070/1991 as amended 1993 Section 9.3 details the requirements in this regard).

The flooring contractor shall ensure that the sub-floor is sufficiently dry prior to the installation of the flooring material. The floor should be tested by means of a Hygrometer or a Tramex. (Of the instruments available for determining moisture levels in sub-floors, the most practical and accurate is the hygrometer).

SHEETING

Ensure that the following steps are followed during the installation:

1. Trim off factory leading edge before laying sheeting.
2. Align the sheet in position that there is an opening no bigger than 1mm between adjacent sheets. For the best results, the width of a credit card is an acceptable measure.
3. Apply adhesive according to the manufacturers' specifications.
4. Roll the floor during and after installation with a 68kg roller to maximize the adhesion between the sheeting and the adhesive.
5. Complete the welding 24 hours after the installation. Groove the joints open with a suitable hand or electric groover to a width of not wider than 3mm and not deeper than 1.5mm. Weld the joints with a hot air welding gun with temperature settings of between 4-6 temperature setting and use a speed nozzle that will not burn the material or damage the coating. Use a sharp spatula and guide plate and remove the excess welding in two stages.
6. All vinyl sheeting needs to be stripped and sealed 72 hours after installation. Please ensure you use a good quality product.

2.1 HYGROMETER

When a hygrometer is positioned on a sub-floor surface, the reading of the relative humidity of the entrapped air space is obtained.

- A hygrometer reading of less than 70% indicates that the sub-floor is sufficiently dry for flooring to be laid upon it.
- If the hygrometer indicates a final reading of more than 70% when the initial reading of the atmosphere was less than 70% then the sub-floor is unacceptably damp and must be allowed to dry out before any flooring is installed.
- If the hygrometer indicates a final reading of more than 70% when the initial reading of the atmospheric humidity was also greater than 70%, as can occur in coastal areas, then the following applied:
 1. If the final reading is significantly higher than the initial reading, then the sub-floor must be considered to be unacceptably damp.
 2. If the final reading is similar to, or less than the initial reading, then the moisture content of both the atmosphere and the sub-floor are similar.

2.2 TRAMEX CONCRETE MOISTURE ENCOUNTER (C.M.E.)

Any reading on the C.M.E. of 60% or less indicates acceptable moisture content for the installation of any vinyl floor covering.

3. Floor Preparation – New and Existing (old) Screeds

3.1 Use of screed smoothing compounds should be avoided except for making minor repairs, however should a full skim be required, then the most common method in both instances is the use of a smoothing compound e.g. **Pavelite** in combination with **Pavelite Bonding Liquid**, mixed to the correct ratio and consistency. Only recommended products, mixed strictly in accordance with manufacturers instruction should be used. Do not use smoothing compound on power floated finishes. It is recommended that in new structures the screeding should be as specified by “Tal” using “Screedmaster”, the pumped method.

A badly undulating floor may require grinding by mechanical means to improve the overall levelness. Although smoothing compounds such as **Pavelite** will improve the sub-floor it will not achieve perfection.

3.2 In cases where old vinyl floor coverings have been uplifted, leaving a bitumen adhesive residue, it is recommended that a strict procedure relating to the “Preparation of Sub Floors with Bitumen Residue”, be complied with.

(This method may not constitute good flooring practice, but has proved to be successful on many occasions. No guarantee is however given or implied).

4. Construction joints (saw cuts) and Expansion Joints

4.1 Construction joints (saw cuts) in the sub-floor should be cleaned out, and the sides of the saw cut be painted with **Pavelite Bonding Liquid** and allowed to dry. The joint should then be filled with a mixture of **Pavelite** and **Pavelite Bonding Liquid**. It is advisable to slightly overfill the joints, which when dry should be rubbed down with a carborundum stone.

4.2 Expansion joints should be filled with a suitable **Sealant** to prevent the ingress of dirt. **It is bad flooring practice to lay flooring over such a joint.** The flooring should stop at the edge of the joint and cover strips placed over the joint itself. Expansion joints and cover strips should be discussed and designed by a structural engineer.

5 Correct setting out is critical, and consideration should be given to the squareness of the area. It is safest to set out from the longest outside wall.

5.1. The recommended notching for a trowel to spread adhesive is a V notch of 1,5 x 1,5 x 1,5mm at 4,00mm centres. Consideration should however be given to the porosity of the sub-floor. Ensure the use of the recommended adhesive with the appropriate flooring. **Do not** spread the adhesive over a larger area than can be covered within the working/open time of the adhesive.

5.2 All installations must be rolled with a 68kg three sectional articulated metal floor roller on completion, within the working time of the adhesive.

5.3 Welding of sheeting is to be done only after 24 hrs after installation.

5.3. a. Trimming

While the welding rod is still warm, trim off most of the top half using a sharp spatula and spatula guide which fits over the welding rod. Carry out the final trimming using the spatula knife only, when the welding rod has cooled.

5.3.b **Glazing**

The trimmed welding rod will tend to soil more rapidly than the sheeting. It is therefore important to glaze the surface of the trimmed welding rod.

6. After installation the flooring should be adequately protected, preventing damage caused by other trades working on the site.

7. The completed floor should not be washed or polished for a period of 72 hours after the installation in order to allow the adhesive to cure. This period will vary from one adhesive to another.

7.1 The vinyl floor covering must be cleaned with an approved water based floor Stripper, in order to achieve an acceptable standard of cleanliness for sealing. Avoid excessive use of water at all times

7.2 Foreign matter such as paint stains, tar, etc. which may not respond to the process must be removed by other means.

7.3 Three coats of a Water Based Emulsion floor dressing, shall then be applied on completely dry surface in accordance with the manufacturer's instructions, allowing one hour drying time between the first and second application of each dressing coat.

RATES: —for all floor coverings are to include for laying as described, for cleaning down backing surfaces before laying and or all square and raking cutting and waste and fitting, fair cutting at edges where no skirting occurs, protecting from injury, and for cleaning down, etc. as described, at completion.

Rates for all wall linings are to include for laying as described, cleaning down backing surfaces before laying, sizing backing surfaces if necessary to ensure proper adhesion, all square and raking cutting and waste and fitting, fair cutting at exposed edges, bending at angles and for all narrow widths and protecting from injury and cleaning down, etc. as described, at completion. Wall linings in widths not exceeding 300mm to returns, reveals and the like have not been measured separately, but have been included in the area of the general items of wall linings and rates must include or this.

Rates for skirting, stair nosing, edging strips, etc. is to include for fixing as described, cutting to lengths and fitting at intersections, mitres, ends, etc. and for cleaning down at completion.

9. IRONMONGERY

Ironmongery is to be to the approval of the Department and rates are to include for fixing screws of corresponding metal and finish and for oiling and easing as required at completion.

Where catalogue references are given, the articles are to be of the brand specified or other approved.

No two-lever mortise locks are to be used.

Mortise locks, cylinder locks, cupboard locks, etc. are to differ so that no key will pass a second lock, unless otherwise specified. Where mortise locks, cylinders, locks, etc. are specified to be "en-suite" they are to be made "en-suite" in the specified number of "suites". The "suites" are to be controlled by differing sub-master keys with a grand master key controlling all "suites", and no sub-master is to pass any lock of another "suite".

All locks are to be fitted with two keys and the locks are to be stamped with consecutive numbers and the keys to each are to be stamped to correspond with the lock.

Items of ironmongery specified as chrome plated or satin chrome finish are, unless otherwise specified, to be chromium plated or satin chrome finish on solid brass.

Items of ironmongery specified aluminium are to be natural anodised.

Where items of ironmongery are specified as fixed to pressed steel door frames, the Contractor is to ensure that the suppliers of the steel frames prepare the frames for all keeps and do all mortising and drilling required and receive all information necessary regarding ironmongery. Preparation of steel doorframes for ironmongery has been measured elsewhere.

Where tests of ironmongery are described as "plugged and screwed" these are to be screwed to patent fixing plugs of approved manufacture, and this shall include for plugging and screwing to brickwork or concrete.

Key tags are to be 40mm diameter x 3mm thick plaster of approved colour, engraved on face with the required number of letters and numerals finished in an approved colour, and the tag is to be holed for and fitted with a steel split ring and fixed to key.

Engraved plastic door signs and numeral plates are to be of 5mm thick clear plastic with square polished edges all round with an approved coloured background and sans-serif letters and numerals as described in the items, reverse engraved in the plate with splayed sides and flat reading face and finished in an approved contrasting colour. Each sign is to be twice drilled for and fixed to softwood or hardwood, unless otherwise described, with chromium plated round beaded brass screws. Unless otherwise described, the signs are to be 50mm high with 30mm high, engraved letters or numerals and are to allow a minimum margin of 25mm at both ends. All signs are to be equal to sample to be submitted to and approved by the Department.

Pictorial plastic signs are to be of 5mm thick clear plastic of the sizes stated in the items with square polished edges all round and with the silhouette described in the items applied to the back of the plate by means of the silk screen process in an approved colour and the whole back of the plate finished in an approved contrasting colour. Each sign is to be four times drilled and fixed to softwood or hardwood, unless otherwise described, with chromium plated round-headed brass screws. All signs are to be equal to sample to be submitted to and approved by the Department.

10. STRUCTURAL STEEL WORK

GENERALLY: — The fabrication, assembly and erection of structural steelwork is to be executed in accordance with SANS Specification 1200H — Structural Steelwork (a copy of which the Contractor will be required to keep on site so that it can be referred to at all times during the Contract) with the following amplifications and amendments: —

INTERPRETATIONS: — Clauses 2.1 and 2.2 refer. This preamble, together with any other supplementary preambles appearing in these Bills of Quantities shall be deemed the project specification and are the "Portion 2" referred to in Clause 2.2.

DEFINITIONS: — Clause 2.3 of SANS Specification 1200H refers. All references to the Engineer shall be deemed to mean the Department.

SUB-CONTRACTORS: —The Contractor shall either (a) have adequate satisfactory and approved experience in this type of work or (b) employ an approved specialist structural steelwork Sub-Contractor. The Contractor, in the case of (a), or the specialist Sub-Contractor, in the case of (b), shall employ at all stages of the Works both on and off site a competent Supervisor experienced in the work.

MATERIALS: — Unless otherwise shown on the drawings or hereunder, all rolled sections shall be hot rolled mild steel, and all materials shall comply with one of the following: —

- a) Weldable Structural Steels to SANS 4360:
- b) Hollow sections to SANS 4848 Part 2 and SANS 6323.
- c) Cold rolled sections to SANS 2994.
- d) Black bolts and nuts to SANS 135.
- e) Precision bolts and nuts to SANS 136.
- f) High-strength friction-grip bolts and nuts to SANS 1282.
- g) Flat and tapered washers to SANS 1149.
- h) Electrodes for welding to SANS 455.

SHOP DETAIL DRAWINGS: — The Contractor shall prepare shop detail drawings, in conformity with the details shown on the structural steelwork drawings and to show all information necessary for complete fabrication, assembly, erection and painting. In the preparation of the shop detail drawings the Contractor is to comply with the requirements of SANS Code of Practice 0162.

The cost of preparing all necessary shop detail drawings and copies thereof is to be allowed for by the Contractor in his rates.

The Contractor shall submit two copies of his shop detail drawings to the Department for approval at least 10 days before fabrication of the member concerned is due to commence. Such approval does not imply that a complete and comprehensive check of the detail drawings has been carried out, and the Contractor shall remain responsible for ensuring that the steelwork is correctly fabricated, assembled, erected and painted.

SUBSTITUTION OF SIZES, ETC.: — No substitution of sizes or joints additional to those shown on the drawings shall be made without the prior approval of the Department. Except in cases of proven non-availability of materials specified, any additional costs involved due to substitution shall be for the Contractor's account.

FIXINGS: — The positions and manner of fixing the hangers for suspended ceiling air-conditioning ducts, pipe installations, etc. to the structural steelwork are to be approved by the Department before work on such installations commences.

FABRICATION, ASSEMBLY AND ERECTION

Welding: — shall be carried out in accordance with SANS Code of Practice 044 and the relevant recommendations of SANS Code of Practice 0162 and SANS 5135, and in any case of conflict, the SANS Codes of Practice shall be deemed as binding.

All welders employed on the Works shall be currently classified at least as grade 2 welders as defined by SANS Code of Practice 044. Should the Department so request, proof of the classification shall be produced.

Unless otherwise specified all welds are to be continuous fillet welds of 6mm leg length or not less than the thinnest plate or section being welded.

Handling, Storage and Erection: — of members is to be undertaken in such a manner to prevent overstress or damage. Should overstress or damage occur, the Department shall be informed and his instructions sought.

Storage shall be arranged such that damage to applied finishes is prevented.

All plant and equipment used in the erection of structural steelwork shall be adequate in every respect. The Contractor shall allow in his rates for all necessary temporary bracing, and for maintaining and finally removing such temporary bracing.

Fixing of Bolts, etc.: — Unless approved by the Department, no pre-drilled fixings for bolts, etc. will be permitted through hollow section members. Any hollow section member that has been drilled or punctured in any way shall be considered condemned and must be replaced to the satisfaction of the Department.

INSPECTION AND TESTING

Facility for Inspection: — The Contractor shall afford to the Department all reasonable access to inspect the steelwork at any stage of its fabrication, and shall give due notice before delivery of steelwork to the site to allow inspection and tests to be conducted if so required by the Department.

Cost of Tests: — The cost of all tests required by the Department shall be borne by the Administration, except that the costs of the following tests shall be borne by the Contractor:-
(a) Testing of welders and equipment
(b) Such tests (including load tests) as may be necessary by failure on the part of the Contractor to meet the requirements of the specification.

Procedure in the Event of Failure: — In the event of a failure of a test, the Contractor shall

either replace the defective item or prove its sufficiency by means of a load test carried out in accordance with Appendix B of Chapter 6 of the South African Standard Building Regulations. If so required by the Department the Contractor shall also demonstrate by means of tests at his own cost that all like members meet the requirements of the Specification.

PRIMING OF STRUCTURAL STEELWORK

General

(a) Painting conditions.

No painting shall be undertaken when one or more of the following conditions exist: —

- (i) The atmospheric or steel temperature is below 10⁰ C,
- (ii) The atmospheric or steel temperature is expected to fall below 7⁰ C before the paint is dry,
- (iii) The atmospheric or steel temperature is high enough to cause damage to the paint film,
- (iv) In fog or mist,
- (v) The relative humidity is greater than 90 %,
- (vi) Surfaces are or will be wet or damp from rain or other causes,
- (vii) Surfaces are contaminated by dirt, dust, grease, oil or other matter detrimental to painting,
- (viii) Wind will deposit dust onto un-dried surfaces.

(b) Extent of shop painting.

All surfaces shall be primed as described in the shop except: —

- (i) Those to be encased in concrete which are to be left as prepared metal; unless otherwise specified
- (ii) Contact surfaces of high strength friction-grip bolt connections which are to be left as prepared metal
- (iii) Edges or faces yet to be welded which are to be left as prepared metal over sufficient width from the weld to avoid contamination of the weld or damage to the paint by the effect of welding.

(c) Paint identification, storage and preparation.

All paint shall be supplied in unopened original containers showing the manufacturer's name and trademark date of manufacture and the relevant SANS or other specification number.

No paint shall be used past its maximum life span but otherwise oldest paint shall be used first. Containers shall not be opened until required and opened containers shall be used before unopened containers

Before use, paint shall be thoroughly stirred and prepared in accordance with manufacturer's instructions.

(d) Thinning.

No paint shall be thinned except strictly in accordance with manufacturer's instructions.

(e) Dry film thickness.

Where not specifically later stated this shall be in accordance with manufacturer's instructions for spreading rates. A tolerance of approximately 10% of that thickness will be allowed.

(f) Touching-up surfaces.

Surfaces shall be protected against damage, but should this occur, then the paint shall be rubbed down over the damaged and surrounding area to a sound surface and then restored by re-applying the removed coat properly feathered in with the existing.

Upon completion of site connections, these connections shall be stripe painted with the specified primer before any further painting is carried out.

Class P1 Preparation and Priming Coat: — Unless otherwise specified, rates for structural steel-work are to include for Class P1 Preparation and Priming Coat as follows:-

(i) Surfaces are to be cleaned in accordance with SANS Code of Practice 064 to remove all rust, scale, grease, oil, etc. endeavouring to bring the surface to a bright metallic condition, and painted, unless otherwise specified, with one coat of red -oxide zinc chromate primer in accordance with SANS Specification 909 prior to despatch from the works.

(ii) Upon delivery to the site and again after erection any bared or damaged surfaces are to be made good with similar primer.

The Contractor is advised that the finishing coats of paint to be executed after the erection of the structural steelwork have been measured elsewhere.

Class P2 Preparation and Priming Coat: — Where specified, rates for structural steelwork are to include for Class P2 Preparation and Priming Coat as follows: —

(i) Surfaces shall be thoroughly cleaned by sandblasting to Swedish Standard SIS 055900 standard Sa 2½ to give minimum peak to valley profile of 50 micrometer when measured by SANS Draft Test Method No. 772.

(ii) Surfaces shall be blown thoroughly clean with compressed air and within four hours of sandblasting, one coat of “Plascon SN 162 Ironguard-4-Zinc” or other approved primer of minimum dry film thickness of 75 micrometer shall be applied by pressure pot spray system in accordance with the manufacturer’s instructions in the shop.

(iii) Upon delivery to the site and again after erection, any bared or damaged surfaces are to be made good with similar primer.

The Contractor is advised that the finishing coats comprising one intermediate coat and one finishing coat of chlorinated rubber paint to be executed after the erection of the structural steelwork have been measured elsewhere.

Class P3 Preparation and Priming Coat: — Where specified, rates for structural steelwork are to include for Class P3 Preparation and Priming Coat as follows: —

(i) Surfaces shall be thoroughly cleaned by sandblasting to Swedish Standard SIS 055900 standard Sa 2½ to give maximum peak to valley profile of 50 micrometer when measured by SANS Draft Test Method No. 772.

(ii) Surfaces shall be blown thoroughly clean with compressed air and within four hours of sandblasting, one priming coat of “Epidermix 352” or other approved epoxy coal tar of minimum dry film thickness of 75 micrometer shall be applied in the shop.

(iii) Upon delivery to the site and again after erection, any bared or damaged surfaces are to be made good with similar primer.

The Contractor is advised that the finishing coat comprising a further coat of epoxy coal tar to be executed after the erection of the structural steelwork has been measured elsewhere.

MEASUREMENT AND PAYMENT: — The provisions and Clause 8 will **NOT** apply and the system of measurement which is adopted in these Bills of Quantities is the only system of measurement which will be recognised in this Contract.

RATES FOR STRUCTURAL STEELWORK: — Rates for structural steelwork are to include for all necessary cutting to lengths, splay cut ends, shaping, holing, tapping, threading, forging, turning, assembling, welding, and fixing in position.

11. **METALWORK**

PROPRIETARY MATERIALS: — Where proprietary materials are specified, the materials used are to be of the type, specified or other approved by the Department.

RATES: — for all metalwork, unless otherwise stated, are to include for cutting to length, shaping, turning, threading, forging, fitting, assembling, riveting, welding, welded running joints, filing smooth, also for all screws and holes and hoisting and fixing in position. All screwed work is to have full threads.

WELDING AND BRAZING: — Where items are described as welded or brazed, rates must include neat welding or brazing by experienced workmen using a recognised process and for cleaning and filing or grinding off smooth, all to approval. All welding is to be continuous unless otherwise described.

SCREW FIXINGS: — Where items are described as tap screwed, grub screwed, set screwed, etc. rates must include for the necessary screws, for drilling all components and for tapping the components where necessary to receive such screws.

PIPE MEMBERS: — All galvanized mild steel pipe members are to be “medium” pipes complying with SANS 1387. Diameters of pipes, unless otherwise stated, are normal internal diameters.

PRIMING OF STEELWORK: — All items of fabricated mild steel except where described to be galvanized, are to be cleaned in accordance with SANS Code of Practice 064 to remove all scale, rust, grease, oil, etc. endeavouring to bring the surface to a bright metallic condition, and painted, unless otherwise specified, with one coat of red-oxide zinc chromate primer in accordance with SANS Specification 909 prior to despatch from the works.

GALVANISING OF STEELWORK: — All steel surfaces described to be galvanized are to be thoroughly sand, grit or steel shot blasted to white metal in accordance with SANS Code of Practice 064 and fluxed ready for galvanising, and the completed unit is to be hot dip galvanized after fabrication in accordance with SANS Specification 763 for general applications on the relative thicknesses of metal.

The zinc coating shall be continuous and of even thickness over all surfaces entirely free of bare spots, dull, rough patches, blisters and other imperfections and shall show no signs of peeling. Where site welding has to be done, the welds are to be properly cleaned down and cold galvanized to the approval of the Department.

If requested by the Department, the manufacturer shall carry out tests to prove that the requisite mass / thickness of zinc coating is applied and that it is of uniform thickness. The tests shall be made by attaching a test piece of mild steel, approximately 250 x 25 x 6mm, by means of wire, to an article being galvanized, and subjecting the test piece to the same cleaning, fluxing and galvanising treatment as the article being galvanized, and at completion, the test piece tested by a method approved by the South African Bureau of Standards, the cost of which will be borne by the Contractor.

CHROMIUM PLATING OF STEELWORK: — All items of fabricated mild steel described to be chromium plated are to be properly de-greased, cleaned and polished perfectly smooth before plating and all in accordance with SANS Specification 728. All items are to be first nickel-plated then chromium plated to provide a bright mirror finish and all plating is to be equal to sample to be submitted for the necessary approval by the Department.

PRESSED STEEL DOOR FRAMES: — shall be manufactured from mild steel sheet 1.60mm thick for single rebated frames and 1.20mm thick for double rebated frames. Rebates shall be suitable for 42mm thick doors and fanlights.

The sections are to be accurately bent to form the profiles. Corners are to be mitred and welded and reinforced at back with 1.60mm thick steel angle sections. Transoms for

fanlights are to be let into the jambs and welded. All welds are to be solid and cleaned off flush, leaving a perfect outside finish.

Each frame is to be fitted with one pair of sturdy angle or channel section tie bars at base, welded below the frame, and where required for additional strength, cross struts of the same section are to be welded between and at right angles to the main tie bars. Each frame is also to be fitted with one 'diagonal brace as temporary support, standard 230mm long corrugated adjustable building-in lugs at jambs, three rubber shock absorbers in rebate of lock jambs of frames for single doors and one rubber shock absorber, for each leaf in the rebate of the head or transom of frames for double doors.

All frames are to be primed on all surfaces with an approved red oxide zinc chromate priming coat in accordance with SANS Specification before leaving the manufacturer's works, unless specified to be hot dip galvanized, and rates are to include for touching up where necessary with similar primer after building in.

Where frames are specified to be galvanized they are to be hot dip galvanized after manufacture in accordance with the relevant provisions of SANS Specification 763 for general applications on the relative thicknesses of metal.

Frames, unless otherwise described, are to be fitted with one and a half pairs of 100mm five-knuckle loose pin steel hinges, unless otherwise specified for each door or each leaf of double door and with one pair of 75mm five-knuckle loose pin steel hinges for each fanlight. The three-knuckle leaf of each hinge is to be welded into the frame or transom.

Where frames are described to be fitted with brass butts, the frames are to be checked out and fitted, unless otherwise specified, with one and a half pairs of 100mm double bronze washered brass butts for each door or leaf of double door, unless otherwise described, as one pair of 75mm brass butts for each fanlight, with open leaf of each butt secured to the frame or transom by means of 6mm diameter countersunk headed brass set screws screwed to and including a 3mm thick steel backing plate of suitable size welded to frame or transom and drilled and tapped to receive the set screws.

Where frames are described to be fitted with aluminium hinges the frames are to be checked out for and fitted, unless otherwise specified, with one and a half pairs of 100mm five-knuckle aluminium hinges of 6082 alloy with nylon bushes for each door or leaf of double door, unless otherwise described, and one pair of similar hinges to each fanlight, with the three-knuckle leaf of each hinge secured to the frame or transom by means of 6mm diameter countersunk headed stainless steel set screws screwed to and including a 3mm thick steel backing plate of suitable size welded to frame or transom and drilled and tapped to receive the set screws.

Where frames are to be prepared for the top centres of floor spring hinges, a 6mm thick steel backing plate of suitable size is to be welded into the back of the frame and drilled and tapped to receive the fixing screws of the top centre.

The preparation of frames or all items of ironmongery, other than butts, has been measured separately and the rates against these items are to include for all drilling, mortising, tapping for screws, etc. required for the fixing of keeps, brackets, etc. of the items of ironmongery described. Preparation of frames for locks and latches is to include, in addition to the above, for recessing and fitting the frames with and including standard keeps and adjustable striking plates to suit the types of locks and latches used and with totally enclosed mortar guards 1, 15 metre high above finished floor.

Door and fanlight sizes are given to the nearest 10mm. The building in of frames has been measured separately.

STAINLESS STEEL DOOR FRAMES:- shall be manufactured from grade 304 stainless steel sheet 1.60mm thick for single and double rebated frames to profiles as per detailed drawings. Rebates shall be suitable for 42mm thick doors and fanlights. Stainless steel

frames to be used only in Patient Treatment facilities.

PRESSED STEEL CUPBOARD DOOR FRAMES: — shall be manufactured from 1.20mm thick mild steel sheet standard sections, having rebates for 42mm thick doors, and fitted with transoms and/or mullions where required and with sill section allowing the cupboard doors to be taken down to general floor level with the floor level inside cupboards not less than 12mm above general floor level. The frames are to be 102mm wide overall.

The sections are to be accurately bent to form the profiles. Corners are to be mitred and welded and reinforced at back with 1.60mm thick steel angle sections. Transoms, mullions and sills are to be neatly fitted at intersections and welded. All welds are to be solid and cleaned off flush, leaving a perfect outside finish.

All frames are to be fitted with rubber shock absorbers to the lock jambs of single doors, and to the head, transom and sill of double doors. Each door is to be fitted with standard corrugated adjustable building in lugs at jambs.

All frames are to be primed on all surfaces with an approved red-oxide zinc chromate priming coat in accordance with SANS Specification 909 before leaving the manufacturer's works, unless specified to be hot dip galvanized, and rates are to include for touching up where necessary with similar primer after building in.

Where frames are specified to be galvanized they are to be hot dip galvanized after manufacture in accordance with the relevant provisions of SANS Specification 763 for general applications on the relative thicknesses of metal.

Frames are to be fitted with one pair of 100mm five-knuckle loose pin steel hinges for each lower door or each leaf of lower double door and with one pair of 75mm five-knuckle loose pin steel hinges for each upper door or each leaf of upper double door. The three-knuckle leaf of each hinge is to be welded into the frame or mullion. Frames for single cupboard doors shall be prepared for locks or catches as specified and the frames for double doors are to be prepared for two barrel bolts for the first closing leaf of lower doors and one barrel bolt for the first closing leaf of upper doors.

Overall sizes are given to the nearest 10mm. Building in of the frames has been measured separately.

STEEL WINDOWS AND DOORS: — shall be in accordance with SANS Specification 727 and the frames are to be provided with fixing lugs or are to be holed for screwing as required.

Industrial type windows are to be suitable for glazing from the inside and all other windows from the outside, unless otherwise described.

Side hung and vertically pivot hung sashes shall open to at least 90 degree horizontally pivot hung sashes to at least 80 degree and bottom hung sashes to 30 degree. Unless otherwise stated, hinges for side hung opening out sashes are to be of the projecting type for easy cleaning.

All opening sashes are to have polished brass furniture.

The transoms and mullions of all purpose-made windows and doors are to be equally spaced between the outer frames of the windows and doors to form openings of equal size. Where this is not the case either the width or the height of the opening is stated, unless otherwise stated, the fixed lights and sashes of all purpose-made windows are to be in one square and the sashes and doors are to open out.

Windows and doors, unless otherwise specified, shall be of "one piece" construction. Composite windows and doors are to be supplied complete with all necessary standard coupling transoms or mullions.

Stock and purpose made residential type steel windows and school type windows of residential section shall be constructed of standard 25mm steel sections and of metal not less than 3mm thick.

Stock and purpose made industrial type steel windows shall be constructed with main frames of standard 35mm steel sections and of steel not less than 3mm thick, with sashes of standard 25mm steel sections and of steel not less than 3mm thick.

“Universal” sections, where specified, shall be not less than 33mm wide (measured over one opening section only) and of metal not less than 4mm. thick, and with all sight lines maintained (whether consisting of all fixed lights, all opening sashes, or portions of both) and with all glass in the same plane.

Stock and purpose made steel doors, sidelights and fanlights, shall be constructed with the doors of “Universal” sections as before described and the sidelights and fanlights of standard residential sections as before described. Bottom openings in doors and sidelights shall be fitted with kicking plates of one thickness of 1.60mm mild steel sheet fixed with metal beads. Frames of outward opening doors shall be fitted with bottom sills of door framing section (stepped sills) and of inward opening doors with metal ties welded to frames for embedding in threshold (flush sills)

Top Hung Sashes: — are to open out on a pair of steel hinges having brass pins and washers and fitted with brass peg stay, steel peg and locking bracket.

Outward Opening Side Hung Sashes: — are to open out on a pair of steel projection hinges having brass pins and washers and fitted with brass two-point handle and brass striking plate and brass sliding stay with friction fastener.

Inward Opening Side Hung Sashes: — are to open in on a pair of steel hinges having brass pins and washers and fitted with brass single point handle and steel engaging hook and brass sliding stay with friction fastener.

Bottom Hung Sashes: — are to open in on a pair of steel hinges having brass pins and washers and fitted with steel concealed side arms with brass guides and brass spring catch for long arm or hand operation and steel catch plate.

Horizontally Pivot Hung Sashes: — are to have brass adjustable friction ring centres and fitted with brass spring catch for long arm or hand operation and steel catch plate.

Projected Out Sashes: — are to be balanced on steel concealed side arms, the top of the sash fitted with spring loaded brass shoes to slide in brass guides and fitted at bottom with brass handle and brass striking plate.

Doors: — are to be hung on one and a half pairs per leaf of steel projection hinges with brass pins and washers and fitted with mortise lock set as specified, and each lock is to be provided with two keys.

Brass concealed bolts are to be fitted at top and bottom of meeting edge of first closing leaf of double doors. Sidelights and fanlights are to be hung as described for windows.

Adjustable Louver Sets: — are to be natural anodised aluminium louver sets of approved manufacture consisting of head and sill weather strips complete with neoprene gaskets and two jamb strips each fitted with louver brackets with spring loaded clips for the specified width of glass louver blades complete with tilt bars and operating lever handles. Where openings are not of a height to suit standard width louver blades an alternate head section with static clips must be provided to take a fixed louver blade of the required width. The louver sets are to be screwed to the steel window frame with stainless steel self-tapping screws and all portions of the louver set which come in contact with the window frame are to be insulated with approved pressure sensitive PVC tape to prevent electrolytic corrosion.

Burglar Bars: — are to be standard type burglar bars formed of 20 x 5mm mild steel bars riveted at intersections and riveted at ends to the window frames. The burglar bars to the small-pane type windows are to line through with the glazing bars and windows of the horizontal-pane type or of the no-glazing bar type are to be fitted with burglar bars which are divided as for the small-pane type window.

Fly screens: — are to be standard type fly screens suitable for residential opening-out type steel windows, unless otherwise described, and are to be constructed of stove enamelled pressed steel frames fitted with 0.25mm thick mosquito-proof mesh glass-fibre gauze. The fly screens are to be clipped onto the inner face of the steel window after all painting is completed.

All steel windows and doors are to be primed on all surfaces with an approved red oxide zinc chromate priming coat in accordance with SANS Specification 909 before leaving the manufacturer's works, unless specified to be hot dip galvanized, and rates are to include for touching up where necessary with similar primer after building in.

Where steel windows and doors are specified to be galvanized they are to be hot dip galvanized in accordance with the relevant provisions of SANS Specification 763 for general applications on the relative thicknesses of metal.

Loose metal glazing beads, where specified, are to be of an approved type and size, and are to be fixed with screws set in the correct positions for the type of glazing to be used, and neatly mitred at angles.

Immediately the windows and doors have been delivered on site, they are to be thoroughly overhauled and all necessary adjustments or repairs are to be made before they are fixed in position. A further inspection is to be made after building in and any further servicing required must be carried out in order to leave windows and doors in a satisfactory condition after glazing is completed.

All glass and glazing has been measured elsewhere.

Sizes of windows and doors are given to the nearest 10mm. The building in of windows and doors has been measured separately.

STAINLESS STEEL: — is to be of the thickness and grade specified and unless otherwise stated is to be buffed to an even satin finish to the approval of the Department.

All welding to stainless steel shall be by argon arc process and where filler rods are used these are to have properties not less than those of the parent metal. All welds are to be ground off smooth and uniform and the whole buffed to an even finish all over. Stainless steel is to be cut and bent in such a manner that a minimum of welding is required.

Where bending is required, all external angles are to be arras rounded and all internal angles are to be radiused.

All stainless steel work is to be of the highest quality and executed by specialists in this type of work and to the approval of the Department.

Note that where stainless steel fittings are specified and support work or fixings with bolts, nuts, rivets, etc, are required / specified, these fixings and support work are to be of stainless steel of the same rating / grade as the equipment specified.

ALUMINIUM AND ANODISED ALUMINIUM: — is to be of the brand specified or other approved and of 6063-TF or equivalent quality and temper.

Aluminium bars and sections shall comply with the relevant clauses of SANS 1476, extruded tube and hollow sections with the relevant clauses of SANS 1474, and sheet and

strips with the relevant clauses of SANS 1470. All alloys to be anodised are to be of anodising quality.

Aluminium is to be free from flaws, hammer and die markings or other imperfections.

Anodising of aluminium is to be carried out in accordance with SANS Specification 999 by an approved process. The average anodic film thickness shall be 25 micrometer, and at no point should the anodic film thickness fall below 22 micrometer or be thicker than 30 micrometer.

Prior to anodising, all surfaces are to be de-greased and cleaned, all irregularities removed and flushed off smooth and buffed where necessary.

All anodised aluminium must be coated with a suitable "non-yellowing" methylacrylate lacquer film, approved by the Department, over the entire surface. The lacquer film must be continuous and of a uniform average thickness not less than 10 micrometer. The lacquer thickness must be determined by use of a film meter or other instrument methods as described in ASTM B244-49T. Rates for anodised aluminium must include for this protective coating.

Before the work is put in hand, samples of finish are to be submitted to the Department for approval, and all finished work is to be equal in all respects to the approved samples.

The Contractor shall provide all samples required for testing in accordance with SANS Specification 999. If required, tests on the anodic film are to be carried out at the works of the anodised to verify that the work conforms to SANS Specification 999, the cost of which will be borne by the Contractor.

The surfaces of all aluminium which are jointed to or are in contact with other materials when fixed, particularly ferrous metals, are to be suitably insulated to prevent electrolytic corrosion.

Joints in all aluminium members are to be neatly formed in an approved manner with screw heads, pins, rivets, etc. concealed so that the joints are practically invisible. Screw or bolt jointing is to be kept to a minimum and will be permitted only when welding is impracticable. Unless otherwise described, stainless steel screws or bolts are to be used for jointing and fixing aluminium work. Welded joints are to be formed by argon arc process using SANS 1476/NS6 welding rods and finished off smooth.

Welding is to be executed in such a manner as not to affect the colour of the material or the anodic coating.

Exposed heads of screws, pins, rivets, etc. in coloured anodised aluminium are to be touched up with enamel paint to match the coloured anodised finish.

No deviation may be made from the general requirements or dimensions, but improvements in the general construction and design affecting neatness, strength or durability may be introduced. If any deviation is proposed, the Contractor must submit detailed drawings showing the particular construction and form or section he proposes to use and such drawings, details and samples of fittings, etc. are to be approved by the Department before manufacture is commenced and every facility must be given for the work to be inspected during manufacture.

No work may be fixed in position until it has been inspected and approved. Anodised aluminium work must be erected as near to the end of the Contract period as possible, to minimise the danger of damage or deterioration.

All work is to be suitably protected during building operations and left in a clean and satisfactorily finished condition on completion. In particular, all anodised aluminium work must be protected against damage, and against deterioration or discolouration caused by

mortar droppings, wax, paint, etc. all to the entire satisfaction of the Department. All work so damaged, deteriorated or discoloured must be replaced at the Contractor's expense.

Rates for aluminium work are to include for necessary cutting to lengths, shaping, turning, threading, forging, fitting, assembling, riveting, welding, welded running joints, filing smooth, also for all screws and holes and hoisting and fixing in position. All screwed work is to have full threads.

ANODISED ALUMINIUM WELDED WINDOWS AND DOORS: — are to be of an approved manufacture and design.

Windows and doors are to be fabricated from Medium Universal equal leg sections, unless otherwise specified, measuring 33mm over one opening section and not less than 4mm thick through the flanges and not less than 4.75mm through the web, unless otherwise stated.

The aluminium sections are to be of approved manufacture and of 6063-TF or equivalent quality and temper and are to be anodised after manufacture to the approval of the Department. Welds are to be electrically flash butt resistance welded, properly ground and cleaned off to give a uniform appearances.

Anodising, etc. is to be carried out as before described.

All windows and doors are to be suitable for internal glazing and are to be fitted with approved anodised aluminium glazing beads of the "clip on" type. Drilling for the fixing of glazing beads is to be done to suit the thickness of the glass used.

The frames are to be perfectly flat, square, butt-welded at joints (mechanical joints will not be permitted) and all opening sashes must fit perfectly on all faces and open or close freely without binding at any point. The glazing bars must be continuous with continuous intersections (mitred intersections will not be permitted) with ends scribed and fitted to the frames with shouldered ends passed through and riveted over. The sight lines of the main frame, whether consisting of all fixed lights, all opening sashes or portions of both and the glass plane must be the same throughout each window.

Weathering on sections is to be solid extruded with the sections (screwed or riveted on strips will not be permitted) except weather bars to sills of inward opening sashes which must be welded on and not screwed or riveted except in the approved designs of built-up transoms.

No steel is to be used in the manufacture of the windows unless it is stainless steel of quality to A.I.S.I. Type 316. All fittings, butt hinges, screws, nuts, bolts, etc. are to be of high quality aluminium or other approved non-corrosive material compatible with aluminium and of sufficient strength to perform the functions for which they are used. The handles, sliding stays and peg stays are to have nylon washers, bushes and pressure pads and are to be secured to the frames with screws having riveted ends. Pop rivet fixings will not be permitted.

The transoms and mullions of all purpose-made windows and doors are to be equally spaced between the outer frames to form openings of equal size. Where this is not the case, either the width or the height of the opening is stated. Unless otherwise stated, the fixed lights and sashes of all purpose-made windows and doors are to be in one square and the sashes and doors are to open out.

Frames must be provided with suitable fixing lugs bolted on to frame with aluminium alloy bolts or are to be holed for screwing as required with lugs or holes spaced one near top, one near bottom and not more than 750mm apart intermediately each side of frame. Frames more than 900mm wide are to be provided with similar fixings to top and bottom and not more than 750mm apart.

All composite windows, doors, etc. are to be supplied with suitable and approved coupling mullions or transoms. Rectangular hollow section transoms where specified are to be

25mm x 115mm in section manufactured from 3mm thick aluminium.

The Contractor must submit drawings showing details of sections he proposes to use and these drawings are to be approved by the Department before manufacture is commenced, and when requested, specimen windows and doors complete with all fittings as well as specimen coupling mullions, transoms etc. must be submitted for approval and all windows, doors, etc. supplied must conform to the approved samples.

The manufacturer of the windows and doors must supply a dimensioned set of drawings with the windows and doors, for use on the site, including clearance and strict fixing methods and details.

Windows and doors are to be delivered to the site in suitable protective wrappings or crates and are to be stacked on end and carefully handled at all times to prevent any marking or staining of surfaces.

Immediately the windows and doors have been delivered on the site, they are to be thoroughly overhauled and all necessary adjustments or repairs are to be made before they are fixed in position. A further inspection is to be made after fixing and any further servicing required must be carried out in order to leave the windows and doors in a satisfactory condition and waterproof after glazing is completed.

Side Hung Sashes: — are to open out on a pair of aluminium hinges complete with anti-friction weatherproof bushings fixed pin and nylon washers and fitted with anodised aluminium alloy sliding stay with friction fastener and an approved anodised aluminium two point handle and striking plate.

Bottom Hung Sashes: — are to open in on a pair of aluminium hinges complete with anti-friction weatherproof bushings, fixed pin and nylon washers and fitted with concealed side arms and strong lever action spring catch and keep.

Top Hung Sashes: — are to open out on a pair of aluminium hinges complete with anti-friction weather proof bushings, fixed pin and nylon washers and fitted with anodised aluminium peg stay with cranked locking stay.

Horizontally Pivot Hung Sashes: — are to be hung on a pair of approved weatherproof brass satin-chrome finished friction pivots of the greatest possible diameter permissible and fitted at top with strong lever action spring catch for long arm or hand operation and striking plate, unless otherwise stated.

Vertically Pivot Hung Sashes: — are to be hung on free pivot cups at the head incorporating nylon bearing sleeves and lever pivots at the sill and fitted with one two-point casement handle and striking plate.

Projected Out Sashes: — are to be balanced on approved concealed side arms with stainless steel shoes and channels and fitted at bottom with one approved bow handle with catch incorporated.

Projected In Sashes: — are to be balanced on approved concealed side arms with stainless steel shoes and channels and fitted at top with strong lever action spring catch for long arm or band operation and striking plate:

Doors: — are to be side hung to open out on one and a half pairs of aluminium hinges to each leaf complete with anti-friction weatherproof bushings, fixed pin and nylon washers and fitted with lock set as specified, and each lock is to be provided with two keys. Satin chrome finish flush bolts are to be fitted at top and bottom of meeting edge of first closing leaf of double doors.

Adjustable Louver Sets: — are to be approved anodised aluminium adjustable louver sets consisting of head and all weather strips fitted with neoprene gaskets and two jamb strips

each fitted with louver brackets with spring loaded clips for the specified width of glass louver blades and complete with tilt bars and operating lever handles. Where the openings are not of height to suit standard width louver blades an alternate head section with static clips must be provided to take a fixed louver blade of the required width. The sets-sets are to be tap screwed to the window frame with stainless steel self-tapping screws.

GLAZING TO DOORS / ALUMINIUM GLAZED SCREENS

No glazing permitted to any fitting below Lock Rail (ie 1,2m high.).

Burglar Bars: — are to be standard type burglar bars formed of 20mm x 5mm aluminium bars riveted at intersections and riveted at ends to the window frame with high strength aluminium rivets. The burglar bars to the small pane type window are to line through with the glazing bars, and windows of the horizontal-pane type or of the no-glazing bar type are to be fitted with burglar bars which are divided as for the small pane type window.

All exposed surfaces of anodised aluminium are to be protected by means of an approved fabric backed adhesive tape. The Contractor shall satisfy the Department that the tape he proposes to use can be easily stripped after long exposure to sunlight, and rates are to include or the final stripping of the protective tape and cleaning down to approval at completion.

All work is to be protected during building against deterioration or discolouration caused by mortar droppings, wax, paint, etc. and all work so damaged is to be replaced at the Contractor's expense to the approval of the Department.

All glass and glazing has been elsewhere measured. All sashes and openings, unless otherwise stated, are to be single panes without glazing bars.

All windows and doors must be fixed into preformed openings in the structure (the building-in of windows and doors will not be pen fitted) and rates are to include for supplying necessary templates for forming the openings. Fixing in position of windows and doors has been measured separately. Sizes of windows and doors are given to the nearest 10mm.

STRONG ROOM DOORS: — must comply in all respects with SANS Specification 1015 Category 1. Each door is to be provided with two keys and the keys must be forwarded by the supplier under registered cover direct to the Department, and the supplier must clearly indicate the institutions in which the door (or doors) is being installed.

BURGLAR RESISTING SAFES: — must comply in all respects with SANS Specification 751. The safes shall be "Office Safe Category 1" as laid down in SANS Specification 751. Each safe is to be provided internally with one shelf and two lockable drawers.

Where the mass of each safe is 680kg or less, provision must be made for securing it rigidly to prevent unauthorised removal; the means of securing shall be at least equal in effectiveness to that which would be provided by four 12mm bolts. Locks shall be lever locks with a minimum of six levers. Each safe is to be provided with two keys to each lock and the keys for any safe must be forwarded by the supplier under registered cover direct to the Department, and the supplier must clearly indicate the institution in which the safe (or safes) is being installed.

ADJUSTABLE LOUVER GEAR SETS: — are to be approved natural anodised aluminium adjustable sets consisting of head and sill weather strips fitted with neoprene gaskets and two jamb strips and fitted with sets brackets with spring loaded clips for the specified glass sets blades and complete with tilt bars and operating handles. Where the openings are **not** of a height to suit standard width sets blades an alternate head section with static clips must be provided to take a fixed sets blade of the required width.

RATES: — are to include for fixing in accordance with the manufacturers instructions for screwing head and sill weather strips and jamb strips with stainless steel screws to frames (Elsewhere measured) and for oiling and easing at completion.

12. PLASTERING

MIXING

The mixing of the materials is to be done on a hard surface.

Once all materials have been mixed, they are not to be remixed with new materials added after 5 (five) hours.

MATERIALS

Stone Chippings: — are to be approved clean stone chippings of the sizes stated complying with SANS Specification 1083.

River Sand: — for floor finishes and screeds is to be clean, sharp, coarse sand free from all impurities, washed if so directed and complying with SANS Specification 1090.

Plaster Sand: — is to be clean, sharp, free from all impurities, washed if so directed and is to comply with SANS Specification 1090.

Cement: — unless otherwise specified is to be Portland cement of normal setting quality, is to comply with SANS Specification 471, and must be used fresh. Cement containing more than 15% blast furnace slag will not be permitted to be used.

Lime: — is to comply with SANS Specification 523.

Water: — is to be clean, fresh and free from injurious amounts of acids, alkalis and other organic substances.

MEASUREMENT OF CONSTITUENT PARTS OF FLOOR FINISHES, TOPPING, SCREEDS AND PLASTER FINISHES: — Cement, sand and stone chippings are to be measured exactly by means of gauge boxes or purpose made wheelbarrows. Part filling or heaping of normal wheelbarrows will not be permitted.

Water is to be accurately measured for each batch, to approval.

Waterproofing compounds, where specified, are to be added to the mixture in the proportions recommended by and in strict accordance with the manufacturer's instructions.

PREPARATION OF SURFACES: — Prior to the application of floor finishes, toppings, screeds, plaster finishes etc. the surfaces of the new or existing concrete, brickwork, etc. are to be thoroughly cleaned, chipped, hacked, sloshed, etc. as necessary to ensure a satisfactory bond. The Contractor will be held entirely responsible for the proper and adequate preparation of the surfaces and any work which results in failure in this regard must be made good at the Contractor's expense to the satisfaction of the Department.

FLOOR SCREEDS, ETC: — Cement screeds are to consist of one part cement and three parts sand, unless otherwise described, and are to be steel towelled, unless otherwise stated, to true smooth and even surfaces, free from tool marks to the satisfaction of the Department to receive the finishes stated in the items. It is recommended that in new structures the screeding should be as specified by "Tal" using "Screedmaster", the pumped method.

GRANOLITHIC FINISH TO CONCRETE FLOORS, ETC: — Float up to within 6mm of finished surface with layers on concrete approximately 10mm thick, composed of one part cement, two and a half parts concrete and three and a half parts granite or other approved hard stone chippings. Form finished surface with one part cement and one part fine granite chippings or other approved hard stone graded up to particle, which will pass a 6mm mesh brought to a smooth surface with a steel trowel. The floating and finishing coats are to be performed in one operation.

The granolithic work is to be carried out by experienced workmen and is to be laid in panels

V-jointed and not and not exceeding 6m² in area or as shown on drawings or described in the Bills of Quantities.

Thin strips if wood or other suitable materials are to be laid between panels to break contact.

Where granolith is described to be tinted, the requisite quantity of oxide of iron or other colouring materials is to be mixed with the finishing thickness.

All granolithic floors, etc. are to be covered up and protected from injury and discolouration during the progress of the work.

Rates for granolithic work are to include for cleaning down and for a coat of approved wax polish or stoep reviver well rubbed in at completion.

13. **PLASTER**

GENERAL

Except where otherwise described, all external plaster is to be finished with a wood float and internal plaster is to be finished with a steel trowel, unless otherwise described, all to true and even surfaces, free from tool marks and other defects to the satisfaction of the Department. No distinction has been made for brick or concrete surfaces.

CEMENT PLASTER

External cement plaster to wall is to consist on one part cement and four parts sand.

External cement plaster to ceilings is to consist of one part cement and three parts sand.

Internal cement plaster to walls is to consist of one part cement and five parts sand.

Internal cement plaster to ceilings is to consist if one part cement and three parts sand.

One coat cement plaster to walls shall not be less than 13mm or more than 16mm in thickness, and one coat cement plaster to ceilings shall not be less than 10mm or more than 13mm in thickness, unless otherwise described.

Where plaster is described as undecorated, the same type of approved sand the same brand of cement is to be used throughout to maintain a uniform colour and texture.

BARIUM PLASTER

Barium plaster shall consist of two coats plaster, the first coat 13mm thick consisting of one part cement and five parts sand, and the second coat 6mm thick consisting of one part cement and five parts Barium Sulphate. (This is to be applied only to X-Ray Room walls where holed bricks have been used).

All surfaces are to be plastered in one operation from ceiling to floor and corner-to-corner; breaks are to be made only in corners or at junctions of walls and ceilings.

CURING, PROTECTION, ETC.: — All floor finishes, paving, plaster finishes and screeds are to be properly cured to approval and all cracks, blisters and other defects which may occur are to be made good and the whole left in a satisfactory-condition at completion.

The finished surfaces are to be properly protected from damage and cleaned down at completion.

RATES: — Rates for floor finishes and screeds are to include for preparation of new or existing surfaces, dressing to falls where required, V-joints where specified, curing, protecting from damage and cleaning down at completion.

Rates for skirtings, risers, etc. are to include for internal angles at junction with floor, treads, etc. to be square or coved to not more than 50mm girth and in addition are to include for mitres, stops, etc. except where given separately in terms of the Standard System of Measuring Builders' Work.

Rates for plaster finishes are to include for preparation of new or existing surfaces, curing, protecting from damage and cleaning down at completion.

Rates for plastering are to include for internal angles to be square or coved to not exceeding 50mm girth.

Rates for rounded angles, fair edges and arrases and the like are to include for mitres, stops, etc. except where given separately in terms of the Standard System of Measuring Builders' Work.

Rates for mouldings, projecting bands, coves, weatherings and the like are to include for dubbing out.

Rates are to include for cutting back against frames and for V-joints cut where concrete abuts brickwork.

Rates generally are to include for all sundry making good and working around pipes, balusters, etc.

GENERALLY

Narrow Widths

Items described as "Extra over for narrow widths" include for all reveals, edges, soffits, treads, risers, etc. not exceeding 500mm wide, narrow widths not exceeding 500mm wide in general surfaces caused by openings or projections, all of which have been included in the areas of horizontal or vertical surfaces. No distinction has been made for finishes of differing thicknesses.

14. TILING

MATERIALS

River Sand: —is to be clean, sharp, coarse sand, free from all impurities, washed if so directed and complying with SANS Specification 1090.

Plaster Sand: — for wall backings is to be clean, sharp, free from impurities, washed if so directed and complying with SANS Specification 1090.

Cement: —unless otherwise specified, is to be Portland cement of normal setting quality complying with SANS Specification 471 and must be used fresh. Cement containing more than 15 % blast furnace slag will not be permitted to be used

Water: —is to be clean, fresh and free from injurious amounts of acids, alkalis and other organic substances.

MEASUREMENT OF CONSTITUENT PARTS OF BACKINGS, ETC.: — Cement and sand are to be measured exactly by means of gauge boxes or purpose made wheelbarrows. Part filling or heaping of normal wheelbarrows will not be permitted:

Water is to be accurately measured for each batch to approval.

Waterproofing compounds, where specified, are to be added to the mixture in the quantities recommended by and in strict accordance with the manufacturers' instructions.

PREPARATION OF SURFACES: — Prior to the application of the backing for tiles, the surfaces of the new or existing concrete, brickwork, etc. are to be thoroughly sloshed, etc. as necessary to ensure a satisfactory bond. The Contractor shall be held responsible for the proper and adequate preparation of the surfaces and any work which results in failure in this regard must be made good at the Contractor's expense to the satisfaction of the Department.

GLAZED CERAMIC WALL TILES AND FITTINGS: — shall comply with SANS Specification 22 of selected grade, free from defects and blemishes and of uniform colour.

Rates are to include for either bedding tiles on and including a solid cement mortar backing consisting of one part cement to three parts sand on brickwork or concrete, or fixed with an approved tile adhesive on and including a coat of cement plaster consisting of one part cement to five parts sand and finished to a surface to receive tiles.

Tiles are to have vertical and horizontal joints continuous with all joints solidly flushed up in neat white cement.

MOSAICS: — Glass or ceramic mosaics are to be of approved South African manufacture of the sizes and colours specified, fixed to paper panels for ease of handling.

Mosaics are to be bedded to a true even surface on and including a solid cement mortar backing consisting of one part cement and three parts sand on brickwork or concrete, or fixed with an approved mosaic adhesive on and including a coat of cement plaster consisting of one part cement to three parts sand finished to a surface to receive mosaics.

After setting, the paper panels are to be removed and all joints are to be solidly flushed up in neat white cement.

Samples of mosaics are to be submitted to the Department for approval before any work is put in hand.

UNGLAZED CERAMIC FLOOR TILES AND FITTINGS: — are to be unglazed acid and alkali resistant tiles and fittings of the types specified in the items, and of approved manufacture, uniform in size, shape and colour, free from cracks, twists and other defects and equal to samples to be deposited with and approved by the Department.

Floor tiles are to be laid with maximum 10mm wide joints continuous in both directions on and including a 15mm thick cement mortar bed consisting of one part cement to three parts sand, unless otherwise specified, to true levels and grades with the joints raked out and grouted up solid and flush pointed with an approved epoxy jointing compound.

Floor tiles are to be set out so as to have no long edges of tiles cut to suit room size.

RATES: — for tiles, mosaics, etc. are to include for all necessary preparation of surfaces, for laying in accordance with the manufacturer's instructions, all square cutting and waste and fitting, protecting from damage and cleaning down at completion.

Rates for tiles are also to include for laying, bedding, jointing and pointing as described and in accordance with SANS Code of Practice 0107 where applicable.

Rates for treads, risers, sills, copings, cappings, skirting etc. are to include for pointing to exposed edges and projecting soffits.

No distinction has been made for brick or concrete surfaces.

TRANSITION TRIMS:-

Aluminium Wide Tile-In Ramp splayed transition trims to be used at junction between ceramic / porcelain tiles and vinyl sheeting.

MOVEMENT JOINTS:-

Aluminium Structural Screed joints bolted to slab to be capable of total movement of minimum of 5mm either way with flexible PVC Hospital Insert.

Movement joints to be in high traffic area's as "Migua" FV35/1500 or "Kirk" ASSJ390H of approved height with hospital insert bolted to slab before screeding.

Metal movement joints in low traffic area's with hospital insert strips..

15. DRAINAGE AND PLUMBING

GENERALLY: —The Standard Preambles for other trades, with reference to Excavations, Concrete, Brickwork and Plastering, and, in particular for the full description intent and meaning of the classification for excavations, are to apply equally to this trade.

LICENSED DRAINLAYERS AND PLUMBERS: — Only licensed drain layers shall be employed on any drainage work and licensed plumbers on plumbing work.

SUBSOIL DRAINS

Unplasticised polyvinyl chloride (UPVC) slotted drainage pipes and fittings: — shall be of approved manufacture jointed in accordance with the manufacturer's instructions.

Pitch-fibre perforated or slotted drainage pipes and fittings: shall comply with SANS Specification 921 and shall be jointed in accordance with the manufacturer's instructions.

Filter fabric: — shall be non-woven, spun bonded, needle punched and continuous polyester fabric, resistant to the effects of alkalis, acids, saline solution and sunlight.

STORMWATER AND SOIL DRAIN PIPES

Reinforced concrete non-pressured pipes: shall comply, with SANS Specification 677 and must be Type SC of the class specified with spigot and socket ends with rubber insertion ring or with ogee joints with approved rubber collars. Pipes must be marked with the manufacturer's name, trade name or registered trade mark, nominal bore, class and type, date of manufacture, the letter "R" denoting reinforced and the SANS mark. Joints shall be made in accordance with SANS Code of Practice 058.

Unplasticised polyvinyl chloride (UPVC) drain and sewer pipes and fittings: — shall comply with SANS Specification 791. Joins shall be made with fittings in accordance with SANS Code of Practice 058.

CONCRETE BEDS AND ENCASEMENT TO DRAIN PIPES: — Where pipes are required to be bedded on concrete, the bed of concrete shall be Class B, a minimum of 500mm wider than the diameter of the pipe, laid to correct falls and levels with recesses formed in same for pipe joints including all necessary formwork and any additional excavation. The barrel of the pipe shall then be bedded on a thin cement mortar (1:3) bed and laid to falls. After jointing, the recesses previously formed shall be filled in with concrete Class B and the haunching or surrounding completed.

Where pipes are fixed vertically they shall be encased in concrete Class B having a minimum thickness of 150mm around the pipe and carried up to ground level and shall include for any necessary formwork.

PIPE LAYING: — All drain and sewer pipes are to be laid to a straight line to even gradients and jointed in accordance with SANS Code of Practice 058 except in the case of polyethylene or unplasticised polyvinyl chloride drain and sewer piping which is to be in accordance with SANS Code of Practice 01 12.

Before laying, each pipe shall be examined to ensure that the bore is clean and free of any foreign matter and shall be tested for soundness by striking with a wooden mallet, and any cracked or damaged pipes shall be rejected. Ends of all pipes must be clean before

jointing. Immediately after jointing a tight fitting wad or scraper shall be drawn several times through the bore of the pipe to ensure that it is left clean and free from obstructions. Whenever work is suspended, the open ends of pipes and junctions must be temporarily plugged to prevent the entrance of rubbish during construction.

GULLEY TRAPS: — Gulley trap assemblies must be of the material specified with “P” or “S” trap, jointed to drain and with hopper head with vertical and side inlets, the head fitted with 190mm diameter cast iron gulley grating complying with SANS Specification 1115 laid loose in socket. The trap, hopper head and vertical pipe shall be set on and encased in concrete Class B having a minimum thickness of 150mm at any one part, carried up 75mm above ground level as kerb, dished down to grating and finished on all exposed surfaces in 1:3 cement plaster with angles rounded, including necessary excavation and formwork.

GREASE TRAPS: — Grease trap assemblies of vitrified clay must consist of outlet junction jointed to trap with side inlet. Access openings of trap and junction shall be fitted with vitrified clay stoppers laid loose in socket of trap and set in bitumen in socket of junction. The trap and junction and vertical pipe shall be set on and encased in concrete Class B having a minimum thickness of 150mm at any one part, carried up 75mm above ground level as kerb, dished down to grating and finished, on all exposed surfaces in 1:3 cement plaster with angles rounded, including necessary excavation and formwork.

RODDING EYES: — Where pipes are carried up in ramps for rodding eyes, the head of the pipe at ground level must be fitted with an “A.B.C.” cast iron cover and frame, complying with SANS Specification 746, jointed to pipe, the frame rebated for and including cover with raised letters “CE” cast on same, secured to frame with gun-metal screws and with the whole encased in concrete Class B having a minimum thickness of 150mm at any one part, carried up 75mm above ground level and finished on all exposed surfaces in 1:3 cement plaster with angles rounded, including necessary excavation and formwork,

INSPECTION EYE BLOCKS: — Where inspection eye fittings are provided in pipelines, the position of these inspection eyes must be registered and demarcated with concrete Class C. block size 300 x 300 x 50mm thick finished on all exposed surfaces with 1:3 cement plaster with angles rounded and with sunk letters “I.E.” formed in top and set in ground, including necessary excavation and formwork.

SURFACE WATER CHANNELS: — Concrete open surface water channels shall be formed with concrete Class B with segmental channel formed in same to the size and shape specified and finished on exposed surfaces in 1:3 cement plaster, steel towelled to a smooth even surface with all angles rounded, cast in lengths not exceeding 2m and laid to falls, including necessary excavation and formwork.

GRATINGS FOR GULLEYS AND STORMWATER DRAINS AND CAST IRON SURFACE BOXES AND MANHOLE COVERS AND FRAMES: — Cast iron or Polymer gratings for gulleys and storm water drains shall comply with SANS Specification 1115 and SANS 1882:2003 respectively.

Cast iron surface boxes and manhole covers and frames shall comply with SANS Specification 558.

All cast iron gratings, cast iron surface boxes and cast iron manhole covers and frame must be coated with approved preservative solution before leaving the manufacturer’s works.

The masses stated are the combined mass of the grating and frame or the combined mass of the cover and frame.

STORM WATER SUMPS, JUNCTION BOXES, MANHOLES, INSPECTION CHAMBERS, CABLE INSPECTION CHAMBERS AND VALVE CHAMBERS: — shall be of the internal size specified and are to be constructed of one brick sides, unless otherwise specified, built in 1:3 cement mortar on a 150mm thick concrete Class C bottom and finished on top with an 85mm thick pre-cast concrete Class C cover slab, reinforced as detailed and bedded in

cement mortar. The cover slab, except to junction boxes, is to have a rebated opening formed in same, suitable for and fitted with a cast iron orating and frame, or cover and frame, of the size and mass specified with the frame bedded in cement mortar. The bottom of the sump, manhole, etc. and the exposed surfaces of the cover slab are to be finished smooth in 1:3 cement plaster with angles rounded. The internal brick surfaces are to be faced with smooth facing bricks and pointed with flush joints.

Inspection chambers and manholes with an invert not exceeding 1m shall have an internal dimension of 470mm x 700mm and those exceeding 1m shall have an internal dimension of 920mm X 920mm. Where the invert of the hole exceeds 1m, a 150mm thick reinforced concrete Class C corbel slab, reinforced as detailed, with opening size 470mm x 700mm formed in same and finished smooth off the formwork, is to be built into the brick sides at a height not exceeding 1, 5 inches above the concrete bottom with the reduced manhole shaft built off the top of the corbel slab. Cast iron step irons spaced at 300mm staggered centres vertically are to be built into one side of all manholes with an invert exceeding 1m.

Where measured in number, rates for all sumps, manholes, etc. are to include for excavating to the depths required, taking precautions against collapse of sides of excavations, staging, ramming, pumping and baling to keep excavations free from water or mud, filling around and ramming and depositing and levelling spoil on site or carted away as directed. Ends of pipes are to be built through the sides of the sumps, manholes, etc. and rates are to include for this.

SOIL DRAIN MANHOLES AND INSPECTION CHAMBERS: —are to be of the internal diameter and inverts specified and are to be constructed of pre-cast reinforced concrete manhole ring sections with walls a minimum of 50mm thick, pre-cast reinforced concrete cover slabs and spacer pieces complying with SANS Specification 677. The joints for the ring sections shall be of the ogee type. The bottom shall be of concrete Class C-cast in-situ.

The placing of the concrete bottom and benching shall be carried out in three stages with the initial stage being the laying of the concrete bottom projecting 100mm beyond the external diameter of the manhole on which is laid the inspection eye pipe, branches, etc. The second stage comprises the laying of concrete within the manhole to the height of the pipes and around the perimeter of the bottom to a height of not less than 25mm above the collar of the pipe at the highest end. This annular base is to be shuttered to provide a horizontal setting for the first ring section which is to be firmly bedded in the wet concrete. The third stage comprises the laying of the benching within the initial ring section and finished in 1:3 cement plaster with all angles rounded. Thereafter, the ring sections of the required standard height are joined together to form the required depth, with all joints primed with "Bituprime" and sealed with "Bitujoint Putty". A 125mm thick pre-cast reinforced concrete cover slab, rebated on underside to suit ring sections and with opening size 600mm x 600mm formed in same is to be bedded on top of the ring section. The shaft above the cover slab is to be constructed of either pre-cast reinforced concrete spacer units to suit the type of cast iron cover and frame specified, or one brick kerb walls faced internally with smooth facing bricks jointed with flush joints, and finished on top with an 85mm thick pre-cast concrete Class C cover slab, reinforced as detailed and bedded in cement mortar with the exposed surfaces finished smooth in 1:3 cement plaster with all angles rounded. The cover slab is to have a rebated opening formed in same suitable for and fitted with cast iron cover and frame of the size and mass specified, with the frame bedded in cement mortar.

MANHOLE COVERS AND FRAMES:- Cast iron, Concrete or Cultured Polymer covers and frames to be suitable for the area of usage.

SOAK PITS: — shall be of the lengths and widths specified and shall be a minimum of 900mm deep below the invert of the inlet pipe. A perforated pitch-fibre drainpipe, jointed to the inlet pipe and with other end capped, is to be laid level in a 19mm stone packing of a minimum thickness of 15mm below and at sites of pipe and a minimum thickness of 150mm below the top of the pipe. The remainder of the soak pit is to be filled with stone graded

from 50mm to 75mm, to a level of 50mm above the top of the pipe. The stone is to be covered with corrugated asbestos cement sheets extending 150mm beyond the walls of the soak pit all round. The trench shall be backfilled above the sheeting to a minimum depth of 300mm lightly rammed with the final 100mm of backfilling being approved topsoil from the excavations.

SEPTIC TANKS: —shall be of the internal sizes specified and are to be constructed of one brick sides built in 1:3 cement mortar on 150mm thick concrete Class C bottom laid to falls. A half brick baffle wall finished 75mm below underside of concrete cover slab and with opening size 150 x 150mm high formed in wall is to be built in 1:3 cement mortar on the concrete bottom. A 115mm thick reinforced concrete Class C cover slab, reinforced as detailed, is to be cast in-situ on removable formwork and is to have two openings formed in same, each suitable either for and fitted with 600 x 450mm x 38 kg cast iron single seal manhole cover and frame, or for the shaft of the inspection chamber built off the cover slab in one, brick walls in 1:3 cement mortar with smooth face bricks internally, finished on top with 85mm thick pre-cast concrete Class C cover slab, reinforced as detailed and rebated for and fitted with 600 X 450mm X 38-kg cast iron single seal manhole cover and frame. The bottom and sides of the septic tank are to be finished in 1:3 cement plaster, 19mm thick, with an approved waterproofing compound added, with all internal angles coved to 50mm radius. Inlet and outlet chambers attached at either end of the septic tank shall be size 600 x 450mm internally, of the depth required and each shall be constructed of one brick walls built in 1:3 cement mortar on a concrete Class C bottom 150mm thick, or where extended above the top of the septic tank cover, built off the cover and finished on top with 85mm thick pre-cast concrete Class C cover slab, reinforced as detailed and bedded in cement mortar with the exposed surfaces finished smooth in 1:3 cement plaster with angles rounded. The cover slab is to have a rebated opening formed in same suitable for and fitted with a 600 x 450mm x 38 kg cast iron single seal manhole cover and frame. Chambers shall be provided with inspection eye pipes or bends, straight or curved channel sections, benched up to sides of chambers in concrete Class C, finished in 1:3 cement plaster with all angles rounded.

The inlet and outlet of the septic tank shall be formed of cast iron square junction piece with tail-pipe extending 300mm below water level in tank, built in through end walls and jointed to channels in inlet and outlet chambers.

TESTING OF DRAINS, MANHOLES AND INSPECTION CHAMBERS: — All drains, manholes and inspection chambers with the exception of subsoil drains shall be constructed so as to be watertight. No trenches shall be backfilled or pipes encased in concrete until the drains have been tested and approved. Any drains covered by the Contractor prior to testing shall be exposed at the Contractor's expense.

The Contractor shall give at least 24 hours notice of any particular length between manholes ready for testing. The drains shall not be tested until a period of 24 hours, or such other period as may be required, has been allowed for the pipe joints to set. The Contractor shall provide all necessary testing apparatus, expanding plugs, stoppers, water and any other materials and all labour that may be required for carrying out the tests.

The whole of the drainage system shall be tested using one or more of the following tests:-

- (a) **Visual test**— Each length of pipe shall be inspected for invert level grade, direction and line. Internal inspection of the bore of the pipes shall be made using mirrors and a powerful source of light. The drains must be free of invert lips and the bases of the pipes must be straight.
- (b) **Air test** — All openings in the drain shall be plugged and sealed and all associated traps filled with water and air pumped into the drains until a manometric pressure of 40mm is indicated, after which, without further pumping, the pressure shall not drop below 25mm for a period of at least 30 seconds.
After the entire drainage system has been completed, all plumbing fittings installed and permanently connected up, and traps filled with water, a final air test shall be applied to the whole system.

- (c) **Water test**— All openings-in the drain, except the highest one, shall be plugged and sealed and the drain filled with water so that every part of the system is tested under a head of water of not less than 1.5m and not more than 3.5m. After allowing period of 10 minutes for initial absorption, the amount of water it shall be necessary to add to maintain the water level over the next 15 minutes shall not exceed a rate of 25 litres for 100mm diameter pipe and 3,75 litres for 150mm diameter pipe for 100m of drain and an equivalent rate for larger drains. In carrying out the water test, the head of water shall be obtained by providing temporary pipes, fittings, etc. wherever necessary or by such other method as may be approved.

In cases where the maximum head of water, owing to the gradient of the drains, would be exceeded in any section, inspection eyes at suitable intervals may be provided and the drain plugged, in order not to subject the lower portion of the drain to a greater head of water than that required. Drains must be free of air before testing.

- (d) **Manhole and Inspection Chamber test** — The inlet and outlet pipe hose shall be plugged and sealed and the inspection chamber filled with water. After allowing the water to stabilise due to absorption, the water level should not fall more than 5mm in 2 hours.

DEFECTS TO BE MADE GOOD: — Should the drain system fail to withstand the above tests, all defects shall be made good and the tests repeated at the Contractor's expense until the whole system is sound and passed to the satisfaction of the Department. In making good, all defective parts shall be cut out and replaced with new. No patching of pipes, joints or connections will be permitted.

SHEET METALWORK: — generally is to be lapped 75mm at ends and 150mm at angles, unless otherwise specified. Rates for sheet metalwork shall include for all labour, cutting and waste, laps, seams, welts, angles, clips, tacks, soldered dots, riveting, soldering, brazing, burning, nailing, dressing and wedging as required. All measurements are net with no allowance being made for laps, seams, welts, angles, clips and tacks or waste in cutting. Where stepped flashings are described as to flat slope, the pitch of the roof to which they apply does not exceed 40 degrees

- (a) **Galvanized sheet iron:** — shall be of an approved brand of the thickness specified after galvanising and having a galvanized coating of "Isacor Coating Designation Z450". Corroded or otherwise defective sheets shall not be used. All nailing or screwing shall be done with galvanized nails or screws.
- (b) **Sheet aluminium:** — shall be of the thickness and quality specified. All nailing shall be done with aluminium alloy nails and all screwing done with stainless steel screws.
- (c) **Sheet copper:** — shall be cold rolled sheet of the thickness and temper specified. Sheet copper for covering flat roofs and for valley and gutter linings, flashings, soakers, etc. shall be of dead-soft temper and for eaves gutters, rainwater pipes and other unsupported or semi self-supported work shall be of half-hard temper. All nailing shall be done with copper or copper alloy nails and all screwing done with brass screws.
- (d) **Sheet lead:** — shall be best milled sheet lead of the full mass specified and of equal thickness throughout and must comply with SANS Specification 1178.

LININGS TO VALLEYS: — shall be of the material specified, lapped 200mm at ends and dressed up on to purlins or battens at sides of valleys with edges bent back to form open beads.

LININGS TO SECRET GUTTERS: — at back of chimney stacks and wall abutments and at raking intersections of walls and roofs shall be of the material specified, turned 100mm up vertical surfaces and dressed 250mm up roof slope and on to purlin or batten at edge.

SOAKERS: — to slate covered roofs shall be of galvanized sheet iron or sheet copper of 0.6mm thickness, 450mm wide to closed valleys and 250mm wide to raking intersections of roofs with vertical wall and chimney stack abutments and turned 75mm up vertical surfaces. Soakers shall be 75mm longer than the gage of the slate roofing.

UNDER-FLASHINGS: — to all iron roofs and where specified to slate or tiled roofs shall be 0.6mm thickness galvanized sheet iron. Flashings to asbestos cement roofs shall be asbestos cement preformed units fitted in accordance with the manufacturer's instructions. Where specified, copper flashings shall be formed from sheet of 0.6mm thickness and aluminium flashings shall be formed from 1200-H4 quality sheet of 0.6mm thickness. Lead flashings, where specified, shall be formed from sheet having a mass of 24 kg/in 2.

COVER FLASHINGS: — shall be either galvanized sheet iron, copper or aluminium, as specified, of 0.6mm thickness fitted over under-flashing, stepped where required on rake and with top edge bent and wedged 25mm deep into joint of brickwork or groove formed in concrete face and flush pointed in 1:3 cement mortar.

FLASHINGS AROUND PIPES THROUGH ROOF COVERINGS

- (a) Pipes through preformed sheet steel roofing shall be flashed around with 0.6mm galvanized sheet iron apron pop-riveted to top of roofing with edges cut and dressed to profile of roofing, soldered all round and with conical sheet iron 'u' stand, riveted and soldered at joint and at base to apron. The top of the conical upstand is to be fixed around the pipe with 25mm x 3mm galvanized mild steel strap wrapped around the pipe and fixed with a galvanized steel gutter bolt.
- (b) Pipes through fibre cement roofing shall be flashed around with 24 kg/in 2 lead apron dressed into corrugations, bedded in mastic and bolted to roof sheeting with galvanized steel gutter bolts and with conical lead upstand, wiped on at joint with apron, and secured around pipe with copper wire.
- (c) Pipes through slate or tile roofing shall be flashed around with 24 kg/in 2 lead apron dressed to profile of slates or tiles with top edge of lead apron dressed over back edge of slate or tile under overlap of slates or tiles. A conical lead upstand, wiped on at joint with apron, is to be secured around the pipe with copper wire.
- (d) Pipes through pre-printed or embossed sheet steel or aluminium roofing shall be flashed around with flexible glass-fibre reinforced waterproofing dressed to profile of roofing, pop-riveted around edges to roofing and dressed up and around pipe. The waterproof is to be finished in a colour to match that of the roofing material.

RAINWATER PIPES

GENERALLY:

Full bore outlets for flat roofs are not allowed. Where flat roofs are specified, it is preferred to have a drain along the edges into a common outlet. Where roof cover is of 'Chromodek' sheets, the preferred guttering is of the same material in the same colour in continuous lengths.

(a) **Unplasticised polyvinyl chloride (UPVC) rainwater pipes and accessories** shall comply with SANS Specification 967 and must be fixed clear of the finished wall face on stock pattern brackets in accordance with the manufacturer's instructions.

(b) **Galvanized mild steel rainwater pipes**, shall be medium quality screwed and socketed normalised welded mild steel pipes, galvanized inside and outside, and shall comply with SANS Specification 62.

Fittings for galvanized mild steel pipes shall comply with SANS Specification 509. The screwed joints must be made with lead paint and hemp or approved thread sealing tape. The pipes must be fixed clear of the finished wall face with galvanized cast iron hinged

holderbats built into walls at not exceeding 2m centres in 1:3 cement mortar.

EAVES GUTTERS

- a) **Galvanized sheet iron gutters, rainwater heads, etc.** shall be formed from 0.6mm sheet and must have beaded edges with all laps riveted and soldered. Corners must be reinforced with 0.6mm X 50mm wide galvanized sheet iron strips and must be soldered across the inside of the angles.

Gutters must be laid to even falls on approved galvanized mild steel gutter brackets screwed to roof timbers at approximately 1m centres. Half round pattern gutters shall be bolted to each bracket with 6mm galvanized gutter bolt fitted close to the beaded edge. Rectangular pattern gutters shall be fixed at each bracket with galvanized mild steel long-screw with 1mm thick galvanized sheet iron spacer tube.

- (b) **Fibre cement gutters and accessories** shall be of approved manufacture, not less than 6mm thick, with spigot and socket joints made in an approved mastic compound in accordance with the manufacturer's instructions. Gutters must be laid to even falls on approved aluminium alloy or stock asbestos cement brackets screwed to roof timbers at the manufacturer's recommended spacings.
- (c) **Unplasticised polyvinyl chloride (UPVC) gutters and accessories** shall comply with SANS Specification 11 and must be laid to falls and fixed on brackets in accordance with the manufacturer's instructions.

SANITARY PLUMBING AND FITTINGS, WASTE, VENTILATION AND ANTI-SIPHON PIPES

(a) **Unplasticised polyvinyl chloride (UPVC) pipes and fittings** shall be of approved manufacture marked with the manufacturer's name and trade name, the nominal bore and the South African Bureau of Standards mark and shall comply with SANS Specification 967. Joints shall be made with injection moulded fittings in accordance with the manufacturer's instructions and SANS Code of Practice 0112. The pipes must be fixed clear of the finished wall face with aluminium alloy holderbats fitted with plastic cushion strips with the holderbats fixed to plugs in wall.

(b) **Polypropylene pipes and fittings** shall be of approved manufacture and shall have a mechanical form of jointing. Pipes and fittings are to be fixed and jointed in accordance with the manufacturer's instructions.

(c) **Multilayered pipes** shall be of approved manufacture and shall have a mechanical form of jointing. Pipes and fittings are to be fixed and jointed in accordance with the manufacturer's instructions.

SANITARY FITTINGS: — All sanitary ware must comply with SANS 497 Specifications and be fitted with Ball-O-Cock valves in supply lines.

Wash hand basins shall be of white glazed fireclay or vitreous china of the type and size specified. Basins shall have an integral overflow to non patient treatment facilities and be fitted with 32mm chromium plated waste union with flange and grating, rubber plug on chromium plated brass chain and, where required, tap hole stopper cemented in.

WC pans shall be of white glazed fireclay or vitreous china of the type specified with 'S' or 'P' trap with straight or side outlet and shall be fitted with single or double flap plastic seat as required, secured to pan with concealed brass holding down bolts. Pans shall be bedded on the concrete floors in 1:3 cement mortars. Pans in seclusion rooms and other public areas to be 'Gypsy' vandal proof – or other approved.

Glazed ceramic urinals of the bowl or stall type shall be of white glazed fireclay or vitreous china. Bowl urinals shall be fitted with 40mm chromium plated waste union, with flange and

domical grating and with spreader with flush pipe connector. Stall urinals shall be fitted with 75mm chromium plated waste union with flange and hinged domed grating and with spreader with flush pipe connector.

Flushing cisterns shall be as specified, either of white porcelain enamelled cast iron, white glazed fireclay, vitreous china or black plastic complying with SANS Specification 821, each with body and cover. Cisterns shall be a maximum of 11 litre capacity and the flushing apparatus shall be of brass, copper or other corrosion resistant metal, PVC or other approved plastic or of an approved ceramic material. All cistern lids must be able to be **screwed** down. Connections for flush pipe, inlet and overflow pipe must be provided in the body. Cisterns shall be fitted with 15mm brass ball valve with copper, PVC or polystyrene ball and with either chromium plated operating lever handle or galvanized steel pull chain and handle. A galvanized, white enamelled or chromium plated steel or copper flush pipe, of the required length, as specified, is to be jointed to the flush pipe connection on the body of the cistern and in the case of WC pans is to be fixed to the inlet of the pan with an approved patent adaptor. From the overflow connection on each cistern a 22mm copper overflow pipe, bent as required, shall be taken through wall to discharge externally, with ends splay cut and projecting 50mm beyond wall face, or where this is not possible, bent to discharge into WC pan.

Baths shall be enamelled cast iron baths of the type and size specified, holed for and fitted with chromium plated brass overflow union with grating, 40mm chromium plated brass waste union with flange and grating, rubber plug on chromium plated brass chain and fitted with adjustable cast iron feet. The fall along bottom of baths from head ends to outlets must be adequate for complete emptying.

Stainless steel sinks and drainers shall be of the types and sizes specified with exposed surfaces buffed to a satin finish and sound deadened on underside by application of an approved sound deadening coating. Splashbacks with tiling keys shall be provided at back and at ends against walls or as specified. Sink bowls are to be pressed out of single sheets with complete drainage to outlets and each bowl is to be fitted with integral built-in overflow with chromium plated brass grating and 40mm recessed waste outlets with chromium plated brass waste union with grating, rubber plug and chromium plated brass chain. Sink bowls, unless otherwise specified, are to be 450 x 355 x 140mm deep. Drainers are to be pressed out of single sheets and are to have pressed flutes to give complete drainage.

(a) For domestic use — Sinks shall comply with SANS Specification 242 and shall be manufactured from A.I.S.I. Type 430 stainless steel 0.8mm thick for units not exceeding 2,4m long and from stainless steel 1.2mm thick for units exceeding 2,4m Long. -

(b) For hospital use and laboratories — Sinks shall be manufactured from A.I.S.I. Type 304 stainless steel 0.9mm thick for units not exceeding 2.4m long and from stainless steel 1.2mm thick for units exceeding 2.4m long.

Stainless steel wash hand basins and wash troughs shall be of the types and sizes specified complying with SANS Specification 906, with exposed surfaces buffed to a satin finish and sound deadened on underside by application of an approved sound deadening coating. Each basin or wash trough in non patient treatment area's are to be fitted with integral built-in overflow with chromium plated brass grating and 40mm recessed waste outlet with chromium plated brass waste union with grating, rubber plug and chromium plated brass chain.

Stainless steel urinals shall be of the types and sizes specified complying with SANS Specification 924 and shall be manufactured from A.I.S.I. Type 304 stainless steel, 1.2mm thick, buffed to a satin finish and sound deadened at back by application of an approved sound deadening coating. The back and sides of urinals are to be made rigid by means of integral pressed ribs or by bowing. Edges at sides and top are to have plaster key. Tread plates are to be ribbed and the front edges are to be stiffened and bent to form key for floor finish. The trough shall be a minimum of 125mm wide and half round in section with all corners radiused and shall fall to ensure complete drainage to 75mm recessed outlet with

chromium plated domed hinged grating and frame.

RATES FOR SANITARY WARE: — shall include for the supply and fixing of the units as specified and for cleaning, washing and leaving in a satisfactory condition on completion.

BELOW GROUND WATER RETICULATION

Unplasticised polyvinyl chloride (UPVC) piping and fittings shall be of approved manufacture complying with SANS Specification 966. Pipes must be of the class specified and must be marked with the manufacturer's name, trade name or registered trademark, nominal diameter, class reference and the SANS mark. Pipes shall be laid and jointed in accordance with the manufacturer's instructions.

High density polyethylene (HDPE) piping shall be of approved manufacture complying with SANS Specification 533 and shall be of the class specified, laid and jointed in accordance with the manufacturer's instructions. Piping must be jointed with compression fittings with compression rings and coupling nuts.

High Density Polyethylene / Polypropylene / Multilayered piping shall be of approved manufacture, complying with SANS Specification 15875-1-2004 & 2/2003 & 1315, laid and jointed in accordance with the manufacturer's instructions.

Copper piping shall be of approved manufacture complying with SANS Specification 460 and shall be of Class 2. Pipes must be jointed with brass compression fittings with compression rings and coupling nuts complying with SANS Specification 1067 Part I Type 'A'. Copper piping must be bent, where required, with an approved bending machine.

ABOVE GROUND WATER SUPPLIES

Colour Coding Cold Water Supply the exposed piping for this non potable (recycled) water shall be colour banded Brilliant Green (B49) / Yellow Band(H10). The other exposed piping for potable (drinkable) water shall be colour banded Brilliant Green (B49) / Blue Band(F29)

Galvanized mild steel piping for water supplies shall be medium quality screwed and socketed normalised welded mild steel pipe, galvanized inside and outside, and shall comply with SANS Specification 62.

Fittings to galvanized mild steel piping shall be steel pipe fittings complying with SANS Specification 62 or malleable cast iron fittings complying with SANS Specification 509.

Copper piping shall be of approved manufacture, complying with SANS Specification 460 and shall be of Class 2 – fixed and jointed in accordance with the manufacturer's instructions. Class 2 copper piping must be jointed with brass compression fittings with compression rings and coupling nuts complying with SANS Specification 1067 part I Type 'A'.

Polypropylene / Multilayered Piping shall be of approved manufacture, complying with SANS Specification 1315, laid and jointed in accordance with the manufacturer's instructions. This applies to hot and cold water supply within ceiling spaces also.

Stainless steel piping shall be of approved manufacture, complying with SANS Specification 4127 and shall be A.I.S.I. Type 304 L. Fittings to stainless steel piping not exceeding 50mm nominal bore shall be brass compression fittings with compression rings and coupling nuts.

Piping exceeding 50mm nominal bore shall be welded piping with 1.5mm wall thickness, unless otherwise stated, and of A.I.S.I. Type 316 stainless steel. Joints are to comprise approved A.I.S.I. Type 316 stainless steel pressed collars welded to ends of pipes and fittings with loose galvanized mild steel slip-on flanges complete with galvanized mild steel bolts, nuts and washers, and neoprene gaskets. Fittings must be A.I.S.I. Type 316

stainless steel butt weld fittings.

Phosphoric acid based fluxes must be used for all welded joints which are to be argon arc TIG welded using Type 316 filler rods, with the welds treated with suitable pickling compound.

WATER TAPS AND VALVES: — Water taps, stopcocks, ball-o-cocks and wheel valves shall be of approved manufacture complying with SANS Specification 226.

Ball valves with brass valve and copper or plastic ball float shall be of approved manufacture complying with SANS Specification 1056. Plastic floats when supplied, must comply with SANS Specification 1006.

Full Bore Teflon Seated Ball Valve shall be of approved manufacture complying with SANS Specification 664. Valves shall be clockwise closing with non-rising, cap-fitted spindles and flanked connections and of the class specified.

Pressure reducing valves shall be of approved manufacture complying with SANS Specification 198.

FIXING OF WATER PIPES: — Galvanized mild steel water piping shall be fixed, unless otherwise described, to walls or ceilings with galvanized malleable iron holderbats (school board pattern), built into walls in 1:3 cement mortar. Pipes shall be fixed to timber work with galvanized mild steel pipe clips screwed on.

Copper and stainless steel water piping shall be fixed, unless otherwise described, to walls or ceilings with brass holderbats (school board pattern) built into walls in 1:3 cement mortar. Pipes shall be fixed to timber work with brass or copper pipe clips screwed on.

Polypropylene / Multilayered Piping - shall be fixed to walls according to manufacturers recommendations.

CONCRETE THRUST AND ANCHOR BLOCKS: — shall be of the sizes required and provided where directed to anchor the water pipelines against the thrust due to hydrostatic pressure. Concrete blocks shall be cast against the undisturbed face of the excavation. Backfilling behind the thrust face of the block will not be permitted.

TESTING OF WATER MAINS: — The whole of the water reticulation shall be subjected to a hydraulic test pressure 1.5 times the maximum working pressure of the pipeline. Testing of pipelines may only commence after the installation of all anchor blocks, valves and fittings have been completed. Testing shall be carried out between installed sluice valves whenever possible. Where this is not possible the ends of the pipes shall be sealed with end caps properly held in place with temporary props.

The tests shall be carried out on lengths not exceeding 300 metres.

The pipeline shall be filled from the lowest end in order to expel the air at the upper end through special taps or through service connections, stand pipes, etc. When full the line shall be allowed to stand for 24 hours and any further accumulated air shall be expelled. The full test pressure shall then be applied and maintained for one hour, during which time the line will be examined for any leaks, movement at anchors and other defects.

Any defective work is to be taken out and replaced at the Contractor's expense and the whole retested until found satisfactory.

The Contractor shall provide all necessary testing apparatus, temporary end caps, plugs, stoppers, special taps and any other materials that may be required, and all labour for carrying out the tests.

EXCAVATIONS FOR PIPE TRENCHES: — Excavations for pipe trenches, gully traps, manholes, inspection chambers, valve, chamber, soakpits and septic tanks shall be to the

depth and gradients shown on the drawings using sight rails and boning rods and shall include for taking precautions against collapse of sides of excavations, staging, pumping and baling to keep the excavations free from water or mud and for filling in and ramming.

The bottoms of pipe trenches are to be excavated to even falls. The barrel of the pipe, except where it is laid on a sand or concrete bed, must rest on solid ground and hand-holds of sufficient size must be cut under pipe joints to enable the jointing and filleting to be properly performed. Any excavations taken out deeper than required shall be made up to the correct grade with well rammed earth. In intermediate or hard rock excavation and where a bedding is not specified, the trench bottom must be excavated 100mm deeper than required for the grade and be backfilled with well rammed earth.

The Contractor is to notify the Department when the trenches are ready for inspection and approval. Any work put in hand before approval has been given shall, if so required, be replaced with new at the Contractor's expense.

Notwithstanding such approval of the trench bottoms, any excavations which become waterlogged or otherwise spoilt after approval, shall be cleaned out and reformed at the Contractor's expense and to the satisfaction of the Department before any piping or sand or concrete beds are laid.

Depths of excavations as approved shall be checked and recorded by a Departmental Official and the Contractor before excavations are filled in.

For the purpose of any measurement, whatever size may have been excavated, excavations are taken as follows: — Trenches not exceeding 0.75m deep shall be taken 0.5m wider than the internal diameter of the pipe. This width shall be increased by 75mm for each successive depth of 0,75m to a maximum of 1m wider than the internal diameter of the pipe.

BACKFILLING: — No trench shall be backfilled until the Department is satisfied that the works therein have been satisfactorily completed, tested and are ready for backfilling.

The backfilling around and 300mm above the pipe is to be of approved selected material, imported if necessary, free from rock or stone, carefully packed, watered and lightly rammed equally on either side of the pipe and then filled in above this level with suitable material from the excavations, watered and compacted in layers not exceeding 300mm thick with the top 300mm consolidated to dry density of not less than 95% MOD. A.A.S.H.O. density. Topsoil from the excavation is to be set aside and used in the final layer of backfilling.

Any disturbance of or damage to the pipes during backfilling must be made good by the contractor at his own expense.

All spoil from the excavations for trenches, etc. shall be deposited and levelled on site or carted away as directed. Any subsidence or depressions below the level of the adjacent ground shall be filled in, as and when necessary, until the end of the maintenance period.

SIZES OF PIPES: The diameters stated for galvanized mild steel piping, cast iron piping, vitrified clay piping and asbestos cement pressure piping (C.I.D.) are the nominal internal diameters. The diameters stated for all other pipes are nominal external diameters.

In the case of piping and fitting which are manufactured in imperial diameters, the size nearest the metric equivalent must be used.

RATES FOR PIPES: — Rates for all pipes, gutters, channels, etc. are to include for couplings in running lengths, joints, short lengths and cutting and fixing as required. Rates for mild -steel pipes shall include for all plain sockets and nipples. Where fittings have reduced ends or branches the fittings are described as "reduced" and the largest end or branch has been stated. The Contractor may use equal fittings with reducers or bushings if he so desires, but no claim for extras in this connection will be entertained.

Rates for pipes fixed to walls, soffits of slabs, roof timbers, etc. are to include for all

brackets, holderbats, pipe clips and approved extended hangers where pipes are required to be laid to falls and for plugging and screwing or for cutting and pinning or building in tails of holderbats.

Rates for piping are to include for cleaning down at completion, and in addition, the rate for stainless steel piping is to include for polishing exposed piping, all to the approval of the Department.

RATES FOR CHASES, HOLES ETC.: — are to include for making good to approval. The term “hole” is to include for sleeves where required through concrete work.

FIRE EXTINGUISHERS: — Where specified, carbon dioxide gas type fire extinguishers shall be 2.26kg type, complying with SANS Specification 889 and fixed in position on wall brackets screwed to and including 20mm thick chamfered and oiled wrot hardwood backboard, size 450mm x 100mm screwed to plugs in wall.

Where specified, dry powder type fire extinguishers shall be of 10 litre capacity, complying with SANS Specification 810 and fixed as before described on backboard size 1000mm x 200mm.

FIRE HOSE REELS: — shall be non-swinging rotary fire hose reels, complying with SANS Specification 543, with solid side discs and 25mm waterway at bracket incorporating rotary pressure joint to hose connection at hub and fitted with 25mm screwed malleable iron ‘Sanders type A’ valve with “S” grade diaphragm, connection for supply pipe with the handwheel clearly marked in red with arrows and the words “OPEN”, “OOP”.

The reel is to be secured to the wall with and including three steel anchor bolts and fitted with 30m length of 20mm internal diameter best quality reinforced red rubber non-kinkable hose with one end fixed to wheel hub connection and the other end fitted with 20mm chromium plated gunmetal adjustable “Centorium” type nozzle with hose threaded through and including chromium plated hose guide, designed to permit the hose to run out in any direction and the nozzle supported on and including chromium plated bracket fixed to wall.

For ease of removal, a union shall be installed between the valve and the reel.

FIRE HYDRANTS: — shall be of the wheel valve pattern with instantaneous coupling outlets, size 63.5mm or 70mm as stated on the drawings. Hydrants fixed in a horizontal position shall have oblique angle outlets and those fixed in a vertical or inclined position shall have right angle outlets. The materials used in the manufacture of the hydrants shall be as laid down for the manufacture of couplings, branch pipes, etc. in SANS Specification 1128, and the various requirements of instantaneous couplings and dimensions for 70mm outlets shall comply with the requirements for Morris instantaneous pattern couplings.

The valve spindle shall have a minimum diameter of 22mm with swivelling clack at one end fitted with first quality dexine or other approved washer, bedded on to a raised seat not less than 6mm wide, and the other end shall be machined to form a square shank of 15mm minimum thickness and a length corresponding with the thickness of the boss of the handwheel, the portion protruding from the boss shall be threaded and fitted with a washer and nut to hold the handwheel firmly in place. Valve inlet shall be male screwed 80mm Whitworth pipe thread, and outlet shall be fitted with approved India-rubber coupling gasket. The internal diameter of the valve body shall be not less than 95mm in the case of 63.5mm outlets or 100mm in the case of 70mm outlets.

The valve hand wheel shall have an overall diameter of 165mm and the rim shall be of oval cross-section and shall have the words “OPEN” and “OOP” together with direction arrows embossed on the face.

All hexagonal faces shall be machined and all exposed surfaces of the valve and the wheel periphery shall be buffed and polished. Parts of the wheel not polished shall be painted two coats bright red high gloss paint.

The completed hydrant valve shall be guaranteed hydraulically tested by the manufacture to a pressure of 35 bar and shall be badged or stamped accordingly with the manufacturer’s

name or symbol and the words "TESTED 35 bar".

16. **GLAZING**

MATERIALS: — Glass shall conform to the requirements of the relevant current British Standards Specification for the respective materials.

Clear glass shall be float quality glass.

Silvered glass mirror to comply with SANS Specification 1236 Class A.

Toughened safety glass is to be "Armourplated" float quality safety glass of the thickness specified and as manufactured by Armourplate Safety Glass (Pty) Ltd. or other approved, and glazed to sashes, etc. in strict accordance with the manufacturer's instructions.

All toughened safety glass is to have the manufacturer's name or motif sand-blasted in one corner of each pane.

Laminated safety glass is to be float quality normal strength glass, unless otherwise stated, and of the type specified and as manufactured by Shatterprufe Safety Glass Co. (Pty) Ltd., or other approved, and glazed to sashes, etc. in strict accordance with the manufacturer's instructions.

All laminated safety Glass is to have the manufacturer's name or motif sand-blasted in one corner of each pane.

All glass is to be free from imperfections and is to be left in a thoroughly clean condition on completion.

No glazing is permitted in Patient Treatment area's below 1 (one) meter.

GLAZING: — The glazing and fixing of glass in buildings shall be in accordance with SANS Code of practice 0317.

Glass panes shall have adequate glazing clearance between edges of glass and the rebates.

Putty for glazing shall comply with SANS Specification 680 type 1 for glazing in wood and type 2 for glazing in steel. Putty for glazing in natural finished wood shall be tinted to match the colour of the wood. Putty to be mixed with a hardener to allow for painting within +/- 3 days. Putty for glazing in aluminium windows shall be tinted to match the aluminium or anodised aluminium where required.

All rebates, other than those in natural finished hardwoods, are to be primed before glazing. Glass fixed with glazing beads shall be well bedded in back putty in the rebates.

Putty shall be carefully trimmed and cleaned off with front putty worked to within 3mm of the sight lines.

RATES: — Rates for glass generally shall include for preparing the rebates, etc. all putty, spigs, clips, etc. as required and all cutting.

Rates for toughened and laminated glass shall include in addition for all necessary spacing and setting blocks in accordance with the manufacturer's requirements.

17. **PAINTING**

MATERIALS: — Proprietary materials where specified are to be of the brand specified or other approved by the Department.

All primers, emulsion paints, enamels, stains, varnishes, etc. are to comply with the relevant SANS Specification.

Paints, etc. shall be suitable for application on the surfaces to which they are being applied and those used externally shall be of exterior quality or suitable for exterior use.

For any particular work the priming coat and subsequent coats of paint are to be executed with paints from the same manufacturer and in accordance with that manufacturer's instructions.

The materials are to be brought to the site in unopened containers and no adulteration will be permitted, except thinners of a quantity and quality directed by the manufacturer.

The Department shall at all times be permitted to take samples for testing purposes from open containers of any brand of paint being used on the work.

All materials, if and when required by the Department, will be subject to tests by the South African Bureau of Standards, and the cost of such tests, should the material under test not meet the requirements of this specification, shall be borne by the Contractor. Fillers and stoppings are to be suitable for use with the material being filled or stopped and to the approval of the Department.

PREPARATORY WORK: — All new and existing surfaces are to be thoroughly dry and are to be cleaned of all dust, dirt, grease, oil, rust, scale, efflorescence, fungus, loose or flaking material, etc. rubbed down, stopped, filled, knotted and sanded smooth as required in accordance with the paint manufacturer's recommendations and to the approval of the Department prior to the application of paint, etc.

Ceilings are to have nail heads, including those to cornices and cover strips, primed and stopped up as necessary and rubbed down smooth.

Asbestos cement shall be primed with an approved alkali resistant primer before the application of subsequent coats which are not, in themselves, alkali resistant.

Iron, steel and other ferrous metals shall be cleaned in accordance with SANS Code of Practice 064 to remove rust, scale, grease, oil, etc. and the surface brought to a bright metallic condition.

Galvanized iron and zinc shall be cleaned in accordance with SANS Code of Practice 062 to remove the manufacturer's temporary protective coating, white rust, etc.

Other non-ferrous metals shall be thoroughly cleaned to remove all milling oils, temporary protective coatings, etc. and the surface abraded with fine water-paper and white spirit.

Woodwork to be painted shall have all knots and resinous areas treated with an approved knotting, the surface shall then be primed and all holes, etc. stopped and rubbed down smooth,

Woodwork to be oiled, stained, varnished, etc. shall be free of all stains, pencil marks and other surface discolorations and all holes, etc. stopped with tinted stopping and rubbed down smooth.

In preparing existing glazed sashes and sash doors, all loose putty is to be removed, the rebates primed and glass re-sprigged and re-puttied as necessary before the painting is commenced.

Previously distempered or lime washed surfaces to receive any other type of paint, are to have the existing distemper or lime wash completely removed by scraping or wire brushing and the surfaces treated with an approved bonding liquid.

Where existing paint film are in good condition any flaking or bared patches are to be properly feathered into the surrounding paint and spot primed as necessary.

Where existing paint films are in poor condition and require to be removed completely, they are to be removed by means of wire brushing, paint remover, burning off, or other approved method. Paint removers shall be free of wax and caustic substances and shall preferably be of water rinseable type. When burning off paint from wood, care must be taken to avoid charring the wood.

The final state of preparatory work to existing decorated surfaces shall in all cases produce in the finished decorated surfaces a condition similar to new work.

The Contractor will be held responsible for the proper and adequate preparation of the surfaces and any work which fails to meet the manufacturer's recommendations must be made good at the Contractor's expense to the satisfaction of the Department.

APPLICATION OF PAINTS, ETC.: — Painting may be carried out by brush, roller or spray as recommended by the manufacturer and to the approval of the Department. All paints, etc. are to be applied in strict accordance with the manufacturer's instructions. Each coat of paint is to be adequately and permanently keyed onto the previous coat or surface and shall be evenly distributed and continuous and shall dry to a smooth film, free from sags, runs or other imperfections. Each coat of paint is to be of a colour distinctive from previous or succeeding coats.

All painting must be done in accordance with a colour scheme which will be provided by the Department, and rates for painting etc. are to include for all cutting in of contrasting colours and masking as required. No distinction has been made where more than one colour of the same material is required on the walls or ceiling of the same room.

Samples of colours for the final coats are to be prepared in all cases to the approval of the Department and all work must be finished to the approved colours.

Backs of wood door and similar frames and the surfaces of other new or prefixed joinery in contact with brickwork, etc. and built in as the work proceeds, shall be primed or sealed before building in to prevent moisture seeping into the wood from the mortar bedding.

Tongued and grooved and rebated edges of boards in batten doors and other such like inaccessible parts of new joinery shall, before assembly, be primed, or where the joinery is to receive a finish other than paint, be given one coat of such other finishing material.

All new external structural timbers shall be primed before the timbers are fixed in position and shall include all surfaces such as backs of fascias and barge boards.

RATES: — Rates for painting, etc. are to include for all preparatory work, and where spraying is employed, are to include or adequately masking all surrounding areas.

Where diameters of pipes are stated these are the nominal internal diameters, and rates for painting pipes are to include for painting the holderbats, hangers, clips, etc. supporting the pipes.

Rates are to include for providing all necessary dust sheets, covers, etc. taking all necessary precautions to prevent marking the surfaces of joinery, walls, floors, glass, electrical fittings, etc. All surfaces disfigured or otherwise damaged shall be completely renovated or replaced as necessary to the approval of the Department at the Contractor's own expense.

18. ROADWORK

The Contractor is referred to the preambles for "Earthworks" with particular reference to the full description, intent and meaning of the classification for excavations and the preambles for "Concrete, Formwork and Reinforcement"

The construction of the roads is to be carried out by an approved Specialist Sub-Contractor in accordance with the following specifications and all to the approval of the Department.

SUB-GRADE: — All materials placed in the sub-grade layer which is defined as being the 150mm thick layer immediately below the sub-base or the base course (where no sub-base is specified), shall conform to the following specification: —

- (a) Minimum C.B.R. at 93% Mod. A.A.S.H.O. density = 10 %
- (b) Maximum C.B.R. Swell = 1.5 %
- (c) Maximum Plasticity Index if:
 - more than 30% passes the 2mm sieve = 12
 - less than 30% passes the 2mm sieve = 16

The sub-grade layer in cut areas shall be treated in place either to achieve a uniform standard of compaction or to break up undesirable formations of hard rock.

In the case of materials other than hard rock, treatment in place shall consist of scarifying or otherwise loosening to a depth of 150mm and re-compacting to a density of 93 % Mod. A.A.S.H.O. where directed, with the material stabilised in place before compacting.

In hard rock, treatment in place shall consist of thoroughly loosening to a depth of 450mm by rip in or blasting and then sized by rolling or knapping until the maximum dimension of any spall shall be not more than 300mm.

Compaction of the rock in the sub-grade shall be achieved by spreading and sorting by bulldozer to a reasonable uniform thickness with sufficient fine material added to fill the voids and bind the surface.

Compaction shall be achieved by means of a vibratory roller until the Department is satisfied that the mass is sufficiently dense, to provide a stable sub-grade layer.

Density tests shall be carried out at the minimum rate of one test per every 500m² of sub-grade area or not more than 50m apart but not less than four tests for smaller areas and shall assess the full layer thickness. The costs of such control tests shall be included in the Contractor's rate for sub-grade treatment. The Department may; at its discretion, arrange for independent check tests to be performed, but the costs of the tests in this instance will be borne by the Administration.

Processing of the material will be measured under the relevant items. An approved total weed killer shall be applied during the formation of the sub-grade. The rate of application shall be in accordance with the manufacturer's specification.

Rates shall include for the supply, delivery, spreading and stabilisation with lime, if required, and compacting and shaping to correct lines and levels.

The lime and method of mixing and watering shall be as described in the specification for stabilisation.

SUB-BASE: — All material placed in the sub-base layer, which is defined as being that layer of 150mm thickness immediately below the base course layer, shall conform to the following specification: —

	Unstabilised	Stabilised
Minimum C.B.R. at 95 % Mod. A.A.S.H.O. density	70%	50%
Minimum C.B.R. Swell	0, 5%	0, 5%

Maximum Plasticity Index	10	10
Minimum Liquid Limit	35%	35%
Maximum size of aggregate	63mm	63mm
Material passing the No. 75 micrometer sieve shall not exceed		25 %
Minimum relative compaction in place	95 % Mod. A.A.S.H.O.	

Combined coarse and fine sand density fractions shall exceed 35 % of the soil mortar

Unless otherwise specified, the responsibility for obtaining material that conforms to the above specification rests with the Contractor who will be required to perform his own tests to prove compliance, and to submit samples to the Department before the material is delivered on site. Further control tests will be required by the Department during the placing and compaction of the material, the locations of which will be selected at random.

Should the Contractor wish to use material from the site excavations, he shall first obtain the approval of the Department. His rates shall in this case include for the selection and stockpiling.

Density tests shall be carried out at the minimum rate as specified for the sub-grade layer.

The layer shall be finished off to present a uniform texture and tightly bonded surface.

Rates shall include for the supply, delivery, spreading and stabilisation with lime, if required, and compacting and shaping to correct lines and levels.

The lime and method of mixing and watering shall be as described in the specification for stabilisation.

The finished surface shall be within 20mm of the design level. The finished width shall not be less than the design width. The average of five thickness tests at the rate of one test for every 200m² of surface shall not be less than 150mm and at any point not less than 130mm.

The surface finish when measured under a 3m straight edge shall have no slacks or bumps greater than 5mm.

The cost of the density control tests shall be included in the Contractor's rate for sub-base construction. The Department, at his discretion, may arrange for independent check tests to be conducted, and the costs in these instances will be borne by the Administration.

STABILISATION: — The stabilisation agent shall be slaked lime of the calcium type conforming to the requirements of SANS Specification 824.

The rate of application shall conform to the design rate and all materials to be stabilised shall be approved by the Department before processing.

The material shall be spread in a uniformly thick loose layer over the full area and thoroughly dried by scarifying or blading with a grader to ensure exposure to the air of all particles and to ensure thorough mixing to obtain a uniform grading of the material. When the material has been approved as being ready for stabilising it shall be lightly rolled to facilitate the spreading of the lime. The lime shall be evenly applied to the surface, preferably by mechanical spreader, at the specified rate and thoroughly mixed by rotavator or disc harrow until a uniform integrated mixture of uniform colour is obtained over the full depth of the layer.

Before mixing is commenced, the Contractor shall satisfy the Department that the lime has been applied at the specified rate.

Immediately after the lime has been mixed in, water shall be added in small increments by suitable watering equipment and mixed into the layer until the required water content has been obtained which shall not exceed the Mod. A.A.S.H.O. optimum plus 2%:

The efficiency of the spreading and mixing shall be measured by Lime Determination Test according to A.S.T.M.D. Test Number 3155/1973 or the California Test Method No. 338-B July 1996. Only where the result from every 15 tests at locations selected by the Department indicate that more than 90 % of the layer has a lime content exceeding 60 % of the nominal lime content will the work be accepted, provided that the coefficient of variation shall not be greater than 25%.

The test positions shall be spaced at one for every 100m² of surface area, but shall not be spaced, greater than 20m apart

BASE COURSE: — When the sub-grade has been prepared and approved, the base course, consisting of one of the following, shall be formed to the compacted thickness specified.

Crusher Run Base Course

Crusher-run base course shall be fresh dolerite, hard blue tillite, quartzite, fresh granite, fresh basalt or other stone which meets the following specifications.

TABLE F: CRUSHER RUN BASE COURSE: STONE SPECIFICATIONS

Sieve Size	% Passing
37.5mm	100
26.5mm	82 - 95
19.1mm	70 - 85
13.2mm	58 - 75
4.75mm	34 - 55
Sieve Size	% Passing
2.00mm	22 - 40
0.425mm	10 - 25
0.075mm	5 - 12

Minimum C.B.R. @ 98% Mod. A.A.S.H.O. density		80%
Maximum C.B.R. Swell		0, 5 %
Maximum Liquid Limit		25
Maximum Plasticity Index		4
Maximum Linear Shrinkage	2	
Minimum Sand Equivalent Value		30
Maximum Flakiness Index	35	
The soundness of the aggregate shall be such that after 5 cycles using Magnesium		

Sulphate it shall not show a loss of more than 15% by weight.
 The maximum Aggregate Crushing Value should not exceed 30.
 The moisture content used for field compaction shall not exceed the Mod. A.A.S.H.O. optimum plus 2 %.

Natural Ground Base Course

Natural ground base course shall be approved stone which meets either of the following specifications.

Natural Gravel (Unstabilised)	
Minimum C.B.R. at 98% Mod. A.A.S.H.O.	80 %
Minimum C.B.R. Swell	0.5 %
Group Index value	0
Maximum Plasticity Index	4
Maximum Liquid Limit	35
Maximum Linear Shrinkage	2
Minimum Sand Equivalent Value	30
Maximum size of particle	53mm

Material passing No. 75 micrometer sieve shall not exceed 25 %

The combined coarse sand and coarse/fine sand fraction shall not exceed 35 % of the soil mortar

Natural Gravel (Stabilised with Lime)

Lime must comply with SANS Specification 824 Minimum C. B .R. at 98% Mod. A.A.S.H.O. density,	160	140	120
provided that the minimum C.B.R. before stabilising, at 95 % Mod. A.A.S.H.O. density	30	45	60
Maximum C.B.R. S well			0, 5%
Maximum Plasticity Index	4		
Maximum particle size	2/3 layer thickness		
Maximum percentage passing No. 75 micrometer sieve	25		
Grading Modules	1, 5		

The responsibility for obtaining suitable base course material complying with the above rests with the Contractor, unless otherwise specified, and the provisions for sub-base material in regard to tests, etc. to prove compliance with the specification shall apply to the base course.

During construction, the base course shall be evenly distributed over the sub-grade. The stone shall then be rolled with a 4 to 5 tonne roller or equal unless otherwise instructed. After a few passes of the roller the surface shall be checked for shape camber and levels and all depressions filled in. Rolling and trimming shall continue until the surface is true to required levels and falls.

Minimum density in place after compaction shall be 98% Mod. A.A.S.H.O. density.

CHIP AND SPRAY SURFACING

Binders

One of the following may be used: —

M.C. 3000 Bitumen to SANS Specification 308 (150/200 Pen.)

M.C. 800 Bitumen to SANS Specification 308 (150/200 Pen.)

RTH 45 / 50 Tar to SANS Specification 748 Spray-grade 60% emulsion where approved or specified by the Department. If emulsion is used then the specified application rates shall be increased to give the required net bitumen content.

Cover Aggregate

All Cover aggregate used in the surface treatment shall be washed 13.2mm nominal sized crusher stone in accordance with SANS Specification 647.

Aggregate Crushing Value shall not exceed 15.

Binder shall be applied after the prime coat has dried completely and all tackiness has vanished.

The binder is to be applied by means of a distributor at a rate of 1.1 litre/m² followed immediately afterwards by the spreading of a cover aggregate of 13.2mm stone at the rate of 125m² / m³. The aggregate is to be spread by means of an approved chip spreader; band spreading will only be permitted in those areas inaccessible to the spreader. The aggregate is to be rolled immediately with two passes of a pneumatic tyred roller. When the binder has set the surface shall be drag-broomed twice in each direction and then rolled again with four passes of the roller during the heat of the day or until the aggregate is firmly keyed into a tight surface.

DOUBLE SEAL COAT WITH BLACK TOP SURFACING: — The prime and first seal coat shall be applied as previously specified.

After the first seal coat has been drag-broomed and rolled as previously described, the binder shall be applied to the surface at a rate of 0.8 litre/in² followed immediately by the spreading of 6.7mm stone chips at the rate of 150m²/m³. This stone aggregate shall then be drag-broomed and rolled as previously described.

A seal spray having a net bitumen content of 0.7 litre/in² shall then be applied to the surface when this coat has dried completely, and shall be rolled to firmly bed any loose aggregate.

If the surface is to be opened early to traffic, it shall be covered very lightly with sand or crusher dust distributed evenly with a hessian drag and back rolled with wet wheels before opening to traffic.

SLURRY SEAL SURFACING: — The aggregate for slurry seal shall conform to the following grading: —

Sieve Size (mm)	Percentage Passing
4, 75	100
2, 36	90—100
1, 18	65—95
0, 600	42—72
0, 300	23—48
0, 150	10—27
0, 075	5—12

Slurry sand shall be crusher sand with a minimum sand equivalent of 35.

Binder — Stable grade emulsion (60%)
Anionic to SANS Specification 309
Cationic to SANS Specification 548

Consistency of the slurry shall consist of 90% crusher sand, cement filler not less than 1% and net binder content of not less than 9% by weight. Water to be added as required. As a guide, approximately 300 litres of emulsion and 160 litres of water are required per cubic metre of slurry.

The slurry shall be machine mixed and wherever possible applied by means of a spreader box. The rate of application shall be $170\text{m}^2/\text{m}^3$. The slurry shall be of a creamy, homogeneous mixture, free of lumps, and if the mixture shows signs of breaking before application to the surface it shall be discarded.

After the first seal has been approved by the Department, but before the application of the slurry, a fog spray comprising of a solution of 1 part emulsion to 3 parts water shall be applied at a rate of $0.8\text{ litre}/\text{m}^2$ to cover the aggregate. The application of the slurry may commence when the fog spray has been applied to assist with the spread of the slurry and to smooth out squeegee marks the slurry shall, immediately after being applied and before it has broken, be smoothed by a damp hessian drag either attached to the spreader box or pulled over by hand.

After the slurry has set it shall be covered by two passes of a pneumatic-tyred roller during the heat of the day.

The permissible variation in the application of the slurry shall not vary from the specified rate by more than 10%.

PREMIX TARMACADAM SURFACING

Prime Coat

When the base course is complete and dry it shall be cleaned of all loose material and be given a prime coat of one of the following primers: —

M.C. cut-back bitumen.

Tar Primer R.T.H. 3/P.

Emulsion Primer (60%).

The rate of application of the primer shall be within the range $0.65\text{—}1.0\text{ litre}/\text{m}^2$, the actual rate to be determined by test and observation on site. Where emulsion primer is used, the application rate shall be increased to give the required nett bitumen content.

Hand spraying shall be used only in those areas inaccessible to mechanical distributors. Before spraying is commenced, the surface shall be lightly watered to settle dust.

Single Coat Premix Tarmacadam

When the prime coat has dried the single coat premix wearing course, of the compacted thickness specified, shall be constructed.

The wearing course shall be Type A (Hot Mix), unless otherwise specified or approved by the Department, and shall conform to the following specification: —

TABLE G: SINGLE COAT PRE-MIX WEARING COURSE: SPECIFICATIONS

	Screen Size mm	A Hot Mix	B Hot Mix	C (Kerbs)

Aggregate	26.5	100	-	-
Grading	19.0	100	-	-
Per Cent	13.2	80 - 100	100	-
Passing	9.5	70 - 90	80 - 95	100
	6.7	-	60 - 75	90 -
	4.75	50 - 70	45 - 60	100
	2.36	35 - 50	28 - 42	65 - 75
	1.18	27 - 40	18 - 30	52 - 62
	0.6	19 - 30	7 - 20	50 - 60
	0.3	13 - 23	2 - 10	45 - 55
	0.15	8 - 16	0 - 5	30 - 40
	0.075	4 - 10	0 - 4	9 - 19 4 - 8
Grade Binder		60 / 70	Emulsion	60 / 70
Nominal Nett Binder Content		5.5 % +/- 0.38	4.75 % +/- 0.3	5.5 % +/- 0.3

Penetration grades to comply with SANS Specification 307.

Cut-back bitumen to comply with SANS Specification 308.

Maximum heating temperature of bitumen 170°C.

Delivery temperature at the paver for hot mixes 130—160°C.

For every 500m² of area paved the Contractor shall produce an extraction test result from a sample taken during laying operations showing grading and bitumen content of the premix carpet. The test as specified or any further tests to prove compliance with the specification shall be at the Contractor's expense.

In order that the stone and binder shall be properly mixed, this operation must be carried out in a pug-mill mixer or by hand with shovels and wheelbarrows or on metal plates, in which case the binder must be added in the correct proportions in small quantities. Mixing shall continue until the aggregate is uniformly coated with the binder. Bituminous surfacing shall not be carried out in rainy weather nor when atmospheric shade temperature is below 10°C. Immediately after mixing, the surfacing materials must be spread and rolled on the same day. Spreading shall be done evenly over the base to ensure a consolidated thickness as specified and shall be performed by means of a mechanical spreader or by a drag spreader, or by hand, using rakes and screeds.

Where hand spreading is used, the premix must not be dumped on the base, but taken from the boards on barrows by shovel and then evenly distributed over the base. Hand raking must be reduced to a minimum to avoid segregation of aggregate. Rolling shall commence as soon as the binder has set sufficiently and, unless otherwise instructed, this shall be done with a 4 to 5 tonne roller or equal.

Places inaccessible to a roller may be compacted by means of 12kg tampers. The surface shall be rolled true to line and level without slacks or irregularities.

After three days the rolling shall be repeated during the hottest part of the day and a light application of fines may be added during the final rolling.

Premix Tarmacadam Kerb

Premix kerbs are to be Type C as specified above and constructed to give the following compacted size: —

Width at top	125mm
Width at base	230mm

Height

150mm

PRE-CAST CONCRETE PAVING BLOCKS: — shall be of the type, class and thickness specified, of approved colour and shall comply with SANS Specification 1058. Paving blocks which fail to meet these requirements must immediately be removed from the site and replaced at the Contractor's expense to the satisfaction of the Department.

Paving blocks shall be one of the following types as specified: —

Type S-A: — allows geometrical interlock between all vertical faces of adjacent blocks,

Type S-B: — allows geometrical interlock between some vertical faces of adjacent blocks.

Type S-C: — allows no geometrical interlock between vertical faces at adjacent blocks.

Paving blocks shall be one of the following classes as specified: —

Class 25: — average compression strength of at least 25 MPa.

Class 35: — average compression strength of at least 35 MPa.

Paving blocks are to be laid to approved patterns as specified and in accordance with the relevant clauses (excluding Clause 8) of SANS Specification 1200 MJ on and including a sand bed of the compacted thickness specified. After laying, the paving blocks are to be compacted by means of a vibrating plate compactor with the joints filled in, after compaction, by sweeping in jointing sand.

Sand for bedding shall conform to the following grading: —

Sieve size (mm)	Percentage Passing
9, 52	100
4, 75	95-100
2, 36	80-100
1, 18	50-85
0, 60	25-60
0, 30	10-30
0, 15	5-15
0,075	0-10

Sand for jointing shall pass a 1.18mm sieve and shall contain 10-50% of material that passes a 0,075mm sieve.

Spaces constituting less than 25% of a full block unit and of 25mm minimum dimension at perimeter edges of pavings against kerbs, buildings, inspection chambers, etc. are to be filled with Class B concrete trowelled to a smooth even surface to match paving blocks.

Rates for paving block pavings are to include for all straight cutting and waste, all half blocks at straight edges, filling with concrete as described, fitting, protecting from injury and cleaning down at completion.

KERBS

Generally

The kerbs are to be laid before the base course is commenced to the lines and positions as shown on the drawings. The Contractor is to allow sufficient time for the mortar bedding and joints to set and is to take all necessary precautions to maintain the line of the kerbs especially while rolling the base course and surfacing, as no claims in this connection will be considered.

Rates for kerbs are to include for necessary excavation, well consolidated bottom under kerbs and for filling and ramming to secure the kerbs in position.

Pre-cast Concrete Kerbs

Pre-cast concrete mountable kerbs as SANS Fig8 are to be of concrete Class 20 (20 MPa) and of the sizes described in the items, cast generally in 1m lengths, and finished smooth off the mould on top edge and both sides, with angles rounded, and rates are to include for all necessary formwork and moulds. The kerbs are to be bedded on and including a mat of

1:3 cement mortar, and the abutting ends of the kerbs are to be fully jointed in a similar mortar and pointed with a keyed-in joint on top edge and exposed sides.

Brick on edge kerbs

Brick on edge kerbs are to be of extra hard burnt bricks of the colour specified. The kerbs are to project 10mm above the finished tarmac level and are to be bedded on a mat of 1:4 cement mortar, and the abutting ends of bricks are to be fully jointed in a similar mortar and pointed with a keyed-in joint on top and exposed sides.

19. FENCING AND GATES

GENERALLY: — The Department shall be responsible for the initial location and exposure of all necessary boundary beacons and their indication to the Contractor at the site handover. The Contractor shall be responsible for subsequently ensuring that these beacons remain undisturbed and that the fencing is correctly aligned between boundary beacons. Should, during setting out of the further boundary beacons be uncovered or located and reasonable doubt arise regarding the correct alignment of fencing, then the Contractor shall be responsible for immediately notifying the Department, in writing, of such doubt, in order that the setting out may be checked and rectified, if necessary.

All bushes, trees, old fencing, rocks, debris, long grass and other obstructions shall be removed from the fencing line to produce a clear even strip 500mm wide on either side.

Trees, rocks or other items of horticultural or archaeological interest that are not to be removed will be indicated by the Department.

Straining Posts: - shall be erected at ends, corners and intermediately at not exceeding 30m centres with standards or intermediate posts erected between posts at not exceeding 3m centres.

Where fences are erected directly over boundaries, corner beacons shall be preserved by splaying the corner by planting two straining posts, each with one stay, 1 m from the beacon peg.

Security fences (i.e. fences with projecting overhangs if specified) shall be sited 350 mm back from the boundary line so that the end of the overhang is exactly on the boundary line.

SECURITY FENCING:

2.3m High security fencing shall consist of: -

- 1) Straining and Intermediate Posts (2.9mtr long).
- 2) Stays (2.6mtr long).
- 3) Welded mesh fencing (1.8mtr high).
- 4) Razor wire.
- 5) Concrete ground beam.
- 6) Tubular steel gate posts (when specified).

Straining and corner posts shall be 150mm \varnothing x 3mm wall thickness steel tubing, in lengths as specified, with upper end capped and 3mm thick x 300mm x 300mm footplate welded to base. The whole shall be **hot dipped galvanized**. 80mm diameter stays x 3mm wall thickness shall be secured to posts with galvanized bolts. Straining posts to be positioned at maximum 30mtr c/c. Bottom of posts bedded in concrete to be painted with bitumen paint prior to erection. Where holes have to be drilled on site, drilling shall be cold galvanized before corrosion sets in.

Intermediate posts shall be 2.9mtr long x 100mm x 100mm square pre-stressed, precast concrete posts with top end splayed, spaced at maximum 3mtr apart. Stays for posts shall be prestressed reinforced concrete members of 75mm x 75mm x 2.6mtr long, splayed at the top end, with a 10mm \varnothing x 50mm long galvanized steel pin attached to fit into a drilled hole in the upright and bonded to posts with approved epoxy.

Fence shall comprise of galvanized rectangular welded mesh fencing 1,80mtr high x 3.15mm \varnothing x 25mm x 50mm rectangles fixed to 8 gauge or 3.15mm diameter – as

specified - hardened galvanized steel straining wires x 5, spaced vertically at 450mm ϕ . Welded mesh shall be secured to straining wires with 2mm ϕ galvanized tying wire spaced at a maximum of 250mm between ties. Fencing overlap to be a minimum of 150mm.

Straining wires shall be fixed to posts with doubled strands of 2mm ϕ galvanized tying wire, pulled tight around posts and wound tightly around the straining wires.

Coils of 500mm ϕ galvanized flat wrap razor wire shall be fixed vertically above the welded mesh to a height of 450mm above the top of the welded mesh. Razor wire shall be supported on and fixed to three strands of galvanized double strand barbed wire. Barbed wire shall be fixed to the posts in the same manner as the straining wires.

Razor wire shall be fixed to the barbed wire at every intersection and laced to the concrete posts with galvanized tying wire.

A 250mm wide x 150mm minimum depth concrete ground beam of 15mpa strength shall be excavated for and cast along the entire length of the fence. Shuttering for the ground beam sides shall be provided as required. Finished level of the ground beam shall be 50mm above final ground level at the highest point, finished in a straight line both vertically and horizontally. 75mm of the welded mesh fencing and the bottom straining wire shall be embedded in this ground beam to secure the lower fence line. The top of the concrete beam shall be shaped to allow water to run off the top of the beam to prevent water collecting and standing on top of the beam.

At any change in direction of the fence line, two 150mm ϕ x 3mm wall thickness straining posts shall be erected with bottom ends embedded in a common concrete base with each post stayed separately.

Concrete bases for posts shall be Class B (1:3:5-19mm stone) size 400 x 400 x 500mm deep, unless otherwise specified, with tops of bases 100mm below ground level.

When required, gateposts shall be supplied in steel tubing complying with CKS 82, 150mm ϕ x 5mm wall thickness, in lengths as specified, with upper end capped with 1.6mm thick pressed mild steel domed cap welded on and 3mm thick x 300mm x 300mm footplate welded to base. Gateposts are to be drilled and fitted with mild steel ferrules welded into position to receive 20 mm ϕ mild steel hinges. Threaded 12 mm ϕ studs or approved stay collars are to be fixed on to the posts to locate and secure the top ends of stays. The whole shall be hot dipped galvanized. Where holes for the threading and fixing of straining wires are required, holes shall be drilled on site and cold galvanized on completion. Stays shall have the top end flattened, bent as required, holed 12 mm ϕ for bolting to post and the whole hot dip galvanized.

Mild steel tubing for gate components shall comply with SANS Specification 657 Part 1. The diameters specified are the nominal external diameter of the tubing.

Straining wire: - shall be as specified, or either Type 1 galvanized wire of 3,15 mm diameter or Type 2 PVC coated galvanised wire with 3, 15 mm diameter core wire PVC coated to an overall diameter of 3,95 mm. Stainless steel straining wire when specified shall be 2,50 mm diameter A.I.S.I. Type 304 stainless steel, strained between posts and tied to same at terminal ends by turning each wire twice around the post and tying off by twisting it a minimum of three turns around the strained wire.

Binding or Tying wire: - shall be as specified, either Type 1 galvanised wire of 2 mm diameter or Type 2 PVC coated galvanised wire with 2 mm diameter core wire PVC coated to an overall diameter of 2, 80 mm.

Galvanized barbed fencing wire: - shall consist of two strands of 1, 60 mm diameter high tensile steel wire twisted together with barbs at 125 mm centres and each row of barbed wire shall be strained between posts and tied to same at ends by turning each wire around the post and tying off by twisting it a minimum of three turns around the strained wire.

Galvanising: - shall comply with SANS Specification 763 and all items of posts, stays, gate

framing, etc., described as galvanised shall be hot dipped galvanised after fabrication with Class A galvanising with all internal and external surfaces fully coated.

GATES: — Generally single gates and double gates shall be of the sizes stated and formed with mild steel tubular framing all round, covered with chain link wire mesh of the type specified laced to framing. Tubular framing to gates shall be mitred and welded at corners and, at all other intersections, the tubular framing shall be scribed and welded together with all welds ground smooth.

Preferred gate hinges are Bullet Type or through pin type hinges.

Where gates are to be hung on precast concrete posts, hinges shall be fixed to and including mild steel clamps, each formed of two 50 x 5 mm mild steel plates 200 mm long, twice holed for and bolted on opposite sides of post with two 10 mm \varnothing x 140 mm galvanized mild steel hex-head bolts and with each plate holed to receive 20 mm \varnothing gate hinge.

Each single gate and one leaf of each double gate shall be fitted with gate latch formed of 25 x 6 mm mild steel bracket, 550 mm girth, twice bent to U-shape with centre section 150 mm high and with ends scribed and welded to tubular stile of gate. A locking bar formed of 25 x 6 mm mild steel plate, 100 mm long, twice holed 13 mm diameter for shackle of padlock and for pad bolt, shall be welded to inside of bracket. The sliding pad bolt shall be formed of 12 mm \varnothing mild steel rod, 220 mm long, with 25 x 6 mm mild steel flat bar 60 mm long welded on at one end and holed 13 mm diameter for shackle of padlock. The stile of the gate and the locking post or locking stile of the double gate shall be holed for and fitted with mild steel ferrule welded in to receive pad bolt. In addition, fittings to each leaf of double gate shall comprise 50 x 6 mm mild steel locking bar, 80 mm long, holed 20 mm \varnothing for shackle of padlock and welded to locking stile of gate and drop bolt formed of 16 mm diameter mild steel rod, 575 mm girth, once bent to L-shape, fitted through and including 20 mm internal diameter mild steel sleeve welded to gate at bottom corner, with 12 mm diameter mild steel peg stay 25 mm long welded on to gate frame.

A concrete gate stop block size 230 x 230 x 230 mm deep with two 20 mm internal diameter mild steel sockets, each 75 mm long, cast into top shall be embedded in the road surface between each pair of double gates in the closed position. A similar gate stop block but with one socket shall be embedded in the road surface to each leaf of double gate in the open position.

Each single or double gate shall be fitted with an approved 51 mm brass padlock with hardened steel shackle and two keys.

Gates for 1, 20 m high fencing

Single gates shall be size 1,00 x 1,20 m high, each hung on hinges as stated above and formed of 32 mm diameter x 2 mm wall thickness mild steel tubular framing all round. Each gate shall be fitted with locking pad bolt with brass padlock.

Double gates shall be in two equal leaves with each leaf size 2.25 x 1, 20 m high, hung on hinges as stated above, formed of 38 mm diameter x 2 mm wall thickness mild steel tubular framing all round with two 38 mm diameter x 2 mm wall thickness mild steel tubular braces welded on between bottom corners and centre of top rail of each leaf. Each pair of double gates shall be fitted with locking pad-bolt, locking bars with brass padlock, drop bolts and concrete gate stop blocks as specified above.

Gates for 1, 50 m high fencing

Single gates shall be size 1, 00 x 1, 50 m high as described for gates for 1, 20 m high fencing but with each stile of gate extended 330 mm above top rail and braced between top rail and top of extension arm with 32 mm diameter x 2 mm wall thickness mild steel diagonal brace welded on and hung on hinges as stated above. Two rows of galvanised barbed wire, spaced 150 mm apart, shall be strained and tied to the extension arms.

Double gates shall be in two equal leaves with each leaf size 2, 25 x 1.50 m high with each hung on hinges as stated above, all as described for double gates for 1, 20 m high fencing but with each stile of each leaf extended 3 mm above top rail and braced between top rail and top of extension arm with 38 mm diameter x 2 mm wall thickness mild steel diagonal brace welded on. A vertical extension arm 330 mm high - formed of 38 mm diameter x 2 mm wall thickness mild steel tube - shall be welded on above centre of top rail. Two rows of galvanised barbed wire, spaced 150 mm apart, shall be strained and tied to extension arms.

Gates for 3, 00 m high fencing

Single gates shall be size 1,00 x 1,50 m high, hung on hinges as stated above and formed of 38 mm diameter x 2 mm wall thickness mild steel tubular framing all round with 38 mm diameter x 2 mm wall thickness mild steel horizontal centre rail. Each gate shall be fitted with locking pad bolt with brass padlock.

Chain link wire mesh fencing shall be carried over and above the top of the gate as previously described for fencing.

Double gates shall be in two equal leaves with each leaf size 2, 25 x 3, 00 m high, each hung each hung on hinges as stated above, and formed of 51 mm diameter x 2 mm wall thickness mild steel tubular framing all round with two 51 mm diameter x 2 mm wall thickness mild steel tubular braces welded on between bottom corners and centre of top rail of each leaf. Each pair of double gates shall be fitted with locking pad bolt, locking bars with brass padlock, drop bolts and gate stop blocks.

Gates for 1, 8 m high security fencing:

Single gates shall be size 1,00 x 1,80 m high, hung on hinges as stated above and formed of 38 mm diameter x 2 mm wall thickness mild steel tubular framing all round with 38 mm diameter x 2 mm wall thickness mild steel horizontal centre rail. Each gate shall be fitted with locking pad bolt with brass padlock.

Single gates shall be hung on mild steel tubular gate posts with cranked overhang when specified and the galvanised barbed wire overhang shall be carried over above the gate as previously described.

Double gates shall be in two equal leaves with each leaf size 2, 25 x 1, 80 m high, each hung on hinges as stated above and formed of 51 mm diameter x 2 mm wall thickness mild steel tubular framing all round with two 51 mm diameter x 2 mm wall thickness mild steel tubular braces welded on between bottom corners and centre of top rail of each leaf. The stiles of each gate shall be extended 450 mm high above the top rail and braced between top rail and top of extension arm with 51 mm diameter x 2 mm wall thickness mild steel diagonal brace welded on. A vertical extension arm 450 mm high formed of 51 mm diameter x 2 mm wall thickness mild steel tube shall be welded on above centre of top rail. Three rows of galvanised barbed wire, spaced 150 mm apart, shall be strained and tied to extension arm. Each pair of double gates shall be fitted with locking pad bolt, locking bars with brass padlock, drop bolts and gate stop blocks.

Double gates shall be hung on posts without cranked overhang but with the posts extended 450 mm high above top of chain link wire mesh fencing to receive continuation of barbed wire and razor wire.

Gates for 2, 40 m high security fencing

Single gates shall be of size 1, 00 x 2, 00 m high, all as described for gates for 1, 80 m high security fencing.

Chain link wire mesh fencing shall be carried over above the top of the gate to an overall height of 2, 40 m with the razor wire carried across between the gateposts.

Double sates shall be in two equal leaves, with each leaf 2, 25 x 2, 40 m high, all as described for double gates in 1, 80 m high security fencing.

Double gates shall be hung on posts without cranked overhang but with the posts extended 450 mm high above top of chain link wire mesh fencing to receive continuation of razor wire.

SUBMISSIONS FOR PREFABRICATED TIMBER ROOF TRUSSES

Letter Ref. TR 1

I / We hereby undertake to be responsible for the design of the total timber roof construction and will satisfy myself / ourselves that the fabrication and erection is in accordance with my / our design.

Project: _____

Part(s): _____

NAME _____ OF _____ FIRM: _____

SIGNATURE: _____ QUALIFICATION: _____

DATE: _____

Letter Ref. TR 2

I / We am/are satisfied that the fabrication and erection of the total roof construction has been completed in conformity with my / our design.

Project: _____

Part(s): _____

NAME _____ OF _____ FIRM: _____

SIGNATURE: _____ QUALIFICATION: _____

DATE: _____

SUPPLEMENTARY PREAMBLES

The following Supplementary Preambles are to be read in conjunction with the "Standard Preambles to all Trades" included here before and are to apply to this Contract.

Where these "Supplementary Preambles" are at variance with the "Standard Preambles to all Trades" referred to above, such variances are to take precedence and are to apply to this Contract.

1. ALTERATIONS

All Notes, Preambles, etc. applicable for the various trades in the Bills of Quantities, will apply equally to the trades in this Bill.

Tenderers are advised to visit the site and satisfy themselves as to the nature and extent of the work to be done, and also to examine the condition of the existing building.

Tenderers are advised that all materials from the pulling down (except where described to be re-used or handed over to the Department) will become the property of the Contractor, and all these materials, together with all rubbish and debris, must be immediately carted away, and the site left clean and unencumbered. Materials, etc. which are described to be handed over to the Department are to be carefully dismantled where necessary, and neatly stacked where directed on site. Items described as removed shall be removed from site.

Credit for the value of the materials from the pulling down may be allowed for on the Final Summary page.

Prior to the removal of any timbers from the site, they are to be inspected by the Government Entomologist as laid down in Section 32 of the Government Forest and Veld Conservation Act of 1941 (Act 13 of 1941) as amended. If any of the timbers are infested with wood destroying agencies, they are to be disposed of in the manner prescribed by the Government Entomologist.

The Contractor is to give ample notice to the Department and Local Authorities regarding any disconnections necessary prior to the removal or interruption of electric light or telephone cables, water and sanitary services, etc.

Tenderers are advised that adjacent sections of this building will be occupied during the building operations, and the Contractor is required to carry out the work with as little noise, dust and disturbance as possible. Undisturbed access is to be given to patients, staff and visitors.

The Contractor is advised to check all dimensions affecting the existing building as he will be held solely responsible for all new work being of the correct size. All sizes stated are approximate and under no circumstances will claims be entertained should actual sizes of existing items on site vary marginally from the sizes stated in this document.

The Contractor will be held solely responsible for any damage to persons, property, and equipment and for the safety of the structure throughout the whole of the Contract, and must make good at his own expense any damage that may occur.

The Contractor must obey the instructions of the Department in carrying out any portion of the work which in his opinion requires expediting, and the Contractor shall give priority to such work as and when directed.

In taking down and removing existing work, the utmost care is to be observed to avoid any structural or other damage to the remaining portions of the building. The Contractor must also protect all work not removed, such as walls, floors, doors, windows or joinery, loose and fixed fittings and electrical equipment, appliances, etc. from damage during the progress on the works and provide all necessary materials in so doing.

Special care is to be taken not to interfere with any electric light, bell, power or telephone wires and fittings that may be encountered on site. New work to the existing electrical, air-conditioning, gas and telephone installations, etc. is included elsewhere in this document.

The Contractor must take the exigencies of the Hospital Service into consideration. Liaison is to be carried out through the offices of the Regional Engineer, with referrals to the Director: Physical Facilities Management for a final decision. No instructions may be received by the Contractor from the Hospital Authorities and all instructions are to be given by the Chief Department in writing before they are put in hand.

2. CONCRETE, FORM WORK AND REINFORCEMENT

Cement is to comply with:

- SANS ENV 197 (1 to 2)
- SANS ENV 413 (1 to 2)
- SANS ENV 196 (1 to 7)
- SANS ENV 196 (21)

as applicable, and replaces the following SANS Specifications in the Standard Preambles:

- SANS 471 Portland cement (ordinary, rapid hardening and sulphate resisting)
- SANS 626 Portland blast furnace cement.
- SANS 831 Portland cement 15 (ordinary and rapid hardening)

3. MASONRY

Masonry is to comply with SANS Code of Practice 0249 and 0164 as applicable.

4. ROOF COVERINGS, ETC.

The installation of roof coverings and side claddings is to comply with SANS Code of Practice 0237 as applicable.

5. CARPENTRY AND JOINERY

Note:

All timber must be treated in terms of SANS Code of Practice 05 for GYMNOSPERMAE including all SA Pine species and ANGIOSPERMAE including all Eucalyptus species but excluding laminated timber.

It is now a compulsory requirement to use only treated timber in buildings. The treatment shall comply with SANS 457, 753, 754 or 1288 as relevant.

Reference must also be made to the appropriate Standard Preambles and SANS requirements for items not covered by these joinery preambles, etc. i.e. ironmongery, aluminium, glazing, paintwork, etc.

Where items are described as “plugged and screwed”, they are to include for plugging and screwing to new or existing brickwork or concrete, with heads of screws sunk and pelleted.

Sawn softwood timber: General, Stress Graded, Industrial, Brandering and Battens is to comply with SANS 1783 Parts 1 to 4 as applicable.

All hardwood is to be dark red Meranti, even in grain and colour selected for “Standard and Better” quality, from Malaysia, with a minimum density of 550 kg per cubic metre at moisture content of 12%, and is to comply with SANS 1099 as applicable.

Hardboard is, unless otherwise described; to be 3mm un-tempered hardboard for floor units and 6mm tempered hardboard for wall units.

Melamine faced moisture resistant V313 chipboard can be used when specified.

Materials generally are to comply with the following specifications and requirements as applicable:

TABLE H: CARPENTRY AND JOINERY: SANS SPECIFICATIONS

MATERIAL	SANS SPECIFICATION	GRADE OR CLASS
Softwood structural timber	1783	Parts 1, 2, 3, 4
Softwood engineering timber	1783	Parts 1, 2, 3, 4
Softwood studs for timber frames in building	1783	Parts 1, 2, 3, 4
Softwood brandering and battens	1783	Parts 1, 2, 3, 4
Softwood joinery timber	1783	Parts 1, 2, 3, 4
Softwood flooring boards	629	Flooring Grade
Hardwood joinery timber	1099	Heavy flooring board
Hardwood strip flooring	281	Knotty grade
Wooden ceiling and panelling boards	1039	As specified
Laminated timber (glulam)	1460	As specified
Gypsum, plasterboard	266	As specified
Wood fibreboard	540	As specified
Wood wool panels (cement bonded)	637	As specified
Fibre cement sheets: profiled and flat	685	As specified
Fibre cement boards	803	As specified
Plywood and composite board Particle Board: Highly Moisture resistant exterior and flooring type Interior Type	929 EN 312 EN 312	Parts 1 to 7
Decorative laminates	SANS ISO 4586 and SANS 1405	High Pressure
Decorative Melamine Faced Boards	1763	
Wooden Doors (flush)	545	
Materials for thermal insulation of buildings	1381	As applicable
Mild steel nails	820	
Metal screws for wood	1171	
Creosote	538	As specified
Timber roof trusses	0243	SANS Code of Practice

6. CEILING AND PARTITIONS

Refer to Joinery Fittings regarding specifications and requirements of materials.

7. IRONMONGERY

Materials

- i) Locks are to comply with SANS 4 as applicable
- ii) Door closers are to comply with SANS 1510 as applicable
- iii) Symbolic safety signs are to comply with SANS 1186 as applicable

All ironmongery, unless otherwise described, is fixed to timber.

Sheet steel furniture to comply with SANS 757 as applicable

8. **METALWORK**

Rates are to include for cutting to lengths, splay cut ends, shaping, holing, tapping, threading, forging, turning, fitting, assembling, welding, filing smooth, preparation, priming coats, hoisting, temporary bracing and fixing in position.

Towel rails are to be tubular Satin Chrome mild steel to diameters - minimum 19mm - and lengths as specified in matched Satin Chrome end pieces. End pieces to be either flat or bracket type - according to requirements, application and specification - plugged and screwed into walls with Chromed Brass screws.

Electro-plating is to comply with SANS ISO 1456 as applicable.

Curtain tracks to be "Forwin" Hospital Curtain Tracks as "Kirton" (Pty) Ltd. - or other approved -, including 15 wheeled runners per metre, hangers, brackets, stopped ends, etc. Hangers are to be suspended from roof timbers or concrete slab over – **not off the ceiling grid**. Allowance is to be made for necessary bends and curving as per plan supplied. Curtains to be provided as (Chintz fabric (#155CZ) woven with 100% polyester yarn)

SHELVING FOR PHARMACIES: - Shall be epoxy coated steel shelving, either fixed to epoxy coated wall bands or free standing units as specified.

SHELVING FOR CSSD STERILE STORE: - Shall be slatted grade 304 stainless steel wall bands or free standing units as specified.

Aluminium Windows and Doors

NOTE:

Glazed aluminium alloy windows and sliding doors for external use are to comply with SANS 1651 as applicable.

All items must conform to and carry the Certification Seal of the AAAMSA and no items which are not so certified will be accepted on site.

The work is to be cleated and framed.

All visible surfaces are to have a 25 micron anodised finish as specified.

Anodised coatings on aluminium are to comply with SANS 999 as applicable.

Rates are to include for setting up and building in as well as for isolation material between the aluminium surfaces and adjacent surfaces of a differing material.

All visible surfaces are to be covered with a temporary protective tape, later to be removed.

Float glass for glazing is to comply with SANS CKS 55 and SANS 952 as applicable.

Safety and security glazing materials for buildings is to comply with SANS 1263(1) unless otherwise described. All panes are to be marked so as to be visible. Laminated safety glass is to carry a written five year guarantee.

Windows and doors are to be watertight.

Silicon pointing to windows and doors is covered elsewhere.

9. **PLASTERING**

Rates for new plaster, screeds, etc. to existing surfaces are to include for all preparatory work and forming a key.

Removal of paint and/or varnish as well as the roughening of the existing face brick surfaces both externally and internally to receive new plaster has been measured separately.

Plaster and screeds, etc. in patches is generally of an isolated nature and to existing surfaces. Portion of the work may be in narrow widths.

Where alterations are to be done to the existing structure, the new plaster, etc. has been measured to a point 300mm beyond the line of the alteration on the existing structure.

10. TILING

Ceramic Wall and Floor Tiles are to comply with SANS 1449 as applicable.

11. PLUMBING AND DRAINAGE

Water Supply and Drainage for Buildings is to comply with SANS Code of Practice 0252 as applicable.

Water Supply and Distribution System Components is to comply with SANS 1808 as applicable.

Electrical Water Heater:

Storage Heaters to comply with SANS 151.

Instantaneous Heaters to comply with SANS 1356 and IEC 335 (2-35).

12. GLAZING

Glass is to comply with SANS Specification 952.

Glass for glazing is to comply with SANS Specification CKS 55.

Safety and security materials are to comply with SANS Specification 1263 as specified.

Laminated safety glass is to carry a written five year guarantee.

KWAZULU-NATAL DEPARTMENT OF HEALTH

**INFRASTRUCTURE DEVELOPMENT
ENGINEERING ADVISORY SERVICES**



POLICY DOCUMENT

FOR THE

DESIGN OF STRUCTURAL INSTALLATIONS
(TO BE USED STRICTLY AS A DESIGN GUIDE ONLY)

IMPLEMENTATION DATE: JANUARY 2006

STANDARDS COMMITTEE MEMBERS

Mr. R. Westwood	Chairman	KZN Department of Health
Mr. G. Pike		KZN Department of Health
Mr. S. Pillay		KZN Department of Health
Mr D.Van Wyk		KZN Department of Health
Miss M.De Goede		KZN Public Works
Mr P.Erasmus		KZN Public Works
Mr P.Culligan		KZN Public Works
Mrs.K.Major		<u>KZN Public Works</u>

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CODES AND SPECIFICATIONS FOR STRUCTURAL INSTALLATIONS

The complete installation must conform to the following:

- Occupational Health and Safety Act and Regulations (85 of 1993)
- National Building Regulations and Government Gazette No 31084 of 30th May 2008 and the S.A.N.S 10400: (Ex. SABS 0400: 1990) Code of Practice for the Application of the National Building Regulations
- Energy Code of Conduct for all Government buildings Rev 3
- The Local Authority Fire and other Regulations
- R158 where applicable
- Wiring Code, South African National Standards, SANS 10142-1
- Bricks manufactured to SANS 227 standards
- All other legislation

THE PROVINCE OF KWAZULU-NATAL DEPARTMENT OF HEALTH'S STANDARD SPECIFICATIONS As IN:

- Standard Preamble to all Trades dated January 2009 Rev 3
- Policy Document for the Design of Electrical Installations
- Policy Document for the Design of Mechanical Installations
- Solar Water Heater (SWH) specification
- Application of Screedmaster.
- Pharmacy Specifications
- Milk Kitchens

THE PROVINCE OF KWAZULU-NATAL DEPARTMENT OF HEALTH'S STANDARD DRAWINGS:

Ablutions for Clinics	Drwg No 6018H/01-02	July 2001
Ambulance Shelter	Drwg No 6055H/01	October 2006
Car-Ports Double Bays	Drwg No 6033H/01	August 2006
Fuel Storage Bund Walling	Drwg No 12005H	September 2012
Grease Trap	Drwg No 942-02GT	August 2001
Guard Hut with Ablution	Drwg No 5038H	August 2005
Helistop – Restricted	Drwg No 2017H/01_r2	December 2007
Helistop – Un-restricted	Drwg No 2017H/02	December 2007
Institution Entrance Signs	Drwg No 6004H-6008H	May 2005
Laboratory	Drwg No 4036H/01-R4	January 2004
Medical Waste / Domestic Waste	Drwg No 7027H/01/R1	December 2012
Official Vehicle Lockup Garages	Drwg No 6019H	June 2002
Paraplegic Toilet	Drwg No 6036H/01-02	September 2006
Pharmacy	Drwg No 5046H	October 2005
Pharmacy Service counter windows	Drwg No 10025H/ 01	December 2010

Plant Room Doors	Drwg	No 3025H/02	August 2003
Standard 3 Bedroom House	Drwg	No 6016H/R3	October 2005
Septic Tank	Drwg	No 6017H	February 2005
Stainless Steel CSSD Shelving	Drwg	No 7048H	October 2007
Stainless Steel Door Frames	Drwg	No 7002H- 01-05	January 2013
Storm water Details	Drwg	No 6000H/01-04	January 2006
Theatre and CSSD (to be redesigned)	Drwg	No 3039H/01-R4	January 2008
Wash Bay	Drwg	No 6037H/01	August 2006
X-Ray Dark Room Format	Drwg	No 8001H/01	January 2008
X-Ray Digital Room Format	Drwg	No 8002H/ 01	January 2008

GENERAL BUILDING REQUIREMENTS

- A Schedule of accommodation must be supplied by Department of Health officials.
- Availability of water, electricity must be ascertained and a full report submitted before any construction commences. Without these basic's the project is not to proceed. Rev 7
- A Geotechnical Investigation of the site must be conducted.
- Before work commences on site, submit a notification to Department of Labour. Construction Risk Assessment, Safety, Health and Environment Plans to be in place before any work commences.
- Use of natural light and ventilation for patient care facilities is to be maximised when designing a health care facility.
- Maximisation of natural light (daylight) can be met by windows opening onto an atrium or courtyard, or a roof light, provided that privacy within the room or space is maintained. In addition, daylight may be borrowed from an adjacent room or corridor by means of glazing the wall in between provided that the adjacent room or corridor is within the same unit and privacy is maintained.
- Sluice rooms and Instrument wash up rooms must be carefully placed in order to ensure optimum infection control measures.
- General Sluice / Dirty Utility Rooms to be provided with Drawing No Rev 7
- Service balconies are to be provided to all high-rise buildings to facilitate cleaning of windows and general maintenance.
- All stainless steel fittings, fixtures and equipment shall be fixed with Grade 304 stainless accessories (ie Bolts, Nuts washers etc). Rev 1
- Plant rooms should be located preferably at ground level for single story buildings or on the same level in multilevel buildings. Rev 1
- All equipment within the plant rooms shall have at least 1 metre clear working space all round. Rev 1
- No provision shall be made for dedicated gantries or crawl beams for the purpose of lifting equipment. Rev 1
- Preference shall be given to South African manufactured products. Rev 1
- Where reference is made to "or other approved" items this shall mean approval prior to tender closer. Rev 1
- Kerbing to road ways within health facilities to be Fig 8 mountable type. Rev2
- Where doors are described as having observation openings, these openings are to be of the sizes stated and glazed with 6mm safety glass. No glazing permitted to any fitting below Lock Rail (ie 1,2m high). Rev 1

- The preferred infill panels below lock rail in aluminium glazed doors and screens are Aluminium ribbed panel as “Sherline” system T29. Rev 2
- All loose equipment, furniture etc to remain the property of Health or as otherwise stated. Items to be listed with their relevant bar codes if available before removal to another location. Rev2
- Provision must be made for a framed, laminated floor plan of the facility showing fire evacuation routes. This must be positioned at all strategic areas. Rev7
- The usage of Grey Water for only toilet and urinal fittings is to be used where ever possible. The painting of the water supply pipes to be as specified in the Standard Pre-ambls for all Trades. Rev2
- 900mm wide concrete aprons around all buildings. Dished channels, 600,300 split may be used in lieu of the apron. Rev4
- No internal planter boxes are to be provided inside a health facility. Rev7
- **Without compromising quality, locally manufactured products are to take preference over imported products with proven new technology.** Rev7
- **Handover procedures.** Rev6
- Practical completion is taken at the end of contractual construction period or when occupation can practical completion.
- As built’s drawings are to be provided at Practical Completion.
- Works completion is taken when all snag items identified at practical completion have been attended to. At this time the maintenance period commences GCC = 12 moths for building including electrical and mechanical. JBCC = 3 months for building and 12 months for electrical and mechanical.
- At completion of maintenance Final Completion is taken.

Operation and Maintenance Manuals

The contractor shall hand over, at the completion of the works one original and two copies of the necessary operating and maintenance requirements for all plant and equipment supplied and installed by him or her as part of the works. Each copy of the operating and maintenance manual shall be separately bound in an acceptable manner, and shall contain the following data where applicable. These documents are to be handed to the Project Leader responsible for the project and the Project Leader will ensure that these documents are handed to a Department of Health Head Office official.

- a) Scope of Work
- b) Operating Instructions
- c) Normal Operation
- d) Safety Measures
- e) Fault Finding Guide
- f) Equipment Information
- g) Schedule of Information
- h) List of Spares and Agents
- i) Design Data
- j) As Commissioned Data
- k) Maintenance Requirements
- l) KZN Department of Health Service Schedules
- m) Manufacturers Service Recommendations
- n) Manufactures Literature

- o) Equipment Brochures
- p) Proprietary Drawings, Exploded Views and Wiring Diagrams
- q) As Built Drawings
- r) Electrical Drawings
- s) System Layouts and Schematics
- t) Training Certificates

Rev 1

As Built Drawings

Complete sets of drawings (two electronic and three hard copies, Electronic drawings in Autocad and other documents in PDF.) of the entire project shall be included in the as built documentation. The set shall be as per “As Built Document Schedule”:

Rev 4

Complete sets of drawings (two electronic and three hard copies) of the entire project shall be included in the as built documentation, which is required at practical completion.

Original statutory documents are to be provided in a separate folder.

Rev 5

- Architectural drawings and details.
- Electrical wiring diagrams indicating all cable sizes, current ratings, fuses, control units, site cable reticulation and schematic wiring diagrams applicable to the works.
- Mechanical drawings and schematics showing all equipment, connections to the equipment and service runs installed by the Contractor, and isolating valves, etc.
- Exploded views of all equipment showing each component part adequately identified and numbered.
- The electronic records (on disk) are to be handed to the Department of Health Head Office official at first delivery.

Equipment Schedules

A complete schedule of all plant and equipment forming part of the works shall be included in the manual. The schedule shall include, but shall not be restricted to the following data:

- Equipment type and model
- Equipment identity number/serial number
- Date of manufacture, testing installation and commissioning
- Country of manufacture
- Manufacturers name and contact address
- Any other information required by the Department

Rev1

Maintenance Requirements

The manufacturer's recommendation with regard to the routine servicing and maintenance of all equipment shall be included in the manual. This data shall include the recommended service interval and the estimated hours required for each type of service, for each item of equipment, together with a list of agents/contractors authorised to carry out such service/maintenance.

Rev 1

Operating Instructions and Training

- A complete description of all operating procedures and safety measures shall be included in the manual. A basic “Fault Finding Guide” shall also be included.
- Training shall be given to staff operating machinery and plant together with maintenance personnel.
- Training certificates must be signed by staff that has received training.
- The table below is to be used by the Project Leader and Principal Agent as a checklist for all as built documents.

Rev 1

AS BUILT DOCUMENTATION REQUIREMENTS

ALL DRAWINGS REQUIRED IN AUTOCAD (DWG) FORMAT ON CD

PROJECT =

AS BUILT DRAWINGS (DESCRIPTION)		REQUIRED		SUPPLIED	
		Yes	No	Yes	No
1	ARCHITECTURAL - PLANS, DETAILS etc				
2	ELECTRICAL - RETICULATIONS, TELEPHONES, NURSE CALL SYSTEMS, ALARMS, BMS AND ELEVATORS etc.				
3	MECHANICAL - AIR CONDITIONING, VENTLATION, GAS LINES, ELEVATORS,(LAYOUTS AND SIZES)				
4	STRUCTURAL, - REINFORCING SCHEDULES				
5	CIVIL (STORMWATER AND SEWER) - EARTHWORKS, SITE SERVICES RETICULATIONS, ROAD MARKINGS etc.				
6	EQUIPMENT SCHEDULE				
7	COMPUTERISED PROGRAMMES - CD's				
COMPLIANCE CERTIFICATES (DESCRIPTION)					
8	PRESSURE TESTING -				
	1) MEDICAL GAS				
	2) STEAM LINES				
	3) CHILLED WATER				
	4) CONDENSER WATER				
	5) WATER MAINS				
	6) HOT & COLD WATER RETICULATION				
	7) COMPRESSED AIR LINES				
	8) VESSELS UNDER PRESSURE				
	9) SEWER RETICULATION				
	10) PLUMBER				
	11) STABILITY CERTIFICATES				
9	ELECTRICAL - MASTER or INSTALLATION ELECTRICIAN				
10	SOIL POISONING / COMPACTION				
11	LOCAL FIRE DEPARTMENT CLEARANCE				
12	ROOF TRUSSES - TRI &TR2				
13	FIRE DETECTION - SPRINKLER SYSTEMS, FIRE EXTINGUISHER AND HOSE REELS				
14	LIGHTNING AND EARTHING				
15	ELEVATORS COMPREHENSIVE REPORT HOISTS : ANNEXURE 'K'				
16	CONCRETE CRUSHING TEST				
17	GUARANTEE'S (NEW AND UPGRADED EQUIPMENT)				
MANUALS					
18	OPERATING MANUALS PERTAINING TO ALL NEW EQUIPMENT				
19	POST GUARANTEE MAINTENANCE SCHEDULE				

PSYCHIATRIC WARDS

Low Secure Area's. (Isa)

- Should form part of general wards
- Dual functional is; medically ill patients should be accommodated for as well as mentally ill patients.
- Low secure areas should each be custom designed to fit into existing building plan / infrastructure. New facilities to be custom designed.
- Positioned near Nurses Station or there should be clear lines of sight from nursing area into low secure area.
- Closed circuit monitoring of facility with only nursing and medical staff able to see monitors.
- Windows to be fitted with external louvre control for patient privacy.
- Light switches outside of ward / facility.
- Maximum natural light and ventilation.
- Facilities to be located on a ground floor with access to an external garden area and covered patio. Rev7
- Easy access to ablutions.
- Security gates with standalone access control to selected entrance areas.
- Windows glazed with 6mm polycarbonate reinforced glass with mesh burglar proofing in framework bolted to walls.
- Any fitting within a facility - if unavoidable to eliminate suicide - is to bear a load of not more than 20 Kg's. (e.g Oxygen mask equipment)
- Fire alarm installation.
- Doors to be solid core minimum width of 900mm, lockable from outside with an armourplate glass observation window to view all corners of the room size 250mm x 500mm window set +/- 1,5m to centre above finished floor to centre of window. Rev 7
- Welded vinyl floor sheeting with welded skirting except all wet areas.

PSYCHIATRIC FACILITIES

Entrances:-

- Entrances to ward buildings to be fitted with remote controlled full height "Man Trap" security cubicles with bell pushes fitted both entry and exit sides and remote unlocking operation enabled from the security booth.
- Side entrance door to be a minimum of 900mm wide to be provided for wheel chairs or patient beds Rev 4

Ablutions:-

- W/C pans are to be Vandal Proof with integrated seat; fitted with 'prison type' Flush Masters .
- Thermostatically adjustable demand water supply to showers in Psychiatric facilities. Rev 6
- Wash - hand basins are to be stainless steel recessed wall mounted drinking fountain / hand washing fitted with water metering KM2.100 Bibtap type Rev 7
- Showers to be fitted with solid vandal resistant spouts - not shower roses - with single demand type tap for timed discharge of water from mixer within or behind wall – one per shower. Temperature to be pre-set and controlled for all outlets.
- Cubicles to be fitted with heavy duty stainless steel shower curtain rail and 3mm x 230mm wide blue plastic - polycarbonate strips. Rail secured to wall with Allan keys s/s screw. Rev 3

- All plumbing is to be built into walls and plastered over.
- Seclusion rooms to be provided with a basin and toilet as described above.
- Cold water supply with adjustable demand taps to Seclusion Room basins only. Rev 5
- Recess in shower walls tiled for the soap bar. Rev 6

CCTV Cameras, Monitors and Temperature Control:-

- In dedicated psychiatric institutions, all seclusion rooms to be fitted with CCTV cameras linked to monitors in section heads offices / Nurses station and security booth.
- In ordinary institutions, reinforced / toughened glass viewing panels between seclusion room and Nurses station in galvanized steel frame. Rev 7
- Seclusion rooms to be fresh air ventilated. Rev 7
- Camera to be positioned above toilet pan looking into the room towards the entrance. Rev 7

Floors:-

- Welded vinyl sheeting with weld skirting to sheeting?
- Seclusion rooms are to have floor drains cast in-situ. Grade 304 stainless steel drains cast "in situ" with removable traps with grid screwed down. P traps are not suitable due to blockages. Floors to be finished with 2mm epoxy. No skirtings. Rev 6
- Floors to have under floor heating in cold area's. Rev 5

Seclusion Room Doors:-

- Doors to be 900 x 2032 x 40mm Solid Core Anti-Bandit Security Doors Solely supplied by "Chubb" or "Bitcon" Industries" or other approved as a complete unit with all fittings and ironmongery, steel lined 250mm x 500mm viewing panel, glazed with +/- 40mm bullet proof glass in steel frame. Height above floor level +/- 1,5m to centre of viewing window. Rev 7
- Steel lining for doors is to be epoxy laminated to inside of door and around edges. Internal steel lining to be primed and finished with approved epoxy paint. External face of doors to be finished in veneer or hard board as per standard preambles ready for painting. **Doors to be hung to open inward** on special galvanized steel door frames with lugs pre welded to frame to fit every third course of brickwork. The complete frame is to be hot dip galvanized and built into surrounding 230mm solid brick walls. **No welding to be done on site.**
- Hinges to be stainless steel ball type encased in spun casings.
- Frames to seclusion rooms for psychiatric patients are to be 6mm thick galvanized steel, supplied complete with doors as a unit opening inwards. Rev 2
- Robust lockset to the outside. Preferably secured to top, middle and bottom to safeguard against patient abuse.
- Pull handle on outside with no handles on the inside.
- In cases where Anti- Bandit doors are retro fitted in existing buildings, galvanized security door frame (76mm x 38mm x 3mm Rec-Tube with rebates) are bolted in position with solid core door complete with galvanized steel cladding on inside, masonite external finish ready for painting including 250mm x 500mm x +/- 40mm thick clear vision armour plate glass viewing panel. Pull handle on passage face to door and locking device. Rev 7

Seclusion Room and Psychiatric Facilities Windows:-

- All external windows to be galvanized steel frames of maximum width of 150mm sufficiently burglar proofed to prevent entry into or exit from rooms. Restricted opening of not more than 125mm.
- Internal windows / viewing panels to be glazed with 6mm polycarbonate reinforced glass panels (except seclusion rooms viewing panels)
- Burglar proofing to be built into walls externally and galvanised fine mesh welded to galvanised framework internally. Framework to be fitted between reveals of window, hinged at the bottom to allow for cleaning and repairing of glazing. A suitable locking system for the mesh is to be incorporated at the top of the frame.
- Window sills to slope internally.

Seclusion room Ceilings:-

- Minimum ceiling height of 3,5m from finished floor level Rev 6
- Lock up areas and seclusion rooms to be reinforced concrete slab in new installations.
- In seclusion rooms in existing buildings, ceilings and brandering shall be replaced with 6mm Aluminium Epoxy Powder Coated sheets and 75x50 brandering firmly secured to roofing timbers.

Seclusion Room Light Fittings:-

- Fluorescent vandal / flame proof light fittings with electronic ballast, fitted with high impact diffusers.
- Light controls to be positioned outside the room.
- Natural lighting to be used to the maximum.

Seclusion Room Fittings:-

- Tables and seats in dining / rest areas to be built 'in situ' face brick units with 32mm hardwood tops. Tops to be securely bolted down with all bolt holes pelltated. Hardwood to be varnished with polyurethane varnish.
- Seclusion room bed to be bricked up platform 500mm high with reinforced concrete slab with rounded edges. Rev 3

BURGLAR RESISTING SAFES

- The safe must comply in all respects with the current edition of S.A.N.S. 751 - "Standard Specification for Burglar Resisting Safes". The type and class of safe shall be "Office Safe, Class I" as laid down in S.A.N.S. 751.
- Where the mass of each safe is 680 kg or less, provision must be made for securing it rigidly to prevent unauthorised removal. The means of securing shall be at least equal in effectiveness to that which would be provided by four 12 mm bolts. Locks shall be lever locks with a minimum of six levers in accordance with S.A.N.S. 751. The supplier shall forward keys for any safe (or safes) by registered post, direct to the Department and the supplier must clearly indicate the institution in which such safe (or safes) is being installed.
- A minimum number of three Hand Gun Safes to be bolted in position inside Guard Huts not in view of the general public. Size 280mm H x 370mm W x 200mm D. Mass 15 Kg with one key-lock. Rev 1

DISABLED PERSONS

- Consideration to be given to all types of disabilities.
- Provision must be made for easy access for disabled persons in accordance with NBR, S.A.N.S 10400 requirements.

- Provision must be made at all times for transporting wheelchair and disabled patients.
- For general purposes the gradient of any ramp should not be steeper than 1 in 15 (4½ °) with a minimum width of 1, 2 m for every 10m in length in compliance with S.A.N.S 10400 regulations. Rev 6
- Camber not to exceed 1:40
- The preferred maximum length of a general-purpose ramp is 10,00m. Where ramps have to be more than 10,00m long for any reason, a rest platform of 1,50m long is to be provided at 10,00m intervals. Rev 4
- A level platform 1,50m long should be provided at the top and bottom of any general-purpose ramp and at changes in direction.
- Ramps must be provided with handrails. The vertical dimension from ramp surface to top of handrail should be 900 mm.
- Ramps used frequently by wheelchair patients should be provided with an intermediate handrail 750 mm above the surface of the ramp. Where two rails are provided the upper rail may be placed 960 or 990 mm above the surface of the ramp.
- Where ramps are provided specifically for wheelchair patients or patients' trolleys a non-slip lightly stippled surface is preferred to reduce friction and to enable the individual to climb the ramp with the minimum of effort. External ramps should be rendered non-slip by adding carborundum chippings to the granolithic finish. A grooved rubber tile or non-slip 2,5mm vinyl sheet is suitable for internal ramps.
- Special parking areas with mountable kerbs should be provided for wheelchair users with a minimum width of 3,5m and located not more than 50 metres from the entrance if possible Rev 1
- Entrance from roadway into OPD's and Accident Emergency area's where ambulances carry patients, kerb entrance to be full width of entrance area. Rev 6
- No step from one level to another to exceed 5mm. Rev 6
- If hot and cold water is used for the basin, the cold water tap to be closest to WC pan. Rev 7

FIRE PROTECTION AND NOTICES

- National Building Regulations and the SANS 10400:(ex. SABS 0400:1990) Code of Practice for the Application of the National Building Regulations
- The designer must obtain the approval of the Local authority during documentation. Records to be obtained of approvals etc.
- All necessary signage is to be provided and to comply with SANS1186 and SANS 10400.
- Fire extinguishers and fire hose reels must be clearly indicated in buildings by means of 300mm x 300mm signs in accordance with the SANS and OHSA regulations. Signs to be fixed approximately 2, 500mm above floor level and must be visible from all angles.
- Fire extinguisher handles height to be positioned at 1,500mm above floor and shall be installed with a timber backing plate. Rev 1
- It is recommended that fire extinguishers should not exceed 4,5Kg in weight for ease of handling. Rev 2

FLOOR PLANS

Patient treatment areas dimensions of any room or space shall conform to the requirements as stated in R158.

No habitable room shall have a clear floor space of less than 6 square meters.

The following office norms are in compliance with the norms as gazetted on the 2nd September 2005.

Table shows basic office work spaces minimum/maximum assignable office areas. See gazette for added allowances (committee room executive, interview room admin for example).

Executive Management Hospital CEO Level 13 and above	=	20 - 25m ²
Senior Management Hospital Manager Level 11-12	=	16 - 20m ²
Managers, Doctors, Ward Sisters Level 9-10	=	10 – 16 m ²
Administration Below Level 9	=	6 – 10 m ²

Open Plan Offices

Administrative personnel (per staff member) 8 square meters

Typist/data typists or other members (also Administrative) where only a small space is

Required 6 square meters

Rev 4

HEIGHTS ABOVE FLOOR LEVEL

- The clear finished floor to ceiling height for health facilities is to be a minimum of 3,0 meters with Residential units to be clear finished floor to ceiling of 2,6 meters and in accordance with the NBR. Rev 2
- Any additional height specified in these regulations shall be the vertical dimension from the top of the finished floor to the underside of the ceiling.
- The height for Theatres is to be a minimum of 3.5meters. Rev 3
- Height from floor to underside of surface mounted Lamina Flow in Theatres to be a minimum of 3.0 metres. Rev 2
- No beams shall be below 2,1m from finished floor level. Rev 1
- Shower roses set from unfinished floor level to outlet in wall at minimum of 2,1m. Rev 6

CORRIDORS

- All corridors where patients are being transported shall have a minimum unobstructed width of 2,3m.
- Any fixtures such as bump-rails, cupboards, etc. shall be regarded as wall or part of the wall.
- All other corridor widths to comply with NBR.

SIGNAGE

Must comply with Occupational Health and Safety Act 85 of 1993.

- The signage system must comply with the primary function of directing the visitor / patient to the areas / departments / wards / rooms, which are their normal destinations, and to indicate the exits clearly.
- Institutional signage at entrances to premises to be as per detailed drawing.
- All signage to be provided in English and Zulu. District office to co-ordinate the correct wording before manufacture commences. Rev 7
- All restricted access rooms or areas must be clearly indicated by appropriate signs.
- 40 x 50mm High Perspex numeral or alphabet door number
- 150 x 150mm High Perspex female, male or paraplegic pictogram door sign
- 300 x 62mm High Perspex door sign to be placed on doors not lower than 1,2m and higher than 1,5m.(Room designation) Rev 6
- Double sided Perspex information sign suspended from ceiling grids with brass chains. Minimum of 2,1m above finished floor level.
- Etched aluminium wall mounted information sign or reverse engraved Perspex signs. Size determined on site. Rev 5

- Lettering on 5mm thick reverse cut out Perspex with Arial or other approved screwed to wall or suspended from ceiling. Colour to institutions colour scheme.
- 1,2mm Thick galvanised steel epoxy coated panels with 20mm bent on either side, single sided directional and information signage with self-adhesive vinyl lettering with Arial fixed to No. 2 x 75mm diameter epoxy coated posts.
- Bed number and patient / doctor card holder size 255mm x 255mm formed of removable clear Perspex cover to hold A5 card on 4mm thick back plate and reverse cut out vinyl lettering.
- Embossed removable infill panel lettering with curved aluminium frame plugged and screwed to wall. Signage as "Vista" or other approved. Rev 1
- Key tag holders 35mm diameter x 5mm thick Perspex punched for and including retainer and engraved with designated room number.
- All fire / emergency exit doors shall have illuminated safety exit signs and shall be on emergency power and own battery backup or phosphorescent signs. Rev 3
- All signage to comply with SANS 10400-S:2011 part 4. Rev 7
- Signage to all rooms to be positioned on doors between 1,4m to 1,7m above floor level in compliance with SANS 10400-S:2011 part 4.2.4. Rev 7
- Laminated and framed copies of operating procedures, wiring diagrams, zone diagrams and plant schematics as applicable are to be fixed to the wall in a well illuminated and accessible area.
- Laminated and framed block floor plan copies of institution floor plan showing fire escape routes. Rev 7

KITCHEN REQUIREMENTS

General comment – quantity and type of equipment must be determined based on the number of meals required and the plating procedures

Canopies – Refer to the Kwazulu Natal Department of Health's Standard Mechanical Document

Equipment – Refer to Kwazulu Natal Department of Health's Standard Mechanical Document

- Canopies: These should extend 300 mm beyond front edge of cooking equipment.
- Drainage: Floor drains and discharge pipes under floor to be Grade 304 stainless steel with removable drainage grids and 100 mm diameter trapped outlets to be provided in kitchens adjacent to cooking utensils and equipment of a similar nature.
- Elsewhere 100 mm diameter trapped outlets with approved hopper heads and stainless steel grids to be provided in approved positions for floor washing purposes. Provide trolley storage and wash up areas.
- Sink and basin wastes are to be connected directly to the sewer system via a Grease Trap gulley and are not to discharge into open floor channels.
- Provide suitable Grade 304 stainless steel floor drain complete with slotted stainless steel cover grid.
- Internal screen walls to preparation areas to extend 1, 2 metres overall above floor level, provide half-round coping to these walls.
- One supervisor's office of approximately 3m x 3m is required in each kitchen.
- Splash-backs: Stainless steel splash-backs 150 mm high to be provided to all work tops. Work tops to be positioned 100mm away from wall face.
- Wall finishes to be tiled according to Departmental standard tile specifications. Provide Grade 304 3mm x 76mm x 76mm x 1.2m high stainless steel protection angles to all exposed corners with S/Steel +/- 30mm long fixing countersunk screws. Rev 7
- All kitchen work tops to be cantilevered off walls for ease of cleaning

LAUNDRY FACILITY

- This will be determined by each institutions needs assessment and shall be in compliance with the policy document for the Design of Mechanical / Electrical Installations.
- The designer must consult institutional management with regards to onsite laundry requirements. Rev 3
- Laundry facilities to be discussed with Department of Health Head Office during the planning phase.

MEDICAL WASTE HOLDING AREA

- A well ventilated, bricked constructed holding facility with solid roof and non-slip concrete floor must be provided at all health facilities.
- The room must be vermin proof and be provided with a trapped drainage outlet connected to sewer system including cold water supply standpipe with hose.
- Stainless steel basin in Medical Waste court yard outside door. Electrical waterproof socket outlet at 1,4m above floor level in store for deep freeze.
- Unauthorised person and Hazard warning signage to be provided.
- Lockable vermin proofed gate of minimum width 900mm to be fitted to entrance. Rev 1
- Medical Waste storage area's to be as follows.
 - Regional Hospitals 20 – 36m²
 - District Hospitals 14 – 24m²
 - Community Health Centres 9 – 15m²
 - Clinics 5 – 15m² Rev 7

REFUSE HOLDING AREA

- A well ventilated, bricked constructed holding facility with solid roof and non-slip concrete floor must be provided at all residential complex units.
- The room must be vermin proof and be provided with a trapped drainage outlet connected to sewer system including cold water supply standpipe with hose.
- Lockable vermin proofed gate of minimum width 900mm to be fitted to entrance. Rev 1

STORM WATER DRAINAGE

Storm water drainage systems on all new services should be designed to cater for average rainfall in the particular area.

BULK STORES – DIVISION WALLS

Must be compartmentalised for specific commodities.

X-RAY SUITE

Planning of new and alterations to existing facilities to be done in consultation with Radiology Division at Wentworth Hospital (Health Technology Unit HTU). Rev 3

GENERAL FINISHES

WALLS/ BRICKWORK

- Foundation brickwork to be hard burnt NFX type. Rev 4
- Super Structure if not face brick to be NFP type. Rev 4
 - Face bricks to conform to FBX quality Rev 4
 - All brickwork around an X-Ray room to be 220mm solid brick work or plastered with 15mm barium if hollow bricks are used. Rev 5

- All internal surfaces to patient treatment areas to be plastered and painted. No face brick or stippled wall finish permitted due to infection control. Rev 4
- Inside walls must be covered with a smooth finish and must be painted with a durable washable acrylic paint or covered with an approved ceramic tile.
- Where chasing has occurred in plaster, the wall is to be skimmed feathering to existing surface.
- All brickwork to septic tanks to be manhole bond (water bond) method grouted up. No straight joints will be permitted. Rev 5

WALL FINISHES

Vinyl sheet wall cladding material is not permitted.

- In non- patient treatment areas, the wall behind wash hand basins shall be tiled from two courses below the unit to a height of at least 400 mm above unit, (2 rows) and a distance of at least 150 mm on each side of such fitting. No tiles are to be dressed onto a wash basin fitting. Rev 7
- Glazed tiles to be 1st Grade 200mm x 200mm matt white with PVC edge trim where specified. Rev 7
- Shower cubicles, ablutions and Main Kitchens to be tiled to ceiling height.
- Where medical basins are used in place of Hygia basins a 610mm wide x 600mm long x 1,2mm thick stainless steel panel epoxied and stainless steel screws with chromed domed heads screwed to wall with anti-bacterial silicone sealant between surfaces, basin and panel. Panel to be 400mm above basin with elbow action taps protruding through and minimum of 150mm either side. Rev 7
- All universal undercoats are to comply with SANS 681:1997 in all respects.
- All emulsion paints are to comply with the requirements of SANS 1586:1995 Grade 1.
- All eggshell enamels are to comply with the requirements of S.A.N.S 515: of 1972 in all respects.
- All walls in patient treatment areas to be painted with a polyurethane type wash n' wear paint in compliance with SANS specifications. Rev 7
- External paint finishes are to be good quality exterior quality washable paints. Rev 7

SKIRTINGS

- Splayed and coved cement skirting is to be avoided.
- In all patient treatment areas PVC skirting to be hospital type MFE 5 or MC18C welded to floor vinyl sheeting. Rev 2
- 70mmx19mm varnished and stained to uniform colour hardwood timber to Office and Staff accommodation where carpeting is used. Rev 4
- Half ceramic or porcelain tile skirting when tiled surfaces are specified as well as around cupboard basis. Rev 6
- PVC skirting is to be taken around all fixed floor unit plinths and welded to the floor sheeting. Rev 1
- 80mm Aluminium skirting glued to partitioning. Rev 4

BUMPER RAILS

- 300x 30mm wall protection bumper rails shall be varnished laminated hard wood (no particle board) secured to walls with brass screws and silicon sealant between wall and rail for the entire length of both bottom and top. Rev 3
- Bumper rail behind all beds in Wards +/- 1,000m long x 600mm wide solid timber where required. (Due to bed heights been adjustable.) Rev 6
- Bumper Rail height from finished floor to centre of bumper rail = 850mm. Rev 1
- 300mm x1,6mm thick Grade 304 stainless steel bumper rails epoxied and screwed to walls with stainless screws +/- 30mm long. Rev 7

CORNER WALL PROTECTION

76 x 76 x 1.6mm thick x 1200mm high grade 304 stainless steel corner protection plates with +/- 30mm long stainless steel countersunk screws or glued with epoxy to all exposed corners and silicon sealant for the entire length all sides.

Rev 1

TRANSITION STRIPS

- Aluminium transition sloping Tile-In ramp as "Kirk" or "Vexcolt" at junction between vinyl sheeting and ceramic / porcelain tiles. Rev 2
- Aluminium transition threshold covers between different floor materials plugged and screwed to floor. Rev 4

FLOORING

- The floors of all rooms and corridors shall be of concrete, finished to a smooth surface ready to receive specified finish.
- All granolithic floor finishes where specified with skirtings are to remain untinted. Grano to be tested by recognized Laboratory. Rev 4
- Recessed inside entrance mats with brass frame at main entrances into a health facility as "Belgotex" "Grimebuster" or other approved. The mat must have a minimum size of 2m in length and be as wide as the entrance. Rev 6
- Structural Movement joints to be as "Migua" FV35/1500 or "Kirk" ASSJ390H with hospital insert bolted to slab before screeding for high traffic areas. Rev 2
- Aluminium movement joints for low traffic areas for vinyl and tiles with hospital insert. Rev 2
- In patient care area's, no perforations to floor covering is to be made. Eg door stops, door floor keeps etc. Rev 2

FLOOR SCREED

It is recommended that in new structures the screeding should be as specified by "Tal" using "Screedmaster", the pumped method. Application of "Screedmaster" must be done by a "Tal" approved contractor.

Rev 3

FLOOR LAYING PROCEDURES

Floor laying procedures must be in accordance with the Standard Preambles to all trades. Floor laying must only be undertaken by a manufactures approved installer and the floor screeds approved by the flooring manufacturer.

Rev 3

The floor substrate must be inspected and confirmed in writing ready for application by the flooring manufacturer.

Floor laying must comply with the floor laying procedures

Rev 3

FLOOR COVERINGS

The following floor coverings shall be as specified or other approved and used in the designated areas as specified below. Samples to be pre-approved.

Rev 7

- 920 g/sq m – 980 g/sq m sheet carpet in administration area's to be corporate colours, Belgotex and Van Dyk colours. Nile Blue / Cirrus for offices and Azure / Cobolt Blue for passages. Rev 7
- All grouting of floor tiles to be finished flush pointed to tile edges. Rev 7

	300 x 300x 8,3 - 8,5 full bodied Porcelain Tiles in compliance with UPEC specifications with joints varying from 3mm -5mm (Colour to be uniform light colour Salt and Pepper range)	Ceramic Tiles Johnson Granito GN 573 (330mm x 330mm)	Homogeneous Fully flexible Vinyl Sheeting 2,5mm thick	Polypropylene Sheet Carpet 'Fibre Weight " 920g/m ² - 980g/m ²	300 x 300x 8,3 - 8,5 full bodied Porcelain Slip Resistant tiles with joints varying from 3mm -5mm or Industrial Vinyl Sheeting 3,0mm thick	300 x 300x 8,3 - 8,5 full bodied Porcelain Slip Resistant tiles minimum certification rating of R10/R11 with joints varying from 3mm -5mm (Colours to be uniform Salt and Pepper range)	Granolithic Finish	4mm Epoxy Seamless Slip Resistant or 4mm matt polyurethane floor finish.
All Patient Treatment Areas			X					
Patient Ablution Areas	X							
Sluice Rooms/Dirty Utility	X							
Store Rooms In Health Institutions			X					
All Staff Facilities in Health institutions (Kitchens & Ablutions)	X							
Main Kitchen	X							
Administrative Office areas			X	X				
Staff Accommodation		X						
Bulk Stores							X	
Laundries	X (Dry area's)					X (Wet area's)		
External corridors and ramps						X		
Internal ramps					X			
Mortuaries								6mm X
Seclusion Rooms								4mm X
Clinic Corridors	X							X
Pharmacy Store and general work area's. (Not offices)								X
Showers if necessary								X

PATIENT TREATMENT SHOWER FLOORS

- 900 x 900mm x 88mm deep Grade 304 stainless steel shower tray. Rev 1
- Where standard size for shower tray cannot be accommodated apply 4mm slip resistant epoxy graded fall to outlet. Rev 6

RESIDENTIAL SHOWER FLOORS

- Minimum of 800 x 800 x 88mm deep Grade 304 stainless steel shower tray Rev 2
- Mosaic floor tiles where standard size for shower tray cannot be accommodated. Rev 6

PARTITIONING -

- **Patient area's if unavoidable** – If 12mm Plaster Board tapered edge dry wall partitioning is to be used, the base is to be sealed with sound insulation under the floor track for infection control with cavity batt insulation. All butt joints on plaster board to be covered with 50mm fibre tape and made good with quick dry skimming compound ready for painting. Rev 7
- Finish to be painted with a good quality acrylic paint. Recommend a fine stipple coat in an office environment in well-lit area's to avoid seeing skimming of junctions. Rev 7
- Insulation in cavities to conform to Class 1 fire index with a minimum of 50mm thick.
- Studding and tracks for partitioning to be galvanized steel and wall thickness to be 76mm finished product. All 90 degree open corners to be finished with 90 degree galvanized wall angle and made good with quick drying skimming compound. Rev 7
- Stainless steel stile Anchors to be used when using "Vitraflex" partitioning in ablution facilities or other approved "Solid Core" material with formica finish and framework. Rev 4

DOOR FRAMES

- All door frames to be 1,6mm thick with mitred top corners, joints seam welded supplied with corner stiffeners in the reveals on the inside. Rev 4
- 1,6mm thick Grade 304 stainless steel frames to all new Health Facilities. eg Hospitals, CHC and clinic's excluding ancillary buildings. Rev 7
- In areas in CHC's and Hospitals where trolleys will be used and entrances to wards, 1,6mm thick door frames to be splayed type with the rebate protecting the door edges. Rev 7
- Rebates in frames to be +/- 45mm where required to accommodate the door thickness and the stainless steel plates and returns. Rev 7
- Residential units doorframes to be mild steel hot dipped galvanised (Architectural finish) 1,6mm thick double rebated conforming to SANS121, SABS and ISO 1461. SANS for galvanizing. Certificate for galvanizing to be requested for control purposes. Rev 7
- Alterations to existing facilities, (not individual blocks) all frames to be 1,6mm thick, have mitred top corners seam welded supplied with corner stiffeners in the reveals on the inside. The profile of the new frame to match the existing frame. Rev 4
- Service ducts, fire hose reel cupboards and electrical cupboard / duct frames can be timber. Rev 3
- Stainless steel hinges for stainless steel frames and brass for all other frames. Rev 4

- Frames to be checked out to accommodate hinges with back plate. Hinges are not to be welded to frames. Rev 4
- Extended broad Butt brass hinges are preferred to Parliament hinges to external outward opening double swing doors.
- All doors to be hung on three hinges with the top two hinges been +/-300mm spaced apart from each other. Rev 4
- Door locksets to be set at 1,2m above floor level. Frame checked out accordingly with chrome adjustable striker plates screwed in position. Rev 4
- Door handle lockset check out in frames for fire escapes and paraplegic entrance doors to be at 1m from finished floor. Rev 7
- Backs of all galvanized and standard oxide primed metal door frames to be painted with bituminous paint. Rev 7

DOORS

- All doors shall be solid core timber. Rev 3
- Plant room doors shall be galvanised mild steel. Rev 3
- Record room doors shall be purpose made. Rev 5
- Double doors with one way swing to have rebated meeting stiles. Rev 3
- In-patient treatment areas where double swing doors are required, the meeting stiles are to be bull nosed wrapped with stainless steel cladding around.
- Use of folding type doors is to be avoided.
- Sliding doors with heavy duty sliding mechanism can be used in areas where space is of a premium. Rev 3
- Access control doors are to be provided in special cases – e.g. Entrances to Neonatal / Specialized Wards and Main Entrances into Hospitals.
- Hollow core doors are not to be used in any circumstances.
- Doors to wards must be a minimum of 1,350 m clear hung in two leaves. (One and a half doors.) One leaf is to be hung so as to screen the patient in the open position.
- All doors to patient treatment areas are to be a minimum clear width of 1,000mm cladded with Grade 304 stainless steel lining to be 1,2mm thick x 1,1m high generally, to entrance face, returning on lock side of door. Rev 7
- All linings, kick and push plates to doors are to be Grade 304, 1,2mm thick stainless steel. Rev 3
- Linings are to be glued to door face with Epoxy Adhesive or screwed with countersunk stainless steel screws +/- 20mm long screwed along the edges at 150mm c/c.
- Push plates to be 350mm long x 150mm wide fixed to both sides of door.
- All fire escape route doors and server room doors to be solid core with a minimum of 2 hour Fire Rating. Rev 3
- Where framed ledged and braced doors are specified, braces to be fitted falling from lockset side down to hinge side. Rev2
- Service duct doors to suit the size of service ducts. Rev 3
- Sliding doors to X-Ray rooms to 2,0m x 2,1m high hung on approved heavy duty hanger with timber pelmet over mechanism. Door to be lead lined and cladded with grade 304 stainless steel x 1,2mm thick cladding around edges, returned on inside to a height of 1,1m from lower edge. Door to overlap opening reveals of 100mm on each side.

- Sliding doors for Theatre doors in District hospitals to be manually operated with Theatre doors in Regional Hospitals Electrically operated. Rev 4
- No glazing is to be installed in any door or curtain walling below lock rail or 1,2m from finished floor level. The use of aluminium panels to be used. Rev 5

GALVANISED STEEL DOORS

All plant room doors to be hot dipped galvanised louvered doors either single or double as per departmental type drawing No 3025H/02 conforming to SANS 121, SABS and ISO 1461 specifications for galvanizing.

DOOR TYPES

Fitted At	Size	Locks, barrel bolts, floor springs & hinges	Handles	Door Stops	Cladding (Grade 304 s/steel)
Main Hospital Entrance	1800 x 2032 x 40 with safety glazing viewing panel or Glazed Aluminium	Dead Lock with escutcheons, flush bolts to one leaf at the top only, 1 pair double action transom closure with shoe strap	2 pairs of pull handles	Floor mounted door holder satin chrome finish.	Kick and push plates if required
Hospital Passages	1800 x 2032 x 40 with safety glazing viewing panel	Dead Lock with escutcheons, flush bolts to one leaf at the top only, 1 pair double action transom closure with shoe strap	Push plates	Floor mounted door holder satin chrome finish.	Kick and push plates
Main Ward Block :- Entrance	1800 x 2032 x 40 double swing with 300 x 300 with safety glazing viewing panels mounted 1,5m above floor	Dead Lock with escutcheons, flush bolts to one leaf at the top only, 1 pair double action transom closure with shoe strap, 90 degree hold open	Hospital pull handles to 900 leaf	Floor mounted door holder satin chrome finish to one leaf only.	Stainless steel Cladding
Ward Entrance	1350 (900 + 450) x 2032 x 40 with safety glazing viewing panel	3 pairs of butt hinges, flush bolts to the 450mm leaf at the top only,	Hospital pull handles to 900 leaf	Foot operated door holder	Stainless steel Cladding
Ward Kitchen	1350 (900+ 450) x 2032 x 40 with safety glazing viewing panel	3 pairs butt hinges Dead lock and roller bolt latch 200mm flush bolt to top	Hospital pull handles to 900 leaf and push plates	Foot operated door holder	Stainless steel Cladding

		of 450mm leaf only 3 pairs of butt hinges Dead lock and roller bolt latch			
Sluice / Utility Rooms	813 x 2032 x 40	Dead lock and roller bolt latch 1 1/2 pairs of butt hinges	Approved pull handles and push plates	Wall mounted door stop	Stainless steel Cladding Stainless steel Cladding
Patient Ablution Lobby entrance	813 x 2032 x 40	1 1/2 pairs of butt hinges. Push and pull with door closure	Approved pull handles	Wall mounted door stop	
Toilet & Change Room doors	813 x 1960 x 40	1 pair rising butts, stand closed, Indicator bolts	Approved pull handles	Rubber buffer hat and coat hook	
Store, Linen Rooms	813 x 2032 x 40	1½ pairs butt hinges Dead lock and roller bolt latch	Approved pull handles and push plates	Wall mounted stop	
Counselling, Consulting, Rest Rooms, Duty Rooms and Offices	1000 x 2032 x 40 813 x 2032 x 40	1½ pairs butt hinges. Deadlock, push and pull, thumb turn cylinder	Approved pull handles and push plates	Wall mounted stop	Stainless steel Cladding Stainless steel Cladding
Theatre into Passage	1800 x 2032 x 40 sliding with 300 x 300 viewing with safety glazing panels	Non censored Electrically operated with manual over ride switch in Regional	2 pairs of recessed pull handles – Back to back		Stainless steel Cladding all around to 1,1m high

Theatre Suites	mounted 1,5m above floor 1500 x 2032 x 40 double swing	Hospitals. District hospital manually operated. Dead Lock with escutcheons, flush bolts to one leaf at the top only, 1 double action transom closure with shoe strap, 90 degree hold open.	Hospital pull handles	Wall mounted	Stainless steel Cladding all around to 1,1m high
Scrub Room into Theatre	1000 x 2032 x 40 with safety glazing viewing panel	Double action transom closure with shoe strap	No Pull Handles to be fitted. Push plates	Wall mounted	Stainless steel Cladding all round to 1,1m high
Induction and Tray Setting Rooms into Theatre	1500 x 2032 x 40 sliding		Flush pull handles		Stainless steel cladding to 1,1m high
Doctor's Change Rooms	813 x 2032 x 40	½ pairs butt hinges. Deadlock, push and pull, thumb turn cylinder	Approved pull handles and push plates door closure	Floor mounted	Stainless steel cladding to 1,1m high
X-Ray Department - Outer door	1800 x 2032 x 40 with 2mm lead sandwiched between. Concealed edges	Heavy duty sliding door gear. Chromed Lockable heavy duty hasp and staple.	Recessed pull handle or other as specified	Rubber buffer in rail	Stainless steel Cladding to 1,1m high
- Inner door	813 x 2032 x 40	1½ pairs of butt hinges Dead lock and roller bolt latch	Approved pull handles and push plates	Wall mounted	Stainless steel cladding to 1,1m high
- Diagnostic Rooms	813 x 2032 x 40	1½ pairs of butt hinges Dead lock and roller	Approved pull handles and push plates	Wall Mounted	

		bolt latch			
Occupational & Physio Therapy	1500 x 2032 x 40 double swing with safety glazing viewing panel	Dead lock and roller bolt latch with a flush of bolt to one leaf. 1 pair transom closure and shoe	Approved pull handles and push plates	90° hold open door closure on inside	Stainless steel cladding to 1,1m high
Casualty & Outpatients	1500 x 2032 x 40 double swing with safety glazing viewing panel	Dead lock and roller bolt latch with a flush of bolt to one leaf. 1 pair transom closure and shoe	Approved pull handles and push plates	90° hold open door closure on inside	Stainless steel cladding to 1,1m high
Pharmacy: - Main entrance	1000 x 2032 x 40mm solid with burglar proofing.	1½ pairs butt hinges, Five lever deadlock. Approved locking device to burglar proofing. Door closer.	Approved pull handles and push plates	Wall mounted	
Bulk Stores	2.5mtr x 3mtr high Roll – up galvanized steel shutter door with chain operated on inside where wicker gate is provided.	Approved additional locking device to base of roller shutter door.			
Dispensary	1000 x 2032 x 40	1½ pairs butt hinges Dead lock with security knob cylinder on inside and roller bolt latch	Approved pull handles and push plates	Wall mounted	
Dispensary serving hatches	Light weight +/- 750mm wide x 900mm Roll-up epoxy powder coated steel shutter door over vertical sliding window.				

Main Kitchens	1800 x 2032 x 40 double swing with 300 x 300 with safety glazing viewing panels mounted 1,5m above floor	Dead lock and roller bolt latch with a flush bolt to one leaf. 1 pair transom closure and shoe.	2 pairs of pull handles – Back to back	Stand open 90° check on inside	Stainless steel cladding all around to 1,1m high
Residential, Nurses Homes, Doctors on Call and Mothers Lodgers Bedrooms	813 x 2032 x40	1½ pairs of butt hinges Dead lock with knob on inside and roller bolt latch	Approved pull handles	Wall mounted	
En-suite Ward Ablutions	813 x 2032 x40	1½ pairs of butt hinges Dead lock with knob on inside and roller bolt latch. Door closure	Approved pull handles	Wall mounted	
UPS / Data / Telkom server rooms.	900 x 2032 x40	1 1/2 pairs of butt hinges.		Wall mounted	
Fire escapes	900 x 2032 x 40 1800 x 2032 x 40	Opening outwards. Touch bar panic latch for single or double. Door closure for outward opening door.	Push plate.		
Plant Rooms, Electrical Ducts and LV and HV Rooms	Size to suit	1½ pairs of butt hinges Dead lock for HA1 key and roller bolt latch	Approved pull handles	Heavy duty Cabin Hook and eye where required fixed to 100mm x 100mm hard wood varnished	
Paraplegic Toilet door	1000 x 2032 x 40	1½ pairs of butt hinges with facility indicator bolt and roller bolt latch.	Pull handle on external door face and one on internal face 200mm from hinge edge		Stainless steel cladding all around to 1,1m high

Rev 5

GENERAL IRONMONGERY

Refer to the Kwazulu Natal Department of Health Standard Preambles to all Trades. Surface finishes should be restricted to polished chrome or satin chrome on all approved ironmongery for external and internal doors – unless otherwise stated. Where surface mounted door closers are used on doors opening into a corner, a 76 mm nib is to be allowed. (Door closers mounted inside). Mortise type door closers do not require a nib, but should have a minimum 150 mm top rail. Toilet doors must be fitted with indicator bolts.

LOCKS

- Dead Locks to be minimum of three-lever type unless otherwise specified. External doors are to be fitted with 5 lever deadlock. Rev 7
- Main ward block entrance door shall be fitted with deadlock, roller bolt and pull handles. Rev 5
- Internal ward and ablution entrance doors shall not be fitted with locks sets. Roller bolt latch to be used and pull handles. Rev 6
- Plant room and service duct doors at each institution to be keyed alike with type HA1 locks.
- Master Keying is not allowed in any institution.
- Cupboards in common Kitchens that are used by all staff are not to be provided with locks.
- Cupboard Locks: - All locks where used to be solid CP brass barrel type cupboard locks.
- All built in cupboard doors with locks in a Nurse's Home bedroom are to be keyed alike.
- Oval cylinder dead lock as "Union" L-2153-40 and escutcheons with Cranked pull handle as "Union" AL5512-300FL and escutcheons to high traffic entrance and exit doors or other approved. Rev 4
- Mag locks to be set and secured to the inside of a rectangular tube which is to be the full width of door opening. Tube to be bolted to transom or under top of frame and screwed to frame styles. Rev 7

LOCKSET

Preferred ironmongery for office environment in any health facility is:-

Lockset as deadlock, push and pull and roller ball catch.

Deadlock, push and pull, thumb turn cylinder inside including escutchsions and keeps. Rev 7

JOINERY

- Doors, drawer fronts and cupboard carcasses to be constructed out of 16mm Melamine faced "V313" moisture resistant particle board (Identifiable by green in colour) with 2mm high impact edging or 16 x 10mm hard wood edging. Rev 7
- "Supa Wood" is only permitted for internal shelving, and not for cupboard construction or in exposed external surfaces in any Health facility.
- No cupboards under sinks. Provide open slatted rails under.
- Worktops in general to be 32mm solid post formed Formica on "V313 (HMR)" (High Moisture Resistant) particle board in non-moisture areas.
- Worktops against sinks can be "Rustenburg" Black granite slab with silicone sealant at all joints or Solid Surfacing worktops as in "Surinno, Corrian or Caesar Stone" in high moisture usage area's adjacent to sinks and Laboratory worktops if stainless steel is not used. Rev 4
- Preferred wardrobe cupboard doors in Nurses' Home bedrooms to be sliding door type.

SHELVING

- Epoxy powder coated sheet metal adjustable shelving free standing units or pine lacquer finished Modular Timber Shelving to be provided in storerooms. Floor standing shelving units are to include a base shelf. Rev 4
- With metal units, corner support post feet to be fitted with PVC covers to protect the floor coverings.
- In linen storage rooms, slatted wooden shelving is to be provided varnished.
- Width of shelving will be determined during documentation to meet the specific storage requirements. (All shelving must be securely braced).
- All shelving in Pharmacy's to be epoxy powder coated sheet metal adjustable free standing units.
- Theatre and CSSD's shelving to be Grade 304, minimum of 1,2mm thick stainless steel with stainless steel connectors, bolts, support framework, screws etc. Rev 5
- Shelving in CSSD Sterile Store to be slatted type bars of grade 304 stainless steel minimum of 1,2mm thick stainless steel. Rev 5
- The use of epoxy metal slotted wall bands and cantilevered brackets to be avoided in all storage area's. Rev 5

WINDOWS AND BURGLAR PROOFING

- Anodised or epoxy powder coating conforming to Class 2, 25 year guarantee, 60-80 µm dry-film thickness and SANS 1796 certified applicator. Window Sample to be provided. Any supplier / manufacturer / subcontractor shall be registered with AAAMSA (Association of Architectural Aluminium Manufacturers of South Africa).
- S.A.N.S approved UPVC windows with galvanized metal core can be specified. Rev 7
- Sills of all staircase windows must be not less than 1 m above floor level or landings, especially in Nurses' homes and public areas.
- Where windows exist that are less than 1m off floors, safety glass must be used in areas below 1,2m high and where there is a possibility of persons falling down staircases at landing level.
- Provision is to be made for external cleaning of windows.
- Suitable secured access to flat roofs.
- In general all ground floor facilities must be burglar proofed. Specification must be approved prior to installation.
- In multi-storey buildings, all windows in patient treatment areas to be burglar proofed or openings of top hung sashes to be fitted with restriction stays with maximum opening of 35 degrees.
- In areas where access can be gained to higher levels via flat roofs or adjoining roofs these windows / doors are to be burglar proofed.
- Vertical Blinds are the preferred covering to windows.
- Retractable PVC mesh Mosquito screens are to be provided to all opening window sections in Malaria risk areas. Rev 3
- All glazing to patient treatment area's to be obscure glass up to +/- 1,5m from inside finished floor level or to nearest glazing bar / transom. Rev 7

SILLS AND FASCIAS

- Wherever practicable, the standard type of dark fibre cement sills unfinished should be installed internally. Discretion must be exercised in the use of Fibre cement coloured sills externally because of their liability to fade.
- Wherever practicable and particularly in damp, humid areas, the use of Fibre cement fascias and bargeboards is recommended.
- Recommended that Fibre cement fascias and bargeboards are not being painted.

- Brick on edge sills must be used in face brick buildings.

CEILINGS

- **Plasterboard Ceilings**

- Truss or Rafter suspension

- 7mm Plasterboard where specified internally with 75mm Cove cornice and minimum of 4mm fibre cement board externally and to ablution facilities. All sheeting to be fixed at right angles to 49 x 19 x
 - 0.5mm Furring channels at no greater than 400mm centres or 38 x 50mm branderling at no greater than 400mm centres. Fixing of sheeting must be at no greater than 150mm apart. Cover strips to be powder coated metal "H" section..

- Concrete suspension

- 7mm Plasterboard where specified internally with 75mm Cove cornice and minimum of 4mm fibre cement board externally and to ablution facilities. All sheeting to be fixed to Fire rated concealed tee grid system consisting of 38 x 40 x 0.35mm Main tees and perpendicular cross tees at 300mm centres. Fixing of sheeting must be at no greater than 150mm apart. Hangers for concealed tee system are to be 25 x 25 x 0.8mm thick galvanised angles, fixed to concrete by means of 6 x 30mm express nails and washers.

- Exposed Grid ceilings

- Suspended ceilings

- Suspended ceiling panels in all installations are to be 1200 x 600 x 6mm Calcium Silicate vinyl finish with 25mm Fire retardant polystyrene insulation backing glued on or 1200 x 600 x 6mm fibre cement vinyl finished, embossed or painted with 25mm high density polystyrene insulation backing glued on.
 - Ceilings and support framework are to comply with Part T of the national building regulations with tiles in compliance with Surface Fire Index Test : SANS 10177 Part 3 Class 1 and SANS 428 overall classification Class B/B1/2.
 - Hangers for suspended ceilings are to be 19mm wide by 0.5mm thick galvanised strapping, strapped and secured to tie beams by means of 32mm grabber screws or fixed to concrete soffits by means of 6 x 30mm express nails and washers. All tee sections and wall trimmings to be of galvanised metal powder coated to specified colour. Grid Tee system to consist of 38 x 24 x 0.35mm Fire rated Main and Cross tees. Main tee suspended at 1200mm centres and Cross tees to be fitted at 600mm centres, at right angles to main tees. Room perimeter to be finished with 20 x 20 x 20 x 20 x 0.5mm Shadowline Wall Trim fixed to wall by means of wall anchors at 450mm centres.
 - Support T sections for light fittings to be secured at diagonal corners of fitting to roofing members or concrete soffits.
 - Fittings to ceilings or hospital curtain track hangers are to be secured through suspended ceiling grid system and supported from roof truss tie beams or concrete slab.
 - In new theatres, ceilings are to be plastered concrete.
 - In the upgrading of existing theatres with plasterboard ceilings, these are to be skimmed with no visible joints or cornice.
 - Pharmacy ceilings shall be fitted with burglar proofing in roof space, or concrete slab to new facilities.
 - 900 x 600mm prefabricated hinged trap doors in solid ceilings, installed in each fire zone area: I.e. between firewalls.
 - Existing buildings to be fitted with an one hour fire brake on top of existing 230mm walls to underside of concrete slab or roof structure, consisting of 65 x 6.5 x 0.5mm Drywall tracks at wall top and roof or slab with 63.5 x 35 x 0.5mm

Drywall studs fixed vertically at 600mm centres with Wafertek screws. Fit 15mm Fire Guard board on both sides by means of 25mm Drywall screws at 230mm centres. Fire wall cavity to be lined internally with Ultimate U Thermo 6 , 50mm mineral fibre insulation board. System in compliance with SANS 10177 part 2-2005, with a minimum 60 minute fire rating.

Rev 7

ROOFS

- Timber roof trusses to be supplied with relevant TR1 and TR2 certificates.
- Structural steelwork trusses are to be specifically designed and must also be supplied with relevant Engineers Design drawings and certificates. Rev 1
- Roof pitches for metal roof coverings to be a minimum of 10° and for Concrete Roof Tiles a minimum of 17½°. In snowfall area's additional Design Criteria is required from a certificated Structural Engineer. Rev 1
- Flat roofs are not permitted.
- Simple and economically design principles must be followed for all roof structures.
- All valley's to have a minimum of 50mm wide between roof finish for ease of cleaning. Rev5
- No box gutters are allowed. Rev 4
- Roof lights must be avoided. Rev 4
- Sufficient gang planks and work platforms are to be provided in the roof space. Rev 3

ROOF COVERINGS

- The preferred roofing material is Secret fixing type galvanised sheeting with a "Chromodek" finish of specified colour to upper side.
- 0,58mm thick roof sheeting for purlins up to 1,2m c/c spacing and 0,8mm thick roof sheeting for purlins 1,2m to 1,7m c/c maximum spacing. Rev 1
- 0,53mm thick Zinculume coloured metal secret fix roofing sheets is required within 50 kilometres from the coast. Rev 7
- All other area's to be 0,58mm as "Global-Tech" corrosion protection.
- "Klip Lock 700" or "Craftlock" roof sheeting. Installed as per manufacturer's instructions. Rev 4

INSULATION

- "Sisalation" FR 405 or other approved insulation on 3.2mm galvanized straining wires or straining tape to be laid on truss under all metal roof sheeting and concrete tiles in any health facility.
- In residential units with Rhino board ceilings, "Aerolite" or 100mm "Isotherm" must be used above solid ceilings. (Not suspended type). Rev 5

GUTTERS, DOWNPIPES

- The preferred guttering is continuous extruded Aluminium with "Chromodek" finish with under gutter bracket. Rev 6
- Gutter brackets to be fixed through fibre cement fascia into tilting batten or purlin. If this is not achieved, brackets to be gutter bolted to fascia. Rev 6
- Additional under gutter brackets ± 750mm apart – are to be fitted in snow and hail areas.

PLUMBING

- All ceramic basins to general areas, sinks and wash troughs are to be supplied with overflows. Request for overflows in stainless steel fittings is to be made at time of order, as this is not a standard supply.

- Basins fitted to Wards, Counselling / Consulting Rooms (Patient treatment areas) to be vitreous china Hygia Basins with chrome plated bottle traps as Cobra 340. Height to be 950mm above floor level to rim.
- Flexitraps are not permitted as traps fitted to patient treatment basins. Rev 7
- All Medical basins shall be wall mounted for ease of cleaning floors positioned 950mm above floor finish. Rev7
- When Medical basins are used in lieu of Hygia basins, these are to be Sola 610 type installed to height of 950mm above floor level to rim. Rev7
- Elbow action taps of +/- 180mm long arms from spindle to lever edge in all area's. Rev7
- **Note that elbow action taps must be positioned at 45 degrees from back wall in the shut position and open inwards.** Rev 7
- The preferred type W/C suite to all areas except public ablutions and Paediatric toilets is "Vaal Aquasave" - or other approved.
- In Public ablutions the preferred W/C pans are to be "Marley" Gypsy Vandal Proof type.
- Paediatric ablutions are to have at least one Junior W/C suite and one low level basin and urinal.
- All Patient ablutions with multiple units in excess of three points in any one facility - i.e. W/C pans and wall mounted Urinals - to be provided with Odour extraction system similar to "Toilet Friend" or mechanical designed odour extraction exhaust systems for infection control as in "Hygizone". Rev 6
- External Visitor's toilets and Guard Hut wash hand basins to be fitted with "Pillar adjustable demand" taps KM2.102 type with cold water supply only. All non- medical wash basins to ablation area's, i.e. staff, residential and patient areas taps are to be adjustable "Pillar demand" taps KM2.102 type with hot and cold water supply in residential units only. Rev5
- Shower cubicles to be provided with extraction system for hot water vapour.
- Shower heads to be vandal resistant and of water saving type. Rev 3
- Provide Paraplegic ablation facilities as per National Building Regulations.
- If Flush Valves are used, these are to be "Flushmaster Junior" where there is insufficient water pressure.
- No drop - in sinks are permitted in post formed formica worktops. These are to be sit-on type. All sinks and wash troughs are to be Grade 304, 1,2mm thick stainless steel complete. Counter tops to be made same width as sink unit. Rev5
- Appropriate sized double chamber instant water heater to be positioned over sink bowl not draining board in all Kitchenettes. Rev5
- In seclusion rooms, mortuary receiving areas and laundries, sluice rooms and hospital kitchens grade 304 stainless steel extendable type floor drains with interior removable foul air trap, screw down stainless steel grid is to be provided. Rev 7
- All Floor drains to main hospital kitchen facilities to be manufactured from grade 304 stainless steel with stainless steel under floor piping to an external grease trap. Rev 3
- Water reticulation (hot and cold water) – Must comply with the KwaZulu-Natal Department of Health's Policy Document for Mechanical Installations.
- Hot water temperature for patient and staff areas shall not exceed 60°C **at the point of use.**
- Hot water temperature for paediatric and geriatric wards shall not exceed 40°C **at point of use.** The use of thermostatically controlled mixing valves on the hot water line is recommended near the point of supply. Rev 1

- PVC sleeves in holder bats - not rubber - in particular to hot water piping. Rev 2
 - Hot water piping built into walls to be lagged with brown paper for expansion and contraction. Rev 2
 - Ablutions and bathrooms where required to be fitted with "Plexicore" type moulded fibreglass baths bedded down securely. Rev 7
 - All shower trays to be stainless steel or other as specified. Rev 3
 - All residential waste outlets in bathrooms and kitchens to be fitted with a flexi trap. Rev 3
 - Where copper water piping is used, this is to be Class 2.
 - Only precast / prestressed concrete and brick septic tanks will be permitted. No plastic extruded moulded septic tanks are to be used. Rev 5
 - Provide stop cocks for servicing of plumbing fittings where no valves can be provided under ie Hygia Basins, above ceiling level clearly indicated with Red and Blue dots with the wording Valve "ivorene" label. Rev 6
 - No service pipes, eg, sewer and water are to pass through any plant room including medical storage area's. Rev 6
 - No dead legs in water reticulation systems are permitted. Rev 7
- SEWER / STORMWATER COVERS ETC.**
- The use of hinged Ductile iron manhole covers and grates to be used in preference to cast iron. Rev 7

URINALS

Stainless steel for stall urinals in Public Ablutions.

WATER STORAGE

- Water towers and other water storage facilities at health institutions must be provided .
- The use of sectional steel tanks on stands with ladders, cat-walks and safety rails. Tanks must have a storage capacity holding a minimum of 3 day's water supply including fire usage.
- 72 Hour water storage capacity shall be provided and if storing more than 100kl then the bulk of storage will be at ground level with a maximum of 50kl elevated storage.

WATER SUPPLY PIPES

Refer to KwaZulu-Natal Department of Health's Preambles to all Trades.

SUNDRY HOSPITAL EQUIPMENT

- Bedpan washer - Sluicing must be provided in all ward Sluice Rooms
- In rural hospitals mechanical water driven sluicing sink shall be provided. Rev 5
- In urban hospitals electrically driven bed pan sluicing machines shall be provided. Rev 5

The following items should be included in the building contract in consultation with the relevant hospital procurement section to determine what is presently under contract: -

- Drug cupboards: - 45 (l) stainless steel metal drug cupboard with flat top size 457, 2 (h) x 355, 6 (l) x 228, 6 (w) bolted to wall in Nurses Station. Provide 3 per Nurses Station. Rev 1

- Soap Dispensers: - Elbow action lever type with bottle container for dispensing of the liquid as in the High Scrub grade 304 stainless steel type. Rev 7
- Toilet Roll Dispensers: -Toilet roll dispenser to be theft proof, lockable container with keys and to carry three standard toilet rolls. Used roll to be easily removed from unit below without having to unlock unit. Unit to be manufactured from mild steel and epoxy powder coated - colour white. Unit to be fixed to wall with four screws.
- Mirrors: - Heavy Duty 400 x 500 x 15mm Grade 18/10 stainless steel screwed to wall in public ablutions. Rev 1
- Garbage peddle bin holders: - 20 litre x 1,2mm thick polished stainless steel pedal bin outer unit, 290mm Diameter x 455mm Height with 40mm Skirting and Safety edge. Removable inner bin with stainless Steel handle for easy disposal of contents. Stainless Steel robust pedal mechanism. Polished Stainless Steel Foot pedal with 8mm solid rod for durability. Rev 5
- Towel Dispensers: - Paper towel dispenser to be the reflex type. Rev 2
- Doctor's Lockers: - shall be included in the building contract bolted to wall.
- Bedside Lockers: - Ward layouts should indicate the bedside locker is positioned to the left of the patient. This dictates the positions of the service outlets etc. in the bed head ducting and lighting system.
- "Forwin "hospital curtain tracks supplied with curtains. (Chintz fabric (#155CZ) woven with 100% polyester yarn) to be provided in building contract Rev 5
- Curtains or vertical louver drapes to be provided in building contract. Rev 5
- Electric Hand Drier's are not to be used in any Patient Care facility.
- Lockable epoxy coated metal key cupboards located in suitable areas. Rev 3
- Hand Gun safes to be provided in security guard hut. Three maximum. Rev 3

KWAZULU-NATAL PROVINCIAL ADMINISTRATION

DEPARTMENT OF WORKS

**GENERIC CONSTRUCTION SAFETY, HEALTH
AND ENVIRONMENTAL SPECIFICATION**

EXPLANATORY NOTES TO BIDDERS

- (1) This document should be used by a Bidder as the basis for the proposed project specific "Construction Phase Safety, Health and Environmental Plan" which is required to be submitted by a Bidder at the time of bid. The Bidder is therefore required to study this document together with the drawings issued with the bid document – see clause 8 of the Notes to Bidders included in the bid document and based on the Bidder's assessment of the work involved in the project, prepare and submit the required project specific "Construction Phase Safety, Health and Environmental Plan" required to be submitted at the time of bid.

Bidders are advised that failure to submit an acceptable project specific "Construction Phase Safety Health and Environmental Plan" together with the bid will invalidate the bid.

- (2) The following definitions are applicable:

CEO	:	The Chief Executive Officer of the Principal Contractor or person authorized to sign the bid and all contractual documentation on behalf of the Principal Contractor.
Client	:	The KwaZulu-Natal Provincial Department of Works
Contractor	:	The entity to whom the contract for the specific project has been awarded.
Construction Regulations or Con. Regs	:	Means the Regulations published in Government Gazette No. 25207 dated 18 July 2003 and amendments thereto.
CSHEP	:	Construction Phase Safety, Health and Environmental Plan.
H & S	:	Health and Safety
OHS Act	:	Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and amendments thereto.
Principal Contractor	:	The entity to whom the contract for the specific project has been on.
SANS	:	South African National Standard.
SHE	:	Safety, Health and Environmental.



**GENERIC PRE-CONSTRUCTION SAFETY, HEALTH AND ENVIRONMENTAL
SPECIFICATION IN TERMS OF THE
OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO. 85 OF 1993) AND THE
REGULATIONS MADE IN TERMS OF THE ACT.**

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1. INTRODUCTION AND BACKGROUND

1.1 Background to the Pre-Construction Safety, Health and Environmental Specification .

- 1) In terms of Regulation 4(1)(a) the Construction Regulations dated 18 July 2003, published in Government Gazette No. 25207 the onus is placed on the Client to prepare a Pre-Construction Health and Safety Specification, highlighting all risks not successfully eliminated during design. Section 37.2 of the OHS Act requires the Department of Works as an Employer (the Client) to enter into a written agreement with the Contractor (Mandatory) as far as arrangements and procedures are concerned to ensure that the Contractor complies with the requirements of the Act and the Regulations published in terms thereof.
- 2) This document serves to address all the abovementioned requirements as well as ensuring that the Contractor's activities do not pose a risk to the environment, and by submission of a bid the Bidder undertakes to abide with the conditions as stipulated by the Department of Works hereinafter referred to throughout this document as the Client.
- 3) The documentation contained herein is intended to give the Client or its duly appointed representative the required information to be able during the bid adjudication stage to evaluate the Bidder's competency and resources as is required by Regulation 4(4) of the Construction Regulations and to determine the Bidder's suitability to execute the work included in the project in a safe and healthy manner.
- 4) When submitting his/her/their bid the Bidder must supply the Client with the following a detailed Site Safety Plan indicating how the successful Bidder will manage all Safety, Health and Environmental aspects whilst working on the Client's premises or on premises which will be under the successful Bidder's control which must be based on the contents of this document as is required by Regulation 5 (1) of the Construction Regulations. The Site Safety Plan must incorporate a preliminary Hazard Identification and Risk Analysis – see 2.5.7 hereof.

No claim for additional costs incurred by a Contractor for compliance with the OHS Act, the Regulations in terms thereof or the Construction Regulations will be entertained.

- 5) No approval or acceptance of any document required by this Specification shall be construed by the Contractor as absolving the Contractor from achieving the required level of performance and compliance with legal requirements whatsoever.
- 6) The Contractor is an employer in his/her/their own right and therefore must assume all the responsibilities as required from any legal obligation imposed on him/her or them.

1.2 Purpose of the Pre-Construction Safety, Health and Environmental Specification.

The purpose of this Specification is to assist in achieving compliance with the OHS Act and the Construction Regulations in order to reduce incidents and injuries. The Pre-Construction Safety, Health and Environmental Specification sets out the requirements to be followed by the Principal Contractor and Sub- Contractors so that the Health and Safety of all persons potentially at risk, and the potential risk to the environment may receive the same priority as other facets of the project such as Time, Cost and Quality.

1.3 Implementation of the Pre-Construction Safety, Health and Environmental Specification

This Specification forms an integral part of the contract documentation and the Principal Contractor is required to use it at pre-bid phase when drawing up the project-specific Construction Phase Health, Safety and Environmental Management Plan as indicated above. The Principal Contractor must forward a copy of this Specification to all Sub-Contractors at their bidding stage so that they can in turn prepare Safety, Health and Environmental Management Plans relating to their operations.

2. PRE-CONSTRUCTION SAFETY, HEALTH AND ENVIRONMENTAL SPECIFICATION.

2.1 Scope

This Specification covers the requirements for eliminating and/or mitigating incidents and injuries on projects.

This Specification also addresses legal compliance, hazard identification and risk assessment, risk control, and the promotion of a Health and Safety culture amongst those working on the project. This Specification also makes provision for the protection of persons other than employees.

2.2 Contractual Issues .

- 1) Due to fact that this document is based on legislative requirements, the Client requires that all Contractors comply with the requirements of this document and all other relevant legislative requirements not covered by this document.
- 2) The Client or its duly appointed representative reserves the right to stop any Contractor or Sub-Contractor from working whenever Safety, Health or Environmental requirements are being violated. Any resultant costs of such work stoppages will be for the relevant Contractor's account.
- 3) The requirements as specified by the Client in this document must not be deemed to be exhaustive and the Client reserves the right to make changes as and if the Client deems fit.
- 4) The Client will not entertain any claim of any nature whatsoever which arises as result of costs incurred or delays being experienced due to the Contractor not complying with the requirements of this document and/or any other applicable legislative requirements imposed on the Contractor.

2.3 Safety, Health and Environmental Standards and Procedures .

- 1) The Principal Contractor and Sub-Contractors must ensure that all work performed by him/her is executed in accordance with work procedures which comply with accepted safety practices and applicable Safety, Health and Environmental legislation.
- 2) Procedures as indicated above may be the Contractor's own procedures on condition that they comply with the conditions as stipulated above.
- 3) Where procedures have been specified by the Client in the contents of this document, such procedures must be adhered to unless otherwise agreed to with the Client or it's duly appointed representative.

2.4 Interpretations

2.4.1 Application

This specification is a compliance document drawn up in terms of South African legislation and is therefore binding on both the Client and Contractors. It must be read in conjunction with relevant legislation.

2.4.2 Definitions

- 1) The definitions as listed in the OHS Act and Construction Regulations shall apply unless otherwise stipulated.
- 2) Any reference to "The Contractor" includes – the Principal and Sub - Contractor unless otherwise stipulated.

2.5 Minimum Administrative Requirements

2.5.1 Notification of Intention to Commence Construction Work

- 1) The Principal Contractor shall notify the Provincial Director of the National Department of Labour in writing before construction work commences in the format of Annexure A. A copy of such notification must be forwarded to the Client prior to the commencement of construction work.
- 2) Copies of such notification can be obtained from any Department of Labour Office.

2.5.2 Assignment of Contractor's Responsible Persons to Supervise Safety , Health and Environmental Management on Site

- 1) The Principal Contractor shall submit in the format of Annexure B, proof of all supervisory as well as any other relevant appointments as is required by the OHS Act and the Construction Regulations.
- 2) It is acknowledged that the Principal Contractor may need to allocate more than one appointment to certain staff members. This practice may only take place if Safety, Health and Environmental Standards would not be negatively affected. Should the Client or its Representative deem such practice as having a negative affect on Safety, Health and Environmental Standards, then alternative arrangements will have to be made at no cost to the Client.
- 3) A Safety, Health and Environmental Officer must be appointed by the Principal Contractor subject to the following conditions:
 - The person must either have completed a SAMTRAC (Safety Management Training Course), which is administered by NOSA, a 3 Week SHE Management Course, which is administered by Lexis Nexis Butterworths or other course approved by Client the as a minimum requirement.
 - The following criteria shall be used to determine the status of a Site Safety, Health and Environmental Officer"
 - (a) Thirty to fifty employees on site- Part time Safety, Health and Environmental Officer spending not less than two full days a week on site; and
 - (b) Fifty one or more employees on site- A Safety, Health and Environmental Officer full time on site.
- 4) Should the Client or its Representative determine that a full time Safety, Health and Environmental Officer be appointed, such requirement will have to be met.

2.5.3 Competency of Contractor's Appointed Competent Persons

- 1) Contractor's competent persons for the various risk management portfolios shall fulfill the criteria as stipulated under the definition of "Competent Person" in accordance with the Construction Regulations and the OHS Act.
- 2) The Client reserves the right to require levels of Competency, which exceeds the requirements as stipulated by the Act and or Construction Regulations.
- 3) In the event of the Client requiring additional levels of Competency, alternative arrangements will have to be made.

2.5.4 Compensation for Occupational Injuries and Diseases Act 1993 (Act No. 130 of 1993) (COID Act)

- 1) The Principal Contractor warrants that all employees are fully covered in terms of the COID Act and that such cover shall remain in force for the duration of the contractual relationship with the Client whilst working on the Client's premises or premises under the Client's control.

- 2) The Principal Contractor must supply proof of such insurance cover to the Client at the time of bid.
- 3) The Principal Contractor undertakes to ensure that all Sub-Contractors appointed by the Principal Contractor will be fully covered in terms of the COID Act, and that such cover shall remain in force for the duration of their contractual relationship with the Principal Contractor
- 4) The Principal Contractor must also maintain additional insurance cover that will adequately make provisions for any losses and/or his employee's acts and/or omissions whilst working on the Client's premises or on premises under the Client's control.

2.5.5 Occupational Safety , Health and Environmental Policy

- 1) The Bidder shall at the time of bid submit a Safety , Health and Environmental Policy signed by the Chief Executive Officer or legally competent person on behalf of the Principal Contractor.
- 2) The Policy must outline objectives and set out how they will be achieved and implemented by the successful Bidder.
- 3) A copy of such policy must later be included in the Site Safety Plan and the Site Safety File.

2.5.6 Safety , Health and Environmental Organogram

- 1) The Principal Contractor shall submit an Organogram outlining the Site Safety, Health and Environmental Management Structure including the relevant appointments / competent persons.
- 2) In cases where appointments have not been made, the organogram shall reflect the names of persons intended to be appointed to such positions.
- 3) The Site, Safety, Health and Environmental Management Organogram shall be updated at the Principal Contractor's cost when there are any changes in the Site Management Structure.

2.5.7 Preliminary Hazard Identification and Risk Analysis and Progress Hazard Identification and Risk Analysis

- 1) A Generic Hazard Identification and Risk Analysis can be found in the format of Annexure D. This Hazard Identification and Risk Analysis is provided to make the Principal Contractor aware of potential Hazards, which could be present on the site and is not necessarily be comprehensive.
- 2) The Principal Contractor shall allow for and cause a Hazard Identification and Risk Analysis exercise to be performed by a Competent Person before commencement of construction work, and the assessed risks shall form part of the Construction Phase Health and Safety Plan submitted for approval by the Client. The Risk Assessment must include:
 - a) A list of hazards identified as well as potentially hazardous tasks;
 - b) A documented risk assessment based on the list of hazards and tasks;
 - c) A set of safe working procedures intended to eliminate, reduce and/or control the risks assessed;
 - d) A monitoring and review procedure of the risk assessment as the risks change.
- 3) The Principal Contractor shall allow for and ensure that all Sub-Contractors are informed, instructed and trained by a Competent Person/s regarding hazards, risks and related safe work procedures before any work commences and thereafter at regular intervals as the risks change and as new risks develop.

- 4) The Principal Contractor shall allow for and be responsible for ensuring that all persons who could be negatively affected by construction operations are informed and trained according to the hazards and risks and are conversant with the Safe Work Procedures, control measures and other related rules (for example "tool box talk" strategy to be implemented).
- 5) Should the Client or its duly appointed Representative identify alternative hazardous activities performed by the Principal Contractor or its Sub-Contractors on site for which a Risk Assessment was not performed, then the Principal Contractor will be required to perform such an exercise, at the Principal Contractor's cost, before continuing such work.

2.5.8 Safety, Health and Environmental Representative(s)

- 1) The Principal Contractor and Sub-Contractors shall allow for and ensure that Safety, Health and Environmental Representative(s) who, after consultation, have been appointed and trained to carry out their functions.
- 2) The appointments must be in writing and the Safety, Health and Environmental Representative shall carry out regular inspections, keep records and report all findings to the Responsible Person forthwith and at Safety, Health and Environmental meetings.

2.5.9 Safety, Health and Environmental Committees

The Principal Contractor shall ensure that project Safety, Health and Environmental Meetings are held monthly or as deemed necessary by the project requirements.

- 1) Minutes must kept on record and filed in the Site Health and Safety File.
- 2) Meetings must be organized and chaired by the Principal Contractor's Responsible Person.

2.5.10 Health and Safety Training

2.5.10.1 Induction

- 1) The Principal Contractor shall allow for and ensure that all site personnel undergo a site-specific Safety, Health and Environmental Induction Training Session before starting work. A record of attendance shall be kept in the Health and Safety file. **The Principal Contractor must arrange a suitable venue to provide this training.**
- 2) All visitors to the site must also be subjected to site-specific induction training highlighting items such as steps to follow in the event of an emergency, restricted areas and so on.

2.5.10.2 Awareness

The Principal Contractor shall ensure that, on site, regular "Toolbox Talks" take place. These talks must deal with risks relevant to the construction work at hand.

2.5.10.3 Competency

- 1) All "Competent Persons" shall have the knowledge, experience, training, and qualifications which are specifically applicable to the work they have been appointed to supervise, control, and execute.
- 2) The abovementioned competency requirements will be assessed on a regular basis by the Client, by means of Audits, Progress Meetings, and any other means deemed appropriate by the Client.

- 3) The Principal Contractor is responsible for ensuring that competent Sub-Contractors are appointed to carry out construction work.

2.5.11 General Record Keeping

- 1) The Principal Contractor shall keep and maintain Safety, Health and Environmental records to demonstrate compliance with this Specification, the OHS Act and with the Construction Regulations.
- 2) The Principal Contractor shall ensure that all records of incidents/accidents, training, inspections, audits, and the like are kept in a Site Health and Safety file held in the Site Office.
- 3) The Principal Contractor must ensure that every Sub-Contractor opens their individual Site Health and Safety file, maintains the file and makes it available on request by any duly authorized person.

2.5.12 Safety, Health and Environmental Audits, Monitoring and Reporting

- 1) The Client shall at least once a month during the duration of the contract conduct Safety, Health and Environmental audits of the work operations, including a full audit of physical site activities, as well as an audit on the administration of Health and Safety.
- 2) The Principal Contractor must allow for and conduct similar audits on all Sub-Contractors appointed by the Principal Contractor and forward copies of all reports to the Client or its representative within seven working days of completion of the audits and file copies on the Site Health and Safety File.
- 3) Copies of the Client's audit reports will be forwarded to the Principal Contractor and must be kept in the Site Health and Safety File.

2.5.13 Emergency Procedures/Plans

- 1) The Principal Contractor shall allow for and submit a detailed Emergency Procedure/Plan for approval by the Client prior to commencement of work on site. The procedure shall detail the response plan/s including the following key elements:
 - List of key competent personnel;
 - Details of emergency services;
 - Actions or steps to be taken in the event of the specific types of emergencies;
 - Information on hazardous material/situations.
- 2) Emergency Procedures/Plans shall relate to, but shall not be limited to events such as fire, spills, use of hazardous substances, bomb threats, major and minor incidents/accidents and any other anticipated emergencies.
- 3) Emergency Procedures/Plans must be developed by a competent person such as a Safety, Health and Environmental Officer or in the absence of a Safety, Health and Environmental Officer by the Construction Work Supervisor.
- 4) Emergency Procedures/Plans must form part of the Agenda of monthly safety meetings as the Procedures/Plans would have to be revisited on a continuous basis due to the changing environment on construction sites.
- 5) A contact list of all service providers (Fire Department, Ambulance, Police, Medical and Hospital, etc) must be maintained and be available to site personnel.
- 6) The Principal Contractor shall advise the Client in writing, immediately after the event, of any emergencies, together with a record of action taken.

2.5.14 First Aid Boxes and First Aid Equipment

- 1) The Principal Contractor and Sub-Contractors shall each appoint in writing First Aider(s) in terms of Regulation 3 of the General Safety Regulations published in Government Notice No. R. 1031 dated 30 May 1986 and amendments thereto.
- 2) The appointed First Aider(s) must be sent for accredited first aid training should they not have received such training prior to commencement of work on site, with any related costs being for the account of the Principal Contractor or Sub-Contractor concerned.
- 3) Valid certificates to be kept on site in the Site Health and Safety File.
- 4) The Principal Contractor shall allow for and provide an on-site First Aid Station with first aid facilities, where required, including first aid boxes which must be kept adequately stocked at all times.
- 5) All Sub- Contractors with more than five employees on site shall allow for and supply their own first aid boxes.
- 6) In the event of hazardous chemical substances being present on site, first aiders must be trained to address any incidents of accidental exposure and their first aid kits be stocked accordingly.

2.5.15 Accident / Incident Reporting and Investigation

- 1) Injuries sustained on the site are to be categorized into the following categories:
 - 1) first aid;
 - 2) medical attendance (Doctor);
 - 3) disabling; and
 - 4) fatal injuries.
- 2) All Sub- Contractors have to report on any of the four categories of injuries to the Principal Contractor as soon as is reasonably practicable after the event causing injury and in any event not more than five working days after the event.
- 3) The Principal Contractor must stipulate in the Construction Phase Health and Safety Plan how each of these categories would be handled.
- 4) When reporting injuries to the Client, these categories shall be used.
- 5) All injuries will be investigated by the Principal Contractor or his/her Competent Person, with a report being forwarded to the Client forthwith.
- 6) The Principal Contractor must on at least a monthly basis report all injuries sustained on site to the Client in the form of a detailed injury report.
- 7) All incidents as described in Section 24 of the OHS Act must be reported in the prescribed period and manner to the National Department of Labour. Copies of Section 24 reports, including WCL 1 & 2 forms must be forwarded to the Client.

2.5.16 Hazards and Potentially Hazardous Situations

- 1) The Principal Contractor shall immediately notify other Sub-Contractors as well as the Client of any hazardous or potentially hazardous situations that may arise during performance of construction activities.
- 2) Should a hazardous situation require work stoppages, the work must be stopped and corrective steps taken such as the issue of Written Safe Work Procedures and the issue of Personal Protective Equipment.

2.5.17 Personal Protective Equipment (PPE) and Clothing

- 1) The Principal Contractor and all Sub-Contractors shall allow for and ensure that all site employees are issued and wear, for example, Hard Hats, Safety Boots/Shoes, Overalls, etc.
- 2) The Principal Contractor and all Sub-Contractors shall allow for and make provision and keep adequate quantities of SABS approved PPE on Site at all times.
- 3) The Principal Contractor and all Sub-Contractors shall clearly outline procedures to be taken when PPE or Clothing is:
 - Lost or stolen;
 - Worn out or damaged.
- 4) The Principal Contractor must at all times ensure that no person enters the Site without the required Personal Protective Equipment.
- 5) Visitors to the Site must be provided by the Principal Contractor with the required PPE such as Hard Hats, Earmuffs and Eye Protection.
- 6) Records of all PPE issued to staff must be kept on Site in the Site Health and Safety File.
- 7) Employees are to be made conversant with the purpose of PPE and where and when it is required to be used by employees.
- 8) Safety belts are not to be allowed on Site only double lanyard safety harnesses are permitted.
- 9) Suitable eye protection must at all times be worn by employees when performing, for example, grinding, chipping, chasing and other similar activities.
- 10) In the event that onlookers may be struck by flying objects as a result of work being performed, allowances must be made for the provision of suitable temporary screens.
- 11) Any person performing welding or brazing work must wear suitable eye protection, gloves, aprons, and spats. Suitable screens are to allowed for and be provided to protect onlookers from the harmful rays associated with such activities.
- 12) When employees are required to work with corrosive liquids, allowance must be made for suitable eye protection, gloves and acid resistant overalls to be provided.
- 13) Ear protection must be worn in designated noise zones (in excess of 85dB)
- 14) Suitable respirators must be provided to all employees and visitors required to be working in or entering areas where toxic vapors could be present.
- 15) All employees working in an elevated position (2m or higher) or where the potential exists that such employees may fall, each such employee must be provided with a suitably secured safety harness.
- 16) Any person refusing to wear Personal Protective Equipment must be removed from the premises.

2.5.18 Safety , Health and Environmental (SHE) Signage

- 1) The Principal Contractor shall allow for and provide adequate on-site SHE signage for example - "no unauthorized entry", "report to site office", "site office", "beware of overhead work", "hard hat area", etc.
- 2) Signage shall be erected and maintained at all entrances to the site as well as on site in strategic locations e.g. access routes, stairways, entrances to structures and buildings, scaffolding, and other potential risk areas/operations.

- 3) In the event of work being performed on premises displaying existing signage such as no-parking, speed limits and so on, the Principal Contractor must abide by the requirements of such signage, except if otherwise instructed.

2.5.19 Permits

- 1) The Principal Contractor shall prepare and issue the required written permits relating to but not limited to the following:
 - Work for which a fall prevention plan is required;
 - Use of cradles; and
 - Electrical work (both temporary and permanent)
- 2) The Principal Contractor must ensure that where permits are required that they are properly implemented and adhered to.

2.6 Physical Requirements – To Be Addressed by Bidders in Their Project-Specific Documentation

2.6.1 Demolition Work

- 1) Prior to any demolition work being carried out, which must be carried out in a pre-determined manner specified by the Client, the Principal Contractor shall submit a "Safe Working Procedure" for approval by the Client.
- 2) Such "Safe Work Procedures" must either be submitted with the "Site Safety Plan" at the time of bid or be submitted to the Client before demolition work commences.
- 3) Approval will then be given to the Principal Contractor to proceed with the demolition work.
- 4) The Principal Contractor shall ensure that demolition work complies with the Construction Regulations.
- 5) In the event that a structure identified for demolition incorporates substances such as lead or asbestos it must be performed within the requirements of the applicable legislative requirements.

2.6.2 Excavations, Shoring, Dewatering or Drainage

- 1) All excavation work must be performed under the supervision of a Competent Person as specified in Annexure B of this document and the Construction Regulations.
- 2) Adequate Shoring and Bracing must be allowed for and be provided where required to ensure that the health and safety of the employees working in such excavations is not put at risk.
- 3) Adequate provision must be made to ensure that water is drained from excavations where water may enter such excavations as a result of seepage or rain.
- 4) All excavations made by the Principal Contractor and any Sub-Contractor must be clearly demarcated and protected to prevent accidental access.
- 5) Barricading tape may only be used to make solid barricading more visible and may not be used as a means of barricading.
- 6) In addition to the abovementioned the requirements of Regulation 11 of the Construction Regulations must be adhered to.

2.6.3 Edge Protection

- 1) All open edges posing the risk of injuries or damage to equipment must be adequately guarded, fenced or barricaded to prevent injuries or damage to equipment.
- 2) Barricading tape is not deemed to be suitable and may only be used in addition to guards, fences or barricades as indicated above.

2.6.4 Explosives and Blasting

- 1) All explosives must be transported or stored according to the requirements of SANS 0228.
- 2) Written approval must be obtained from the Chief Inspector : Occupational Health and Safety prior to any blasting activities taking place.
- 3) A copy of such written approval from the National Department of Labour's Chief Inspector : Occupational Health and Safety must be supplied to the Client prior to Blasting.
- 4) On receipt of the approval referred to above, the Principal Contractor shall prepare and issue the necessary permit in terms of which all the necessary precautions required to be taken are specified in writing.
- 5) Prior to blasting all legislative requirements must have been met – for example - a siren must be sounded, warning flags must be erected and guards be placed at strategic location points to prevent accidental entry to the blasting area.

2.6.5 Stacking of Materials

- 1) Stacking and storage of materials must be performed under the supervision of a "Competent Person" who has been appointed in writing as required by Annexure B.
- 2) Storage areas must be designated, kept neat and under control. In addition to the abovementioned the requirements of General Safety Regulations published in Government Notice No. R.1031 dated 30 May 1986 and amendments thereto must be complied with.
- 3) In the event that unauthorized persons enter an area where materials are stacked, such area must be barricaded off to prevent access to such area.

2.6.6 Speed Restrictions and Protections

- 1) Unless otherwise stipulated, the maximum speed limit on site must be limited to 10 km/h.
- 2) Vehicle movement routes on site must be clearly indicated where applicable.
- 3) Signage to ensure the safe movement of vehicles on site, as well as to ensure the health and safety of all employees and visitors on site, must be displayed in strategic locations.

2.6.7 Hazardous Chemical Substances (HCS)

- 1) All employees required to use Hazardous Chemical Substances or products containing Hazardous Chemical Substances must be adequately and comprehensively trained with regard to the requirements of the Hazardous Chemical Substances Regulations as published in Government Notice No. R. 1179 dated 25 August 1995 and amendments thereto, the potential sources of exposure and the potential risks to their health caused by exposure.
- 2) In addition to the abovementioned, Material Safety Data Sheets must be kept on site for all materials, which may contain hazardous chemical substances.

2.6.8 Asbestos

- 1) Asbestos work may only be performed subject to prior notification of the Provincial Director : Occupational Health and Safety, in the National Department of Labour, in writing.
- 2) Proof of such notification must be supplied to the Client prior to work proceeding.
- 3) All employees must be informed and receive training on aspects such as the contents and scope of the Asbestos Regulations as published in Government Notice No. R. 155 dated 10 February 2002 and amendments thereto, the potential risks of exposure to asbestos, precautionary measures that employees have to take and all other requirements deemed necessary to provide a safe and healthy environment for all employees as specified by the Asbestos Regulations referred to above.

2.7 Plant and Machinery

2.7.1 Construction Plant

All Construction Plant must comply with and be used in conjunction with the requirements of Regulation 21 of the Construction Regulations and in particular all records of inspections rendering such plant safe must be kept on site.

2.7.2 Vessels under Pressure (VUP)

The Principal Contractor and all relevant Sub- Contractors shall comply with the Vessels under Pressure Regulations as published in Government Notice No. R. 1625 dated 4 October 1996 and amendments thereto including:

- Allowing for and providing competency and awareness training to the operators;
- Allowing for and providing PPE;
- Inspecting equipment regularly and keeping records of inspections;
- Allowing for and providing appropriate fire fighting equipment.

2.7.3 Fire Extinguishers and Fire Fighting Equipment

- 1) The Principal Contractor and Sub-Contractors shall allow for and provide or ensure adequate provision of regularly serviced temporary fire fighting equipment located at strategic points on site, specific for the classes of fire likely to occur.
- 2) The appropriate notices and signs must be allowed for and be erected as required.
- 3) Contractors may not utilize fire protection equipment belonging to the Client without prior consent.

2.7.4 Hired Plant and Machinery

- 1) The Principal Contractor and Sub-Contractors shall ensure that any hired plant and machinery used on site is safe for use.
- 2) The requirements as stipulated by the OHS Act and Construction Regulations shall apply.
- 3) The Principal Contractor shall ensure that operators hired with machinery are competent and that certificates are kept on site in the Site Health and Safety File. All relevant Sub-Contractors must ensure the same.

2.7.5 Scaffolding / Working at Heights

- 1) Working at heights includes any work that takes place in an elevated position in excess of 2m above the level below.
- 2) The Principal Contractor must allow for the preparation of and submit a risk-specific fall prevention plan in accordance with the Construction Regulations before this work is undertaken.
- 3) The fall prevention plan must be approved by the Client before work may commence.

2.7.6 Formwork and Support Work for Structures

- 1) The Principal Contractor shall ensure that the provisions of Regulation 10 of the Construction Regulations are adhered to.
- 2) These provisions include but are not be limited to ensuring that all equipment used is examined for suitability before use; that all Formwork and Support Work is inspected by a "Competent Person" immediately before, during and after placement of concrete or any other imposed load and thereafter on a daily basis until the Formwork and Support Work has been removed.
- 3) Records of all inspections must be kept in a register on site.

2.7.7 Lifting Machines and Tackle

- 1) The Principal Contractor and Sub-Contractors shall ensure that lifting machinery and tackle is inspected before use and thereafter in accordance with the Driven Machinery Regulations as published in Government Notice No. R. 298 dated 26 February 1988 and amendments thereto and Section 20 of the Construction Regulations.
- 3) There must be a competent appointed Lifting Machinery and Tackle Inspector on site who must inspect the equipment daily or before use, taking into account that:
 - All lifting machinery and tackle has a safe working load clearly indicated;
 - Regular inspection and servicing must be carried out;
 - Records are kept of inspections and of service certificates;
 - There is proper supervision in terms of guiding the loads that includes a trained banksman to direct lifting operations and check lifting tackle;
 - The tower crane bases have been approved by a professional engineer;
 - The operators are competent as well as physically and psychologically fit to work and be in possession of a medical certificate of fitness which must be available on site.

2.7.8 Ladders and Ladder Work

- 1) The Principal Contractor shall allow for and ensure that all ladders are inspected at least monthly, are in a good safe working order, are the correct height for the task, extend at least 1m above the landing, are fastened and secured and are placed at a safe angle.
- 2) Records of inspections must be kept in a register on site.

2.7.9 General Machinery

The Principal Contractor shall ensure compliance with the Driven Machinery Regulations as published in Government Notice No. R. 298 dated 26 February 1988 and amendments thereto, which include inspecting machinery regularly, allowing for and appointing a "Competent Person" to inspect and ensure maintenance, allow for supplying and issuing PPE and allowing for training those who use machinery.

2.7.10 Portable Electrical Tools and Explosive Powered Tools

- 1) The Principal Contractor shall ensure that use and storage of all explosive powered tools and portable electrical tools are in compliance with relevant legislation.

- 2) The Principal Contractor shall ensure that all electrical tools, electrical distribution boards, extension leads, and plugs are kept in a safe working order.
- 3) The Principal Contractor shall allow for and ensure the following:
 - That a "Competent Person" undertakes routine inspections and records are kept on site.
 - That only authorized trained persons use the tools.
 - That safe working procedures apply.
 - That awareness training is carried out and compliance is enforced at all times.
 - That PPE is provided and used.
 - That a register recording the issue and return of all explosive rounds is implemented and maintained, and
 - That signs are erected in the areas where explosive powered tools are being used.

2.7.11 High Voltage Electrical Equipment Installations and Equipment

- 1) All Contractors must be made aware of the presence and location of High Voltage Equipment such as underground cables and overhead lines, and ensure that the necessary precautionary steps are taken where work has to be executed in the vicinity of such equipment.
- 2) Precautionary measures such as Isolation and Lock-Out of electrical systems or the use of electrically isolated tools must be used.

2.7.12 Public and Site Visitor Health and Safety

- 1) The Principal Contractor shall ensure that every person working on or visiting the site, as well as the public in general, shall be made aware of the dangers likely to arise from site activities, including the precautions to be taken to avoid or minimize those dangers.
- 2) Appropriate Health and Safety Notices and signs shall be erected, but shall not be the only measures taken.

2.7.13 Adequate Lighting

All Contractors must allow for and ensure that adequate lighting is provided to allow for work to be carried out safely.

2.7.14 Transportation of Workers

- 1) The Principal Contractor and Sub-Contractors shall not:
 - Transport persons together with goods or tools unless there is an appropriate area or section of the vehicle in which to store such goods.
 - Transport persons on the back of trucks except if a proper canopy (properly covering the sides and top) has been provided with suitable seating areas.
 - Permit workers to stand or sit on the edge of the transporting vehicle.
 - Transport workers in LDVs unless they are closed/covered and have the correct number of seats for the passengers.
- 2) No driver may transport more than six people on the back of a 1 Ton LDV and more than four passengers on the back of an ½ Ton LDV.
- 3) The driver of any LDV may not permit more than two passengers to occupy the cab of any LDV.
- 4) All vehicles operated on the site must comply in all aspects with the requirements of the National Road Traffic Act 1996, (Act No 93 of 1996).
- 5) Drivers of such vehicles must have a valid drivers licence for the code of vehicle being driven by them.

- 6) No servicing of vehicles will be permitted on a Construction Site, which is occupied by staff working for the Client.
- 7) Servicing or repairs of vehicles on site may only take place if such activities are performed with the necessary procedures in place to prevent any harmful effects to the environment. All waste generated from servicing vehicles must be disposed of in accordance with relevant Environmental legislation.
- 8) In the event that Earth Moving Machinery is present on site the following must be adhered to:
 - Drivers of vehicles must be instructed to avoid parking behind earth moving machinery in order to ensure that their vehicles are visible to the operators of earth moving machinery.
 - Right of way must be afforded to earth moving machinery at all times.
 - Vehicles must only be permitted to park, where possible, in designated areas

2.8 Occupational Health and Environmental Management

2.8.1 Occupational Hygiene

- 1) Occupational exposure is a major problem and all Contractors must ensure that proper health and hygiene measures are put in place to prevent exposure to these hazards.
- 2) All Contractors must prevent inhalation, ingestion and absorption of any harmful chemical or biological agents.
- 3) Site-specific health risks such as cement -dust, wood-dust, noise, etc., are set out in Annexure D but the risks are not limited to these items.
- 4) Water to be utilized for drinking purposes may only be drawn from taps designated for drinking water purposes. Fire hydrants and fire hose reels may not be utilized for drinking water purposes.

2.8.2 Environmental Management

- 1) The Principal Contractor and Sub-Contractors shall take all precautionary steps to prevent any pollution of the Environment.
- 2) Any material which may have a harmful effect when disposed of by normal means must be disposed of in an appropriate manner to eliminate its harmful effect on the environment after disposal.
- 3) The Principal Contractor must allow for and ensure that adequate procedures are implemented and maintained to ensure that waste generated is placed in suitable receptacles and removed from the site promptly.
- 4) Plans to deal with spillages must be in place and maintained.
- 5) No waste materials (liquid or solid) may be disposed of in drains.
- 6) No burning of waste material may take place where such material being burned may result in pollution of the air or give off toxic vapours which could be harmful to the health of employees or any other person present on site.

2.8.3 Welfare Facilities

- 1) The Principal Contractor must allow for and supply :
 - a) Sufficient toilets on site (1 toilet per 30 workers).

- b) Showers (1 for every 15 workers).
 - c) Changing facilities.
 - d) Hand washing facilities, soap, toilet paper, and hand drying materials.
 - e) Waste bins which must be strategically placed and emptied regularly.
 - f) Safe, clean storage areas for workers to store personal belongings and personal protective equipment.
- 2) Workers must not be exposed to hazardous materials/substances while eating and must be provided with sheltered eating areas.

2.8.3 Alcohol and other Drugs

- 1) No alcohol and other drugs will be allowed on site without the express permission of the Principal Contractor.
- 2) No person may be under the influence of alcohol or any other drugs while on the construction site.
- 3) Any person on the construction site who is on prescription drugs must inform his/her Employer accordingly and the Employer shall in turn report this to the Principal Contractor forthwith.
- 3) Any person on the construction site who is suffering from any illness/condition that may have a negative effect on his/her safety performance must report this to his/her Employer, who in turn must report this to the Principal Contractor forthwith.
- 5) Any person on the construction site who is suspected of being under the influence of alcohol or other drugs must be sent home immediately and be instructed to report back the next day for a preliminary inquiry. A full disciplinary procedure must be followed by the Contractor concerned and a copy of the disciplinary action must be forwarded to the Principal Contractor for his records.

ANNEXURE A

The Principal Contractor must submit proof of compliance with Annexure A with the Construction Phase Health and Safety Plan (CSHEP) where applicable.

SHE Item No.	Requirement	OHS Act Requirement	Submission Date
2.5.1	Notification of Intention to Commence Construction/Building Work	Complete Annexure A of Construction Regulations	Before commencement on site
2.5.2	Assignment of Responsible Persons	All relevant appointments as per OHS Act, Con Regs. and Annexure B hereof	Together with CSHEP
2.5.3	Competence of Responsible Persons	Client Requirement & OHS Act	Together with CSHEP
2.5.4	Compensation for Occupational Injuries and Diseases Act No. 130 of 1993 (COID) Act	Con Regs. and Client Requirement	Together with CSHEP
2.5.5	Occupational Health and Safety Policy	OHS Act	Together with CSHEP
2.5.6	Health and Safety Organogram	Client Requirement	Together with CSHEP
2.5.7	Initial Hazard Identification and Risk Assessment	Con Regs.	Together with CSHEP

ASSIGNMENT OF CONTRACTOR'S RESPONSIBLE PERSONS

ANNEXURE B

The Principal Contractor shall make the following appointments according to the initial risk assessment or as deemed necessary : (further appointments could become necessary as the project progresses)

Appointment	OHS Act Reference	Requirement abbreviated
CEO Assignee	Section 16(2)	A "Competent Person" to assist with the on-site H&S, overall responsibility – Contractor's Responsible Person
Construction Work Supervisor	CR 6.1	A "Competent Person(s)" to supervise and be responsible of Safety , Health and Environmental related issues on site. The person is appointed to assist the "Competent Person" with his/her overall duties.
Subordinate Construction Work Supervisors	CR 6.2	A "Competent Person" to assist with daily supervision of construction work. The person assists the Construction Work Supervisor.
Safety , Health and Environmental Representative	Section 17	A "Competent Person(s)" to inspect for Health and Safety in reference to plant, machinery , Health & Safety of persons in the workplace and Environmental Management.
Safety , Health and Environmental Committee Member(s)	Section 19	A "Competent Person(s)" representing the employer to assist with the on site Safety ,Health and Environmental matters.
Incident /Accident Investigator	GAR 9.2	A "Competent Person(s)" to investigate incidents/accidents on site and could be: <ul style="list-style-type: none"> • The employer • SHE Representative • Designated person • Member/s of the SHE Committee
Risk Assessment Co-ordinator	CR 7	A "Competent Person(s)" to co-ordinate all risk assessments on behalf of the Principal Contractor. The same applies to Sub-Contractors.
Fall Protection Plan Co-ordinator	CR 8	A "Competent Person(s)" to prepare & amend the fall protection plan.
First Aiders	GSR 3	A qualified person(s) to address all on site first aid cases.
Lifting Machine & Equipment inspector	DMR 18	A "Competent Person(s)" to inspect lifting machines, equipment & tackle.

Scaffolding Erector	CR 14.1	A "Competent Person(s)" to erect scaffolding
Scaffolding Inspector	CR 14.2	A "Competent Person(s)" to inspect scaffolding before use and every time after bad weather etc
Formwork & Support Work Inspector	CR 10	A "Competent Person(s)" to inspect formwork & support work
Excavation Inspector	CR 11	A "Competent Person(s)" to inspect excavation work and ensure that approved safe working procedures, are followed at all times
Ladder Inspector	GSR 13A	A "Competent Person(s)" to inspect monthly and ensure they are safe for use, keeping monthly record
Stacking Supervisor	CR 26	A "Competent Person(s)" to supervise all stacking and storage operations
Explosive Powered Tools Inspector/Supervisor	CR 19	A "Competent Person(s)" to inspect & clean the tool daily and controlling all operations thereof.
Temporary Electrical Installations Supervisor	CR 22	A "Competent Person(s)" to control all temporary electrical installations.
Fire-Fighting Equipment Inspector	CR 27	A "Competent Person(s)" to inspect fire-fighting equipment

OTHER REQUIREMENTS

ANNEXURE C

The Principal Contractor shall comply with the following minimum requirements and report on these to the Client at progress meetings or at least monthly which ever is more frequent.

What	When	Output	Accepted by Client & date
Induction training	Every worker before he/she starts work.	Attendance registers	
Awareness Training (Tool Box Talks)	At least weekly	Attendance registers	
Safety, Health and Environmental Reports	Monthly	Reports covering: <ul style="list-style-type: none"> • Incidents/accidents and investigations • Non conformance by employees • External Health and Safety audit reports 	
Emergency procedures	Ongoing evaluation of procedures	Table procedures in writing as well as tel. numbers	
Risk assessment	Continuous	Documented risk assessment	
Safe work procedures	Drawn up before workers are exposed to new risks	Documented set of safe work procedures (method statements) updated and signed off.	
General Inspections	Weekly & daily	Report OHS Act & Con Regs compliance: <ul style="list-style-type: none"> • Scaffolding • Excavations • Formwork & support work • Explosive tools 	
List of sub-contractors	List to be updated weekly	Table list, number of workers and contract tel. numbers	

Compensation Commissioner	Ongoing	Table a list of Sub-Contractors' proof of good standing with the COID Commissioner	
Construction site rules & Section 37.2 Mandatory Agreements	Ongoing	Table a report of all signed up Mandatories	

ANNEXURE D

GENERIC HAZARD IDENTIFICATION AND RISK ANALYSIS

TASK ORIENTATED RISKS

RATING	TASK/SITUATION	PERSONAL PROTECTIVE EQUIPMENT	RISK TO SAFETY	PREVENTATIVE ACTION	RISK TO HEALTH	RISK TO ENVIRONMENT
Low	Stripping Topsoil	Hard hats, safety shoes, goggles, ear muffs, overalls	Vehicles reversing over equipment and employees. Dirt in eyes and face	Reverse hooters on trucks. Traffic controller. Protective equipment to be more visible. Protective equipment should be used	Noise induced hearing loss from heavy machinery	Uncontrolled dust. Oil leaks from heavy machinery. Stripping of protected flora
Low	Tipping	Hard hats, safety shoes, goggles, overalls	Trucks reversing over equipment and employees. Trucks toppling over while tipping	Reverse hooters on trucks. Protective clothing to be more visible. Traffic controller to indicate uneven ground to driver		Uncontrolled dust, Oil leaks from heavy machinery
Low	Processing and Compacting	Hard hats, safety shoes, goggles, ear muffs, overalls	Machines reversing. Congestion of machines and personnel. Noise	Reverse hooters on trucks/machines. Limit number of machines in area. Operators to use ear muffs	Noise induced hearing loss	Uncontrolled dust Oil leaks from heavy machinery

RATING	TASK/SITUATION	PERSONAL PROTECTIVE EQUIPMENT	RISK TO SAFETY	PREVENTATIVE ACTION	RISK TO HEALTH	RISK TO ENVIRONMENT
Low	Excavate and load	Hard hats, safety shoes, overalls	Tip trucks reversing over personnel, Trucks colliding with excavators Collisions with other vehicles	Reverse hooters on trucks. Traffic controller. Clerk to check load levels. Brake testing before work daily		
High	Excavations	Overalls, hard hats, safety shoes	Mechanical malfunction. Machine topples over. Machine collisions. Underground services	Training in pre-use checks, inspections Training in outriggers fully extended. Training in awareness of other machines. Pre-excavation checks with engineer	Gases from burst pipes, etc	Cutting down of protected trees, etc. Check with Dept of Environmental Affairs
High	Excavation by Hand	Overalls, hard hats, safety shoes	Heat related illness. Cuts and lacerations. Collapse of excavation Under ground services	Training in increased fluid intake. Training in PPE usage. Training in inspection	Complications resulting from repetitive work	
Medium	Backfilling	Overalls, hard hats, safety shoes	Live burials of personnel	Check all areas before backfilling		
Low	Reinforcing General	Overalls, hard hats, safety shoes, aprons	Injuries, cuts and bruises	Mark all protruding bars with bright coloured marking tape		

RATING	TASK/SITUATION	PERSONAL PROTECTIVE EQUIPMENT	RISK TO SAFETY	PREVENTATIVE ACTION	RISK TO HEALTH	RISK TO ENVIRONMENT
Low	Concrete Work (foundations)	Overalls, hard hats, safety shoes, aprons, goggles	Caving in of unshored sides. Personnel and equipment falling in	Barrier creams must be made available to personnel	Chemical reaction in wet cement causes Dermatitis	Spillages into water
Low	Staircases and Decks	Overalls, hard hats, safety shoes, aprons, goggles	Personnel and equipment falling in	Barrier creams should be made available to personnel	Chemical reaction in wet cement causes Dermatitis	Spillages into ground water
High	Formwork	Overalls, hard hats, safety shoes, aprons	Falls, injuries, fractures, death	Training in safety harness usage		
High	Stripping of Formwork	Overalls, hard hats, safety shoes,	Falling shutter boards. Timber on the ground. Falls from stripping edgework	Training in housekeeping principles. Training in use of safety harnesses	Dermatitis from coming into contact with degreasers	Spillage of oils and degreasers into ground water, etc
Medium	Brick Work General	Overalls, hard hats, safety shoes, gloves	Twisting and straining of back muscles while lifting blocks	Training in manual handling. Use of lifting equipment		
High	Gables	Overalls, hard hats, safety shoes, gloves	Gables collapsing on windy days. Fractures, death	Suspend all work on gables on windy days and clear all personnel		
Medium	Plastering	Overalls, hard hats, safety shoes, gloves		Barrier creams	Chemical reaction in wet cement causes Dermatitis	

RATING	TASK/SITUATION	PERSONAL PROTECTIVE EQUIPMENT	RISK TO SAFETY	PREVENTATIVE ACTION	RISK TO HEALTH	RISK TO ENVIRONMENT
Medium	Cement and Concrete Mixing	Overalls, hard hats, safety shoes, gloves, ear muffs		Training in use of correct PPE. Barrier creams	Ingestion, inhalation of cement. Contact with skin may cause Dermatitis	
High	Roof Trusses	Overalls, hard hats, safety shoes, gloves, harnesses and lifelines	Falls from roof height. Materials falling from heights	Training in fall arrest equipment. Lower unneeded material from roof		
High	Roof Sheeting at Heights	Overalls, hard hats, safety shoes, gloves, harnesses and lifelines	Falling off. Wet weather work. Windy conditions. Angle grinder use. Cuts/laceration. Objects falling. Electrical shocks	Training in safety harnesses and lifelines. Training to get off roof. Pre-use inspection, guard in place. Training barricade areas below.		
High	Scaffolding Erection and Dismantling	Overalls, hard hats, safety shoes, gloves, harnesses and lifelines	Falls-death, fractures. Falling objects. Collapsing of scaffold	Training of qualified erectors only. Training of Personnel. Secure footing, tie scaffolding, scaffold material in good order		
High	Decks, Staircases, etc	Overalls, hard hats, safety shoes, gloves, harnesses and lifelines	Falls from heights. Materials falling from height	Training in safety harnesses and lifelines usage. Barricade all sides adequately		

RATING	TASK/SITUATION	PERSONAL PROTECTIVE EQUIPMENT	RISK TO SAFETY	PREVENTATIVE ACTION	RISK TO HEALTH	RISK TO ENVIRONMENT
High	Ladder Usage	Hard hats, safety shoes	Falls	Training in pre-use checks, monthly inspections, correct length for task, secure at top and bottom, skid pads on feet of ladder, use both hands to climb		
High	Falls (on the ground)	Hard hats, safety shoes	Injuries and bruises	Training in good house keeping		
High	Electrical Installations (Temporary)	Overalls, hard hats, safety shoes, gloves, etc	Exposed switches and wires. Cables lying in pools of water. Un-insulated cables and wires	Tidy up all wires and cover. Suspend all cables above ground. Regular inspections and maintenance		
Medium	Load & Unload by Hand	Gloves	Back and hand injuries	Training, clear task communication		
Medium	Electric Drill	Overalls, hard hats, safety shoes, goggles	Eye injuries, general injuries, electrical shocks	Only competent user, pre use check, monthly inspections, work piece secure. Training of personnel.		

RATING	TASK/SITUATION	PERSONAL PROTECTIVE EQUIPMENT	RISK TO SAFETY	PREVENTATIVE ACTION	RISK TO HEALTH	RISK TO ENVIRONMENT
High	Angle Grinder	Overalls, hard hats, safety shoes, goggles	Electrical shocks, severe injuries	Only competent user, pre-use check, monthly inspections, work piece secure. Training of personnel.		
Medium	Skill Saw	Overalls, hard hats, safety shoes, goggles	Electrical shocks severe injuries, guard malfunction	Only competent user, pre-use check, monthly inspections, work piece secure. Training of personnel.		
Medium	Extension leads	Overalls, hard hats, safety shoes, goggles	Electrical shocks, trips and falls	Training in pre-use inspection, maintenance		
High	Hand Tools	Overalls, hard hats, safety shoes, goggles, aprons	Cuts, bruises	Training in using correct tool for the task, sharpen tools, inspection		
High	Compressed Air Tools	Overalls, hard hats, safety shoes, goggles	Injuries, ruptured eardrums, eye injuries	Training in pre-use inspections		

RATING	TASK/SITUATION	PERSONAL PROTECTIVE EQUIPMENT	RISK TO SAFETY	PREVENTATIVE ACTION	RISK TO HEALTH	RISK TO ENVIRONMENT
High	Driving Vehicles		Accidents Passengers Un-roadworthy Vehicles Driver Road and weather conditions Other road users	Licensed drivers only, obey rules. Seated not leaning on opening sides. Inspections of vehicle Fit to drive, sober. Reduce speed, be alert Be aware, be alert		
Medium	Noise (General Machinery)	Ear plugs, ear muffs		Training of personnel. Designate noise areas	Noise induced hearing loss	Noise pollution
Medium	Vibration (General Machinery)	Ear plugs, ear muffs, gloves		Training of personnel rest breaks	May result in kidney complications	
Medium	Hot & Humid Work Area			Adequate drinking water. Training to identify symptoms. Vitamin and mineral supplements	Heat exhaustion and heat stroke	
High	Radiation	Overall, hard hats, safety shoes, gloves, body suits, goggles		Training of Personnel. Use of prescribed PPE	Exposure may lead to cancers and other complications	

RATING	TASK/SITUATION	PERSONAL PROTECTIVE EQUIPMENT	RISK TO SAFETY	PREVENTATIVE ACTION	RISK TO HEALTH	RISK TO ENVIRONMENT
Medium	Bad lighting whilst working		Injuries, falls, death	Adequate lighting. Emergency lighting		
High	Fire Prevention (Hot Work)	Overalls, hard hats, safety shoes, aprons, spats, gloves	Combustible refuse: Paper & plastics Flammable liquids: Petrol, diesel, etc. Electrical equipment Back injuries, etc.	Training of personnel, housekeeping, segregated storage of materials		
Medium	Awkward Postures		Back injuries, etc.	Sufficient access to areas	Health complications from unnatural postures	
High	Heavy Manual handling		Back injuries, etc.	Training in Safe work procedure in lifting equipment		
Low	Working in the Direct Path of Energy Release (Line of Fire)	Overalls, hard hats, safety shoes, gloves, body suits, goggles	Multiple injuries death	Permit system. Lockout procedure. Identify source and communication	Multiple health complications	

RATING	TASK/SITUATION	PERSONAL PROTECTIVE EQUIPMENT	RISK TO SAFETY	PREVENTATIVE ACTION	RISK TO HEALTH	RISK TO ENVIRONMENT
Medium	Man/machine Interaction	Overalls, hard hats, safety shoes, gloves, body suits, goggles	Loose clothing caught in machines. Limbs trapped or severed	Operational boundaries. Training of personnel. Warning mechanisms. Clear communication between operators		
Medium	Climbing Up and Down and On and Off – Structures, etc.	Overalls, hard hats, safety shoes, gloves, body suits, goggles	Trips, falls, fractures, etc	Training of personnel. Adequate and correct access. No jumping between platforms		
Low	Focusing Eyes on Activity	Overalls, hard hats, safety shoes, gloves, body suits, goggles	Trips, falls, fractures, etc	Training of personnel. Looking while walking. Looking at the task at hand.		
Low	Using Right Tool for the Job	Overalls, hard hats, safety shoes, gloves, body suits, goggles	Injuries, cuts, bruises, fractures, etc	Training of personnel. Get rid of homemade tools. Correct tools inspections. Serviceable equipment		

LIGHTNING PROTECTION INSTALLATION

GENERAL SPECIFICATION

1. SATISFACTORY INSTALLATION

The whole of the installation shall be carried out in accordance with:

- (a) The latest S.A.B.S. Code of Practice for the Protection of Structures against Lightning - S.A.B.S. 03 ; SABS IEC 61024 (1) , 61024 (1 -1); SABS IEC 61312 (1) ; SABS IEC 61662 & NRS 042.
- (b) The KwaZulu-Natal Department of Works General Electrical Specification.
- (c) The Municipal By-Laws and any other special requirements as deemed necessary by the Local Supply Authority;
- (d) Local Fire Regulations.

2. S.A.B.S. APPROVED DRAWINGS

SABS Approved drawings are not required for this project.

3. TEST ON COMPLETION

Upon completion of the lightning protection system, the following tests shall be witnessed by an appointed representative of the Employer. The results shall be recorded on suitable test certificates which must be signed by both the Contractor and the Employers representative. A sketch must be included on each test certificate indicating the positions of each earth electrode in relation to some permanent reference point. It must also indicate the positions at which tests were carried out, the type of test and the results of these tests.

3.1 Earth Resistance Test

The Earth Resistance Test shall involve measuring the resistance to earth of each rod-type electrode, or group of rod-type electrodes, or trench earth which would normally be connected to one down-conductor or earth terminal. This test must be made with the electrodes completely disconnected from any part of the structure or lightning protection system.

3.2 Electrical Continuity Tests

(a) External Down-Conductors

Electrical continuity between the lower ends of external down-conductors which must all be disconnected from the earthing system during the test shall not exceed 1 (one) ohm.

(b) Metallic Services

Electrical continuity between any metallic structures of services (e.g. rainwater pipes) which form an integral part of the lightning protection system shall not exceed 1 (one) ohm. These tests should be carried out with all other components of the lightning protection system disconnected from the component being tested.

4. **DESCRIPTION OF MATERIAL**

4.1 **Air Terminals and Down-conductors**

All conductors must be in accordance with the requirements of BSS 1474 or American Standards Specification 6063. All aluminium conductors shall have a cross-section area of not less than 30 mm² (domestic dwelling only) or 50 mm² for all other applications. The dimensions of flat section conductors to be 20 mm x 3 mm. Where conductors are mounted in stand-off guides, the cross-section area of the conductor must be not less than 70 mm² to give adequate mechanical strength.

4.2 **Conductor Guides**

The conductor must be mounted in aluminium alloy guides conforming with the material specification given in 4.1 above. The guides must allow for free longitudinal movement of the conductor to cater for expansion and contraction of the system caused by temperature variation. The minimum thickness of any part of the guide shall not be less than 3 mm. The guides must be securely attached to the structure using two stainless steel screws and plugs, the use of plated screws is not permitted.

The conductor system shall be supported in guides so that an air gap exists at all times between the aluminium and the surface of the structure, the guides being seated upon plastic or other similar insulating material. Should conductors be installed directly upon the surface of concrete or cement plaster, an insulating strip is to be installed over its whole length to prevent contact between the two surfaces. Guides shall be installed to support the conductor at intervals not exceeding 1,2 metres horizontally or 1,5 metres vertically.

N.B.: No part of an aluminium conductor system must be allowed to come into direct contact with concrete or cement plaster as this may cause the aluminium to corrode.

4.3 **Expansion Loops**

Where conductors are installed horizontally without deviation from a straight line over long distances, expansion loops must be provided at distances not exceeding 30 metres. These expansion loops must have a cross-sectional area which is at least equal to that of the conductor.

4.4 **Protection of Down-conductors**

Where external down-conductors are installed in areas which are readily accessible to the public, the lower ends of the conductors shall be enclosed in a semi-rigid insulating material. In the case of a circular section conductor this shall comprise a 2 metre length of 20 mm diameter P.V.C. conduit. This conduit shall be securely attached to the wall by means of galvanized steel saddles fixed with stainless steel screws and plugs, spaced at intervals not exceeding 1 m. Where a flat section conductor is used this shall be covered by a similar length of 25 mm P.V.C. conduit. The lower end of the conduit shall be positioned as close as practicable to ground level, i.e. immediately above an aluminium to copper joint. The ends of the conduit shall not be sealed.

4.5 **Earthing Electrodes**

Earthing electrodes must consist of either copper-clad steel rods not less than 12 mm in diameter and having a minimum copper thickness of 0,20 mm driven into the ground, or a 50 mm² (35 mm² for domestic dwellings) bare copper conductor buried in a trench, or a combination thereof. Where copper clad steel electrodes are used they must have a suitable bond between the steel core and copper exterior to prevent moisture ingress between the two metals. Where it is necessary to extend earth rods, an electrolytically compatible corrosion resistant, coupling device, which prevents ingress or moisture into the joint shall be used. The copper conductor below the down-conductor joint shall be covered by a semi-rigid P.V.C. conduit for a distance of approximately 200 mm above ground and 400 mm below ground.

4.6 **Joints Above Ground**

Circular section aluminium conductors shall be jointed by aluminium ferrules or lugs which are securely crimped into place. Aluminium lugs must be bolted together using 10 mm diameter aluminium bolts and washers. The material specification for these components must conform with that laid down in paragraph 4.1. Alternatively heavily tinned copper lugs and ferrules may be used. The lugs should be joined together by means of 10 mm diameter copper, brass or bronze bolts and washers. Care should be taken to inhibit corrosion where dissimilar metals are used by thoroughly cleaning the surfaces of the metal before assembly and subsequently sealing the joint with an inert tenacious compound or tape.

Flat section aluminium conductors shall be joined by double riveting, using aluminium rivets which comply with the material specification laid down in 4.1. Alternatively 2 x 6 mm diameter stainless steel bolts, nuts and washers may be used. Fold over type bends will not be permitted.

Down-conductors are to be terminated approximately 200 mm above finished ground level. Circular section aluminium is to be jointed to a 50 mm² (35 mm² in the case of domestic dwellings) stranded copper conductor by securely crimping in place two heavily tinned lugs and bolting these together using 10 mm diameter copper, brass or bronze nuts, bolts and washers.

N.B. : Under no circumstances shall aluminium conductors be buried in the ground.

4.7 **Joints Below Ground**

A joint in the stranded copper conductor which forms part of the earthing system must be made by using a crimped copper ferrule clamping (not lugs) using two copper line taps of suitable dimensions, or exothermic welding. The copper earth conductor must be joined to an earth rod by either clamping, using a standard earth rod clamp or copper line tap or by exothermic welding. Joints which are made between dissimilar metals (i.e. copper conductor to galvanized steel water main), must be thoroughly cleaned before assembly. They shall be rendered watertight using waterproof adhesive tape on a suitable compound for a minimum distance of 200 mm in all directions from the joint.

4.8 **Bonds**

Where it is necessary to bond the aluminium conductor to any other metallic surface, this must be done by bolting or riveting. When attaching aluminium to a dissimilar metal the joints are to be thoroughly cleaned and sealed to prevent corrosion.

5. **GENERAL INSTALLATION PROCEDURE**

5.1 **Air Terminals for Non-metallic Pitched Roofs**

Aluminium conductors are to be installed along all ridges of roofs and projections such as dormer windows, etc., terminating at the ends with conductors running downwards over the surface of the roof and the eaves. Non-metallic chimneys must be protected by means of a finial of sufficient length to cover the chimney within a 45° angle struck downwards from its point. Alternatively it should have a conductor installed in the form of a closed loop upon the upper surface. The conductors are to follow the outer contour of the stack and must be bonded at a convenient point to the nearest component of the air terminal system.

N.B. : This bond may run in a horizontal or downward direction, but under no circumstances must any part of it run above horizontal.

Conductors may be dead-ended (i.e. have one end free and unbonded), providing that the length of such a conductor does not exceed 10 metres and that the unbonded end is either at the same level or higher than the bonded end. This technique may be used where ridge conductors are installed over dormer windows, etc.

In all cases where metallic gutters have been installed along the eaves of a pitched roof, these must be bonded to the air terminal system. Where metallic gutters do not exist, however, a conductor must be installed over the surface of the roof at eaves level to which the remainder of the air terminal system is to be bonded, with the following exceptions :

- (a) Where the maximum distance from the ground level to the eaves of the building is less than 4 metres and the pitch of the roof is more than 1 in 2 (27° from the horizontal).
- (b) Where the maximum distances from ground level to the eaves is less then 7 metres and the pitch of the roof is more than 1 in 1,5 (34° from the horizontal).
- (c) Where the distance from the ground level to the eaves is more than 7 metres and the pitch of the roof is more than 1 in 1 (i.e. the included angle at the apex of the roof is less than 90°).

Under these circumstances eaves conductors need not be installed.

Any non-metallic objects which protrude above the general roof lines, such as Cape Dutch gable ends, must be protected as described above with a suitable air terminal system. Any metallic objects which protrude above the general roof line, such as hot water expansion pipes must be bonded as directly as possible to the nearest eaves conductor, gutter or other part of the lightning system.

N.B. : These bonding conductors must run in a horizontal or preferably a downward direction, from the vent pipe, etc., to the lightning protection system.

5.2 **Air Terminals for Metallic Pitched Roofs**

Buildings with roofs covered with electrically continuous metal sheets do not require separate air terminals but must be earthed via down conductors generally as described in 5.6 and 5.7. Any non-metallic objects projecting above the general roof line must be separately protected as described in 5.1 and bonded to the metal roof covering.

5.3 **Air Terminals for Non-metallic flat or Mono-pitched Roofs**

For flat or mono pitched roofs of non-metallic construction the air terminal system must consist of aluminium alloy conductors installed around the outer perimeter of each section of the roof structure.

These conductors must be installed on top of parapet walls if these exist. Lift motor rooms, tank rooms, penthouses, etc., which protrude above the general roof line must have air terminal conductors installed around the outer perimeter of each roof slab or parapet wall. Any metallic objects which protrude above the roof line, such as expansion pipes, signs, flag poles, handrails, etc., must be bonded directly to the nearest component of the lightning protection system as described in 5.1.

N.B. : It is not permissible for the ends of conductors to be bonded directly to the perimeter air terminal system if the latter is installed upon a parapet wall having a height exceeding 500 mm above roof slab level. In these circumstances the conductors are to be bonded directly to the down conductors.

5.4 **Air Terminals for Metallic flat or Mono Pitched Roofs**

Metallic flat or mono pitched roofs do not require separate air terminal conductors, providing that there is electrical continuity between the metallic roofing sheets, (see 5.2). A metallic roof surrounded by a non-metallic parapet wall shall have conductors installed at the top of the parapet wall and these must be bonded to the metallic roof at intervals not exceeding 20 metres. If the parapet wall is clad with metal over its upper surface or a handrail is installed which affords good electrical continuity, separate air terminal conductors need not be installed. Under these circumstances the metal handrail or cladding must be bonded to the metal roof covering at intervals not exceeding 20 metres.

All non-metallic covering such as slates, tiles, asbestos cement sheeting, etc., supported by a steel structure being electrically continuous throughout may be treated as being of a complete metal construction. In these circumstances no separate air terminal system need be installed providing the steel roof structure is bonded to earth at intervals given in 5.5.

5.5 **Down Conductors for Non-metallic Structures**

Down conductors must be installed at regular intervals around structures and to run as directly as possible between the air terminal and earthing system. They must, where practicable, be positioned at the external corners of the structure. The maximum separating distance between down conductors around the perimeter of the structure must not exceed 30 metres. In the case of very tall buildings having a slender base (i.e. chimney stacks, water towers, etc.), a minimum of two down conductors must be installed.

The lower ends of down conductors are to be terminated and bonded to the earthing system approximately 200 mm above finished ground level. Under no circumstances must aluminium conductors be buried underground. Test joints must be provided between the down conductors and earthing system. Down conductors must run vertically between the air terminal and earthing systems. Where this is impracticable, their course may be deviated to run at any angle up to and including horizontal.

Where it is necessary to run conductors horizontally over the upper surface of a structural protrusion, such as an exposed concrete slab, the conductor may run down vertically over the edge of the slab and return to the main structure, so that the distance between the upper and lower conductors exceeds one third of the length of the horizontal run. Looped down conductors are not permitted. Down conductors must not run over the underside of large overhangs which are less than 6 metres above ground level, or other areas where people are likely to be present during a thunderstorm.

External or internal metallic rainwater pipes may be used as down conductors providing these are of substantial section and are jointed by screwing one length into another or welding. Thin gauge galvanized steel pipes whose sections are held together by friction, rivets or screws must not form part of a lightning protection system.

5.6 **Down conductors for reinforced concrete framed structures**

The steel reinforcement of this type of structure may be used in place of down conductors. Where the reinforcing system is used, the air terminal system must be bonded to it at a maximum of 30 metre intervals using steel clamps. This bond may be achieved by clamping, with a steel clamp, a steel conductor to a selected reinforcing bar, the opposite end of this conductor must terminate at a corrosion resistant metallic terminal such as Grade 316 stainless steel.

The reinforcing system of prefabricated concrete buildings must not be used unless special provision is made for bonding the various prefabricated sections together.

The terminals should be mounted flush with the face of the concrete. An aluminium alloy bond must then be taken from the air terminal system and be connected to the stainless steel terminal by means of a heavily tinned crimp lug for circular section aluminium, or a suitable bi-metallic joint in the case of flat section aluminium. A similar system must be used to bond the reinforcing system at ground level to the earthing system at points directly below the air terminal bonds. Here copper conductors must be used as the external bonding material.

Under no circumstances must copper, or other non-ferrous material be allowed to come into contact with steel reinforcing bars, as this may cause severe corrosion and subsequent structural damage. The lightning protection system must not be bonded to any part of the structure which is electrically isolated from the remainder of the building, i.e. cantilevered sections. In these circumstances, or where it is otherwise impracticable to use the reinforcing system, external down conductors must be installed as described in 5.5.

5.7 **Down conductors for steel framed structures**

Where the framework of a building is constructed of structural steel columns, these may be used in place of down conductors providing the separating distance between them does not exceed 30 metres. The upper ends of the columns must be bonded to the air terminal systems and the lower ends to the earthing system.

5.8 **Earthing by means of vertically installed rod type electrodes**

Rod-type electrodes must be driven into the ground at a position directly below each down connector. The maximum earthing resistance of each electrode or number of electrodes bonded to any one down conductor shall not exceed $N \times 30$ ohms, where N equals the total number of down conductors which are bonded to a common air terminal system, or 200 ohms whichever is the lower value.

The minimum horizontal separating distance between rod-type electrodes bonded together must not be less than their installed depth. The upper ends of installed rod-type electrodes are to be terminated approximately 500 mm below finished surface level. A 50 mm² copper bonding conductor must be installed to run between each earthing electrode system and the lower ends of the adjacent down conductors. A joint is to be made between each of these bonding conductors and the down conductors at a position approximately 200 mm above finished ground level. These bonding conductors must be installed in P.V.C. conduit securely affixed to the wall (see 3.4). The length of this P.V.C. conduit must be approximately 600 mm and must be installed so that approximately 200 mm protrudes above ground level, the remainder being buried into the soil.

5.9 **Earthing by means of metallic water mains**

Where two or three down conductors are installed the water mains may serve as an earth terminal for one of these. Where three or more down conductors are installed the water mains may serve as an earth terminal for two of these. Regardless of whether the water mains are used as an earth terminal or not, the incoming metal water pipe must be bonded to the lightning protection earthing system underground.

5.10 **Earthing by means of trench type electrodes**

Where the soil conditions prevent the satisfactory installation of rod-type electrodes, a trench earth system must be installed. This method is to comprise a 50 mm² stranded copper conductor installed horizontally into a trench at a depth of 500 mm below finished ground level. The conductor is to follow the general outline of the structure to be protected and be installed 1 metre away from the outside walls. Where the building stands on rocky ground, the trench earth may be attached to the lower part of the wall in areas where rock protrudes through the soil. The conductor must, however, be buried wherever possible as described above.

Each down conductor must be bonded to the trench earth system as directly as possible by means of a copper conductor.

Trench earth systems must have a maximum earth resistance of 30 ohms. An isolated length of trench earth mat must be bonded to the down conductor system in such a way as to reduce the length of dead-ends to the minimum.

Should trench earths be installed beneath pathways where people are likely to be present during a thunderstorm, a plastic, bitumastic or ceramic pipe must be installed having a length similar to the width of the pathway and the trench earth conductor run inside it.

N.B. : The maximum useful length of a dead-ended trench earth is 80 metres.

GENERAL ELECTRICAL SPECIFICATION

(ALL IN CONTRACTS)

1. CONDUIT AND CONDUIT ACCESSORIES

1.1 Conduit

Conduit shall be of steel galvanised internally and externally, either solid drawn, or welded and not less than 20 mm diameter, with all rough edges removed. All tube ends removed. All tube ends are to be reamed. With screwed conduit one threaded end is to be fitted with a coupling and the other end is to be protected against damage.

UPVC conduit may only be used if permitted by the Head : Works and only in those areas which he may specify. In this case this conduit shall be according to SABS 950.

Conduit accessories, which are secured to the conduit by means of lugs, screws or setscrews, are not acceptable.

General requirements of conduiting to SABS IEC 60614 (1).

Metal conduits shall be fully in accordance with SABS 1065 PART I.

1.2 Conduit Accessories

All conduit accessories shall be galvanised both internally and externally and comply with SABS 1065 – PART II.

All screwed conduit fittings shall be of malleable cast iron.

Where fittings are fitted with covers, the covers shall be of galvanised pressed steel secured with brass screws.

1.3 Flexible Conduit

Flexible conduit shall be of the plastic covered metal type complete with brass connectors to the approval of the Head : Works.

2. INSTALLATION OF CONDUIT

2.1 General

Except where cables are specified for certain circuits, the installation(s) shall be tubed throughout in steel conduit. Split conduit is not permitted. All conduits shall, wherever possible, or unless otherwise specified or agreed, be concealed in the structural work.

Except where agreed or otherwise specified or indicated on the drawings, all conduit to points shall run via the ceiling and floor slabs or roof space. In damp situations and where exposed to the weather, the conduits shall be so installed as to avoid, as far as possible, the condensation of moisture within them. All running joints are to be painted with an approved metal primer.

Mechanical and Electrical continuity must be maintained throughout the installation. Each length of conduit and every conduit fitting must be inspected for defects and all sharp edges or burrs must be removed before it is installed. All joints are to be tightly fitted together.

Running joints with long threads, where used, are to be fitted with a lock nut and the running thread shall not be longer in length than a coupling and lock unit.

In conduits smaller than 32 mm elbows and normal bends are not to be used but conduits are to be set to the required angles.

Flexible connections between conduit and appliance or other equipment shall be by means of flexible tubing (see Par 1.3).

No wiring shall be drawn into conduits until the conduits have been installed.

Where more than one socket outlet is connected on a circuit, the conduit shall be looped from the one outlet box to the following outlet box.

All switch-boxes, socket outlet boxes and any other purpose made metal box including distribution board trays shall be suitable treated against corrosion before installation with "Rustodian" or other approved metal primer.

All conduits shall be securely fixed into chases, and all flush switch and socket outlet boxes must be firmly embedded in cement mortar.

The Contractor shall make himself familiar with the positions of all fittings, such as blackboards, pinning boards, cupboards, shelving, worktops, etc, before commencing the conduit installation. The position of switches and socket outlets as indicated on the drawings are approximate only. The Contractor must verify that the final position of these will not be covered by the installation of the fittings referred to above, or come midway between the junction of any dados and upper wall finishes.

No extras will be entertained for moving switches or socket outlets as a result of the Contractor's failure to verify the final positions of the fittings or type of wall finish.

2.2 **In Roof Spaces**

The conduit in roof spaces shall be installed parallel or at right angles to the roof truss members and shall be secured at centers not exceeding 1,2 m by means of galvanised saddles nailed to the timbers with galvanised clout nails. Crampets will not be allowed.

Crossing of conduits is to be avoided wherever possible. Where unavoidable, one conduit must be neatly set over the other. Where a number of conduits have to run back to the distribution board or switchboard, they shall run parallel to the distribution board or switchboard, and at saddle distance to each other wherever possible.

Conduit runs from distribution boards shall terminate in fabricated sheet steel draw boxes installed in the roof above the distribution boards. Each draw box shall be fabricated from 1,6 mm galvanised sheet steel with welded corners and suitably treated against corrosion with "Rustodian" or other approved primer and finished in aluminium paint.

Each draw box is to be fitted with slip-on lid with a 13 mm skirt. The box shall be 75 mm deep, shall be rectangular in shape and the size of conduits entering or leaving the box. Conduits shall be fixed to the box by means of couplings and brass male bushes or lock nuts and brass bush-nuts.

Conduit droppers shall be neatly cut into timber wall plates and set to face the right direction. All sets must be uniform. Conduits may be set at angles only where droppers or ceiling points are within 230 mm of roof members.

No conduits are to be run over the top of gangplanks or trapdoors.

Draw-in boxes with metal covers shall be provided where required and shall be installed near the gangplanks, if any. All inspection conduit fittings in open roof spaces shall face upwards to facilitate wiring and to permit easy inspection. Three-way conduit boxes shall be used for tee-off purposed in open roof spaces. Inspection tees are not to be used except where otherwise agreed or specified.

All conduits extended into a roof space with a roof clearance of more than 900 mm shall be set onto the beam and extended into the roof for a distance where there is sufficient clearance. Under flat roofs or where there is less than 900 mm clearance, the conduit shall be installed as specified for tubing in concrete slabs, right angle bends should be kept to a minimum and the shortest route taken.

Where false ceilings occur they shall be tubed as called for in the detailed specification. Conduits in restricted spaces and run as for concrete slabs must however, be installed in a neat and orderly manner.

Conduits to ceiling points for all types of fittings must be firmly supported and shall terminate in a back entry conduit box. The conduit box shall be taken through to the face of the ceiling and finish flush. Where the ceiling brander interferes with the installation of the ceiling point specified, the Contractor must trim the brander to allow the conduit box to be taken through to the face of the ceiling as specified. Luminaires must be bonded to the conduit box by means of metal threaded screws.

2.3 **In Concrete Slabs**

In order not to delay building operations, the Contractor must ensure that all conduits and conduit fittings, which are to be cast in concrete, are laid in good time. The Contractor shall have a competent Electrical Artisan standing by during casting of concrete, etc, to ensure that the conduit boxes are not damaged during casting of concrete.

Draw boxes, expansion joints boxes and round conduit boxes are to be provided where necessary.

Deep type conduit boxes shall be used for side entering conduits and normal shallow boxes may be used for back entry conduits. No elbows, bends or sharp sets will be allowed in concrete slabs except in cases of conduits of 40 mm diameter or when larger sweeping bends will be permitted.

Common drawn and/or inspection boxes shall be used where there is more than one circuit involved. They shall be installed in lavatories, storerooms, or other inconspicuous places. Covers shall be of hardboard neatly finished to match the finished ceiling or wall surface, and shall be fitted parallel to the wall or ceiling.

All boxes, etc. are to be securely fixed to the shuttering to prevent displacement when concrete is cast. All conduits must be laid off the deck, supported and secured at regular intervals and installed as close as possible to the neutral axis of concrete beams and slabs.

Expansion joints shall be shown on layout drawings and shall consist of a metal box in which one conduit is fixed and the other capable of movement with the building's expansion and contraction. Earth continuity of these joints shall be maintained by means of stranded copper conductors bonded to the conduits in the box as shown on the drawing.

Earth conductors and clamps buried in concrete are not permitted.

Conduits must be spaced sufficiently apart to allow for proper concreting. All joints shall be painted with an approved metal primer after completion of the tubing installation, prior to the concreting. All exposed parts of the conduit installation shall be suitably, protected against corrosion at the discretion of the Head : Works.

Before any concrete slab is cast, all conduit droppers to switchboards shall be neatly spaced and rigidly fixed.

2.4 **Surface Work**

All conduit must be plumbed and leveled and only straight lengths shall be used.

In cases where doorframes are out of plumb, or fittings, beams etc, are out of level, the conduit shall be run parallel with the doorframes, fittings, beams etc.

No threads shall be visible when the conduit installation is complete, except on running couplings.

Running couplings shall only be used where unavoidable and shall be fitted with a sliced coupling as a lock nut.

No inspection or normal bends are to be used on surface work, except with the approval of the Works Inspector and where conduits of 32 mm diameter or larger are used. Conduits shall be set uniformly and inspection couplings shall be used where necessary.

Fittings, tees, boxes, couplings, etc, are to be cut into the surface to allow the conduit to fit flush against the surface or alternatively spacer bar saddles may be used. Conduit is to be bedded into any irregularities to avoid gaps between the surface and the conduit.

Double sets, where used, shall be parallel with no twists and shall be as short as possible. All conduits, which terminate at metal trays, boxes, industrial switches and plugs shall do so by means of couplings and male bushes. No couplings will be permitted in droppers of lengths less than 3.6 m.

Where crossings of conduits is unavoidable, purpose made metal boxes shall be used. The length of the box is to be 8 times the diameter of the largest conduit, the width one and half times the sum of the diameter of all the conduits, and the depth one and half times the diameter of the largest conduit with a minimum depth of 50 mm. The box shall be fitted with a neatly fitting cover and the finish shall be in keeping with the general layout.

Where a number of conduits are to be installed in parallel they shall be evenly spaced and grouped under one purpose made saddle. Conduit spacing shall not exceed 10 mm. The purpose made saddle shall be made of 25 x 2 mm galvanised steel strip or other approved material, formed to suit the curvature of the various conduits and shall be drilled and fixed by means of screws between. Saddles shall be spaced at intervals not exceeding 1.8 m, except for conduit droppers, which shall be saddled centrally between ceiling and accessory box. All saddles are to be secured to the wall by means of black japan or brass rounded head screws. Distribution boards, draw boxes, industrial switches and plugs, etc, shall be neatly recessed into the surface of plastered walls to avoid double sets or alternatively spacer bar saddles may be used. On face brick walls the conduit shall be tightly set into the switch or plug.

In situations where there are not ceilings, the conduits are to be run along the wall plates and tie beams.

No wiring is to be carried out until the tubing has been inspected and approved.

Where spacer bar saddles are used, these shall be installed at centers of 1 m for horizontal and 1.5 m for vertical runs.

All conduits shall be painted with an approved enamel paint to match the background colour.

2.5 **Future Extensions**

In roof spaces with a minimum clearance of 900 mm, switch and plug drips for future use are to be set 300 mm in the correct direction and shall be threaded and fitted with plugged couplings. Where the roof over a slab is to be removed for future expansions, conduits for future use are to terminate 40 mm above tie beams and shall be threaded and fitted with plugged couplings.

Where future extensions are to be below slabs, all switch, socket outlet and other conduit droppers are to terminate 130 mm below slabs or beams with conduit ends threaded and fitted with plugged couplings.

Where provision is made for future extensions to a concrete slab, all conduits required for future use are to project 130 mm from the slab. Conduit projections are to be painted with an approved anti-corrosive paint and must be fitted with plugged couplings.

All switch, plug and other outlet boxes required for future use shall be fitted with approved blank cover plates.

Unused lighting outlet boxes are to be fitted with round hardboard or plastic covers with brass cover screws, which shall fit flat on the finished ceiling.

2.6 **Fixing of Conduits**

Conduits shall be fixed to switch and socket outlet boxes by means of couplings and brass male bushes or lock nuts and brass bush nuts. Couplings and male bushes to be used on all surface work.

2.7 **Chases and Building Work**

Except where otherwise specified conduits, switch boxes, plug boxes and distribution boards are to be built into the brick walls by the Contractor. It will, however, remain the responsibility of the Contractor to ensure that the above-mentioned boxes and distribution boards are correctly built in and are firmly bedded and cemented into the walls, plumb and square.

The Contractor shall, unless otherwise specified, do all necessary chasing and cutting of bricks. All electrical materials (e.g. conduits up to 40 mm for UG cables, conduits, conduit boxes, distribution boards etc) must be supplied by the Contractor who must arrange to have these on site, and positioned when required for the building work. A competent Electrical Artisan must be in attendance and ensure that the conduits etc are correctly installed and positioned.

The Contractor is to ensure that tubing installed in chases is securely nailed and covered by a layer of 5:1 mixture of coarse sand and cement, finished flush with brickwork and that switch and plug boxes finish flush with the finished wall surface.

The Contractor is to ensure that below distribution boards connected by means of underground cables, a 230 mm wide by 115 mm deep cavity in the wall from the cable pipe to the distribution board is to be provided by the Contractor, or alternatively, cable sleeves as specified.

3. **PLUGGING OF WALLS**

Only approved plastic plugs shall be used to secure conduit or equipment up to 5kg mass. The use of round-headed screws only will be permitted.

Heavier equipment shall be secured by means of approved expansion bolts.

Wood plugs and any plugs in the joints in brick walls are not permitted.

4. **FIXING TO CONCRETE CEILINGS**

Ceilings mounted equipment other than luminaires shall be secured to concrete ceilings by means of expansion bolts, shot bolts or "Robot" tools bolts or as expressly specified for the service.

5. **WIRING**

5.1 **PVC Insulated Single Core Medium Voltage Conductor**

The conductor is to be of high conductivity copper wire insulated with Polyvinyl Chloride. The cable shall be finished in the required colours and shall be in accordance with SABS 1507 and 1574.

Circuit wiring shall be of the Loop-in system and no wiring joints in the conduit or conduit fittings will be permitted. Not more than two conductors of a kind will be allowed at any outlet point. The end strands of cables, whether single or looped which have to be connected to terminals of switches, plugs, lamp-holders, fittings and distribution boards, etc, are to be tightly twisted together. Cutting away of wire strands of any cable will not be allowed. Only one circuit in any one conduit will be permitted unless otherwise specified.

Conductor sizes shall be as follows except where otherwise specified:

Lighting circuits	1,5 mm ²	
Bells circuits	1,5 mm ²	
Clock circuits	1,5 mm ²	
Incinerator circuits	2,5 mm ²	
Ironing circuits	2,5 mm ²	with 2,5 mm ² insulated earth wire
Plug circuits	4,0 mm ²	with 2,5 mm ² insulated earth wire
Geyser circuits	4,0 mm ²	with 2,5 mm ² insulated earth wire
Heater circuits	4,0 mm ²	with 2,5 mm ² insulated earth wire
Stove	10 mm ²	with 6,0 mm ² insulated earth wire
Motor circuits		
Up to 4kW single phase	4,0 mm ²	with 2,5 mm ² insulated earth wire
Up to 11kW three phase	4,0 mm ²	with 2,5 mm ² insulated earth wire

To avoid deformation of PVC insulated cables at temperatures in excess of 57° C, they shall not be brought directly on to the terminals of appliances such as electric heaters, or any other electrical appliances or apparatus (including luminaires) which have a temperature in excess of 57° C. They shall terminate in a suitable terminal box as near to the appliance or fittings as possible and connect up from thereon, with heat resistant conductor.

6. MOUNTING AND POSITIONING OF LUMINAIRES

Luminaires and installation to comply with SABS 1464 Parts 1 to 22 and IEC 598-1 and IEC 60598 as applicable.

The contractor shall, in the case of board and acoustic tile ceilings (i.e. as opposed to concrete slabs), ensure that the luminaires are symmetrically positioned with regard to the ceiling pattern.

The layout of the luminaires as indicated on the drawings shall be adhered to as far as possible. The exact positions must be confirmed on site with the Head : Works.

Except where otherwise specified, pendant luminaires are to be mounted with the bottom of the fittings 2,5 m above finished floor level, mounted on either metal discs or wood blocks.

Under no circumstances shall cover strips be cut to accommodate wood blocks. Wood blocks must be neatly slotted to fit over cover strips and are to be secured by a minimum of two screws, which shall penetrate at least 25 mm into solid wood. Ceiling cover strips shall be neatly cut to accommodate fluorescent luminaires.

Where ceilings are raked, all incandescent luminaires are to be mounted on shaped leveling wood blocks securely fixed to the ceiling. Batten holders shall be secured to woodblocks by suitable brass screws. Fluorescent luminaires are to be mounted direct on raked ceiling without leveling blocks.

Fluorescent luminaires to be mounted on concrete ceilings shall be screwed to the outlet boxes and additionally supported by means of 50 x 6 mm expansion bolts. The bolts are to be ¾ of the length of luminaires apart.

Where a number of luminaires are installed end to end, outlet points must be provided after every second luminaire unless otherwise indicated on the drawing.

The luminaires are to be joined together by means of 20 mm conduit nipples, lock nuts and male brass bushes, and the wiring led through the channels of the luminaires. The Contractor shall ensure that all such rows are correctly lined up and that the rows are parallel with the relevant building line.

The luminaires are to be jointed together by means of 20 mm conduit nipples, lock nuts and male brass bushes, and the wiring led through the channels of the luminaires. The Contractor shall ensure that all such rows are correctly lined up and that the rows are parallel with the relevant building line.

Incandescent luminaires are to be screwed directly to outlet boxes in concrete slabs and in board ceilings. In board ceilings the conduit box and the conduit shall be secured to the timberwork of the ceiling in such a manner that it shall support any incandescent luminaire, which is designed to be fixed to a normal conduit box.

Fluorescent luminaires shall be secured to board ceilings by means of the conduit box and 6 mm bolts passing through the boards and brandering.

7. **BATTEN HOLDERS**

B.C. batten holders shall be of brass or moulded plastic reinforced type complete with shade ring. The batten holders shall comply with SABS IEC 60238 and SABS IEC 61184. All lamp holders are to have brass terminals with screw type connection.

8. **LAMP HOLDERS**

Edison screw lamp holders : SABS IEC 60238

Bayonet lamp holders : SABS IEC 61184

Lamp holders for tubular fluorescent lamps : SABS IEC 60400

B.C. screwed lamp holders shall be of brass 20 mm E.T. complete with shade ring and shall comply with SABS IEC 60238 and SABS IEC 61184 with screw type connection terminals.

9. **SWITCHES AND SOCKET OUTLETS**

Switches SABS IEC 60669 as applicable and socket outlets SABS IEC 60884 as applicable shall be of the most modern manufacture and bear the SABS mark.

Flush switch and plug cover plates shall, unless otherwise specified, be of anodized aluminium of thickness not less than 0,9 mm, satin or other approved finish as directed and otherwise to be fully in accordance with SABS IEC 1084 for cover plates and SABS 1085 for wall boxes.

10. **POSITIONS OF SWITCHES AND SOCKET OUTLETS**

Except where otherwise specified, lighting switches and socket outlets are to be installed 1,4 m above finished floor level.

All mounting heights specified are to be measured from finished floor level to the bottom of the outlet box.

Where the lower portion of the wall consists of face brickwork and the upper portion of plastered finish, switches and socket outlets are to be mounted in the plastered surface, provided that the lower edge of the plasterwork does not exceed a height of 1,5 m above finished floor level in which case the switches or socket outlets are to be installed in the face brick dado.

Where socket outlet and switch boxes have been installed with fixing lugs below finished wall surface, only approved distance pieces required to compensate for the recess shall be used. The lengths of distance pieces are not to exceed 15 mm.

Unless otherwise approved, light switches adjacent to doors are to be installed at the lock side of the door. Where the lock position is not indicated on the drawings, its position shall be ascertained before the switch box is installed. Switches are to be installed 150 mm from the reveal, or centrally if there is a fitting near the door.

All switch and socket outlet boxes shall be installed plumb, and built into the wall with a 1:1 mixture of cement and sand.

Industrial type switches and socket outlets shall be neatly recessed into the surface of plastered walls to avoid sets or alternatively spacer bar saddles may be used.

Deep type boxes may be used where switches or socket outlets are back to back, but where one side only is to be utilized at the time and the other is for future use, the side for future use shall be suitably covered with a metal cover plate.

11. **LOW TENSION SWITCHBOARDS**

Low Voltage switch gear and control gear to comply with SABS 1473 and SABS IEC 60947 and SABS 60349.

Where switchboards are to be installed in switch rooms or switch cupboards, the Contractor must ensure that the boards are manufactured to suit the dimensions of the rooms or cupboards.

Low tension switchboards shall be specified in detail for each service, but shall generally conform to the following:

They are to be of strong and rigid construction, with suitable angle, channel or folded steel framework. They are to be flush fronted and totally enclosed with sheet steel panels suitably formed at the edges and reinforced to prevent distortion. Unless otherwise directed, all front panels must be at least 2 mm thick and all other panels at least 1.6 mm thick. Panels are to be secured to the framework with studs and chromium plated dome nuts (self-tapping and similar screws are not permitted).

Switches, etc, are to be mounted on metal frames within the boards to give flush front panels. Equipment of normally surface mounted types such as energy meters, time switches and contractors, are to be mounted on inner metal trays behind hinged front panels. In the case of supply authority meters the hinged front panels must have transparent inserts.

All metal work of the boards must be thoroughly degreased, primed with PA 10 self etching primer and finished with one coat of undercoat and two coats of electrical orange high gloss enamel, unless otherwise specified.

All accessible current carrying parts, bus-bars, connecting strips, collector bars, etc, are to be adequately insulated in phase colours and suitably braced to withstand projected fault currents.

Connecting strips and collector bars must be of sufficient cross sectional area to carry full rated current of the switches served, irrespective of the fuse or trip rating.

The complete distribution board including bus-bars must be suitably constructed to withstand fault currents specified.

Connections to bus-bars are to be made by means of lugs suitably bolted and locked with high tensile bolts and connections to lugs must be effected by means of a crimping tools.

Incoming and outgoing bus-bar studs, where required, must be suitably insulated where they pass through panels of the board, and firmly supported within the board.

Where applicable, incoming and outgoing collector bars for cables in parallel must so arrange that the multiple cable ends can be connected to the bars with reasonably short tails which do not have to cross.

Cable supports must be placed at suitable heights having regard to the bending radius of the cables concerned and convenience in making off.

Wall-mounting and floor-standing back to wall type boards must be provided with full easy access to all equipment and wiring without any necessity of disconnecting or removing of any of the equipment mounted in the board.

Clear visible indication of all switch positions must be provided and the switches must be clearly labeled as directed by the Head : Works.

The details of construction proposed, and the Head : Works must approve all equipment of switchboards: Works before manufacture is commenced.

12. **DISTRIBUTION BOARDS**

12.1 **Approval**

The Head : Works must approve the details of construction proposed and all equipment within distribution boards: Works before manufacture is commenced.

12.2 **Flush Mounting Distribution Boards**

These shall be generally manufactured in accordance with SABS 1765. The board shall consist of two panels fitted side by side with common bonding tray and attached to a common architrave. One panel shall accommodate all single phase MCB's and the second panel shall accommodate the main isolator, main bus-bars and the triple pole MCB's. Chassis shall be of rigid channel section rust proofed steel with clip-on trays for the single pole MCB's. The main isolator is to be mounted at the bottom of the second panel with the triple pole circuit breakers above.

12.3 **Surface Mounting Distribution Boards**

These shall be generally manufactured in accordance with SABS 1765, with two panels as for flush boards.

12.4 **Single Phase Distribution Boards**

Single Phased boards shall be generally constructed as three phase boards except they shall have a single panel. Single phase boards shall be mounted with the bottom of the architrave 1,5 m above finished floor level unless specifically directed otherwise.

12.5 **Distribution Board – In Roof Spaces**

Where distribution boards are installed below a roof space, a minimum of 2 x 20 mm and 1 x 25 mm spare conduits are to be run from the distribution board into the roof space.

13. **METER BOXES**

The meter box shall be mounted with the top 1,7 m above finished ground level. Surface mounted meter boxes shall be secured by at least 4 x 10 mm expansion bolts.

Service cables entering the meter box shall be protected by means of a suitably sized galvanised pipe extended 450 mm below the ground surface and securely saddled to the wall and bonded to the meter box.

14. **CONNECTIONS TO OUTLETS**

14.1 **General**

Where connectors are used to connect to the wiring of luminaires and other appliances, the connectors shall comply with SABS Specification 1239.

14.2 **Connection to Stoves**

14.2.1 **General**

The connection to an electric stove, unless otherwise specified shall consist of 2 x 10 mm² conductors and a 6 mm² insulated earth wire in 25 mm conduit. The stove shall be controlled by a 60 Amp micro gap switch of approved make and the connection shall be by means of a 45 Amp 3 pin stove plug of the "Cape Town" type. Cable ends, which are to be connected to the stove, shall be equipped with suitable soldered or crimped lugs. The connection between the stove plug and stove shall be by means of flexible conduit.

Except for high school domestic science unit kitchens (see Clause 14.2.2), the conduit shall be chased into the wall and fitted with a switchbox for housing the micro gap switch and a 25 mm circular conduit box over which the stove plug will be mounted. The stove plug shall be fitted with an adaptor plate and shall be screwed directly to the conduit box by means of round head metal screws. The plug outlet shall face downward.

The stove plug and switch shall be mounted 430 mm and 1,4 m respectively above finished floor level unless otherwise specified or indicated on the drawings.

14.2.2 **Stove Connections in High School Domestic Science Unit Kitchens**

Connections to stoves in High School Domestic Science Unit Kitchens, where the stoves are situated in front of a fitting, shall be generally as specified in Clause 14.2.1 except that the 25 mm diameter conduit shall be run in the floor slab, from the distribution board to a position to the right of the stove. A pedestal, which is complete with a 45 Amp 3 pin "Cape Town" type cooker plug, mounted on the back, shall be fitted over the conduit and securely bolted to the floor by means of expansion bolts. The plug circuit, which passes through the pedestal, is to be on a separate circuit.

14.3 **Connections to Hot-water Cylinders**

The connections to hot-water cylinders not exceeding 3kW loading shall consist of 2 x 4 mm² PVC conductors and 1 x 2,5 mm² earth wire in a 20 mm diameter conduit from the distribution board. The conduits shall be chased in the wall and shall terminate at the side of the cylinder in a box over which is to be mounted a double pole isolator with pilot light.

The final connection between the isolator and cylinder shall be by means of silicone heat resistant conductors in 20 mm diameter flexible conduit.

Connections to roof mounted hot-water cylinders shall generally be as specified above with an isolator with pilot light mounted adjacent.

14.4 **Connections to Power Points**

Connections to electric motors and fixed apparatus to vibration shall, unless otherwise specified or indicated on the drawings, have final connections consisting of conduit and flexible tubing or reinforced hose in accordance with Clause 1.3 of this specification and PVC cables and earth wire of the required size.

An isolator shall protect all fixed apparatus and where necessary a starter fitted with a no-volt coil and overload protection adjacent to such apparatus.

Power points for connection of fixed apparatus to be installed by others, shall terminate in an approved type wall mounted switch unless otherwise specified.

The minimum conductor size for all power points shall be 4 mm² unless otherwise specified.

14.5 **Underground Service Connection**

This clause refers to underground service connections not provided by the Supply Authority.

The service cable and earth wire to be connected at the supply point in accordance with Clause 15.8 of this specification, and unless otherwise specified, shall be laid 600 mm below ground level throughout and otherwise fully in accordance with Clause 15 and all applicable sub-clauses thereof. Cable entries to meter boxes shall be in accordance with Clause 13 and other entries shall be by pipe or duct as directed.

14.6 **Connections to Outbuildings**

Connections to outbuildings shall be made by means of underground cable only, laid in accordance with Clause 15 and all applicable sub-clauses.

Where the cable is run from the roof space of the main building, it shall be enclosed in suitably sized galvanised pipe built into the wall or run surface as directed. Surface run pipes shall be securely saddled at 1,8 m centers. Where the cable connects to the conduit in the roof space, a suitable joint box shall be provided or alternatively the cable may be taken through the roof space, a suitable joint box shall be provided or alternatively the cable may be taken through the roof space with fixings at regular intervals, and down to the main board. At the outbuildings, the cable shall be enclosed in a suitably sized galvanised sleeve pipe built into the wall or run surface and terminated in the distribution board tray.

14.7 **Connection and Mounting of Cable Fed Street/Site Lighting**

Street/site lights shall in all cases, except where otherwise specified, be fed by underground cable. Unless otherwise directed, a suitable terminal board shall be provided in the base of the lighting pole for the connection of the incoming and outgoing cables, the feeds from the terminal board to the fitting shall be as specified.

“Surfix” cable and compression glands shall be installed between terminal board and cross arm/bracket mounted luminaires. The terminal board shall also accommodate a miniature circuit-breaker in the phase connection to the fitting. Poles intended for mounting directly in ground are to be provided with a 300 x 300 mm base plate.

15. **UNDERGROUND CABLES**

1000 volt PVC SWA and 110 Volt PILCA cable and accessories shall be in accordance with the relevant SABS specifications to SABS 1507.

The storage, transportation, handling and laying of underground cables shall be according to the manufacturer's requirements and the Contractor shall have adequate and suitable equipment and labour to ensure that no damage is done to cables during such operation. All cable pipes and ducts entering buildings are to be sealed against the ingress of vermin, water, etc.

15.1 **Trenching**

Cables, unless otherwise specifically directed, shall be laid at a depth of 600 mm below ground level. Trenches shall not be less than 300 mm wide for one to three cables, and the width shall be increased where more than three cables are to be laid together so that the cables may be placed at least 75 mm throughout the run.

The Contractor shall take all necessary precautions to prevent trenching work being in any way a hazard to the public and to safeguard all structures, roads, sewer works, or other property from risk of subsidence and damage.

15.2 **Cable Joints**

Joints in underground cable runs will not be permitted unless unavoidable and at the discretion of the Head : Works. Where cable joints are unavoidable, the cable jointer is to work efficiently and cleanly and so that each end of the cables to be joined may have a minimum of 0,9 m of slack disposed in a loop without stress. Back-filling under joints must be firmly tamped to prevent any subsequent settling.

15.3 **Bedding**

In trenches made in intermediate, hard rock, or boulder material, the cables shall be laid on a 75 mm thick bed of earth and be covered with a 150 mm layer of earth before the trench is filled in. The Contractor to supply all earth required for trench filling.

15.4 **Laying**

Cables shall be removed from the cable drum in such a way that no twisting, tension or mechanical damage is caused, and must be adequately supported at short intervals during the whole operation. Particular care must be exercised where it is necessary to draw cables through pipes and ducts, to avoid abrasion, elongation or distortion of any kind. The ends of such pipes and ducts shall be sealed to approval after the drawing in of the cables.

15.5 **Back Filling**

Back filling after bedding (see Clause 15.3) is to be carried out with a proper grading of the material to ensure settling without voids, and the material is to be tamped down after the addition of every 150 mm. The surface is to be made good as required.

Back filling of cable trenches must not be commenced until after the cable trenches and laid cable(s) have been inspected by the Head : Works. Where a Contractor fails to observe this requirement he may, at the discretion of the Head : Works, be required to re-open such cable trenches for inspection at his own expense.

15.6 **Protection of Cables**

Where so directed by the Head : Works, concrete or other warning covers shall be placed over cables above the top bedding layer. Cable pipes when directed are to be installed at road and other crossings.

15.7 **Marking of Cables**

Cable marking tape is to be supplied by the Contractor and is to be laid 150 mm below ground over a cable run and as may be directed by the Head : Works to give early indication of underground cable runs.

15.8 **Joints and Termination of Cables**

Joints in underground cables and terminations shall be made by means of "Scotch Cast" or other approved epoxy-resin pressure type jointing kits. Low tension PVC cables are to be made off with sealing glands and materials designed for this purpose, which must be of approved make.

15.9 Sealing of Paper Insulated Cable Ends

Where cables are cut and not immediately made off, the ends must be sealed without delay. If cables are cut and the ends not immediately made off or sealed, the cable may be rejected and the Contractor will be required to replace it at his own expense.

15.10 Earth Wires

Except where specifically directed otherwise, earth continuity conductors are to be run with all underground cables constituting part of a low tension distribution system. Such earth continuity conductors shall be bare copper wire of a cross sectional area in accordance with the Code of Practice 0142 but shall not be less than 4 mm² nor more than 70 mm². The earth continuity conductor is to be bonded to the cable armouring, and to the lead sheath if any, at each termination, as well as to the local earth bard. The earth wire must be secured to the cable at 1,8 m centers.

15.11 Opening Up of Existing Cables

Where it is necessary to expose existing buried cables for any purpose, or to excavate in the vicinity of existing buried cables, pipes, etc, every care is to be exercised and only labourers experienced in such work, and duly warned by the Contractor, shall be employed thereon.

15.12 Definitions for Classifying of Excavation

- (a) Soft Excavation – shall be excavation in material that can be efficiently removed by a back-acting excavator of flywheel power approximately 0,10kW per millimeter of tinned-bucket width, without the assistance of pneumatic tools such as paving breakers, or that can be efficiently loaded without prior ripping or stockpiling by a rubber tyred front-end loader approximately 15T mass and a flywheel power of approximately 100kW.
- (b) Intermediate Excavation – shall be excavation in material that requires a back-acting excavator of flywheel power exceeding 0,10kW per millimeter of tinned-bucket width and the assistance of pneumatic tools prior to removal by equipment equivalent to that specified in (a) above.
- (c) Hard Rock Excavation – shall be excavation in material that cannot be efficiently removed without blasting or without wedging and splitting prior to removal.
- (d) Class A Boulder Excavation – shall be excavation in materials containing more than 40% by volume of boulders of sizes between 0,03 cubic meter and 20 cubic meter in a matrix of softer material or smaller boulders.

Note: (1) Excavation of solid boulders or lumps of size exceeding 20 cubic meter will be classified as hard rock excavation.

(2) Excavation of fissured or fractured rock will not be classed as boulder excavation but as hard rock intermediate excavation according to the nature of the material.

- (e) Class B Boulder Excavation – shall be excavation of boulders only in a material containing 40% or less by volume of boulders of size between 0,03 cubic meter and 20 cubic meter in a matrix of softer material or smaller boulders.

Note: Those boulders that required individual drilling and blasting in order to be loaded by a back-acting excavator as specified in (a) above, or by a track type front-end loader, will each be separately classed as Class B Boulder Excavation.

16. EARTHING

16.1 Main Earthing

The type of main earthing shall be as required by the Supply Authority, if other than the Head : Works and in any case as directed by the Head : Works who may require additional earthing to meet test standards.

Where required, an earth mat is to be provided, the minimum size, unless otherwise specified, being constructed from copper straps 950 x 25 x 3 mm at 230 mm centers and braced at all intersections. Alternatively or additionally earth rods or trench earths may be required, as the Head : Works may direct, and installed according to his instructions.

All earth electrodes and connections thereto must be approved “in-situ” by the Head : Works before back-filling.

The electrical installation shall not be earthed by means of the lightning arrester earth electrode, if such is included in the installation, but may be bonded thereto.

16.2 Earthing in Installations

The installation shall be effectively earthed in accordance with the relevant sections of the Code of Practice 0142 and the requirements of the Supply Authority.

All hot and cold water and waste pipes are to be effectively bonded by means of 12 x 1,5 mm solid copper tape (perforated tape or wire will not be permitted), clamped by means of brass bolts and nuts. Bonding tapes exceeding 75 mm in length must be fixed to the wall by means of No. 6 x 20 mm brass screws and plastic plugs not exceeding 150 mm centers. Main earth copper tapes where installed less than 2,5 m from ground level, must be run in 20 mm diameter conduit securely saddled to the wall.

Gutters and down pipes are to be bonded by means of 6 mm round headed brass bolts, with nuts and washers. Self-tapping screws are not permitted.

Connections from the earth bar or terminal on the main board must be made to a visible cold water main, the incoming service conductor, if any, and the earth mat or plate (where such is required) by means of either 12 x 1,5 mm solid copper tape or bare 25 mm² copper wire, or such larger conductor as the Head : Works may direct. From each distribution board separate earth conductors are to be taken to the main earth bar or terminal on the main board. Each conductor shall consist to stranded copper conductors drawn into the conduit together with the distribution board feeders. The size of the earth conductors to be in accordance with the requirements of the Code of Practice 0142 or as specified.

Earthing clips shall be made of not less than 0,9 mm thick copper strips not less than 12 mm wide. They are to be complete with 25 x 7,7 mm brass bolts, washers and nuts and must be constructed so that the clips will fit firmly to the conduit without any additional packing.

Adjustable earth clips are not permitted.

17. **EXISTING BUILDINGS**

17.1 **Occupied Buildings**

Where work is to be carried out in occupied buildings the Contractor must arrange to carry out the installation with as little interruption to services and discomfort to the occupants as possible.

17.2 **Temporary Connections**

Temporary connections shall be provided where necessary for continuity of services, and as directed by the Head : Works. The contractor must ensure that such connections are both electrically safe and free from physical hazard.

17.3 **Old Materials**

Unless otherwise specified all existing materials removed by the Contractor shall remain the property of the Head : Works and are to be handed to the Head : Works.

17.4 **Making Good**

Any damage which may be done to the plaster work, floors, ceilings, wood and paint work, furniture and other equipment in the building, etc, during the progress of the electrical installation shall be repaired and made good by the Contractor to the satisfaction of the Head : Works.

18. **COMPLETION**

18.1 **Balancing of Load**

The Contractor is required to balance the load as equally as possible over multi-phase supplies.

18.2 **Tests**

The installation shall be tested by the Contractor as the service progresses or as required by the Head : Works and upon completion, for earth continuity and insulation. The final test before the taking over of the installation shall be made in the presence of the Head : Works.

The mandatory "Certificate of Compliance" shall be issued by the Contractor to the Supply Authority, with a copy to the Head : Works prior to first delivery being taken.

18.3 **Labelling**

All circuits and apparatus on switchboards shall be suitably correctly labeled by means of engraved plastic labels (white lettering on black), which are to be either bolted or screwed to the equipment panel, or fitted in channeling provided below the switch gear.

Sub-circuits are to be numbered and a legend detailing the circuits is to be framed and fitted to the door of the distribution board.

All other equipment is to be individually labeled to indicate the function.

All switchboards are to be fitted with a label on which the designation of the board is clearly indicated.

A separate engraved label depicting the origin and cable/conductor size shall be fixed below the main switch.

18.4 **Finishes**

Covers for all boxes, expansion boxes, etc, shall be finished to match the paint work of the ceiling or wall surface or as specified.

18.5 **Site Drawing**

On all completed new work or where specifically called for in the Tender Document, the Contractor shall, on completion of the works, submit to the Head : Works, a marked up site plan indicating the exact underground cable reticulation.

19. **POWER DUCTING FOR SCHOOL SCIENCE LABORATORIES**

The ducting shall be "Ductline 3" supplied by Messrs. Lascon Lighting, 102 Malbourne Road, P.O. Box 2479, Durban 4000: Telephone 031-2075081 or other approved.

20. **SPEAKER AND MICROPHONE OUTLETS**

Speaker and microphone outlets are to conform to the following details:

1. Speaker outlet – To have one flat and one round pin.
2. Microphone outlet – To have one round pin only.

Both female and male parts to be supplied and installed by the Contractor.

21. **BELLS AND BUZZERS**

21.1 **Bells**

Bells for schools and hostels shall be 220 Volt AC or 24 Volt DC as specified for the service. They are to be of robust construction encased in a sturdy cast metal weather-proof case. They are to operate on the frequency of the supply. They shall have an adjustable stabilizing spring, gold-silver contact points and 150 mm gongs.

21.2 **Doorbells, Buzzers and Bell Transformers**

These will be as specified for each service.

21.3 **Bell Pushes**

Except where otherwise specified, bell pushes shall be of the flush type suitable for mounting in a standard 100 x 50 mm box. They shall be clearly marked as a bell push and shall be fitted with satin finished anodized aluminium cover plates.

22. **SIGNAL TIMERS**

22.1 **Primary Schools**

The timer shall be designed to automatically signal the start and finish of school periods by the switching of a bell circuit and is to comply with the following specification:

1. The mechanism may be synchronous motor or quartz movement driven with a 24 hour dial or digital time read-out suitable for operation on a 220V 50Hz supply and is to be provided with a spring or battery reserve of a least 24 (twenty four) hours.
2. The unit is preferably to have minute to minute timing for a 24 (twenty four) hour period although 5 (five) minute intervals are acceptable, and is to be provided with Weekend lockout. Signal periods shall be adjustable from 5 – 45 seconds.
3. The unit shall be housed in a metal or plastic case with detachable front cover suitable for wall mounting.
4. Timers with punch tape programming are not acceptable.

22.2 **High Schools and Colleges**

Timers for these institutions shall generally be as for Primary Schools but are to have at least 3 (three) separate programmes and be fitted with three push buttons for independent manual operations for testing of each programme, plus an on/off switch for each programme, which does not affect the running of the clock.

23. **CLOCKS**

Electric clocks shall be of the quartz electronic battery operated type, with a dial of 250 mm diameter. The dial shall be white, with distinctive minute markings and chapters shall be black Arabic figures. Time adjustment shall be simple. Where mains operated electronic clocks are specified, these shall be of the synchronous self starting type, suitable for a 200 – 250 V 50 Hz AC supply

24. **TIME SWITCHES**

The time switch shall consist of a single pole switch with silver to silver or other approved contacts operated by a quartz movement with a 24 hour reserve.

A suitable 24 hour, night and day dial, with hour indicator and two adjustable strikers, one OFF and one ON must be provided. The whole mechanism is to be totally enclosed in a dust proof case.

The current rating shall be required and the switch is to be suitable for operation on 220 volt 50 Hertz AC supply. Time switches used for under floor heating are to be fitted with weekend cut-out.

25. **MOULDED CASE CIRCUIT BREAKERS (INCLUDING MINIATURE)**

Circuit breakers shall be of the size and type as directed and specified for the service. They shall comply with SABS Specification 156 and SABS IEC 60947-2.

26. **SWITCHES: ON-LOAD FAULT MAKING (CIRCUIT BREAKER TYPE) WITHOUT TRIPS**

The switches shall be triple pole, hand operated, panel mounting air break type, having continuous current rating as specified and suitable for operation of 380 – 440 Volt 50 Hz AC system.

The contacts are to be of silver alloy and the switch mechanism shall be of the quick-make, quick-break type.

27. **SWITCHBOARD EQUIPMENT**

Switchboard equipment such as switches, circuit breakers, etc, shall be as directed and specified in the detail specification for the service.

Circuit breaker equipment of SABS IEC 60934.

28. **FUSE-SWITCH UNITS (WITH HRC FUSES)**

The fuse-switch unit is to be of the double pole, or triple pole or triple pole with neutral link type, and of the required current rating, as specified for the service and must be in accordance with BS EN 60947-3.

The fuse links must be fully isolated when the switch is in the open position, and interlocks must be provided to prevent the switch being operated with the cover open.

The fuse links shall comply with SABS Specification 172 and SABS IEC 60269-1 to 4.

29. **BUS-BAR COPPER**

Bus-bar copper must be fully in accordance with Tables A1 and A2 of SABS 1473-2 and SABS IEC 60439-2.

30. **SPECIFICATION COMPLIANCE**

The complete installation shall comply with the requirements of this specification. Should any differences or contradictions exist between this Specification and the detailed requirements for a specific installation, then the detailed requirements shall take precedence.