

PROVINCIAL ADMINISTRATION OF KWAZULU-NATAL DEPARTMENT OF PUBLIC WORKS



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

BILLS OF QUANTITIES

with GCC for Construction Works - Second Edition 2010

RETURNABLE DOCUMENT

ONE VOLUME APPROACH

PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL

Engineer/Principal Agent

Ravi Jhupsee Architects CC T/A Architronic
P.O. Box 19383
Dormeton
Durban
4015
031 - 201 3933 - Tel Number
031 - 201 3930 - Fax Number
marvinm@architronic.co.za

Employer:

Head: Public Works
KZN Department of Public Works
Private Bag X 9041
PIETERMARITZBURG
3200
Tel Number: 033 - 8971430
Fax Number: 033 - 8971399

Architect, Quantity Surveyor, Engineer

Ravi Jhupsee Architects CC T/A Architronic
P.O. Box 19383
Dormeton
4015
031 - 201 3933 - Tel Number
031 - 201 3930 - Fax Number
marvinm@architronic.co.za

Region:

Regional Manager
KZN Department of Public Works
X9041
Pietermaritzburg
3200
Tel Number: 033-897 1421/1422
Fax Number: 033-897 1399

Tender Number: ZNTM01263W
CIDB Grading: 5GB or Higher
ECDP Number: N/A

Project Code: 063241
Document Date: 5-Jun-2026
Contract Period: 8 Calendar Months

Contracting Party: _____

CIDB Registration number: _____

Central Suppliers Database Registration Number: _____

**PROVINCIAL ADMINISTRATION OF KWAZULU-NATAL
DEPARTMENT OF PUBLIC WORKS**

BILLS OF QUANTITIES

FOR

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO
STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY
SCHOOL**

Architect, Quantity Surveyor, Engineer

Ravi Jhupsee Architects CC T/A
P.O. Box 19383
Dormeton
4015
Tel Number 031 - 201 3933
Fax Number 031 - 201 3930
marvinm@architronic.co.za

Employer

Head: Public Works
KZN Department of Public Works
Private Bag X 9041
PIETERMARITZBURG
3200
Tel Number: 033 - 8971430
Fax Number: 033 - 8971399

Architect, Quantity Surveyor, Engineer

Ravi Jhupsee Architects CC T/A Architronic
P.O. Box 19383
Dormeton
4015
Tel Number 031 - 201 3933
Fax Number 031 - 201 3930
marvinm@architronic.co.za

Region

Regional Manager
KZN Department of Public Works
X9041
Pietermaritzburg
3200
Tel Number: 033-897 1421/1422
Fax Number: 033-897 1399

Tender Number: ZNTM01263W

Project Code: 063241

CIDB Grading: 5GB or Higher

Document Date: 5-Jun-2026

ECDP Number: N/A

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
 DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**



KWAZULU-NATAL PROVINCE
 PUBLIC WORKS
 REPUBLIC OF SOUTH AFRICA

THE TENDER

1. PART T1: TENDER PROCEDURES

Page No.

T1.1	Tender Notice and Invitation to Tender	5
T1.2	Tender Data	5
T1.3	Annexure C - Standard Conditions of Tender	10

2. PART T2: RETURNABLE DOCUMENTS

T2.1	List of Returnable Documents	2
T2.2	Authority to Sign Tender (T2.2)	1
T2.3	Authority for Consortia or Joint Venture's to Sign Tender (T2.3)	2
T2.4	Special Resolution of Consortia or Joint Venture's (T2.4)	3
T2.5	Joint Venture Involvement Declaration (T2.5)	2
T2.6	Schedule of Proposed Sub-Contractors (T2.6)	1
T2.7	Capacity of Tenderer (T2.7)	3
T2.8	Financial Standing and other resources of Business Declaration (T2.8)	1
T2.9	Preference Points Claim Form (T2.9)	3
T2.10	Site Inspection Certificate as proof for attendance of compulsory briefing meeting (T2.10)	1
T2.11	Bidder's Disclosure - SBD 4 (T2.11)	4
T2.12	Record of Addenda to Tender Documents (T2.12)	1
T2.13	Particulars of Electrical Contractor (T2.13)	1
T2.14	Schedule of Imported Materials and Equipment (T2.14)	1
T2.15a	Annual Financial Statement for past financial year (2.15)	1
T2.17	Contractor's Safety, Health and Environmental Declaration (T2.17)	1
T2.18	Compulsory Enterprise Questionnaire (T2.18)	1
T2.19	Tax Compliance Status (TCS) PIN to verify on line Compliance Supplier Status via e-Filing (T2.19)	1
T2.20	Proof of Good Standing With the Compensation Commissioner (T2.20)	1
T2.21	Form of Offer and Acceptance (Bound into Section 1 of 2) (T2.21)	3
T2.21a	Confirm Receipt of Offer and Acceptance (T2.21a)	1
T2.22	Final Bill of Quantity (T2.22)	FS1
T2.23	Certified Proof of Paid Municipal Rates and Taxes (Attach) (T2.23)	1
T2.24	Proof of Unemployment Insurance Fund (2.24)	1
T2.25	The National Industrial Participation Programme (T2.25)	2
T2.26	Proof of Registration on the Central Supplier Database (CSD) (T2.26)	1

T2.27	Certified Proof of CIDB Registration Number (T2.27)	1
T2.28	Proof of Deposit (T.28)	1
T2.29	Contract Form - Purchase of Goods/Works - Part 1 (T2.29)	1
T2.30	Contract Form - Purchase of Goods/Works - Part 2 (T2.30)	1
T2.31	OHSE Plan Structure (T2.31)	1
T2.32	Client's specific requirements for the Contractor's detailed OHSE Plan (T2.32)	1
T2.33	Baseline Risk Assessment (T2.33)	1
T2.34	Quality Criteria (T2.34)	2
T2.35	Invitation to Tender - SBD 1 (T2.35)	2

THE CONTRACT

3. PART C1: AGREEMENT AND CONTRACT DATA

C1.1	Form of Offer and Acceptance	1
C1.2	Contract Data	7
C1.3	Form of Guarantee (C1.3)	3

4. PART C2: PRICING DATA

C2.1	Pricing Instructions	4
C2.2	Bills of Quantities	112

5. PART C3: SCOPE OF WORKS

C3.1	Scope of Works	7
C3.2	Specification for HIV/AIDS awareness	3
C3.3	HIV/STI Compliance report	2

6. PART C4: SITE INFORMATION

C4.1	Site Information	1
------	------------------	---

7. DRAWINGS

C5.1	List of Drawings	2
------	------------------	---

8. ANNEXURES

Annexure 1	Model Preambles for Trades 2008	1 to 49
Annexure 2	General Electrical Specifications	E/1 to E/21
Annexure 3	Lightning Protection Specifications	LP/1 to LP/6
Annexure 4	Map of Tender submission location	1
Annexure 5	Joint Venture Agreement	7
Annexure 6	Project Specific Health and Safety Specification	37
Annexure 7	Health and Safety Bill of Quantities	3
Annexure 8	Builders Lien Agreement	1
Annexure 9	EPWP Employment Contract	14
Annexure 10	Attendance Register - Infrastructure and Other projects	1
Annexure 11	EPWP Data Collection tool for Phase 3 system	6
Annexure 12	Project Specific Electrical Specifications	56
Annexure 13	Project Reference Letter	1
Annexure 14	Project Organogram	1

IMPORTANT NOTICE TO TENDERERS

Any reference to words Tender or Tenderer 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 Public Works, 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 Bill of Quantities 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 Tenderer who, on acceptance of the Offer, would become the contractor"

TENDERERS TO NOTE:

- 1 The Department reserves the right not to award to the lowest bidder.**
- 2 In addition, the Department may conduct a detailed risk assessment prior to the award of the bid.**
- 3 The bid document can be downloaded from e-Tender Portal (<https://www.etenders.gov.za>) at no cost. However, should any bidder require a printed/hard copy of the bid document, a non-refundable payment must be made for collection thereof as per the banking details indicated below. Proof of payment must be produced. upon collection of the bid document.**
- 4 No Site Inspection certificates will be issued at the Tender briefing meeting. The Site Inspection certificate must be signed and stamped by the Department representative, during the briefing as proof of attendance, and should it not be signed your tender document will be disqualified.**
- 5 Bidders who attend without a hard copy bid document will not be allowed to the briefing.**
- 6 No late arrivals will be admitted to the tender briefing meeting.**
- 7 Late submissions will not be accepted.**
- 8 Faxed or e-mailed bids are not accepted.**
- 9 Only Bidders registered on Central Suppliers Database and CIDB will be eligible to submit bids.**

- 10 The Preference points system is applicable for this bid is 80/20, where 20 points of specific goals will be allocated as follows:**
 - Ownership by Black People: 5 points**
 - Ownership by People who are Women: 6 points**
 - Ownership by people who are Youth: 5 points**
 - Ownership by people with Disabilities: 4 points**



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

THE TENDER



**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

PART T1. - TENDER PROCEDURES



PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL

T1.1 - TENDER NOTICE AND INVITATION TO TENDER

T1.1 TENDER NOTICE AND INVITATION TO TENDER			
THE KZN DEPARTMENT OF PUBLIC WORKS INVITES TENDERS FOR THE PROVISION OF:			
Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241
Advertisement date:	05 May 2026	Closing date:	05 June 2026
Closing time:	11:00	Validity period:	84 Calender Days

It is estimated that tenderers must have a CIDB contractor grading designation of 5GB 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>
--	---

Only Tenderer's who are responsive to the following responsiveness criteria are eligible to submit Tenders:

<input checked="" type="checkbox"/>	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 : 5GB or Higher, class of construction work, are eligible to have their Tenders evaluated.
<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 5GB 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 : 5GB or Higher 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 Tenderer's or entity tax reference number.
<input checked="" type="checkbox"/>	Contractor's Safety, Health and Environmental Declaration.
<input checked="" type="checkbox"/>	Complete priced Bill of Quantities to be submitted on the day of the Tender closing date.
<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 Tenderer may not be awarded a contract if he/she is not registered and in good standing with the Compensation Commissioner.
<input checked="" type="checkbox"/>	Certified Proof of Paid Municipal Rates and Taxes (Attach) (T2.23)
<input checked="" type="checkbox"/>	Certified Proof of UIF Registration (Attach) (T2.24)
<input checked="" type="checkbox"/>	Financial Standing and other resources of Business Declaration (T2.8)
<input checked="" type="checkbox"/>	Compulsory Enterprise Questionnaire (T2.18)
<input checked="" type="checkbox"/>	Tenderers must meet the minimum qualifying score for quality criteria first before they can be considered for price and preference by means of specific goals
<input checked="" type="checkbox"/>	Invitation to Tender - SBD 1

Please note the following for POPIA:

By submitting this tender, I hereby acknowledge consent that the KZN Department of Public Works, may, from time to time, collect/store/use/destroy/delete/share or otherwise process my Company and Director's/Shareholders personal information as the context or circumstances may require and as contemplated in terms of POPIA. (TICK)

SCAM ALERT



The KZN Department of Public Works & Infrastructure (DPWI) would like to warn all prospective suppliers / bidders about an alarming scam which is currently circulating which seeks to request suppliers to submit quotations to the Department or charge a non-refundable fee for quotation or tender documents. The KZN DPWI does charge tender deposit fees, but that will be for adverts that are legitimately published in the print media. Therefore, all prospective suppliers / bidders are cautioned to contact the KZN DPWI when they suspect any scam as well as when fictitious purchase orders placed for goods or services and KZN DPWI's name is being used.

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

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:

80/20 Preference point scoring system

90/10 Preference point scoring system

NOTE

Refer to T2.34 - Quality Criteria

Quality requirement:	N/A	Points
Price:	80	points

1. The Specific Goal/s Allocated Points in terms of this tender:

Preference points system:

Preferences are offered to Tenderer's who have attained points for the specific goals in accordance with the table below; Documentary Proof required to satisfy the points claimed are also indicated in the table below:

No	Specific Goal	Number of Points Allocated
1	Ownership by Black People Documentary Proof Required: 1) Sworn Affidavit signed and dated by Commissioner Oaths/ SANAS approved BBBEE Certificate	5
2	Ownership by People who are Women Documentary Proof Required: 1) Certified copy of identity document/s. 2) SANAS Approved BBBEE certificate or SWORN affidavit signed and dated by commissioner of Oaths	6
3	Ownership by People who are Youth Documentary Proof Required: 1) Certified copy of Identity Document/s 2) SANAS Approved BBBEE certificate or SWORN affidavit signed and dated by commissioner of Oaths	5
4	Ownership by People living with Disabilities Documentary Proof Required: 1) Original or Certified copy of an original medical certificate from a registered medical practitioner 2) Certified copy of Identity document/s	4

2. Other specific goals (according to the PPPFA):			
(a)	Contract participation goal by awarding contracts to targeted enterprises	0	Points
Total must equal 10 or 20 points		20	Points

Notes:

- 1 The successful Tenderer will be required to fill in and sign a written GCC 2010 2nd Edition Contract.
- 2 Tenderers 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 requirements in respect of the application of either 80/20 and 90/10 preference points scoring system, will apply and the points reflected above for preferences will be adjusted accordingly on a pro-rata basis if required.
- 4 The Tender box is generally open during official working hours.
- 5 All Tenders must be submitted on the official forms – (Not to be re-typed)
- 6 This Tender is subject to the PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS (GCC2010) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT

7 The documentary proof required to satisfy the points claimed for specific goals in terms of this tender, are duly indicated on the table (1) above.

- 8 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.

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.

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 : 10 Prince Alfred Street,

Department of Public Works, Physical Address, Pietermaritzburg, Southern Region

A non-refundable tender deposit of R380 is payable as per the tender advertisement , on collection of the Tender documents. The Tenderers must deposit the the above amount into the Department's bank account. The Account details are:

Account Name: KZN PROV GOV-
 Bank Name: ABSA
 Account Number: 4121941044
 Bank Code: BUSINESS CHEQUE
 Reference No: Ref No 14019647

The Tenderer must attach the account statement with above reference, to this Tender as proof of payment of the deposit.

COMPULSORY CLARIFICATION MEETING

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

Emgangei Secondary School

on: **Friday, 15 May 2026** at **11h00**

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

DOPW Project Manager:	Senzo Mthembu	Telephone no:	033-897 1421/1422
Cell no:	079 921 7563	Fax no:	033-897 1399
E-mail:	senzo.mthembu@kznworks.gov.za		

DEPOSIT / RETURN OF TENDER DOCUMENTS:

Telegraphic, telephonic, telex, facsimile, electronic, posted 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:**

Southern Region

Southern Region Office, 10 Prince Alfred Street

Pietermaritzburg

3200



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE
SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

T1.2 - TENDER DATA

T1.2 TENDER DATA			
Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Project Code:	063241		
Tender no:	ZNTM01263W	Closing date:	05 June 2026
Closing time:	11:00	Validity period:	84 Calender 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: Public Works (KZN Department of Public Works-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 Bills of Quantities, 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 (C1.3)</p> <p>Part C2: Pricing data</p> <p>C2.1 - Pricing Instructions</p> <p>C2.2 - Bills of Quantities</p> <p>Part C3: Scope of works</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>		

Part C4: Site information	
C4.1 -	Site Information
Part 5: List of Drawings/Annexure's	
C5.1 -	List of Drawings
C5.2 -	Provisional Site Plan
C5.3 -	Tabulated Scope of Works
C5.4 -	Model Preambles for Trades 2008
C5.5 -	General Electrical Specifications
C5.6 -	Lightning Protection Specifications
C5.7 -	Map of Tender submission location
C5.8 -	Joint Venture Agreement
C5.9 -	Project Specific Health and Safety Specification
C5.10 -	Health and Safety Bill of Quantities
C5.11 -	Builders Lien Agreement
C5.12	EPWP Employment Contract
C5.13	Attendance Register - Infrastructure and Other projects
C5.14	EPWP Data Collection tool for Phase 3 system
C5.15	Project Specific Electrical Specifications
C.1.4	The Employer's agent (Engineer/Principal Agent) is:
	Name: Ravi Jhupsee Architects CC T/A Architronic
	Capacity: Principal Agent/Engineer
	Address: P.O. Box 19383 , Dormeton , Durban , 4015
	Tel: 031 - 201 3933
	Fax: 031 - 201 3930
	E-mail: marvinm@architronic.co.za
	Responsible person: Mr. Marvin Moodley
	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"
C.1.6	PP2-Competitive Selection Procedure Design by Employer
	PP2B-Open Procedure
	Tenderers must meet the minimum qualifying score for quality criteria first before they can be considered for price and preference.
C.2.1	For eligibility refer to T1.1 Tender Notice and Invitation to Tender
	This is not an EPWP project
	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 : 5GB or I higher class of construction work, are eligible to have their tenders evaluated.
	Joint ventures are eligible to submit tenders provided that:
	1 every member of the joint venture is registered with the CIDB;
	2 the lead partner has a contractor grading designation in the 5GB 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 :

	5GB or or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Higher 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	<p>Alternative tender offer permitted: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <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>
	Only the complete Service as per the Bills of Quantities

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	Part of each tender offer communicated on paper shall be submitted as an original, plus ONE copy of the tender document including supporting documents and priced Bill of Quantities where applicable, scanned onto a readable compact disk (CD) in pdf format, at the Tenderers own cost. The CD must be clearly marked with the tender information and company details.
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 is to submit the Priced Bills of Quantities with the Returnable's at the closing of the tender.
	This is not an EPWP project
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, immediately after the closing time thereof shall be at: KZN Department of Public Works, Southern Region Office, 10 Prince Alfred Street, Pietermaritzburg, 3200 at the time indicated on T1.1 Notice and Invitation to Bid
C.3.8	The employer must determine, on opening and before detailed valuation, whether each Tender offer properly received: a) complies with the requirements of the Conditions of Tender. b) has been properly and fully completed and signed, and c) is responsive to the other requirements of the Tender documents. 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 or b) significantly change the Employers or the Tenderers 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.3.13	Tender offers will only be accepted if: (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 is required for this tender and the Tenderer has submitted a CIDB certificate of registration which clearly indicates the status "Active"
 - (c) the Tenderer is not in arrears for more than 3 months with municipal rates and taxes and municipal services charges.
 - (d) 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.
 - (e) 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
 - (f) the Tenderer has not:
 - i) abused the Employer's Supply Chain Management System; or
 - ii) failed to perform on any previous contract and has been given a written notice to this effect.
 - (g) the Tenderer is registered with:
 - i) the Unemployment Insurance Fund (UIF); and
 - ii) the Workmen's Compensation Fund
 - (h) the Tenderer submitted Authority to Sign the tender.
 - (i) the Tenderer submitted Financial standing & other resources of Business Declaration.
 - (j) the Tenderer submitted Equipment Schedules, if applicable.
 - (k) the Tenderer signed the Form of Offer that is part of the Form of Offer and Acceptance.
 - (l) the Tenderer submitted Preference Certificate, if applicable.
 - (m) the Tenderer submit Final Summary of Bill of Quantities at tender closing.
 - (n) the Tenderer submitted Bidder's Disclosure.
 - (o) the Tenderer submitted Site Inspection Certificate from the Compulsory Briefing Meeting
 - (p) All information required to assess "Functionality" as per Tender Data scheduled requirements
- Providing the form of offer and acceptance does not contain any qualifying statements, it will constitute the formation of a contract between the employer and the successful Tenderer as described in the form of offer and acceptance.

C.3.15	Tenderers are informed that any formal dispute shall be resolved by being referred to Arbitration only.
C.3.17	Provide to the successful Tenderer one copy of the signed contract document and one copy of an unpriced bills of quantities



**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE
SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

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 C.2 and C.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 C.3.13, be concluded with the tenderer who in terms of C.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.

C.1.6.2 Competitive negotiation procedure

C.1.6.2.1 Where the **tender data** 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 C.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of C.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 tenderers to submit tender offers in the second stage, following the issuing of procurement

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 employer's request, the employer may regard the tender offer as non-responsive.

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

C.2.19 Inspections, tests and analysis

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

C.2.20 Submit securities, bonds and policies

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

C.2.21 Check final draft

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

C.2.22 Return of other tender documents

If so instructed by the employer, return all retained tender documents within 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
- 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 C.3.11 for:
- a) the gross misplacement of the decimal point in any unit rate;
 - b) omissions made in completing the pricing schedule or bills of quantities; or
 - c) arithmetic errors in:
 - i) line 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
- 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.



**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE
SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

PART T2 - RETURNABLE DOCUMENTS

T2.1 LIST OF RETURNABLE DOCUMENTS

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Project Manager:	Senzo Mthembu	Tender no:	ZNTM01263W

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	
Bidder's Disclosure - SBD 4 (T2.11)	Yes	<input type="checkbox"/>
Authority to Sign Tender (T2.2)	Yes	<input type="checkbox"/>
Authority for Consortia or Joint Venture's to Sign Tender (T2.3)	Yes	<input type="checkbox"/>
Special Resolution of Consortia or Joint Venture's (T2.4)	Yes	<input type="checkbox"/>
Schedule of Proposed Sub-Contractors (T2.6)	Yes	<input type="checkbox"/>
Joint Venture Involvement Declaration (T2.5)	Yes	<input type="checkbox"/>
Capacity of Tenderer (T2.7)	Yes	<input type="checkbox"/>
Annual Financial Statement for past financial year (2.15)	Yes	<input type="checkbox"/>
Site Inspection Certificate as proof for attendance of compulsory briefing meeting (T2.10)	Yes	<input type="checkbox"/>
Preference Points Claim Form (T2.9)	Yes	<input type="checkbox"/>
Compulsory Enterprise Questionnaire (T2.18)	Yes	<input type="checkbox"/>
Financial Standing and other resources of Business Declaration (T2.8)	Yes	<input type="checkbox"/>
Contractor's Safety, Health and Environmental Declaration (T2.17)	Yes	<input type="checkbox"/>
Complete Priced Bill of Quantities (T2.22)	Yes	<input type="checkbox"/>
Certified Proof of CIDB Registration Number (T2.27)	Yes	<input type="checkbox"/>
Contract Form - Purchase of Goods/Works - Part 1 (T2.29)	Yes	<input type="checkbox"/>
Contract Form - Purchase of Goods/Works - Part 2 (T2.30)	Yes	<input type="checkbox"/>
Quality Criteria (T2.34)	Yes	<input type="checkbox"/>
Invitation to Tender - SBD 1 (T2.38)	Yes	<input type="checkbox"/>

2. RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES BUT TO BE SUPPLIED BY THE TENDERER

(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	
Tax Compliance Status (TCS) PIN to verify on line Compliance Supplier Status via e-Filing (T2.19)	Yes	<input type="checkbox"/>
Certified Proof of Good Standing with the Compensation Commissioner (Attach) (T2.20)	Yes	<input type="checkbox"/>
Proof of payment of Tender deposit (T2.28)	Yes	<input type="checkbox"/>
Certified Proof of Paid Municipal Rates and Taxes (Attach) (T2.23)	Yes	<input type="checkbox"/>
Certified Proof of UIF Registration (Attach) (T2.24)	Yes	<input type="checkbox"/>
Certified Proof of Registration Number on the Central Suppliers Database (T2.26)	Yes	<input type="checkbox"/>
Annual Financial Statement for past financial year (2.15)	Yes	<input type="checkbox"/>
Entire tender document including returnable and supporting documents, scanned as PDF onto a CD, clearly marked with the Tender information.	Yes	<input type="checkbox"/>

3. RETURNABLE SCHEDULES THAT WILL BE INCORPORATED INTO THE CONTRACT

(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
Form of Offer and Acceptance (Bound into Section 1 of 2) (T2.21)	Yes
Record of Addenda to Tender Documents (T2.12)	Yes
Particulars of Electrical Contractor (T2.13)	Yes
Equipment Schedules-Mechanical / Electrical / Security Material (T2.16)	Yes
Schedule of Imported Materials and Equipment (T2.14)	Yes
Confirm Receipt of Offer and Acceptance (T2.21a)	Yes

4. OTHER DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT

(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
Final Bill of Quantities (T2.22)	Yes
Form of Guarantee (C1.3)	Yes
List of Drawings/Annexure's (C5.1)	Yes
The National Industrial Participation Programme (T2.25)	Yes
Required Structure of Contractor's detailed OHSE Plan (T2.31)	Yes
Client's specific requirements for the Contractor's detailed OHSE Plan (T2.32)	Yes
Base line Risk Assessment (T2.33)	Yes

5. DOCUMENTS REQUIRED FOR THE EVALUATION OF FUNCTIONALITY

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

Tender document name	Returnable
Proof of working capital of at least 1.5% of project value	Yes
Letters of credit reference from suppliers and credit limits to be stipulated with supporting documents	Yes
Annual/Audited Financial Statement/Management Account/income and Expenditure Statements	Yes
Detailed schedule of resources at all levels, including submission of a detailed organogram of the company, including listing on this organogram, the resources within the company, that will be dedicated to the project under consideration. -	Yes
Schedule of years of experience on similar projects	Yes
Schedule of experience on previously completed projects, by the bidding entity within the CIDB grading 4GB or higher	Yes
Submission of a detailed organogram	Yes
Detailed CV of each team member (Category) and Traceable references to be detailed	Yes
Programme and progress reporting, including tracking of long lead procurement items	Yes
OHS Management, compliance and reporting	Yes
Site documentation control, filing and archiving	Yes
Queries and information required approach	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 Public Works in respect of the following project:

PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL

Tender Number: **ZNTM01263W**

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 **certified copy of the Founding Statement** of such corporation 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 Public Works in respect of the following project:

PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL

Tender Number: **ZNTM01263W**

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:

- * Delete which is not applicable.
- NB. This resolution / Power of Attorney must be signed by all the Directors / Members / Partners of the Tendering Enterprise.
- 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>	<u>Designation</u>	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. THE CIDB JOINT VENTURE GRADING DESIGNATION CALCULATOR sums the capacity of all joint venture partners and calculates a grading designation for the joint venture
Grading 2 + Grading 2 + Grading 2	= 3	
Grading 3 + Grading 3 + Grading 3	= 4	
Grading 4 + Grading 4	= 5	
Grading 4 + Grading 3 + Grading 3	= 5	
Grading 5 + Grading 5	= 6	
Grading 5 + Grading 4 + Grading 4	= 6	
Grading 6 + Grading 6	= 7	
Grading 6 + Grading 5 + Grading 5	= 7	
Grading 7 + Grading 7 + Grading 7	= 8	
Grading 8 + Grading 8 + Grading 8	= 9	

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)*

1. _____
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 Public Works in respect of the following project:

PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL

Tender Number: **ZNTM01263W**

Project Code: **063241**

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:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

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	%		

T2.6 SCHEDULE OF PROPOSED SUBCONTRACTORS

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

We notify you that it is our intention to employ the following Subcontractors for work in this contract. The Subcontractors will all be CIDB registered and their CIDB Registration number shall be submitted below.

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

We confirm that all subcontractors who are contracted to construct a house are **registered as home builders with the National Home Builders Registration Council**.

No	Name and address of proposed Subcontractor	Nature and extent of work	Year Completed	Value (R):	Contact Tel No:	Previous experience with Subcontractor
1						
	CIDB Registration Number:					
2						
	CIDB Registration Number:					
3						
	CIDB Registration Number:					
4						
	CIDB Registration Number:					
5						
	CIDB Registration Number:					
Name of authorised representative		Signature		Capacity		Date
Name of Enterprise:						

T2.7 CAPACITY OF TENDERER

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

1. **WORK CAPACITY:** (The Tenderer is requested to furnish the following capacity particulars and to attach additional pages if more space is required. Failure to furnish the particulars may result in the Tender being disregarded.)

1.1. **Artisans and Employees:** (*Artisans and Employees to be, or are, employed for this project*)

Categories of Employee - Key Personnel (part of Business Enterprise)	Professional Registration No.	Date of Employment	Number
Site Agent			
Project Manager			
Foreman			
Quality Control & Safety Officer-Construction Supervisor			
Artisans			
Unskilled employees			
Others			

1.2. **Provide full particulars of the following Assets:** (*Assets owned and to be hired - Indicate owned assets*)

Machinery	Plant	Equipment	Vehicles

1.3. **Workshops:**

Address of Main Workshop:	Address of Regional Workshop (If Applicable):

1.4. Other offers submitted at time of this tender for which results are pending:
 (Any other client's tender must also be included)

Tender No.	Project Name	Client Name & Contact No.	Value Tendered in R's	Date Tender submitted	Contact Detail

2. PARTICULARS OF THE TENDERERS CURRENT AND PREVIOUSLY COMPLETED COMMITMENTS:

2.1. Current private sector projects: (List the 5 projects closest to the contractor grading designation of this project)

1	Project Name		Date of commencement	
	Place (town)		Contract Amount (R)	
	Reference / Contact person		Contract period	
	Contact Tel. No.		Scheduled date of completion	
2	Project Name		Date of commencement	
	Place (town)		Contract Amount (R)	
	Reference / Contact person		Contract period	
	Contact Tel. No.		Scheduled date of completion	
3	Project Name		Date of commencement	
	Place (town)		Contract Amount (R)	
	Reference / Contact person		Contract period	
	Contact Tel. No.		Scheduled date of completion	
4	Project Name		Date of commencement	
	Place (town)		Contract Amount (R)	
	Reference / Contact person		Contract period	
	Contact Tel. No.		Scheduled date of completion	
5	Project Name		Date of commencement	
	Place (town)		Contract Amount (R)	
	Reference / Contact person		Contract period	
	Contact Tel. No.		Scheduled date of completion	

2.2. Current Government sector projects: *(List the 5 projects closest to the contractor grading designation of this project)*

1	Project Name		Date of commencement	
	Place (town)		Contract Amount (R)	
	Reference / Contact person		Contract period	
	Contact Tel. No.		Scheduled date of completion	
2	Project Name		Date of commencement	
	Place (town)		Contract Amount (R)	
	Reference / Contact person		Contract period	
	Contact Tel. No.		Scheduled date of completion	
3	Project Name		Date of commencement	
	Place (town)		Contract Amount (R)	
	Reference / Contact person		Contract period	
	Contact Tel. No.		Scheduled date of completion	
4	Project Name		Date of commencement	
	Place (town)		Contract Amount (R)	
	Reference / Contact person		Contract period	
	Contact Tel. No.		Scheduled date of completion	
5	Project Name		Date of commencement	
	Place (town)		Contract Amount (R)	
	Reference / Contact person		Contract period	
	Contact Tel. No.		Scheduled date of completion	

2.3. Previously completed projects: *(List the 5 projects closest to the contractor grading designation of this project)*

1	Project Name		Date of commencement	
	Place (town)		Contract Amount (R)	
	Reference / Contact person		Contract period	
	Contact Tel. No.		Date completed	
2	Project Name		Date of commencement	
	Place (town)		Contract Amount (R)	
	Reference / Contact person		Contract period	
	Contact Tel. No.		Date completed	
3	Project Name		Date of commencement	
	Place (town)		Contract Amount (R)	
	Reference / Contact person		Contract period	
	Contact Tel. No.		Date completed	
4	Project Name		Date of commencement	
	Place (town)		Contract Amount (R)	
	Reference / Contact person		Contract period	
	Contact Tel. No.		Date completed	
5	Project Name		Date of commencement	
	Place (town)		Contract Amount (R)	
	Reference / Contact person		Contract period	
	Contact Tel. No.		Date completed	

Name of Tenderer	Signature of authorised representative	Date

T2.8 FINANCIAL STANDING AND OTHER RESOURCES OF BUSINESS DECLARATION

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

- (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.
- (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 DoPW 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 DoPW 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 DoPW, 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 DoPW, at least the information as stated in paragraphs (d)(i)(ii) AND (iii) above will 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 Public Works, 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..... 20..

<hr/> Full Name of Signatory	<hr/> Name of Enterprise
<hr/> Capacity of Signatory	<hr/> Signature of authorised representative

T2.9 PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

Project Title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL
Tender Number:	ZNTM01263W
Project Code:	063241

SBD 6.1

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

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

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

1. GENERAL CONDITIONS

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

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

1.2 To be completed by the organ of state

(delete whichever is not applicable for this tender).

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

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

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

1.4 To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

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

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>80/20 or 90/10 $Ps=80(1-(Pt-P \min)/(P \min)$ or $Ps=90(1-(Pt-P \min)/(P \min)$</p>				
<p>Where Ps = Points scored for price of tender under consideration Pt = Price of tender under consideration Pmin = Price of lowest acceptable tender</p>				
<p>3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT</p>				
<p>3.2.1. POINTS AWARDED FOR PRICE</p>				
<p>A maximum of 80 or 90 points is allocated for price on the following basis:</p>				
<p>80/20 or 90/10 $Ps=80(1+(Pt-P \max)/(P \max)$ or $Ps=90(1+(Pt-P \max)/Pmax)$</p>				
<p>Where Ps = Points scored for price of tender under consideration Pt = Price of tender under consideration Pmax = Price of highest acceptable tender</p>				
<p>4. POINTS AWARDED FOR SPECIFIC GOALS</p>				
<p>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:</p>				
<p>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—</p>				
<p>(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</p>				
<p>(b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,</p>				
<p>then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.</p>				
<p>Table 1: Specific goals for the tender and points claimed are indicated per the table below.</p>				
<p><i>(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.</i></p>				
<p><i>Note to tenderers: The tenderer must indicate how they claim points for each preference point system.)</i></p>				
The specific goals allocated points in terms of this tender	Number of Points allocated (90/10 system) (to be completed by the Organ of State)	Number of Points allocated (80/20 system) (to be completed by the Organ of State)	Number of points claimed (90/10 system) (To be completed by the tenderer)	Number of points claimed (80/20 system) (To be completed by the tenderer)
Ownership by Black People (Sworn Affidavit signed and dated by Commissioner Oaths/ SANAS approved BBBEE Certificate)		5		
Ownership by people who are woman Documentary proof required: 1. Certified copy of identity document/s. 2. SANAS Approved BBBEE certificate or SWORN affidavit signed and dated by commissioner of Oaths		6		
Ownership by people who are Youth Documentary proof required: 1.Certified copy of identity document/s. 2.SANAS Approved BBBEE certificate or SWORN affidavit signed and dated by commissioner of Oaths		5		
Ownership by people with Disabilities Documentary Proof Required 1) Original or Certified copy of an original medical certificate from a registered medical practitioner 2) Certified copy of Identity document/s		4		
<p>DECLARATION WITH REGARD TO COMPANY/FIRM</p>				
<p>4.3. Name of company/firm.....</p>				
<p>4.4. Company Registration Number :.....</p>				

- 4.5. TYPE OF COMPANY/ FIRM
- Partnership/Joint Venture / Consortium
 - One-person business/sole propriety
 - Close corporation
 - Public Company
 - Personal Liability Company
 - (Pty) Limited
 - Non-Profit Company
 - State Owned Company

[TICK APPLICABLE BOX]

4.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, 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:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241
Site Inspection Date:		15 May 2026	

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 are fully aware of what was said and discussed at this meeting.

Name of Tenderer	Signature	Date

Name of DOPW 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

**THE BIDDER'S DISCLOSURE - SBD4 FORM ATTACHED IS TO BE
COMPLETED BY THE BIDDER**

T2.11 BIDDER'S DISCLOSURE

Project title: PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL

Tender no:	ZNTM01263W	Project Code:	063241
-------------------	-------------------	----------------------	---------------

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 interest¹ 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.

¹ the 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.

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:

.....

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;
- 3.2 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 consortium² will not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or

² Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

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.

- 3.4 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.
- 3.5 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.
- 3.6 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 bidder

T2.12 RECORD OF ADDENDA TO TENDER DOCUMENTS

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

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			

T2.13 PARTICULARS OF ELECTRICAL CONTRACTOR

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

Name of Electrical Contractor: _____

Address: _____

Telephone Number: _____

(Area Code)(Number)

Fax Number: _____

(Area Code)(Number)

Registration number at the Electrical Contracting Board of S.A.:

Name of authorised representative	Signature	Date

T2.14 SCHEDULE FOR IMPORTED MATERIALS AND EQUIPMENT

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

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 Principal Agent / Engineer of the Department of Public Works 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. (See P&G E16)

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 12 MONTH ANNUAL FINANCIAL STATEMENT

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

ATTACH A CERTIFIED COPY OF THE ANNUAL FINANCIAL STATEMENT OF THE COMPANY FOR THE PAST FINANCIAL YEAR TO THIS PAGE FOR ADJUDICATION PURPOSES

NOTE

In the case of a Tender by a Joint Venture, certified copies of the annual financial statements of the past financial year in respect of each party to the Joint Venture must be attached to this page

ATTACH COMPANY LATEST 12 MONTHS ANNUAL FINANCIAL STATEMENTS TO THIS PAGE

**T2.17 CONTRACTOR'S SAFETY, HEALTH AND ENVIRONMENTAL
 DECLARATION**

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

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:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

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

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:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

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 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 Tenderers / 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:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

**ATTACH A CERTIFIED 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, certified 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

Tender no: ZNTM01263W

OFFER

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

PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL

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:

Amount (in words):	
Amount in figures:	R

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

PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL

Tender no.:	ZNTM01263W	Project Code:	063241
--------------------	------------	----------------------	--------

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

T2.22 - FINAL BILL OF QUANTITY SUMMARY

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

**ATTACH SUMMARY PAGE OF THE FINAL BILL OF
QUANTITIES**

<u>Emgangeeni Summary</u>		Page	Amount
1	Preliminaries	38	
2	Storm Damage Repair	102	
5	Electrical Work	111	
	Sub Total before VAT		
	ADD VAT @ 15%		
	Carried to Form of Offer and Acceptance in Volume 1 of this Tender Document (T2,21)		R
	FINAL SUMMARY CARRIED TO FORM OF OFFER AND ACCEPTANCE		

T2.23 - PROOF OF PAID MUNICIPAL RATES & TAXES

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

ATTACH PROOF OF PAID MUNICIPAL RATES & TAXES TO THIS PAGE FOR ADJUDICATION PURPOSES

NOTE

In the case of a Quotation by a Joint Venture, proof of paid municipal rates and taxes for each member of the Joint Venture should be attached to this form.

T2.24 - CERTIFIED PROOF OF VALID UIF REGISTRATION

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

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

NOTE

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

The contractor must submit proof of UIF Contributions made to the fund to the Principal Agent on a monthly basis for the duration of the contract.

Should the contractor default on his monthly payments, the Employer will pay the outstanding payments due and the contractor will be liable for payments made by the Employer on behalf of the contractor, plus any additional cost associated with this process.

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 TendererS AND SUCCESSFUL TendererS (CONTRACTORS)

- 3.1 Tenderers 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 Tenderers (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 Tenderer (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 Tenderer (contractor) and, therefore, does not involve the purchasing institution.

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

**T2.26 - CERTIFIED PROOF OF REGISTRATION ON CENTRAL SUPPLIERS
DATABASE**

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Bid no:	ZNTM01263W	Project Code:	063241

**ATTACH A CERTIFIED 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, certified 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

T2.27 - CERTIFIED PROOF OF CIDB REGISTRATION NUMBER

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

ATTACH A CERTIFIED 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, certified copies of proof of registration with the CIDB in respect of each party to the Joint Venture must be attached to this page

T2.28 - PROOF OF PAYMENT OF TENDER DEPOSIT

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no.	ZNTM01263W	Project Code:	063241

ATTACH A COPY OF PROOF OF PAYMENT WHERE AVAILABLE OF THE TENDER DEPOSIT BY THE TENDERER, TO THIS PAGE FOR ADJUDICATION PURPOSES

NOTE

In the case of a Tender by a Joint Venture a certified copy of proof of payment where available of the tender deposit is only necessary in respect of any one party to the Joint Venture and must be attached to this page

T2.29 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: Public Works (Department of Public Works: Province of KwaZulu-Natal) in accordance with the requirements and specifications stipulated in tender number ZNTM01263W at the price/s quoted.
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 SPECIFIC GOAL/S, for this tender in terms of the Preferential Procurement Regulations 2022;
 - Bidder's Disclosure;
 - Special Conditions of Contract;
 - (ii) General Conditions of Contract for construction works Edition 2 - GCC2010; and
 - (iii) Other (specify)
3. (iii) Other (specify)
4. 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 Tendering 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.
5. 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.
6. I declare that I have no participation in any collusive practices with any Tenderer or any other person regarding this or any other Tender.

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

NAME (PRINT): _____

CAPACITY: _____

SIGNATURE: _____

NAME OF FIRM: _____

DATE: _____

Witnesses:	
1.	_____
2.	_____
Date:	_____

T2.30 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 ZNTM01263W 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:

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

T2.31 - OHSE PLAN STRUCTURE

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

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;

PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL

The Bidder is referred to the attached "Occupational Health and Safety Specification (OHSE SPEC)"

T2.32 - OHSE CLIENT SPECIFIC REQUIREMENTS

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL
Tender no:	ZNTM01263W
Project Code:	063241

The Bidder is referred to the attached "Occupational Health and Safety Specification (OHSE SPEC)"

T2.33 - BASELINE RISK ASSESSMENT

Project title:

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS
(SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

Tender no:

ZNTM01263W

Project Code:

063241

The Bidder is referred to the attached "Occupational Health and Safety Specification (OHSE SPEC)"

T2.34 - Quality Criteria

The bidder needs to score a minimum of **60 points** for the quality criteria to be considered responsive for this Bid.

TENDER EVALUATION CRITERIA AND SCORING:

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

Evaluation Criteria	Deliverables	Points	Sub-Points	Sub-Criteria	
1 Financial Standing					
	Submission of all financial requirements stipulated in the tender.	21 Points	5	Sub-Points <i>(1,5% & above = full (5) points. Less than 1,5% = nil (0) points.)</i>	1,1 Proof of working capital of at least 1,5% of the project value. • 3 Months Bank Statement, stamped by the Bank (not older than 3 months).
			6	Sub-Points <i>(6 points)</i>	1,2 Ability to provide a letter of intent for provision of a guarantee. • Letter from a registered financial institution, signed and confirming the intention to provide a construction guarantee of 10% of the project value, with no expiry date.
			5	Sub-Points <i>(5 points)</i>	1,3 Audited Financial Statement: • Provide the latest financial statement (audited end 2024/25) issued by an Accountant (practice number shown) not a Broker, and must be certified.
			5	Sub-Points <i>(R400k & above = full points. Less than R400k = nil points)</i>	1,4 Letters of credit reference from suppliers. • Letters of credit reference from relevant suppliers of major building materials e.g. bricks, concrete, cement, roofing, etc. with stipulated credit limits for a combined minimum amount of R 400 000.00 incl. VAT. Letters to be on official letterheads, signed and dated not older than 6 months.
2 Competency, Experience and Resource Capacity					
	Bidder to demonstrate their technical competency, human resource capacity and relevant project experience.	30 Points	21	Sub-Points <i>Points for full information only (7 points x 3)</i> <i>Break-down of points: (5 points x 3)</i> <i>(2 points x 3)</i>	2,1 Schedule of building projects of similar nature and value, within 4GB or Higher (minimum 3 projects required) Provide a schedule of similar projects completed in the last 10 years, within a CIDB General Building category of 4GB or Higher, indicating: • Project name; description (nature / type), value, duration (contractual dates) and names of Client. • Attach award letters and completion certificates for above-listed projects, signed by the Client/ Project Manager.
			9	Sub-Points <i>(3 points x 3)</i>	2,2 Provision of reference letters <i>(use proforma attached as Annexure 13)</i> . • Provide reference letters for the above-listed projects, from the Client/ Principal Agent/ Project Manager, commenting on the bidder's positive performance in relation to time, cost, quality, and technical capacity, indicating successful project execution and completion.

3	Bidder's Project Management Structure				
	Bidder to submit detailed project organogram that sets out the roles of each proposed team member, backed up by their curriculum vitae that demonstrates extensive experience, together with a project implementation structure.	20 Points	4	Sub-Points	3,1 Submission of a project-specific organogram (use proforma attached as Annexure 14) • Project-specific organogram indicating the full name, surname and role.
			16	Sub-Points	3,2 CVs of individuals involved in the project (as per the project-specific organogram) with references; relevant experience of three (3) years or higher and qualifications. [To obtain points, individuals must possess relevant experience and qualifications in the area of construction being considered] • Site Foreman • Quantity Surveyor • Safety Officer (registered with SACPCMP) • Construction Manager
					3 points 3 points 5 points 5 points
4	Methodology and Approach				
	Detailed method statement and works programme.	29 Points	15	Sub-Points	4,1 Submission of a project-specific Method Statement • Detailed statement of the proposed methodology of construction works to be applied to this project, describing the process or approach for implementation and completion of the works within required timelines, considering the following: - nature and complexity of the project; - OHS management and compliance; - resourcing strategy and deployment plan; - local subcontractor management and support; - site documentation; progress tracking and productivity management.
			14	Sub-Points	4,2 Submission of a detailed project-specific Works Programme. • Detailed programme of work which should outline the following: - List of activities from inception to completion, with key milestones and duration/timeframes (considering site establishment, decanting, hoarding, scaffolding, roofing, etc.) - Indication of all trades and the critical path (start to finish relationships between activities).
					3 points 3 points 3 points 3 points 7 points 7 points
TOTAL		100 Points			

(Weighting will be multiplied by the scores allocated during the evaluation process to arrive at the total functionality points)

Minimum quality score to qualify for further evaluation	60%
--	------------

- Total minimum qualifying score for functionality is 60%, unless motivated otherwise to the Bid Committee.
- A Bidder must score a minimum of 11 points on item 1.1 to 2.2 in order to qualify for further evaluation.
- A Bidder must score a minimum of 31 points on item 1.1 to 3.2 accumulatively in order to qualify for further evaluation.

PART A										
INVITATION TO TENDER - SBD 1										
YOU ARE HEREBY INVITED TO TENDER FOR REQUIREMENTS OF THE KWA-ZULU NATAL DEPARTMENT OF WORKS										
TENDER NUMBER:	ZNTM01263W	CLOSING DATE:	05 June 2026				CLOSING TIME:	11:00		
DESCRIPTION	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL									
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 <i>(STREET ADDRESS)</i>										
Southern Region Office, 10 Prince Alfred Street										
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										
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	Yes					ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS	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)				
TENDERING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:					TECHNICAL INFORMATION MAY BE DIRECTED TO:					
DEPARTMENT/ PUBLIC ENTITY	KZN Department of Public Works				CONTACT PERSON	Senzo Mthembu				
CONTACT PERSON	Nelisiwe Zulu				TELEPHONE NUMBER	033-897 1421/1422				
TELEPHONE NUMBER	033-897 1442				FACSIMILE NUMBER	033-897 1399				
FACSIMILE NUMBER	033-897 1399				E-MAIL ADDRESS	senzo.mthembu@kznworks.gov.za				
E-MAIL ADDRESS	NelisiweZulu@kznworks.gov.za									

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 ARE THE CLAUSES CONTAINED IN THE GENERAL CONDITIONS OF CONTRACT (2010) (SECOND EDITION) PUBLISHED BY THE SOUTH AFRICAN INSTITUTION OF CIVIL ENGINEERING. COPIES OF THESE CONDITIONS OF CONTRACT MAY BE OBTAINED THROUGH MOST REGIONAL OFFICES OF THE SOUTH AFRICAN INSTITUTION OF CIVIL ENGINEERING, OR BY VISITING THEIR WEBSITE AT WWW.SAICE.ORG.ZA; 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.				
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.				
2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE.				
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 PUBLIC WORKS



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

BILLS OF QUANTITIES

with GCC for Construction Works - Second Edition 2010

CONTRACTUAL SECTION

ONE VOLUME APPROACH

PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL

Engineer/Principal Agent

Ravi Jhupsee Architects CC T/A Architronic
P.O. Box 19383
Dormeton
Durban

4015

031 - 201 3933 - Tel Number
031 - 201 3930 - Fax Number
marvinm@architronic.co.za

Architect, Quantity Surveyor, Engineer

Ravi Jhupsee Architects CC T/A Architronic
P.O. Box 19383
Dormeton

4015

031 - 201 3933 - Tel Number
031 - 201 3930 - Fax Number
marvinm@architronic.co.za

Employer:

Head: Public Works
KZN Department of Public Works
Private Bag X 9041

PIETERMARITZBURG

3200

Tel Number: 033 - 8971430
Fax Number: 033 - 8971399

Region:

Regional Manager
KZN Department of Public Works
X9041

Pietermaritzburg

3200

Tel Number: 033-897 1421/1422
Fax Number: 033-897 1399

Tender Number: ZNTM01263W

CIDB Grading: 5GB or Higher

ECDP Number: N/A

Project Code: 063241

Document Date: 05 June 2026

Contracting Party: _____

CIDB Registration number: _____

Central Suppliers Database Registration Number: _____



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

THE CONTRACT



**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

C1 - AGREEMENT AND CONTRACT DATA



**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

FORM OF OFFER AND ACCEPTANCE

FORM OF OFFER AND ACCEPTANCE

Tender No - ZNTM01263W



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS
(SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

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.



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE
SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

C1.2 - CONTRACT DATA

C 1.2 CONTRACT DATA: with GCC for Construction Works - Second Edition 2010	
CONTRACT DATA FOR:	
PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL	
Tender no: ZNTM01263W	
The General Conditions of Contract are the clauses contained in the General Conditions of Contract (2010) (Second Edition) published by the South African Institution of Civil Engineering. Copies of these conditions of contract may be obtained through most regional offices of the South African Institution of Civil Engineering, telephone number 011 805 5947 or by visiting their website at www.saice.org.za.	
CONTRACT SPECIFIC DATA The following contract specific data are applicable to this contract:	
CONTRACT VARIABLES This schedule contains all variables specific to this document and is divided into pre-tender and post-tender categories. The pre-tender category must be completed in full and included in the tender documents. Both the pre-tender and post-tender categories form part of this agreement . Spaces requiring information must be filled in, shown as 'not applicable' or deleted <u>but not left blank</u> . Where choices are offered, the non-applicable items are to be deleted. Where insufficient space is provided the information should be annexed hereto and cross referenced to the applicable clause of the schedule. Key cross reference clauses are italicised in [] brackets. The Engineer/Principal Agent, in accordance with Clause 1.1.1.16, shall obtain the specific approval from the Employer before executing any of his functions according to the "Conditions under which Consultants are appointed", or in the event where an employee of the Employer represents the Employer, the relevant General Delegations applicable at the time of executing his/her duties as described in Clause 3.1.2.	
Part 1: CONTRACT DATA PROVIDED BY THE EMPLOYER:	
PRE-TENDER INFORMATION	
CONTRACTING AND OTHER PARTIES	
[1.1.1.15]	Employer: Head: Public Works (KZN Department of Public Works: Province of KwaZulu-Natal) Postal address: Private Bag X 9041 PIETERMARITZBURG 3200 Tel: 033 - 8971399 Fax: 033 - 8971430
[1.2.1.2]	Physical address: 191 Prince Alfred Street PIETERMARITZBURG 3200
[1.1.1.16]	Employers Agent 1 Ravi Jhupsee Architects CC T/A Architronic Agent's service: Architect, Quantity Surveyor, Engineer Postal address: P.O. Box 19383 Dormeton 4015 Tel: 031 - 201 3933 Fax: 031 - 201 3930
	Employers Agent 2 Rovert Consulting Agent's service: Quantity Surveyor Postal address: P.O. Box 2177 Pinetown 3600 Tel: 031 708 4001 Fax: 086 689 1174
	Employers Agent 3 Singh Govender & Associates CC Agent's service: Engineer Postal address: 6 Derby Place Westville 3629 Tel: 031 266 1753 Fax: N/A

PART 1: DATA PROVIDED BY THE EMPLOYER	
[1.1.1.13]	Defects Liability Period The defects liability period is: 6 Months Defects Liability Period is 6 Months for the whole of the Works
Latent Defect Period	
[5.16.3]	The latent defect period is: <input type="text" value="5 years after the Final Approval Certificate"/>
Documentation required before Commencement of the Works:	
[5.3.1]	The documentation required before commencement with the Works execution are;
[4.3]	Health and Safety Plan <input type="text" value="The Contractor shall deliver his Health and Safety Plan of the Works within 14 calendar days after notice from the Employer, prior to the Commencement Date."/>
[5.6]	Initial Programme <input type="text" value="The Contractor shall deliver his programme of work within 10 calendar days after notice from the Employer, prior to the Commencement Date."/>
[6.2]	Guarantee <input type="text" value="The Contractor shall deliver his chosen Guarantee (security) for this Works within 14 calendar days after notice from the Employer, prior to the Commencement Date."/>
[8.6]	Insurance <input type="text" value="The Contractor shall deliver his insurance for the Works within 14 calendar days after notice from the Employer, prior to the Commencement Date."/>
	Cash flow by contractor <input type="text" value="The Contractor shall deliver his Cash flow for the Works within 14 calendar days after notice from the Employer, prior to the Commencement Date."/>
	Priced Bill of Quantity <input type="text" value="The Contractor shall deliver his Priced Bill of Quantity within 14 calendar days after notice from the Employer, prior to the Commencement Date."/>
	Programme <input type="text" value="The Contractor is required to submit his Programme of Works in terms of Clause 5.6.1 and 5.3.1 and the Principal Agent is required to approve this within 7 days in terms of Clause 5.6.3"/>
	Other requirements <input type="text"/>
[5.3.2]	The time to submit the documentation required before commencement with Works execution is: <input type="text" value="14"/> calendar days
Non-Working days	
[5.8.1]	Non-Working days Sundays Special non- working days All Nationally Recognized Public Holidays and the year end break
[5.8.1]	First Year end break - commences 14-Dec-26 ends 04-Jan-27 Second Year end break - commences 17-Dec-27 ends 03-Jan-28 Third Year end break - commences 15-Dec-28 ends 08-Jan-29 Fourth Year end break - commences 14-Dec-29 ends 07-Jan-30
Engineer/Principal Agent to consult with Employer	
[3.1.3]	The Engineer shall obtain the specific approval from the Employer before executing any of his functions according to the "Conditions under which Consultants are appointed", or in the event where an employee of the Employer represents the Employer, the relevant General Delegations applicable at the time of executing his/her duties.
Security	
[6.2.1]	The time to deliver the deed of guarantee is Prior to site hand over in terms of clause 5.3.1 and 5.3.2.
[6.2.1]	Please see CONTRACT DATA - below to select Guarantee Option
Commencement Date Commencement date means the date of Site Hand over that should not occur prior to the tenderer receiving one fully signed copy of the Offer and Acceptance in terms of the Form of Offer and Acceptance.	
<i>The 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)</i> <i>The agreement ("this document") consists of;</i> 1. Agreement and Conditions of Contract. 2. Form of Offer and Acceptance. 3. Contract Data. 4. Scope of Works. 5. Site Information. 6. Drawings & documents referred to in the 1 to 4 above. (See Form of Offer and Acceptance)	
[5.3.1]	The contractor shall commence executing the Works within 7 calendar days from the Commencement Date.
[5.4.1]	Possession of the site will be given within 10 calendar days after the contractor has fulfilled the conditions (4.3, 5.6, 6.2, 8.6) and received the notification from the Employer of Site Hand Over where the contractor will receive one <u>fully signed</u> copy of the Form of Offer and Acceptance from the employer .
[5.6.1]	The Contractor shall deliver his programme of work within 10 calendar days after notice from the Employer, prior to the Commencement Date.

CONTRACT DETAILS														
[1.1.1.33]	Works description: Refer to document C3 – Scope of Work.													
[1.1.1.30]	Site description: Refer to document C4 – Site Information.													
	Specific options that are applicable to a State organ only Where so :													
[6.10.6.2]	<p>1) Interest rate legislation: (a) in respect of interest owed <u>by</u> the employer, the interest rate as determined by the Minister of Justice and Constitutional Development from time to time, in terms of section 1(2) of the Prescribed Rate of Interest Act, 1975 (Act No. 55 of 1975), will apply; and (b) in respect of interest owed <u>to</u> the employer, the interest rate as determined by the Minister of Finance, from time to time, in terms of section 80(1)(b) of the Public Finance Management Act, 1999 (Act No. 1 of 1999), will apply</p> <p>2) Lateral support insurance to be effected by the contractor: <table border="1" style="float: right;"><tr><td>Yes</td><td>No</td></tr><tr><td></td><td>X</td></tr></table></p> <p>3) Payment will be made for materials and goods <table border="1" style="float: right;"><tr><td>Yes</td><td>No</td></tr><tr><td>X</td><td></td></tr></table></p> <p>4) Dispute resolution by litigation <table border="1" style="float: right;"><tr><td>Yes</td><td>No</td></tr><tr><td></td><td>X</td></tr></table></p> <p>5) Extended defects liability period applicable to the following elements: <table border="1" style="float: right;"><tr><td>Electrical, Mechanical, Civil and Building</td></tr></table></p>	Yes	No		X	Yes	No	X		Yes	No		X	Electrical, Mechanical, Civil and Building
Yes	No													
	X													
Yes	No													
X														
Yes	No													
	X													
Electrical, Mechanical, Civil and Building														
[8.6.1.1.2]	The Value of material, supplied by the Employer, and not included in the Contract Price, is: <table border="1" style="float: right;"><tr><td>R0.00</td></tr></table>	R0.00												
R0.00														
[8.6.1.1.3]	The amount to cover Professional Fees, not included in the Contract Price, for repairing damage and loss to be included in the insurance: 30% of the Contract Price													
[8.6.1.3]	The limit for indemnity for liable insurance is: <table border="1" style="float: right;"><tr><td>Unlimited with minimum cover of Contract Price + 30%</td></tr></table>	Unlimited with minimum cover of Contract Price + 30%												
Unlimited with minimum cover of Contract Price + 30%														
[6.5.1.2.3]	The percentage allowance to cover overhead charges for contractor and subcontractors, is: <table border="1" style="float: right;"><tr><td>10.00%</td></tr></table>	10.00%												
10.00%														
[1.1.1.14]	Practical Completion Date The Practical Completion date is: 8 calendar months after date of formal site handover.													
[5.5.1]	For the works as a whole: The whole of the works shall be completed within: <table border="1" style="float: right;"><tr><td>8 Months (which shall be deemed to include all Non – Working Days, Special Non – Working Days and the year-end Builders Annual Industry Holiday Periods).</td></tr></table>	8 Months (which shall be deemed to include all Non – Working Days, Special Non – Working Days and the year-end Builders Annual Industry Holiday Periods).												
8 Months (which shall be deemed to include all Non – Working Days, Special Non – Working Days and the year-end Builders Annual Industry Holiday Periods).														
[5.13.1]	The date for practical completion shall be <table border="1" style="float: right;"><tr><td>8 calendar months after date of formal site handover</td></tr></table>	8 calendar months after date of formal site handover												
8 calendar months after date of formal site handover														
[5.13.1]	The penalty per calendar day shall be : <table border="1" style="float: right;"><tr><td>0.04% of the Contract Price, rounded to the nearest R10</td></tr></table>	0.04% of the Contract Price, rounded to the nearest R10												
0.04% of the Contract Price, rounded to the nearest R10														
	For the works in sections: The date for practical completion from the commencement date and the penalty per calendar day:													
[5.5.1]	Portion 1: N/A													
[5.13.1]	0.04% of the Contract Price, rounded to the nearest R10													
[5.5.1]	Portion 2: N/A													
[5.13.1]	0.04% of the Contract Price, rounded to the nearest R10													
[5.5.1]	Portion 3: N/A													
[5.13.1]	0.04% of the Contract Price, rounded to the nearest R10													
[5.5.1]	Portion 4: N/A													
[5.13.1]	0.04% of the Contract Price, rounded to the nearest R10													
[5.5.1]	Portion 5: N/A													
[5.13.1]	0.04% of the Contract Price, rounded to the nearest R10													
[5.5.1]	Portion 6: N/A													
[5.13.1]	0.04% of the Contract Price, rounded to the nearest R10													
[1.3.2]	The law applicable to this agreement shall be that of the: Republic of South Africa													
[6.10.1.5]	The percentage advance on materials not yet built into the Permanent Works is: <table border="1" style="float: right;"><tr><td>80.00%</td></tr></table>	80.00%												
80.00%														
[6.10.3]	Percentage retention on amounts due to contractor is: <table border="1" style="float: right;"><tr><td>5.00%</td></tr></table> Maximum retention is: <table border="1" style="float: right;"><tr><td>5.00%</td></tr></table> of the Contract Price	5.00%	5.00%											
5.00%														
5.00%														
[6.8.1]	Notwithstanding anything to the contrary contained in the General conditions of Contract and Preliminaries, this contract could only, when the <u>construction period exceeds 6 months and the contract exceeds R1,000,000.00</u> , be subject to a Contract Price Adjustment Factor.													
[6.8.2]	Clause 6.8.2 the last part of the sentence saying "calculated according to the formula and the conditions set out in the Contract Price Adjustment Schedule." must be replaced by "calculated according to the Contract Price Adjustment Provisions (CPAP) Indices Application Manual for use with P0151 indices (Revised 1 January 2013)" as published by Statistics South Africa. The Contract Price Adjustment Provision (CPAP) will be subject to the most recently released indices by Statistic South Africa. Tenderers are advised that with reference to Clause 3.4.6 of the Contract Price Adjustment Provisions (CPAP) Indices Applications Manual, the Head: Public Works will not accept the submission by Tenderers of lists of additional items."													
[6.8.3]	Where this contract is a Lump Sum contract, the contract will only be subject to Contract Price Adjustment Provisions (CPAP)(Revised 1 January 2013) where the contract period equals or exceeds 6 calendar months. The applicable work group shall be WG 180 for domestic buildings or WG 181 for commercial and industrial buildings only.													

[5.14.5]	<p>The following clause must be added to clause 5.14.5:</p> <p>[5.14.5.6] The employers agent shall submit the final account within 3 calendar months to the principal agent.</p>
[10.5] [10.5.3] [10.9.1]	<p>The determinations of disputes shall be by ARBITRATION ONLY.</p> <p>The number of Adjudication Board Members to be appointed is: One</p> <p>Replace the last part of the clause with the following: "...on the application of either party, by the Chairman, or his nominee of the Association of Arbitrators."</p>
	<p>Where CPAP is applicable, the contract sum will be adjusted in accordance with the Contract Price Adjustment Provisions (CPAP) as set out in the CPAP Indices Application Manual as published by Statistics South Africa, dated 1 January 2013 and any amendments thereto:</p> <ol style="list-style-type: none"> 1) Glass etc. measured in specialist section Metalwork, will be adjusted in terms of the index for that work group unless specifically stated otherwise in the bills of quantities. 2) In case of uninterruptible power supplies, elevators, escalators and hoists, generating sets, motor-alternator sets and intercommunication systems shall be adjusted in accordance with Work Group 170. 3) Further to clause 3.4.6 of the CPAP Indices Application Manual, the listing of additional items for exclusion by Tenderer's, will not be permitted. <p>Alternative Indices: Not Applicable</p> <p>Details of changes made to the General Conditions of Contract for construction works (2010) Second Edition</p>
[1.1]	<p>Clause</p> <p>[1.1.1.5] COMMENCEMENT DATE – means the actual date of Site Hand over that should not occur prior to the Tenderer receiving one fully signed copy of the Offer and Acceptance in terms of the Form of Offer and Acceptance.</p> <p>[5.12.2.2] ABNORMAL CLIMATIC CONDITIONS - means conditions over and above what could reasonably be expected for the specific locality where the Works are being executed and include inter alia excessive rain, heat, cold, wind and any other climatic condition that would not normally be experienced during the season that the Works are executed in that area. The South African Weather Service's (http://www.weathersa.co.za) 10 year average climatic conditions statistics would be what could be reasonably expected for the specific locality where the Works are executed.</p> <p>[6.2.1] CONSTRUCTION GUARANTEE – means an on demand guarantee at call obtained by the contractor from an institution approved by the employer in terms of the employer's construction guarantee form as selected in the Offer and Acceptance Form and the contract data.</p> <p>CONSTRUCTION PERIOD – means the period commencing on the commencement date and ending on the date of due completion date. This period will be deemed to commence on actual site hand over date to the contractor and end on the date of practical completion and shall include all annual industrial holiday periods, Sundays and public holidays.</p> <p>CORRUPT PRACTICE – means the offer, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.</p> <p>FINAL ACCOUNT - The document prepared by the principal agent, which reflects the contract value of the works at final approval or termination.</p> <p>FRAUDULENT PRACTICE – means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any tenderer and includes collusive practise among tenderers (prior to or after the tender submission) designed to establish tender prices at artificial non-competitive levels and to deprive the tenderer of the benefits of free and open competition.</p>
	<p>INTEREST – the interest rates applicable on this contract, whether specifically indicated in the relevant clauses or not, will be in terms of the legislation of the Republic of South Africa, and in particular:</p> <ol style="list-style-type: none"> (a) in respect of interest owed by the employer, the interest rate as determined by the Minister of Justice and Constitutional Development from time to time, in terms of section 1(2) of the Prescribed Rate of Interest Act, 1975 (Act No. 55 of 1975), will apply; and (b) in respect of interest owed to the employer, the interest rate as determined by the Minister of Finance, from time to time, in terms of section 80(1)(b) of the Public Finance Management Act, 1999 (Act No. 1 of 1999), will apply
	<p>[1.1.1.16] ENGINEER/PRINCIPAL AGENT – means the person or entity appointed by the Employer and named in the Contract Data as the Engineer /Principal Agent to act as agent of the Employer. In the event of an Engineer/Principal Agent not being appointed, then all the duties and obligations of an Engineer/Principal Agent as detailed in the Contract shall be fulfilled by a representative of the Employer as named in the Contract Data. (Hereafter referred to as Engineer)</p> <p>[1.1.1.21] GENERAL ITEMS - or preliminaries means items stipulated in the Pricing Data relating to general obligations, site services, facilities and/or items that cover elements of the cost of the work which are not considered as proportional to the quantities of the Permanent Works.</p>
[4.4.1] [6.2.1] [6.10.6.2]	<p>Add the following to the clause 4.4.1: "<i>The Contract shall only use subcontractors who are duly registered with the CIDB and who has an ACTIVE status at the time of submitting the tender</i>"</p> <p>Refer to Offer and Acceptance form for the various options that the contractor may choose from in providing a form of Guarantee under "GUARATEE OPTIONS".</p> <p>Replace "<i>at the prime overdraft rate, as charged by the Contractor's Bank,</i>" with "<i>...at the interest rate as determined by the Minister of Justice and Constitutional Development from time to time, in terms of section 1(2) of the Prescribed Rate of Interest Act, 1975 (Act No. 55 of 1975).</i>" Omit "<i>on all overdue payments from the date on which the same should have been paid...</i>" and replace with "<i>only after 30 calendar days from receiving written notice from the Contractor that the amount is overdue...</i>"</p>

SPECIAL CONDITIONS OF CONTRACT

[5.12.3]

Omit clause 5.12.3 and add the following:
 "5.12.3. If an extension of time is granted, the Contractor shall be paid such additional time-related General Items, including for special non-working days, if applicable as are appropriate regarding to any other compensation which may already have been granted in respect of the circumstances concerned. The reasons for extension of time that would invoke payment of time related General Items are inter alia;
 5.12.3.1 Failure to give possession of the site to the contractor.
 5.12.3.2 Making good physical loss and repairing damage to the works where the contractor is not at risk.
 5.12.3.3 Contract instructions not occasioned by default by the contractor.
 5.12.3.4 Failure to issue construction information timeously or the late issue of a contract instruction following a request from the contractor.
 5.12.3.5 Late acceptance by the principal agent of a design undertaken by a selected subcontractor where the contractor's obligations have been met.
 5.12.3.6 Suspension or cancellation termination invoked by a nominated or selected n/s subcontractor due to default by the employer or the principal agent.
 5.12.3.7 Insolvency of a nominated subcontractor.
 5.12.3.8 A direct contractor.
 5.12.3.9 Opening up and testing of work and materials and goods where such work is according to in accordance with the contract documents.
 5.12.3.10 The execution of additional work for which the quantity included in the bills of quantities is not sufficiently accurate.
 5.12.3.11 Late or failure to supply materials and goods for which the employer is responsible.
 5.12.3.12 Suspension of the works."

[5.14.5.1]

Omit entire clause 5.14.5.1

[5.16.4]

Add the following new clause "5.16.4. Upon the issue of a Final Approval Certificate, unless otherwise provided in the Contract:

5.16.4.1. The performance Guarantee (if any) shall be returned within 14 days to the guarantor in terms of Clause 7."

[6.2.2]

Replace the following "...it shall be deemed that the Contractor has selected a security of ten percent retention of the value of the Works." with "...it shall be deemed that the Contractor has selected a security of a bank or insurance guarantee of 5% of the value of the Works and a payment reduction of 5% of the value certified in the payment certificate excluding value added tax."

[6.2.3]

Add to clause 6.2.3 the following "The Contractor shall provide proof of paid-up premium payments to accompany his payment certificate as proof that his performance guarantee has not expired yet. The Contractor will not receive payment without proof of the validity of their

[9.3.2.2]

Omit "without prejudice to the exercise of any lien the Contractor may have acquired over the Employer's property."

Duties and functions of the **Engineer** requiring the specific approval of the **Employer** BEFORE execution of any part of these duties are as

- (a) Determinations of contractors claims for extension of time (revision of the contract completion date). All claims for extension of time shall be submitted by the **Engineer**, together with the **Engineer's** recommendations, to the **Employer** for determination. Omit "Engineer" in clause 42.2
- (b) Drawings, instructions or communications of any kind requiring variations of the works and involving EXTRA's shall NOT be given effect by the **Contractor** UNTIL BOTH the "Official Variation Order" and the "Financial Request for Variation Order and Additional Funds" form, as issued by the Department of Public Works, have been approved and signed by the **Employer**.
- (c) Insurance policies to be approved by the **Employer** within 21 days of the date of the **Commencement** of the Works.
- (d) Any notice of disagreement raised by the **Contractor** or written Dispute Notice given by the **Contractor** to the **Engineer** shall be submitted by the **Engineer**, together with the **Engineer's** recommendations, to the **Employer** for determination.
- (e) The issue of the certificate of practical completion, certificate of completion and the final approval certificate shall be signed and submitted by the **Engineer**, to the **Employer** for final approval and signature. The certificates shall not be considered as officially issued until signed by the

MANAGING PROJECT DURATION

- (a) The Contractor shall co-ordinate his programme with all other contractors whose work may precede or be executed simultaneously to his own. The Contractor will be called upon to plan and control the project using the Project Evaluation and Review Technique (PERT) or other approved Critical Path Method (CPM) network analysis of his events and activities and those of the sub-contractors in his employ and must co-ordinate his planning with any other contractor employed on the project. A fortnightly project control report will be expected from the Contractor in writing, evaluating any gains or delays against the critical path and he should allow for all costs involved in planning reviewing and updating the programme to the satisfaction of the Principal Agent against this item.
- (b) Activity-and total float shall belong to the Employer.
- (c) The Contractor shall deliver his programme of work within 10 calendar days after notice from the Employer, prior to the Commencement Date. It is a condition of this contract that, the contractor submit to the Engineer/principal agent a detailed CPM Programme which shall be to the approval of the Engineer/principal agent. In this regard tenderers are advised to consult with the Engineer/Principal Agent as to the format and requirements of the programme as no claim whatsoever will entertained should the programme fail to meet the requirements of the Engineer/Principal Agent. Failure to submit the programme within the stipulated time may result in the contractor being held in breach of contract.

The approved programme will form the basis of time management of the project and extension of time will not be guaranteed unless the Contractor has strictly complied with this provision.

The programme shall make allowance for rain and the number of rain days allowed within the critical path shall be on the provisions of the clause dealing with inclement weather and claiming for delays in performance in this bill.

Allowance for the above must be made under this item as no claims for failing to comply with this precondition will later be entertained.

INCLEMENT WEATHER AND CLAIMS FOR DELAYS IN PERFORMANCE

- (a) The Contract Sum includes a monthly allowance of 3 working days inclement weather during which rainfall exceeds 10mm per day for months as indicated in the Scope of Works. These days shall be reflected on the critical path of the Contractor's programme as specified in MANAGING PROJECT DURATION above.
- (b) Claims for delays in performance due to inclement weather shall be calculated separately for each calendar month and for the project as a whole. Delays or gains to the critical path shall be reflected in all revisions of the programme. An extension of time will only be granted where the following conditions are met:
 - (i) The criteria to be used for WORK stoppages shall be for safety hazards or poor quality of work.
 - (ii) The Employer's site representative or the Employer's Principal Agent, if the site representative is not available shall be notified when the Contractor stops the work and intends to claim performance delays. The Employer representative shall inspect the situation together with the Contractor and give an immediate decision.

	<ol style="list-style-type: none"> 1. The stoppage claimed must cause a delay in the Completion Date of work. If the critical activities can proceed and a non-critical activity is delayed due to inclement weather no claims for delay shall be granted. 2. No claims for stoppages less than 2(two) hours per day shall be considered. 3. Claims granted for more than 2 (two) hours, but less than 10 (ten) hour (lunch included) day, shall be added together and expressed as full days. 4. All claims shall be submitted in writing to the Principal Agent within one working day of the actual stoppage. 5. The total delay in performance granted to the Contractor expressed in days shall be added to the contractual Completion Date of each section of the Works. The contractual penalty clause shall only come into effect after this newly arrived date. 6. Total delays (in hours) will be rounded up or down to the nearest integer for the calculation of Working Days. The total hours (including lunch) per Working Day shall be 10 unless otherwise indicated on the Contractor's programme. 7. Where the programmed delays for inclement weather exceed the actual delays incurred the Completion Date(s) will not be adjusted. 																																													
	<ol style="list-style-type: none"> 8. Where the project includes builder's holidays the programmed durations for inclement weather shall be adjusted pro-rate to the actual Working Days. 																																													
	<ol style="list-style-type: none"> 9. The total of all monthly delays due to inclement weather shall be calculated in accordance with the example given below: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="3">Description</th> <th colspan="5">Months</th> <th rowspan="3">Total</th> </tr> <tr> <th>Sept</th> <th>Oct</th> <th>Nov</th> <th>Dec</th> <th>Jan</th> </tr> <tr> <th>Hours</th> <th>Hours</th> <th>Hours</th> <th>Hours</th> <th>Hours</th> </tr> </thead> <tbody> <tr> <td>Programmed Rain days</td> <td>0</td> <td>30</td> <td>30</td> <td>15</td> <td>15</td> <td>90</td> </tr> <tr> <td>Actual Rain days</td> <td>16</td> <td>22</td> <td>35</td> <td>15</td> <td>18</td> <td>106</td> </tr> <tr> <td>Difference</td> <td>-16</td> <td>8</td> <td>-5</td> <td>0</td> <td>-3</td> <td>-16</td> </tr> <tr> <td colspan="6" style="text-align: right;">Estimated Extension of time - in working days</td> <td>2</td> </tr> </tbody> </table> <p style="margin-top: 5px;">8 hrs/day* 8 hrs/day*</p> <p style="margin-top: 5px;"><i>See point 5.2 in the Scope of Works for the specific days the tenderer must allow for in this contract.</i></p> 	Description	Months					Total	Sept	Oct	Nov	Dec	Jan	Hours	Hours	Hours	Hours	Hours	Programmed Rain days	0	30	30	15	15	90	Actual Rain days	16	22	35	15	18	106	Difference	-16	8	-5	0	-3	-16	Estimated Extension of time - in working days						2
Description	Months					Total																																								
	Sept		Oct	Nov	Dec		Jan																																							
	Hours	Hours	Hours	Hours	Hours																																									
Programmed Rain days	0	30	30	15	15	90																																								
Actual Rain days	16	22	35	15	18	106																																								
Difference	-16	8	-5	0	-3	-16																																								
Estimated Extension of time - in working days						2																																								
Tender no:	ZNTM01263W Part 2: CONTRACT DATA PROVIDED BY THE CONTRACTOR:																																													
	POST-TENDER INFORMATION Note: All information for this section requires consultation with the Contractor. The Engineer/Principal Agent shall not pre-select any of the alternatives available to the Contractor.																																													
1	CONTRACT DETAILS																																													
[1.1.1.9]	Contractor Name:																																													
[1.2.1.2]	Postal address:																																													
	Tel no Fax no																																													
	Tax / VAT Registration No: e-mail																																													
	Physical address:																																													
[1.1.1.10]	The accepted contract price inclusive of tax is R : <i>[Amount in words]</i>																																													
	Payment Of Preliminaries (Clause 6.7, 6.8, 6.10 and 6.11)																																													
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">The preliminaries amounts shall be paid in terms of:</td> <td style="width: 10%;">*Alternative A</td> <td style="width: 10%;">Yes</td> <td style="width: 20%;"></td> </tr> <tr> <td></td> <td>**Alternative B</td> <td>N/A</td> <td></td> </tr> </table> <p><small>* Assessed by the Engineer/Principal Agent as an amount prorated to the value of the Work duly executed in the same ratio as the Preliminaries bears to the Contract Price excluding VAT, Preliminary amount, Contingencies and any CPAP.</small></p> <p><small>** Calculated from the priced Bill of Quantity/Lump Sum document. The Contractor and the Engineer/Principal Agent shall agree on a division of the priced Preliminaries items into: initial establishment charge, monthly charge and final disestablishment charge.</small></p> <p>If the Contractor and the Engineer/Principal Agent can not agree, within 10 Working Days from the Commencement Date, on such a division then the Engineer/Principal Agent shall make a division of the Preliminaries to be incorporated in the valuations for each monthly payment certificate as follows;</p> <p style="margin-left: 20px;">10% of the General Items/Preliminaries amount shall not be varied</p> <p style="margin-left: 20px;">15% of the General Items/Preliminaries shall only be varied in proportion of the Contract Price to the Contract Sum</p> <p style="margin-left: 20px;">75% of the General Items/Preliminaries shall be varied in proportion to the revised Construction Period compared with the initial Construction Period.</p>	The preliminaries amounts shall be paid in terms of:	*Alternative A	Yes			**Alternative B	N/A																																						
The preliminaries amounts shall be paid in terms of:	*Alternative A	Yes																																												
	**Alternative B	N/A																																												
Alternative A	<p>Adjustment of Preliminaries (Clause 6.7, 6.8, 6.10 and 6.11)</p> <p>For the adjustment of Preliminaries both the Contract Sum and the Contract Value (including tax) shall exclude the amount of Preliminaries, all Contingency Sum(s) and any provision for Cost Price Adjustment Provisions:-</p> <p>- An amount which shall not be varied.</p> <p>- An amount varied in proportion to the contract value as compared to the Contract Sum.</p> <p>- An amount varied in proportion to the Construction Period as compared to the initial Construction Period (excluding revisions to the Construction Period to which the Contractor is not entitled) to adjustment of the Contract Value in terms of the agreement.</p> <p>The Contractor shall provide a breakdown of charges (including tax) within 15 working days of the date of acceptance of tender and, where applicable, an apportionment of Preliminaries per section</p> <p>If the Contractor and the Principal Agent cannot agree, within ten (10) Working Days from the Commencement Date, on such a division then the Principal Agent shall make a division of the Preliminaries to be incorporated in the valuations for each monthly payment certificate as follows;</p> <p style="margin-left: 20px;">10% of the amount shall not be varied</p> <p style="margin-left: 20px;">15% varied in proportion of the Contract Value to the Contract Sum</p> <p style="margin-left: 20px;">75% varied in proportion to the revised Construction period compared with the initial Construction Period</p> <p>Sectional Completion : Subdivision of Preliminaries Costs</p> <p>For the adjustment of preliminaries for sections of the work the value of fixed, value, and time related amounts of the preliminaries for each section is required. The contractor is to provide such information within fifteen (15) working days of taking possession of the site, failing which the categorised preliminaries amounts shall be prorated to the value of each section.</p> <p>The above shall apply equally for projects where sectional completion was not contemplated at tender stage but subsequently occurred on an adhoc basis during construction of the works as agreed between the client and the employer. The original priced categorised amounts for fixed, value, and time related amounts shall be prorated to the value of each section.</p> <p>When an extension of time has been granted in terms of the GCC and the preliminaries require to be adjusted accordingly, the pertinent sectional (subdivided) categorised preliminaries amounts shall be utilised, where applicable and not the overall preliminary amounts.</p> <p>Where sectional completion is required in terms of the agreement, the Contractor shall provide the Principal Agent with the division of the above categorized amounts into sections. Should the Contractor fail to provide such information within the period stipulated the categorized amounts shall be prorated to the value of each section.</p>																																													
	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 5px;">YES</td> <td style="padding: 5px;">yes / no</td> </tr> </table>	YES	yes / no																																											
YES	yes / no																																													

or

Alternative B The Contractor shall within 15 working days of the date of possession of the site provide the Principal Agent with a detailed breakdown of Preliminaries amounts for the works as a whole, or per section where applicable, including administrative and supervisory staff charges and for the use of construction equipment in terms of the programme. NO yes / no

The contractor is informed that only option 'A' shall apply

2 DOCUMENTS

Contract documents marked and annexed hereto:

Priced Bills of Quantities: Yes No

Lump Sum document: Yes No

Guarantee Options:

Not applicable

2.2 DESIGN BRIEF

Not applicable YES or NO

2.3 DRAWINGS YES or NO

See list of drawings/Annexure's attached to this document. YES or NO

2.4 DESIGN PROCEDURES YES or NO

Not applicable

Contract drawings: Yes No

Other documents:

Waiver of the Contractors lien or right of continuing possession is required. YES

GUARANTEE OPTIONS

The Tenderer agrees to provide a bank or insurance guarantee in accordance with clause 6.2.3 of the Conditions of the GCC2010 Contract within the period stated in the Contract Data. This guarantee shall be for a sum equal to an amount stated in the Contract Data.

Guarantees submitted must be issued by either an insurance company duly registered in terms of the Insurance Act (Long Term Insurance Act No 52 of 1998 or Short Term Insurance Act No 53 of 1998) or by a bank duly registered in terms of the Banks Act No 94 of 1990, on the pro-forma referred to above. No alterations or amendments of the wording of the pro-forma will be accepted.

(a) the tenderer accepts that in respect of contracts up to R1 million, a payment reduction of 5% of the contact value will be applicable and will be reduced by the Employer in terms of the applicable conditions of contract.

(b) in respect of contracts above R1 million, the Tenderer offers to provide security as indicated below: select one option

(i) cash deposit of 10 % of the Contract Price	N/A
(ii) bank or insurance Performance Guarantee of 10 % of the Contract Price	✓
(iii) cash deposit of 5% of the Contract Price and a payment reduction of 5% of the value certified in the payment certificate (excluding VAT)	N/A
(iv) bank or insurance guarantee of 5% of the Contract Price and a payment reduction of 5% of the value certified in the payment certificate (excluding VAT)	N/A

NOTE: Where the Tenderer has not selected one of the guarantee options above, the default option will be as if the Tenderer has selected a security of a bank or insurance guarantee of 10% of the value of the Works and a payment reduction of 5% of the value certified in the payment certificate excluding value added tax. - See GCC2010 clause 6.2.2 as amended in Contract Data.

3 SIGNATURES OF THE CONTRACTING PARTIES

Thus done and signed at on of 20.....

Name of signatory _____ for and behalf of the **Employer** who by signature hereof

Capacity of signatory _____ as Witness.

Thus done and signed at on of 20.....

Name of signatory _____ for and behalf of the **Contractor** who by signature hereof

Capacity of signatory _____ as Witness.



PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL

C1.3 - FORM OF GUARANTEE

**C1.3 PERFORMANCE GUARANTEE -
GCC FOR CONSTRUCTION WORKS (2nd Edition - 2010)**

Head: Public Works
KZN Department of Public Works:
Private Bag X 9041
PIETERMARITZBURG
3200

Sir,

ON DEMAND PERFORMANCE GUARANTEE

Tender Number ZNTM01263W

Project Code 063241

For use with the General Conditions of Contract for Construction Works, Second Edition, 2010.

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means: _____

Physical Address: _____

"Employer" means: The Provincial Administration of KwaZulu-Natal in its Department of Public Works

"Contractor" means: _____

"Engineer" means: _____

"Works" means:

PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL
--

"Site" means: _____

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

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

Amount in Words:

--

"Guaranteed Sum" means: The maximum aggregate amount of: 10%
Of Contract Sum

Amount in Words: _____

"Expiry Date" means: _____

CONTRACT DETAILS

Engineer Issues: Interim Payment Certificates, Final Payment Certificates and the Certificate Completion of the Works as defined in the Contract.

PERFORMANCE GUARANTEE

- 1 The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.
- 2 The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to and including the Expiry Date or the date of issue by the Engineer of the Certificate of Completion of the Works or the date of payment in full of the Guaranteed Sum, whichever occurs first. The Engineer and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.
- 3 The Guarantor hereby acknowledges that:
 - 3.1 any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;
 - 3.2 its obligation under the Performance Guarantee is restricted to the payment of money.
- 4 Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:
 - 4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;
 - 4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;
 - 4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum Certified in 4.
- 5 Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
 - 5.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or
 - 5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 5; and
 - 5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
- 6 It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.
- 7 Where the Guarantor has made payments in terms of 5, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Payment Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
- 8 Payment by the Guarantor in terms of 4 or 5 shall be made with seven (7) calendar days upon receipt of the first written demand to the Guarantor.
- 9 Payment by the Guarantor in terms of 5 will only be made against the return of the original Performance Guarantee by the Employer.

- 10 The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
- 11 The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
- 12 This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
- 13 This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.
- 14 Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Court Act No 32 of 1944, as amended, to this jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at _____

Date _____

Guarantor's signatory (1) _____

Capacity _____

Guarantor's signatory (2) _____

Capacity _____

Witness signatory (1) _____

Witness signatory (2) _____



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE
SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

PART C2 - PRICING DATA

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

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

C2.1 Pricing Instructions

	<p>Where any item is not relevant to this specific contract, such item is marked N/A (signifying "not applicable")</p> <p>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.</p>
1	<p>MASSES AND MEASURING UNITS</p> <p>These shall be in accordance with the Measuring Units and National Measuring Standards Act No. 76 of 1973 and amendments thereto.</p> <p>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.</p>
2	<p>PRICES FOR VARIATIONS</p> <p>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.</p>
3	<p>SCALE</p> <p>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.</p>
4	<p>PROVISIONAL ITEMS</p> <p>All items described as "Provisional" shall be used as directed by the Employer and measured and valued or paid for.</p> <p>No work for which "Provisional" items are allowed shall be commenced without written instructions from the Head : Public Works.</p>

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 REQUIREMENTS</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	<p>PRICING OF ROCK EXCAVATIONS</p> <p>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.</p>

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 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, 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 Tenderers / 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.

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 .				
	<table border="1"> <tr> <td>Security PIN Number</td> <td></td> </tr> <tr> <td>Company / Entity Tax Reference Number</td> <td></td> </tr> </table>	Security PIN Number		Company / Entity Tax Reference Number	
Security PIN Number					
Company / Entity Tax Reference Number					
13	<p>BILLS OF QUANTITIES/LUMP SUM DOCUMENT</p> <p>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.</p>				
14	<p>VALUE ADDED TAX</p> <p>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.</p>				
15	<p>FIXED PRICE CONTRACT</p> <p>Should the Bills of Quantities/Lump Sum Document be a fixed price contract, the following clause must be inserted in the Pricing Instructions:</p> <p>Tenderers are to take note that the contract price adjustments are not applicable to this contract. Tenderers 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.</p>				



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE
SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

**C2.2 - Preliminaries for GCC for Construction works - 2nd Edition
2010**

WIMS NO: 063241

EMGANGENI SECONDARY SCHOOL



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE
SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

**C2.2 - Preliminaries for GCC for Construction works - 2nd Edition
2010**

WIMS NO: 063241

EMGANGENI SECONDARY SCHOOL

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 1</u></p> <p><u>BILL NO. 1</u></p> <p><u>PRELIMINARY AND GENERAL (PROVISIONAL) (CPAP WORK GROUP NO. 190 UNLESS OTHERWISE STATED)</u></p> <p><u>NOTES</u></p> <p>i) The agreement is to be the General Conditions of Contract for Works of Civil Engineering Construction (2010) (Second Edition), published by the S. A. Institution Of Civil Engineering.</p> <p>ii) The Preliminaries are to be the Construction and management requirements for works contracts - Part 1: General engineering and construction works (SANS 1921-1: 2004 Edition 1) prepared by Standards South Africa and shall be deemed to be incorporated herein.</p> <p>iii) Tenderers are referred to the above-mentioned documents for the full intent and meaning of each clause thereof (hereinafter referred to by heading and clause number only) for which such allowance must be made as may be considered necessary.</p> <p>iv) Where standard clauses or alternatives are not entirely applicable to this contract such modifications, corrections or supplements as will apply are given under each relevant clause heading.</p> <p>v) Where any item is not relevant to this specific contract such item is marked N/A (signifying "not applicable").</p>			
	Carried to Collection		R	

vi) Adjustment of the preliminaries: each item priced, is to be allocated to one or more of the three categories, where "F" denotes a fixed amount (amount not to be varied), "V" denotes an amount variable in proportion to value and "T" denotes an amount in proportion to time.

vii) Time (T) related Preliminaries will only be adjusted for omissions or additions, issued by the Employer, or delays caused by the Employer, for which variation and extension of time has been granted.

SECTION A: GENERAL CONDITIONS OF CONTRACT

1 **A1** General (clause 1)
F: _____ V: _____ T: _____

Item

2 **A2** Basis of Contract (clause 2)
F: _____ V: _____ T: _____

Item

3 **A3** Engineer (clause 3)
F: _____ V: _____ T: _____

Item

4 **A4** Contractors general obligations (clause 4)
F: _____ V: _____ T: _____

Item

5 **A5** Time and related matters (clause 5) - As referred to in the Contract Data under Special Condition of Contract. The Contract Period shall be deemed to include all Non - Working Days, Special Non - Working Days and the year-end Builders Annual Industry Holiday Periods.
F: _____ V: _____ T: _____

Item

Carried to Collection

R

- 6 **A6** Payment and related matters (clause 6)
F: _____ V: _____ T: _____
- 7 **A7** Quality and related matters (clause 7)
F: _____ V: _____ T: _____
- 8 **A8** Risks and related matters (clause 8)
F: _____ V: _____ T: _____
- 9 **A9** Terminations of Contract (clause 9)
F: _____ V: _____ T: _____
- 10 **A10** Claims and disputes (clause 10)
F: _____ V: _____ T: _____

Item

Item

Item

Item

Item

**SECTION B: SANS 1921-1:2004 (Edition 1):
CONSTRUCTION AND MANAGEMENT REQUIREMENTS
FOR WORKS CONTRACTS: PART 1**

Refer to the SCOPE OF WORK for detail requirements:

- 11 **B1** Scope
F: _____ V: _____ T: _____
- 12 **B2** Normative references
F: _____ V: _____ T: _____

Item

Item

Carried to Collection

R

13	B3	Definitions F:_____ V:_____ T:_____	Item	
14	B4	Requirements for construction and management F:_____ V:_____ T:_____	Item	
15	B4.1	General F:_____ V:_____ T:_____	Item	
16	B4.2	Responsibilities for design and construction F:_____ V:_____ T:_____	Item	
17	B4.3	Planning, programme and method statements F:_____ V:_____ T:_____	Item	
18	B4.4	Quality assurance F:_____ V:_____ T:_____	Item	
19	B4.5	Setting out F:_____ V:_____ T:_____	Item	
20	B4.6	Management and disposal of water F:_____ V:_____ T:_____	Item	
Carried to Collection				
				R

21	B4.7 Blasting F: _____ V: _____ T: _____	Item	
22	B4.8 Works adjacent to services and structures F: _____ V: _____ T: _____	Item	
23	B4.9 Management of the Works and site F: _____ V: _____ T: _____	Item	
24	B4.10 Earthworks F: _____ V: _____ T: _____	Item	
25	B4.11 Testing F: _____ V: _____ T: _____	Item	
26	B4.12 Materials, samples and fabrication drawings F: _____ V: _____ T: _____	Item	
27	B4.13 Equipment F: _____ V: _____ T: _____	Item	
28	B4.14 Site establishment F: _____ V: _____ T: _____	Item	
	Carried to Collection		R

29	<p>B4.15 Survey control</p> <p>F: _____ V: _____ T: _____</p> <p>As built survey information prepared by an Engineering Surveyor to be submitted upon request to the Engineer.</p>	Item	
30	<p>B4.16 Temporary works</p> <p>F: _____ V: _____ T: _____</p>	Item	
31	<p>B4.17 Existing services</p> <p>F: _____ V: _____ T: _____</p> <p>The Contractor to note that the water and electricity supplies at the specific school may be restricted or possibly non-existent. Accordingly, the tenderer to ensure that temporary supplies(water tanks/electrical generators) are available on site to meet the project demands and to achieve continuity of the works on site. The use of potable water for construction activities is prohibited.</p>	Item	
32	<p>B4.18 Health and safety</p> <p>F: _____ V: _____ T: _____</p> <p>The Contractor shall provide all PPE requirements for all Employees and visitors to the site, during the execution of the works.</p>	Item	
33	<p>B4.19 Environmental requirements</p> <p>F: _____ V: _____ T: _____</p>	Item	
34	<p>B4.20 Alterations, additions, extensions and modifications to existing works</p> <p>F: _____ V: _____ T: _____</p>	Item	
Carried to Collection			R

35 **B4.21** Inspection of adjoining structures, services, buildings and property

F: _____ V: _____ T: _____

Item

36 **B4.22** Attendance on nominated and selected Sub-contractors

F: _____ V: _____ T: _____

Item

SECTION C: SCOPE OF WORK IN ACCORDANCE WITH SANS 10403

(The reference to Clauses refer to Table B.1 of SANS 1921-1:2004)

37 **C.1** Certification by recognised bodies (clause 4.4)

F: _____ V: _____ T: _____

The Contractor shall provide all original certification of compliance in respect of all specialist installations and compliance testing as deemed necessary or as stipulated by the Engineer. Payment will be withheld in the absence of the provision of original compliance certificates.

Item

38 **C.2** Agrément certificates (clause 4.5)

F: _____ V: _____ T: _____

N/A

39 **C.3** Other services and facilities (clause 4.8)

F: _____ V: _____ T: _____

Item

Carried to Collection

R

40 **C.4** Recording of weather (clause 5.2)
F:_____ V:_____ T:_____

A rain gauge shall be provided on site for the duration of the contract. A diary shall be maintained with all rainfall records and signed off by the School Principal and thereafter submitted to the Engineer at every site meeting.

Item

41 **C.5** Management meetings (clause 5.3)
F:_____ V:_____ T:_____

Item

42 **C.6** Daily records (clause 5.6)
F:_____ V:_____ T:_____

Item

43 **C.7** Bond and guarantees (clause 5.7)
F:_____ V:_____ T:_____

Item

44 **C.8** Permits (clause 5.9)
F:_____ V:_____ T:_____

Item

45 **C.9** Proof of compliance with the law (clause 5.10)
F:_____ V:_____ T:_____

Item

Carried to Collection

R

**SECTION D: SPECIFICATION DATA ASSOCIATED
WITH SANS 1921-1:2004
(Table A.1)**

46 **D.1** Requirements for drawings, information and calculations for which the Contractor is responsible (clause 4.1.7)

F: _____ V: _____ T: _____

Item

47 **D.2** The responsibility strategy assigned to the Contractor for the works (clause 4.2.1)

F: _____ V: _____ T: _____

Item

48 **D.3** The planning, programme and method statements (clause 4.3)

F: _____ V: _____ T: _____

The Contractor must provide weekly programme updates to the Engineer including the identification of all the activities that are delayed and the proposed plan for corrective action.

Item

49 **D.4** Samples of materials, workmanship and finishes (clause 4.12.1)

F: _____ V: _____ T: _____

Item

50 **D.5** Fabrication drawings that the Contractor is to provide and deliver to the Employer (clause 4.12.2)

F: _____ V: _____ T: _____

Item

51 **D.6** Office for the Foreman (clause 4.14.3)

F: _____ V: _____ T: _____

Item

Carried to Collection

R

- 52 **D.7** Telephone (clause 4.14.3)
 F:_____ V:_____ T:_____
- 53 **D.8** Office for inspector of works (clause 4.14.3)
 F:_____ V:_____ T:_____
- 54 **D.9** Telephone in office for inspector of works
 (clause 4.14.3)
 F:_____ V:_____ T:_____
- 55 **D.10** Sheds (clause 4.14.3)
 F:_____ V:_____ T:_____
- 56 **D.11** Provision and erection of signboards
 (clause 4.14.6)
 F:_____ V:_____ T:_____
- 57 **D.12** Termination, diversion or maintenance of existing
 services (clause 4.17.1)
 F:_____ V:_____ T:_____
- 58 **D.13** Services which are known to exist (clause 4.17.3)
 F:_____ V:_____ T:_____

Item
 Item
 Item
 Item
 Item
 Item
 Item

Carried to Collection

R

59 **D.14** Detection apparatus (clause 4.17.4)
 F:_____ V:_____ T:_____

Item

60 **D.15** Additional health and safety requirements
 (clause 4.18)
 F:_____ V:_____ T:_____

Item

SECTION E: SPECIFIC PRELIMINARIES

Section E contains Specific Preliminary items which apply to this contract except where "N/A" (Not Applicable) appears against the item.

61 **E1 PROPRIETARY BRANDED PRODUCTS**
 The Contractor shall take delivery of, handle, store, use apply and/or fix all proprietary branded products in strict accordance with the manufacturers' instruction after consultation with the manufacturer's authorised representative.
 F:_____ V:_____ T:_____

Item

62 **E2 OVERTIME**
 Should overtime be required to be worked for any reason whatsoever, the costs of such overtime are to be borne by the Contractor unless the Engineer/Principal Agent has specifically authorised in writing, prior to the execution thereof, that costs for such overtime are to be borne by the Employer.
 F:_____ V:_____ T:_____

Item

Carried to Collection

R

63 **E3 AS BUILT DRAWINGS**

The position of construction breaks and the extent of individual concrete pours are to be recorded by the Contractor on the Structural Engineer's drawings and are to be submitted to the Engineer/Principal Agent and the Structural Engineer for their records.

F: _____ V: _____ T: _____

Item

64 **E4 SITE INSTRUCTIONS**

Site instructions issued on site are to be recorded in triplicate in a site instruction book which is to be maintained on site by the Contractor.

F: _____ V: _____ T: _____

Item

65 **E5 LABOUR RECORD**

At the end of each week, the Contractor shall provide the Engineer/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.

F: _____ V: _____ T: _____

Item

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 in the contract. Sanctions may include the application of a financial penalty of .04% of the Contract Sum per calendar day of which the required report has not been submitted.

Carried to Collection

R

66 **E6 PLANT RECORD**

At the end of each week the Contractor shall provide the Engineer/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.

F: _____ V: _____ T: _____

Item

67 **E7 NON CESSION OF MONIES**

The Contractor shall not cede nor assign his rights or claims to any monies due or to become due under this contract.

F: _____ V: _____ T: _____

Item

68 **E8 SECTIONAL COMPLETION**

When it is required that the contract be executed in sections or portions, the Tenderer shall allow for all costs in this regard as no claim for additional costs will be entertained.

F: _____ V: _____ T: _____

Item

Carried to Collection

R

69 | **E9 UNSKILLED LOCAL LABOUR**

It is a general requirement of this contract that persons normally resident in the locality of the works (local labour) or unemployed parents whose children attend the specific school be given preference for employment on the contract. Provided, however, that should adequate and appropriate labour not be available within the locality, other labourers may be employed subject to satisfactory proof being provided that every reasonable endeavour has been made to employ local labour. The Contractor shall identify the local community leaders with the purpose of negotiating with them regarding the utilization of local labour in the construction process. In this regard, the Contractor shall furthermore give preference, wherever possible to the employment of single heads of households, women and youth and preference should be given to parents of those children that are enrolled in the school whom are not currently employed. The Contractor shall, in general, maximize the involvement of the local labour and it is required that 100% of unskilled labour should be from the local community.

All standard local labour employment forms (EPWP local labour forms used as a guideline) together with the supporting documentation (certified ID copies, Employee details, wage rates, proof of payment, period of employment, employment contracts, etc.) must be submitted with the monthly payment certificates and issued to the Engineer.

F: _____ V: _____ T: _____

Carried to Collection

Item

R

70 **E10 IMPORT PERMITS AND DUTIES**

The responsibility for obtaining the necessary import permits shall rest with the successful Tenderer. No foreign exchange will be arranged or provided by the Administration.

Tenderers are to allow in their tenders and pay the ordinary levy imposed on imported items in terms of item 196.10 of Part 8 of Schedule No. 1 of the Customs and Excise Act, 1964 with effect from 1 October 1989.

F: _____ V: _____ T: _____

Item

71 **E11 CONTRACT PRICE ADJUSTMENT PROVISIONS (CPAP)**

Notwithstanding anything to the contrary contained in the GCC for Construction Works 2010 2nd Edition, this Contract shall only when the Construction Period exceeds 6 months and the Contract sum exceeds R1,000,000,00 be subject to the Contract Price Adjustment Provisions Indices Application Manual for use with P0151 indices (CPAP) (Revised 1 January 2013) as published by Statistics South Africa. Tenderers are advised that with reference to Clause 3.4.6 of the Contract Price Adjustment Provisions (CPAP) Indices Applications Manual, the Head: Public Works will not accept the submission by Tenderers of lists of additional items. Where this contract is a Lump Sum contract, the contract will be subject to Contract Price Adjustment Provisions (CPAP) only where the contract period equals or exceeds 6 calendar months. The applicable work group shall be WG 180 for domestic buildings or WG 181 for commercial and industrial buildings.

F: _____ V: _____ T: _____

Item

Carried to Collection

R

**E12 EXPANDED PUBLIC WORKS PROGRAMME (EPWP)
 CONDITIONS AND SPECIFICATIONS**

E12 EPWP Conditions and Specifications

E12 to be expanded from C 12.1 to E12.10 as follows;

E 12 EPWP CONDITIONS AND SPECIFICATIONS

E12.1(a) Employment Targets

72

The contractor needs to provide a realistic estimate on the number of jobs that the project has a potential to create throughout the project duration as the project will be implemented using Labour Intensive Construction methods on elements where it is economical and feasible. Number of jobs estimated to be created is a minimum of **9 unskilled labour**

F: _____ V: _____ T: _____

It is a general requirement of this contract that persons normally resident in the ward of the works (local labour) be given preference for employment on the contract. Provided, however, that **should adequate and appropriate labour not be available within the ward**, others may be employed subject to satisfactory proof being provided that every reasonable endeavour has been made to employ local labour (**Local Sub-contractor(s); Skilled; Semi-Skilled and Unskilled**). The contractor shall in consultation with the local community leaders (**Project Steering Committee**) with the purpose of negotiating with them regarding the utilization of local resources in the construction process. In this regard, the contractor shall furthermore give preference, wherever possible to the employment of single heads of households, women and youth as well as families declared as most indigent by War on Poverty/ Sukuma Sakhe program profiling process. The contractor should aim, in general, to maximise the involvement of the local community, however workers from other communities should not exceed 20% of all persons working on the project, where local employees possess skills at level of competency that meet contractors requirements

Carried to Collection

Item

R

E12.1 (b) Employment Requirements

73

Tenderers are advised that this contract will be subject to the Expanded Public Works Program (EPWP) aimed at alleviating and reducing unemployment.

Tenderers must allow for any costs for the following employment requirements of the EPWP

- 1.60% of unskilled labour to be women
- 2.55% of unskilled labour to be youth aged between 18 and 35 years
- 3. 2% of unskilled labour to be people with disability

100% unskilled labour utilized must reside within the boundaries of the Municipality Ward where this contract is executed, with preference to the local community closest or a walking distance to the contract site. Wherever possible local skilled tradesmen are to be employed on this contract with the view to maximize utilization of local resources.

F: _____ V: _____ T: _____

Item

E12.1 (c) Labour Rate and Payment Intervals

74

The contractor should ensure that the labour rate paid to unskilled local labour is commensurate to the daily task. When determining the rate, consideration should be given to that EPWP beneficiaries are mostly bread winners in their families, as the program intends alleviating poverty. There should also be consideration that the labour rate promotes creation of expanded number of jobs created and person days of work.

Contractors should make endeavours to ensure that labourers, particularly unskilled are remunerated on fortnight basis and prior notification be made should there be a shortfall on their wages.

The labour rate for local unskilled shall also be determined in consideration of the location of the project, i.e. for projects implemented in urbanized municipalities will not be the same as that for rural municipalities.

F: _____ V: _____ T: _____

Item

Carried to Collection

R

E12.2 (a) Labour Intensive Construction (LIC) Method

75

On site there must a person(s) having the competency in managing and implementing LIC methods.
 *Foreman @ NQF Level 4 the Unit Standard on Implementing LIC methods on site.
 *Site Agent/ Managers @ NQF level 5 the Unit Standard on Manage Labour-Intensive Skills Programme both must be CETA accredited

F:_____ V:_____ T:_____

E12.2 (b) Labour Intensive Construction Method

76

Those parts of the contract to be constructed using Labour Intensive methods will be marked in the BoQ with letter LI (indicating Labour Intensive) against every item so designated. Such works will only be constructed using the method so indicated.

Reference to be made to Guidelines for the implementation of Labour-Intensive Infrastructure projects under EPWP.

"Scope of Work in Respect of Work Relating to the Expanded Public Works Programme (EPWP)"

Labour-intensive component

Due to the nature of the work involved, this type of project lends itself to be feasible as a labour-Intensive project i.e. the construction activities will indeed require skilled/unskilled labour.

The aim of the projects is to provide some form of economic benefit whilst generating and increasing the acquired skills shortage to improve sustainability in the local area. The following are potential focus areas where employment creation can be optimized per project:

Carried to Collection

Item

R

- (i) Trenching works not exceeding depth of 1.5m, including trenching for Foundation, Electrical, Water, Mechanical & Civil Services Works including backfilling where ground conditions permit
- (ii) Building Works; All masonry works (which include concrete mixing on site; brickwork; block work ; plastering; screed works; jointing; etc.); Painting, Plumbing, Ironmongery; roof cladding; glazing; tiling; carpentry; flooring; waterproofing; etc.
- (iii) Sewers works including Construction of manholes, laying of Sewer pipes, bedding, backfilling and compaction.
- (iv) Water Reticulation works including excavation, bedding, laying of pipes and compaction
- (v) Site Clearance Works
- (vi) Electrical Reticulation works.
- (vii) Stormwater water drainage using in-situ concrete
- (viii) Landscaping and Grassing of Sports Field
- (ix) Cleaning and Fencing Works

The above identified activities are deemed suitable to be constructed using the LIC methods; to build, upgrade and maintain the social and economic of the underdeveloped area, promoting community participation, development of skills and creating more work opportunities.

Carried to Collection

R

The above identified activities should be marked in the Bill of Quantities with the letter (LI). Contractor to price the above items in the Bill of Quantities bearing in mind that they are regarded as the main sources of job creation, whether sub contracted or undertaken by the main contractor.

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 letter LI are not necessarily an exhaustive list of all the activities which must be done by hand.

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.

F: _____ V: _____ T: _____

E12. 3 Record Keeping

77 12.3.1 Every employer must keep in the project site office the following minutes of site progress minutes; contractors' monthly site progress reports; accurately recorded attendance register; proof of payment as means to verify authenticity of data in the EPWP Beneficiary form submitted with payment certificates. Copies of submitted EPWP beneficiary data forms should also be kept in the site office.

78 12. 3.2 The employer must keep this record for a period of at least three (3) years after the completion of the project in his/her office as the project site office would have been relocated.

This should be safely kept for job creation data verifications and periodical audits on projects conducted by National and Provincial Department of Public Works after one (1) or two (2) quarters of submitting captured EPWP Data to the National EPWP coordinating Department.

F: _____ V: _____ T: _____

Carried to Collection

Item

Item

R

E12.4 EPWP Monthly Reporting documents:

79 At the end of each month the contractor must submit:
 •EPWP monthly data collection form
 •Worker monthly payment upload
 •Worker monthly acknowledgement of receipt of payment
 •Worker monthly Payment register
 •Worker monthly training form
 •Monthly attendance Register
 •Worker Monthly pay slips
 •Unskilled labour certified ID copies (once off)
 •Beneficiary ID-size photos
 •Proof of UIF
 •Proof of COIDA
 F:_____ V:_____ T:_____

Item

E12.5 EPWP Promotion

12.5.1. EPWP signage board

80 EPWP Program at the project level shall always be promoted through the provision of projects signage board that embraces EPWP logo at the bottom, correct measurement for this sign board will be provided by the project leader during the site handing over meeting.
 F:_____ V:_____ T:_____

Item

12.5.2 Branding of labour apparel

81 Contractor & Sub-contractors' labourers shall be provided with EPWP branded Personal Protective Equipment (PPE), reflector vest with EPWP acronym at the back as an ideal and cost effective means of promoting program on site. The contractor is advised to price for both items 12.5.1 and 12.5.2
 F:_____ V:_____ T:_____

Item

E12.6 COMMUNITY LIAISON OFFICER (CLO)

UTILISATION OF A COMMUNITY LIAISON OFFICER

82 The Contractor shall allow for and pay any and all costs necessary for the engagement of the services of a Community Liaison Officer (CLO) for the full duration of this contract

A CLO will be identified by the local structures (Project Steering Committee) of the ward areas and appointed following fair and transparent interviewing process, to be conducted in the presence of local structures and the contractor representative, in order to assist the Contractor in the procurement of any local labour, etc. required for this project. The Contractor is to liaise with the CLO and afford him any assistance needed in ensuring sound working relations with the local community.

Carried to Collection

R

Key responsibilities of the CLO are envisaged to include and not necessarily be limited to:

1. Assisting local leadership in conducting skills and resources audit which facilitates sourcing labour from within the ward or targeted areas for employment, as required by contractor
2. Assisting in sourcing labour-only domestic sub-contractors and the procurement of materials from local resources, as required by the contractor.
3. Assisting the contractor by identifying areas of potential conflict and or threats to the project or to stakeholders in the project and recommend appropriate action to the contractor.
4. Assisting contractor and stakeholders in the project in the resolution of any conflict which may arise.
5. Establishing and ensuring that sufficient and open communication channels between the contractor and the work force are maintained.
6. Establish and ensuring that efficient and open communication channels between the contractor and the community are maintained
7. Identifying and reporting to the Contractor regarding issues where communication between stakeholder is necessary, recommend courses of action and facilitate such communications
8. Assisting the Contractor and the work force in the establishment of grievance procedures and necessary recommendation to the Contractor regarding the grievances and solution thereto.
9. Attending to site meetings and project implementation meetings as required by the Contractor and prepare and submit periodic reports as may be required by the Contractor from time to time.
10. Attending to such other duties which are consistent with the functions of a CLO, as may be required by the Contractor from time to time.

82

Tenderers are to price twice the rate of unskilled local labour rate for the Community Liaison Officer (CLO) ,all costs arising out of compliance with the foregoing and in the event of a Tenderer failing to price against this item or making inadequate financial provision against this item for compliance as aforesaid, then no claim for costs or additional cost incurred will be entertained by the Head: Public Works

F:_____ V:_____ T:_____

Carried to Collection

Item

κ

E12.7 Skills development on site

83

The Contractor is conforming to the objectives of EPWP if his beneficiaries are capacitated with skills that will render them employable in the future. It is then the responsibility of the contractor that mandatory life skills are provided to 100% of workforce on site and on the job training to labourers from whom the potential for further development has been identified. The latter is not mandatory to all as it covers technical skills.

Contractor should also make provision for the possibility that there might be local youth that will need to be placed on the project with an intention to be provided support towards improving their level of competency and productivity.

Contractor shall also provide all necessary on-the-job training to targeted labour to enable such labour to master and advance on techniques required to undertake the work in accordance with requirements of the contract in a manner that does not compromise workers health and safety.

F: _____ V: _____ T: _____

Item

E12.8 Sub-Contracting for local emerging enterprises

84

The project can support the notion of one main contractor to be appointed whilst several subcontractors, possibly from the local Small, Medium and Micro Enterprises (SMME) group, are employed to undertake various smaller activities.

Two alternatives can be applied for setting out work for sub-contractors, i.e. full responsibility (provide their own plant, materials and labour) or secondly the main contractor remains responsible for the supply of plant and materials, while the sub-contractor is responsible for implementation, thus providing the skills and labour content only for the various construction activities.

Carried to Collection

R

The contractor will be required to appoint a reasonable number of emerging sub-contractors to undertake work to the minimum of 5% of the contract value on the various service areas but not limited to the following services;

Item	Description/Task/Activity
General Building works	Masonry Carpentry and joinery Floor finishes/Tiling Paint work Joinery fittings Plumbing (internal & external) Plastering
Civil works	Paving Landscaping

This percentage excludes the costs of employing local unskilled labour. A minimum of 3% of the total number of the appointed emerging subcontractors must be owned by females who have more than 50.1% ownership of their company/organization. SMME represent an important vehicle to address the challenges of job creation, economic growth and equity in our country. SMMEs are playing a critical role in absorbing labour, penetrating new markets and generally expanding economies in creative and innovative ways.

F: _____ V: _____ T: _____

E12.8.1 Subcontractor Procedure

85

The recommendation will be that the Contractor shall advertise and call for competitive tenders in respect of each portion of the works that are required to be subcontracted. The tenders received are then evaluated by both the employer and the contractor. The evaluation panel shall comprises equal representatives from the Employer and from the Contractor

The Contractor shall without delay enter into contract with the successful tendering subcontractor based on their accepted tender submission.

This will promote the cost effective participation and development of smaller registered contractors in larger valued contracts without losing single point of accountability for projects. This will allow the emerging contractors to tender for work in a fair, transparent and equitable manner rather than having to negotiate such contracts with the main contractor. Also guarantees the participation of contractors registered in lower contractor grading designation.

F: _____ V: _____ T: _____

Carried to Collection

Item

Item

R

E12.8.2 Subcontractor Mentoring

86

Once the Subcontractors have been identified and engaged, the Contractor shall closely monitor their performance in the execution of their contracts.

The Contractor will be responsible for drawing implementation plan that will assist in managing the development of sub-contractors undertaking Labour Intensive work.

The Contractor will be responsible for management of the sub-contractors and to ensure that they comply with all EPWP requirements as set-out in this specification.

The Contractor and sub-contractors will be required to compile monthly progress reports to be submitted with payment certificates. The reports shall include planned targets with regards to the works and employment, employment of EPWP beneficiaries and project expenditure. Failure to produce monthly reports will render payment certificates incomplete.

The contractor will be required to assist, train, mentor and monitor its Sub-contractors and report through monitoring tool on progress of each Sub-contractor.

F: _____ V: _____ T: _____

Item

E12.8.3 Portfolio of Evidence

87

The Contractor is to develop and /or maintain a portfolio of evidence for each sub-contractor. The Portfolio of Evidence is a collection of proof of the training, coaching, guidance and monitoring inputs provided to the Sub-contractor. It is the document which records the development progress of the Sub-Contractor and will need to be updated continually throughout the duration of the contract.

The Portfolio of Evidence should include but not limited to the following documentation:

- The development path designed for each Sub-Contractor,
- The Training course completed by the Sub-Contractor,
- The hours of guiding, coaching and mentoring received for each activity listed in the developmental plan,
- A list of outcomes achieved at each level for each activity.

F: _____ V: _____ T: _____

Item

Carried to Collection

R

Performance and penalties

88 The Contractor performance will be monitored throughout the contract. Should the Contractor fail to fulfil his obligation he will be liable for penalties. Payment of the penalty shall not absolve the Contractor of any claim, or relieve the Contractor of any of his duties, obligations or responsibilities under the contract.

Utilisation of the Sub-Contractors

The Contractor's achievement of the targets will be measured quarterly to determine the progress made to date.

E12.8.4 Local Suppliers

89 Local material suppliers within the vicinity of the site to be utilise as long as their materials meets the required specification. However, quality and suitability would have to be checked by the employer, if the local suppliers are unable to meet the demand the nearest suitable suppliers are to be used.

Production of materials should be done on site, where economies of scale allow e.g. concrete paving blocks should be encouraged which will enable employment creation and also allow for enterprise development.

F: _____ V: _____ T: _____

Item

E12.8.5 TENDERER'S TO NOTE CONDITIONS

90 a) The contract to be entered into between the Contractor and the Priority Population Group's (PPG's) will be a labour and material sub-contract or labour only depending on the contractor and subcontractor agreement.

b) The Contractor will be responsible for ensuring that all materials for use by the PPG's in the works are to be on site timeously. The Contractor shall liaise with The Mentor and PPG to determine the nature and extent of materials required and the lead time necessary

F: _____ V: _____ T: _____

Item

c) The Contractor shall be responsible for the overall programming of the Works and he is to allow for monitoring the PPG's programme and progress.

d) In conjunction with the Mentor, he is to allow for the supervision and mentoring (where necessary) of the PPG to ensure quality and adherence to standard building practice

F: _____ V: _____ T: _____

Item

Carried to Collection

R

e) The Contractor is to allow for extra storage facilities on site for the PPG's tools and equipment.

F: _____ V: _____ T: _____

f) Basic tools shall be provided by the Priority Population Group's (PPG's) and where these are not available; the Contractor will supply him with the necessary tools and equipment and deduct the costs thereof from the interim claims made by the PPG.

g) Work requiring specialized tools will be provided free of charge by the Contractor with the provision that these be returned upon completion of the Work.

F: _____ V: _____ T: _____

CO-ORDINATION AND SUPERVISION

91

The Contractor is to co-ordinate and supervise the work of all the PPG's, Sub-Contractors and Nominated Sub-Contractors appointed directly by the Employer in such a manner and at all times as will suit the building programme and he is to allow adequate access, for the PPG's, where required, to carry out their work in an efficient manner and acceptable quality standards in accordance with the specifications as no claims for extras in this connection will be entertained.

Carried to Collection

Item

Item

R

92

ATTENDANCE

The Contractor may allow for attendance upon the PPG's concerned to execute the work. The Contractor is to allow the PPG's the use of any scaffolding belonging to him while it remains so erected on the site.

Where scaffolding is necessary for the use by any PPG and the Contractor has not erected any for his own use or has removed same after his own use, the Contractor shall supply sufficient scaffolding to the PPG to be erected and dismantled by the PPG and returned to the Contractor.

This attendance upon PPG's to execute the work is to include for the scaffolding provisions as aforesaid and, in addition, is to include for co-operating to the fullest extent with all the parties, attending on off-loading materials, providing suitable storage for tools and materials used by the PPG's, use of general facilities such as latrines, etc., supply and cost of power, lighting, water and the like.

F: _____ V: _____ T: _____

Item

E12.9 EPWP contract for labour

93

It is compulsory that shortly after the contractor and or sub contractor has appointed local labour, the employment contract should be signed by both parties, prior to commencement with works on site. The employment contract forms part of the Ministerial Determination or from the regional EPWP officials.

F: _____ V: _____ T: _____

Item

E12.10 EPWP Scope of Work For This Project

94

Contractors are to price the items on the Bill of Quantities highlighted below, bearing in mind that they are regarded as main sources of job creation, whether sub contracted or undertaken by the main contractor.

Elements of the scope of work where the application of Labour Intensive Construction methods are indicated with the letters (LI) are as follows;

- i) Excavating trenches for foundations and any other civil works with the depth not more than 1.5 m
- ii) All masonry works which include concrete mixing on site; brickwork; plastering; screed works; jointing; etc.
- iii) Painting, Plumbing, Ironmongery; roof cladding; glazing; tilling; carpentry; flooring; waterproofing; etc.
- iv) External works such as landscaping; cleaning; paving; fencing; farmac; etc.

Carried to Collection

R

94 **E13 HIV/AIDS AWARENESS**

Tenderers are to price against the following items for compliance with the SPECIFICATION FOR HIV/AIDS AWARENESS bound into this document (The clauses referred to are those of the Specification for HIV/AIDS)

95 **E13.1** Provide and maintain a condom dispenser in terms of Clause 5.1a

F: _____ V: _____ T: _____

Item

96 **E13.2** Provide and maintain HIV/AIDS awareness posters terms of Clause 5.1b

F: _____ V: _____ T: _____

Item

97 **E13.3** HIV /Aids Awareness Programme on Site for not less than 90% of workers inclusive of all direct and indirect costs;
Engage a qualified service provider as described in the scope of works to conduct an HIV Awareness Programme in terms of Clause 5.2.1a

F: _____ V: _____ T: _____

Item

98 **E13.4** Arrange for workers to attend the HIV Awareness Programme in terms of Clause 5.2.1b

F: _____ V: _____ T: _____

Item

Carried to Collection

R

99 **E13.5 REPORTING**

Prepare and attach to claims for payment a brief report in terms of Clause 5.3 (see also HIV/STI Compliance Report (included with this document).

F: _____ V: _____ T: _____

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 per calendar day of which the required reports has not been submitted.

Item

100 **E14 OCCUPATIONAL HEALTH AND SAFETY ACT NO. 85 OF 1993**

Tenderers are to allow for costs in providing a project specific ' Construction Phase Safety, Health and Environmental Plan' in accordance with "Section 2 - Specification Data associated with SANS 1921-1:2004" clause C4.18 in "Part C3 - Scope of Work".

F: _____ V: _____ T: _____

Item

101 **E15 NOTICE BOARD, SITE OFFICE, ETC.**

Bidders are to allow for the provision and removal of a project notice board and a site office in accordance with the Principal Agent's requirements.

F: _____ V: _____ T: _____

Item

Carried to Collection

R

102	<p>E16 IMPORTED MATERIALS AND EQUIPMENT</p> <p>Where imported items are listed in the tender documents, the tenderer shall provide all information called for, failing which the price of any such item, material or equipment shall be excluded from currency fluctuations. (Refer to T2.14 - Schedule of Imported Materials and Equipment).</p> <p>F: _____ V: _____ T: _____</p>
103	<p>E17 CONTRACT DOCUMENTS</p> <p>The drawings issued with these Bid documents do not comprise the complete set but serves as a guide only for Bidding purposes and for indicating the scope of works to enable the Bidder to acquaint him with the nature and extent of the works and the manner in which they are to be executed.</p> <p>Should any part of the drawings not be clearly legible to the Bidder, he shall, before submitting his Bid, obtain clarification in writing from the Principal Agent.</p> <p>F: _____ V: _____ T: _____</p>
104	<p>E18 GENERAL PREAMBLES</p> <p>The Document Preambles will be the "ASAQS Model Preambles for Trades - 2008" and is obtainable from the various Regional Office's of the Department of Public Works and shall be read in conjunction with the Bills of Quantities and be referred to for the full descriptions of work to be done and materials to be used.</p> <p>F: _____ V: _____ T: _____</p>
Carried to Collection	

Item

Item

Item

R

105 **E19 TRADE NAMES**

Wherever a Trade Name for any product has been described in the Bills of Quantities the Bidder's attention is drawn to the fact that any other product of equal quality may be used subject to the written approval of the Principal Agent being obtained prior to the closing date for submission of Bids.

F:_____ V:_____ T:_____

Item

106 **E20 EXISTING PREMISES OCCUPIED**

Refer to Scope of Works Part C3 of this Bid Document for information on the occupation of existing buildings

F:_____ V:_____ T:_____

Item

107 **E21 INACCURATE AND DEFECTIVE WORK EXECUTED UNDER PREVIOUS CONTRACT**

The Contractor shall, after taking possession of the site and before commencing the work, check all levels, liners, profiles and the like and satisfy himself as to the dimensional accuracy of all work executed under the previous contract which may affect his work.

Should any inaccurate or defective work be found, the Contractor shall immediately notify the Principal Agent in writing requesting his instructions with regard thereto and afford every facility to those rectifying such inaccurate or defective work.

F:_____ V:_____ T:_____

Item

Carried to Collection

R

108 **E22 VIEWING THE SITE IN SECURITY AREAS**

If the site is situated in a security area, the Bidder must arrange with the Authorities to obtain permission to enter the site for Bidding purposes.

F: _____ V: _____ T: _____

Item

109 **E23 COMMENCEMENT OF WORKS IN SECURITY AREAS**

If the works falls within a security area, the Contractor must arrange with the Authorities and give the necessary notices before commencement of the works. Should the Contractor fail to make such arrangements, admission to the site may be refused and any additional costs will be for the Contractor's account.

F: _____ V: _____ T: _____

Item

110 **E24 ENTRANCE PERMITS TO SECURITY AREAS**

If the works fall within a security area, the Contractor shall obtain entrance permits for his personnel and workmen entering the area and shall comply with all regulations and instructions which may be issued from time to time regarding the protection of persons and property under control of the Authority.

F: _____ V: _____ T: _____

Item

Carried to Collection

R

111 **E25 SECURITY CHECK OF PERSONNEL**

The Principal Agent may require the Contractor to have his personnel and workmen, or a certain number of them, security classified.

In the event of the Principal Agent requesting the removal of a person or persons from the works for security reasons, the Contractor shall do so forthwith and shall thereafter ensure that such person or persons are denied access to the works and the site and/or to any document or information relating to the works.

F: _____ V: _____ T: _____

Item

112 **E26 PROHIBITION ON TAKING PHOTOGRAPHS**

In terms of article 119 of the Defence Act, 44 of 1957, it is prohibited to sketch or to take photographs of any military site or installation or any building or civil works thereon or to be in possession of a camera or other apparatus used for taking photographs, except when authorised thereto by or on behalf of the Minister."

The same prohibition is also applicable to all Correctional Institutions in terms of article 44.1(e) of the Correctional Services Act 8 of 1959.

F: _____ V: _____ T: _____

Item

Carried to Collection

R

113 **E27 MANAGEMENT OF WATER**

Water for Construction purposes must be obtained from alternative water sources (i.e. supply other than water that is produced and distributed by a regulated water service authority from a licensed water treatment works for human consumption), eg. dams, rivers, boreholes, springs, rainwater harvesting, recycled sewerage water, etc. The alternative water source shall not be of an inferior quality / standard than that required for construction purposes. The client reserves the right through his agents to test such supplies or request certificates confirming the grade and nature of the water supply. Relevant knowledge of the respective area will be an advantage.

F: _____ V: _____ T: _____

Item

114 **E28 SUBCONTRACTING TO EME'S AND QSE'S AS PER PPPFA (2017)**

The Contractor is obliged to maximize Sub-contracting opportunities to EME's and QSE's that are currently registered on the Eyesizwe Contractor Development Programme database, where reasonable and possible. It is a Client expectation that the targeted Sub-contractors will provide commercially viable functions, in a meaningful manner. All cost associated with the appointment, management, reporting, monitoring and related contractual and administrative functions will be priced under this item.

F: _____ V: _____ T: _____

Item

SUMMARY OF CATEGORIES

Category : Fixed R _____

Category : Value R _____

Category : Time R _____

Carried to Collection

R

Section No.1		
Preliminaries		
Bill No. 1		
Preliminaries		
<u>COLLECTION</u>		
	Page No	Amount
Total Brought Forward from Page No.	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	
	13	
	14	
	15	
	16	
	17	
	18	
Carried Forward		R

Section No.1 Preliminaries Bill No. 1 Preliminaries <u>COLLECTION</u>				
		Page No		Amount
	Brought Forward		R	
Total Brought Forward from Page No.		19		
		20		
		21		
		22		
		23		
		24		
		25		
		26		
		27		
		28		
		29		
		30		
		31		
		32		
		33		
		34		
		35		
	Carried to Final Summary		R	

Section	<u>FINAL SUMMARY</u>	Page No		Amount
No				
1	Preliminaries	37		
Carried Forward to Final Summary				R



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

PART C2.3 BILL OF QUANTITIES

WIMS NO: 063241

EMGANGENI SECONDARY SCHOOL

Unit Quantity Rate Amount

SECTION NO. 2

EMGANGENI SECONDARY SCHOOL

BILL NO. 1

ALTERATIONS

<u>Key:</u>	<u>Location Description:</u>
Item	Item
A	Block A - 6 CLASS
B	Block B - 2 CLASS
C	Block C - ABLUTION
Ext	External Works

The tenderer is referred to the relevant clauses in the ASAQS Model Trades Preambles 2008 and to the Supplementary Preambles which are incorporated at the back of these Bills of Quantities.

The tenderer is referred to SANS 10400 for full details of performance and specification requirements. All products and workmanship shall be in compliance with the relevant sections of SANS and approved accordingly.

SUPPLEMENTARY PREAMBLES

View site

Before submitting his tender the contractor shall visit the site and satisfy himself as to the nature and extent of the work to be done and the value of the materials contained in the buildings or portions of the buildings to be demolished. No claim for any variations of the contract sum in respect of the nature and extent of the work or of inferior or damaged materials will be entertained

Damage to existing finishes:

The Contractor will be held responsible for all damage, however caused, to existing finishes and fitting etc. and he must make good all damage at his own expense to the approval of the Principal Agent.

Breaking down, demolition and alteration activities and tasks, hacking off of existing plaster, etc. is to be executed with care so as to prevent damage to remaining floor and wall surfaces and finishes (where these are to be retained). Tenders will be deemed to include allowance for any necessary protection of existing surfaces and structures as may be necessary to effect the above, as the cost of repairing damage to existing surfaces and structures will be solely for the Contractors account.

Carried to Collection

R

Section No. 2
 Bill No. 1
 Alterations

	Unit	Quantity	Rate	Amount
<p><u>Responsibility for site:</u></p> <p>The contractor is to note that upon possession of the site by himself, and extending until practical completion is achieved, he is solely responsible for the site, site security, general upkeep and cleaning of the site and all other responsibilities in maintaining a construction site in conformance with but not limited to, the Construction Regulations 2003, all local by-laws, all user client regulations, and all Client regulations and procedures. Tenderers are therefore urged to study all available material and to investigate fully the site and areas contiguous to the site, in order to determine the range and extent of responsibility. No additional monetary and/or time claims will be entertained in respect of the above.</p> <p><u>Explosives</u></p> <p>No explosives whatsoever may be used for demolition purposes unless otherwise stated</p> <p><u>General</u></p> <p>Doors, fanlights, fittings, frames, linings, etc. which are to be re-used shall be thoroughly overhauled before refixing including taking off, easing and rehangng, cramping up, re-wedging as required and making good cramps, dowels, etc., and easing, oiling, adjusting and repairing ironmongery as necessary, replacing any glass damaged in removal or subsequently and stopping up all nail and screw holes with tinted plastic wood to match timber, unless otherwise described. Re-painting or re-vernishing is given separately</p> <p>Prices for taking out of doors, windows, etc. shall include for removal of all beads, architraves, ironmongery, etc.</p> <p>Prices for taking out and removing doors and frames shall include for removing door stops, cabin hooks, etc. and making good floor and wall finishes to match existing</p> <p>With regard to building up of openings in existing walls, cement screeds and pavings, granolithic, tops of walls, etc., shall be levelled and prepared for raising of brickwork</p> <p>Making good of finishes shall include making good of the brick and concrete surfaces onto which the new finishes are applied, where necessary</p> <p>Water supply pipes and other piping that may be encountered and found necessary to disconnect or cut, shall be effectually stopped off or grubbed up and removed, and any new connections that may be necessary shall be made with proper fittings, to the satisfaction of the principal agent</p>				
Carried to Collection			R	
<p>Section No. 2 Bill No. 1 Alterations</p>				

	Unit	Quantity	Rate	Amount
<p>The contractor will be required to take all dimensions affecting the existing buildings on the site and he will be held solely responsible for the accuracy of all such dimensions where used in the manufacture of new items (doors, windows, fittings, etc.)</p> <p><u>Removal of materials:</u></p> <p>Where removal is included in the heading, sub-heading or item description, prices shall be deemed to include for the necessary costs in removal and appropriate disposal of materials including but not limited to labour, transportation and disposal costs. No further claims in this regard will be entertained.</p> <p><u>Removal of asbestos material:</u></p> <p>All preparatory work, alterations, etc., to existing asbestos cement roof sheeting, gutters, rainwater pipes, etc., is to be carried out strictly by an approved and certified specialist company and in accordance with statutory requirements (Occupational Health and Safety Act, 1993 - Asbestos Regulations 2001) and all necessary precautions must be taken when working with and disposing of asbestos cement products and the disposing of waste water resulting from cleaning operations, etc.</p> <p><u>The following shall apply in respect of asbestos removal</u></p> <p>The removal of asbestos shall be carried out by a certified entity, registered in accordance with the Occupational Health and Safety Act 1993 and the Asbestos Regulation 2001.</p> <p>Asbestos in all forms/building elements that is to be removed, shall be carried out in strict accordance with aforementioned regulation, and a certificate issued by the entity as contemplated in the above, shall be provided per block for the removal thereof, where the term block shall in this context refer to any single, free standing building structure, regardless of size or purpose.</p> <p>Corresponding disposal certificates shall be issued by the facility at which the asbestos is disposed off, with said facility to, prior to the disposal of any asbestos material provide satisfactory proof that the facility is duly registered and fully compliant in terms of the act, to receive the asbestos material.</p>				
<p>Section No. 2 Bill No. 1 Alterations</p>			<p>Carried to Collection</p>	<p>R</p>

	Unit	Quantity	Rate	Amount
<p><u>Note: Tenderers are referred to the supplementary preambles when pricing the following item (removal of asbestos)</u></p> <p><u>Taking down and removal of Asbestos by Specialist</u></p>				
8	Asbestos roof sheets including all timber purlins, fixings, etc.	m ²	351	
	A 351			
	If the item below is not priced it is deemed to form part of the OHS cost in the preliminaries			
9	Issue of certificate of compliance by registered AIA appointed by your asbestos disposal and removal subcontractor, for the safe removal of asbestos contained products before the work on site commences	Item		
<p><u>Taking down and removing roofs, floors, panelling, ceilings, partitions, etc</u></p>				
10	Double pitched timber roof truss with clear span between walls 7000mm - 8000mm long and approximately 1600mm high	No	84	
	A 61 B 23			
11	Corrugated metal roof sheets including all timber purlins, fixings, etc.	m ²	336	
	A 143 B 193			
12	Fibre cement fascias and barge boards including fixings.	m	164	
	A 108 B 56			
13	Fibre cement gutters and downpipes including fixings.	m	118	
	A 85 B 33			
<p><u>TEMPORARY ROOF PROTECTION</u></p> <p><u>The Contractor will be held responsible for all damage, howsoever caused, to finishes inside rooms where the existing roof coverings have been removed and he must make good all damage at his own expense to the approval of the Employer.</u></p>				
14	Supply and install temporary waterproofing and weatherproof protection to buildings in the form of uPVC underlay or tarpaulin where roofing and related items have been removed during construction whereby exposing buildings, including the relocation of the protection to various blocks within the works as area. The contractor to allow for maintenance of the waterproofing during periods of exposure to classrooms as well the reuse and reallocation to the blocks as per the contracts construction programme.	m ²	494	
	A 494			
Carried to Collection				
Section No. 2				
Bill No. 1				
Alterations				
			R	

		Unit	Quantity	Rate	Amount
<u>Taking out and removing ironmongery</u>					
15	Remove existing chalkboards approximately 4800 x 1200mm high including fixings, etc., and cart off site	No	7		
	A 5 B 2				
<u>Hacking up/off and removing granolithic, screeds, plaster, etc. from concrete or brickwork and preparing surfaces for new screed, plaster, tile finishes, etc.</u>					
16	25mm Screed from floors	m ²	580		
	A 420 B 160				
17	Existing tiles	m ²	52		
	A 52				
<u>MAKING GOOD OF FINISHES, ETC</u>					
<u>Making good brickwork</u>					
18	Making good existing external brickwork including carefully saw cutting the brickwork on both sides of cracks for a depth of 15mm and thoroughly remove brickwork and plaster from saw cuts. Thereafter, fill the resultant widened crack with two component epoxy adhesive compound as required and according to manufacturers instructions	m ²	234		
	A 156 B 78				
19	Making good existing internal brickwork including carefully saw cutting the brickwork on both sides of cracks for a depth of 15mm and thoroughly remove brickwork and plaster from saw cuts. Thereafter, fill the resultant widened crack with two component epoxy adhesive compound as required and according to manufacturers instructions	m ²	84		
	A 63 B 21				
<u>Making good External cement plaster</u>					
20	Walls in patches	m ²	432		
	A 294 B 138				
<u>Making good internal cement plaster</u>					
21	Walls in patches	m ²	336		
	A 252 B 84				
<u>DESLUDGING SEPTIC TANKS, ETC.</u>					
<u>Desludging septic tank, etc.</u>					
22	Desludging septic tank and making good	Item			
Carried to Collection					
Section No. 2					
Bill No. 1					
Alterations					
				R	

	Unit	Quantity	Rate	Amount
<p>Water supply pipes and other piping that may be encountered and found necessary to disconnect or cut, shall be effectually stopped off or grubbed up and removed, and any new connections that may be necessary shall be made with proper fittings, to the satisfaction of the principal agent</p>				
<p><u>TEMPORARY PARKHOMES</u></p>				
<p>Rates for parkhomes to include standard windows, burglar bars, curtains and tracks, two tier steps for access, light fittings and black boards</p>				
<p><u>Temporary parkhomes</u></p>				
<p>Provide temporary parkhomes on site for educational facilities during the construction phase as herewith mentioned, including levelling, positioning on site and connection to an electrical supply including issuing compliance certificates</p>				
<p>Parkhomes are to be standard classroom size minimum 7 x 7m or nearest size</p>				
23	No	3		
<p>Item 3</p>				
24	No	3		
<p>Item 3</p>				
25	No	3		
<p>Item 3</p>				
26	Return Tri	3		
<p>Item 3</p>				
<p><u>BUDGETARY ALLOWANCES</u></p>				
<p><u>Unforeseen alterations works:</u></p>				
27	Item			10 000 00
<p>Allow the sum of R 10 000.00 (Ten Thousand Rand) for unforeseen alteration works to be valued in accordance with the relevant conditions of contract.</p>				
<p>Item 1</p>				
Carried to Collection			R	
Section No. 2				
Bill No. 1				
Alterations				

Amount

BILL NO. 1
ALTERATIONS
COLLECTION

Page No

Brought Forward from Page

39
 40
 41
 42
 43
 44
 45

Carried To Section Summary

R

Section No. 2
 Bill No. 1
 Alterations

	Unit	Quantity	Rate	Amount
<u>Compaction of ground surfaces</u>				
8				
Compaction of natural or excavated ground surface under floors etc, including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to ?% Mod AASHTO density				
	m ²	32		
A		32		
<u>WEED KILLERS, INSECTICIDES, ETC</u>				
<u>Soil insecticide in accordance with SANS 5859</u>				
9				
To bottoms and sides of trenches etc				
	m ²	95		
A		95		
Carried to Collection				
R				
Section No. 2				
Bill No. 2				
Earthworks				

Amount

BILL NO. 2
EARTHWORKS
COLLECTION

Page No

Brought Forward from Page

47

48

Carried To Section Summary

R

Section No. 2
Bill No. 2
Earthworks

	Unit	Quantity	Rate	Amount
<u>SECTION NO. 2</u>				
<u>EMGANGENI SECONDARY SCHOOL</u>				
<u>BILL NO. 3</u>				
<u>CONCRETE, FORMWORK AND REINFORCEMENT</u>				
<u>Key:</u>	<u>Location Description:</u>			
Item	Item			
A	Block A - 6 CLASS			
B	Block B - 2 CLASS			
C	Block C - ABLUTION			
Ext	External Works			
<u>UNREINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES</u>				
<u>25Mpa/19mm concrete</u>				
1	To underpinning	m ³	47	
A	47			
<u>REINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES</u>				
<u>25MPa/19mm concrete</u>				
2	Surface beds cast in panels	m ³	37	
A	37			
<u>TEST CUBES</u>				
<u>Test Cubes</u>				
3	Making and testing 150 x 150 x 150mm concrete strength test cube (Provisional)	No	42	
A	42			
<u>CONCRETE SUNDRIES</u>				
<u>Finishing top surfaces of concrete smooth with a wood float</u>				
4	Surface beds, slabs, etc	m ²	245	
A	245			
<u>MOVEMENT JOINTS ETC</u>				
<u>Saw-cut joints</u>				
5	8 x 50mm Saw-cut joints in top of concrete	m	140	
A	140			
<u>REINFORCEMENT (CPAP WORK GROUP NO. 114)</u>				
<u>Fabric reinforcement</u>				
6	Ref 193 fabric reinforcement in concrete surface beds etc	m ²	245	
A	245			
Carried To Section Summary				
Section No. 2				
Bill No. 3				
Concrete, Formwork And Reinforcement				
			R	

Unit Quantity Rate Amount

SECTION NO. 2

EMGANGENI SECONDARY SCHOOL

BILL NO. 4

MASONRY

<u>Key:</u>	<u>Location Description:</u>
Item	Item
A	Block A - 6 CLASS
B	Block B - 2 CLASS
C	Block C - ABLUTION
Ext	External Works

The tenderer is referred to the relevant clauses in the ASAQS Model Trades Preambles 2008 and to the Supplementary Preambles which are incorporated at the back of these Bills of Quantities.

The tenderer is referred to SANS 10400 for full details of performance and specification requirements. All products and workmanship shall be in compliance with the relevant sections of SANS and approved accordingly.

BRICKWORK

Sizes in descriptions

Where sizes in descriptions are given in brick units, 'one brick' shall represent the length and 'half brick' the width of a brick

Hollow walls

Descriptions of hollow walls shall be deemed to include leaving every fifth perpend of the bottom course of the external skin open as a weep hole

Bagged and sealed walls

Walls in two skins described as 'bagged and sealed' shall be deemed to include having the outer face of the inner skin bagged with 1:6 cement and sand mixture and sealed with two coats bitumen emulsion waterproofing coating

Face bricks

Bricks shall be ordered timeously to obtain uniformity in size and colour

Pointing

Descriptions of recessed pointing to fair face brickwork and face brickwork shall be deemed to include square recessed, hollow recessed, weathered pointing, etc.

Carried to Collection

R

Section No. 2

Bill No. 4

Masonry

		Unit	Quantity	Rate	Amount
<u>BRICKWORK IN SUPERSTRUCTURE</u>					
<u>Brickwork of NFP bricks (14 MPa nominal compressive strength) in class II mortar</u>					
1	One brick walls in beamfilling	m ²	47		
	A 34 B 13				
2	One brick walls	m ²	73		
	A 68 B 5				
<u>BRICKWORK SUNDRIES</u>					
<u>2.5mm Galvanised brick reinforcement</u>					
3	150mm Wide reinforcement built in horizontally	m	686		
	A 481 B 205				
Carried to Collection					R
Section No. 2					
Bill No. 4					
Masonry					

Amount

BILL NO. 4
MASONRY
COLLECTION

Page No

Brought Forward from Page

51

52

Carried To Section Summary

R

Section No. 2
Bill No. 4
Masonry

Unit Quantity Rate Amount

SECTION NO. 2

EMGANGENI SECONDARY SCHOOL

BILL NO. 5

ROOF COVERINGS

<u>Key:</u>	<u>Location Description:</u>
Item	Item
A	Block A - 6 CLASS
B	Block B - 2 CLASS
C	Block C - ABLUTION
Ext	External Works

The tenderer is referred to the relevant clauses in the ASAQS Model Trades Preambles 2008 and to the Supplementary Preambles which are incorporated at the back of these Bills of Quantities.

The tenderer is referred to SANS 10400 for full details of performance and specification requirements. All products and workmanship shall be in compliance with the relevant sections of SANS and approved accordingly.

SUPPLEMENTARY PREAMBLES

Sheeting:

The roof sheeting shall be 0.55mm thick full hard IBR profile galvanised mild steel or other approved roof sheets, roll formed in continuous lengths and cut to length by a pneumatic cut-off process. A certificate verifying compliance to all current SABS codes in respect to galvanised sheeting shall be issued by the manufacturer.

Finishing of sheets:

The paint finish shall be colour plus on one side and standard grey finish on the other side

Fixing of sheets:

The roof sheeting shall be laid in long lengths, narrow flutes outermost, with single flute sidelaps facing away from prevailing wind. All sheets shall be secured to timber purlins utilising approved roofing screws in strict accordance to the manufacturers instructions. Sheeting is to be drilled and not punched, with side laps filled with approved Mastic sealant. Sheeting is to protrude a minimum of 50mm from ends of rafters

Carried to Collection

R

Section No. 2
 Bill No. 5
 Roof Coverings

		Unit	Quantity	Rate	Amount
<p><u>Flashings:</u></p> <p>Flashings shall be approved by the manufacturer and fixed to the sheeting with approved fixings. Prior to flashings being fixed, all troughs at the apex shall be stop-ended to the full depth of the sheet in order to prevent any penetration of wind driven water. The trough shall be lipped at the eaves end to form a drip. Flashing flanges shall be notched to the sheet profile where necessary. Care shall be taken to ensure that no sheeting or flashing will be cut with abrasive disc on roof surface in order to prevent steel spatter from penetrating colour coated areas.</p> <p><u>Erection:</u></p> <p>Every precaution shall be taken to prevent damage to roof sheets during all stages of construction. Duck boards should be used when necessary to protect the sheeting from damage. Sheeting which has become deformed or damaged in any way, shall be replaced, at no additional cost to the Contract</p> <p><u>Safety:</u></p> <p>The contractor shall exercise special care when handling long length sheeting, particularly in windy conditions. Should work be interrupted for any reason, all loose sheeting and incomplete sections must be adequately secured against possible movement by wind and gravity.</p> <p><u>Guarantee:</u></p> <p>The manufacturer shall comply with ISO9002 Quality Management System. Sheeting shall be laid in strict accordance with manufacturers specifications by an approved contractor. A written and approved five (5) year guarantee of site workmanship and water tightness shall be issued after final inspection of roof sheets by the manufacturer.</p> <p><u>PROFILED METAL SHEETING AND ACCESSORIES</u></p> <p><u>0.55mm Thick galvanized continuous IBR profile metal sheeting with 'Colour Plus' finish on one side and standard grey finish on the other side fixed to timber purlins with and including approved roofing screws with 19mm round galvanised washers and rubber gasket (timber purlins measured elsewhere)</u></p>					
1	Roof covering with pitch not exceeding 25 degrees	m ²	687		
	A 494 B 193				
2	Ridge cappings 462mm girth	m	60		
	A 43 B 17				
				Carried to Collection	R
Section No. 2					
Bill No. 5					
Roof Coverings					

Amount

BILL NO. 5
ROOF COVERINGS
COLLECTION

Page No

Brought Forward from Page 54

55

56

Carried To Section Summary

R

Section No. 2
Bill No. 5
Roof Coverings

Unit Quantity Rate Amount

SECTION NO. 2

EMGANGENI SECONDARY SCHOOL

BILL NO. 6

CARPENTRY AND JOINERY

<u>Key:</u>	<u>Location Description:</u>
Item	Item
A	Block A - 6 CLASS
B	Block B - 2 CLASS
C	Block C - ABLUTION
Ext	External Works

The tenderer is referred to the relevant clauses in the ASAQS Model Trades Preambles 2008 and to the Supplementary Preambles which are incorporated at the back of these Bills of Quantities.

The tenderer is referred to SANS 10400 for full details of performance and specification requirements. All products and workmanship shall be in compliance with the relevant sections of SANS and approved accordingly.

SUPPLEMENTARY PREAMBLES

Fixing

Items described as 'nailed' shall be deemed to be fixed with hardened steel nails or pins, or to be shot-pinned, to brickwork or concrete

Items described as 'plugged' shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 500mm centres, and where described as 'bolted', the bolts have been given elsewhere

Joinery

Descriptions of frames shall be deemed to include frames, transomes, rails, etc.

Descriptions of hardwood joinery shall be deemed to include sinking and pelleting heads and nuts of bolts

Decorative thermosetting plastic laminate covering

Laminate covering shall be glued under pressure and edge strips of same shall be butt jointed at junctions with adjacent similar finish

Prefabricated plate nailed timber roof truss construction:

NOTE: The following is applicable in respect of roof trusses:

The Contractor shall allow for all items deemed necessary for the proper design, fabrication and erection of the roof trusses, bracing, etc.

Carried to Collection

R

Section No. 2
Bill No. 6
Carpentry And Joinery

	Unit	Quantity	Rate	Amount
<p>The materials and design of the roof construction shall be in accordance with the relevant edition of the South African Bureau of Standards (SABS) and the Standard Building Regulations (SBR).</p> <p>The design of trusses and permanent bracing shall be carried out under the control of a registered professional engineer who shall provide the requisite certificate of stability on completion of the roof construction. All calculations and drawing, including a key plan of each building showing the position of each type of member shall be submitted timeously to the consulting Structural Engineer for his approval before fabrication is commenced.</p> <p>Prices are to include for the provision of adequate temporary bracing during construction to the approval of the Departmental Engineer.</p> <p>The dimensions in the descriptions of the trusses are nominal and actual measurements are to be obtained from the architect and/or the site before fabrication commences.</p> <p>Trusses must be designed in accordance with the environmental conditions of the area.</p> <p>The following roof trusses are to a pitch not exceeding 25 degrees (unless otherwise stated) spaced at approximately 1200mm centres and are to receive 0,55mm thick IBR-profile roof sheets on timber purlins and a nailed up ceiling under.</p> <p><u>PRETREATMENT OF TIMBER</u></p> <p>This service falls within the areas defined in the National Building Regulations for Treatment of Timber against insect pest affecting softwood fixed permanently in all buildings.</p> <p>The Regulations require that timber be treated in terms of SABS 05 and to comply with SABS 457, 753, 754 or 1288 as relevant. Tenderers are to make allowance in their rates.</p> <p><u>PREFABRICATED ROOF TRUSSES, ETC.</u></p> <p>All timber roof trusses including nail-plated trusses and bolted trusses with lapped members must comply with SABS 0243 : THE DESIGN, MANUFACTURE AND ERECTION OF TIMBER TRUSSES.</p> <p>Prices for roof trusses are to include for all temporary bracing and supports and for all necessary top and bottom chord bracing, wind bracing and runners where required and overhanging ends are to be wrot faced all round.</p>				
<p style="text-align: right;">Carried to Collection</p> <p>Section No. 2 Bill No. 6 Carpentry And Joinery</p>			R	

	Unit	Quantity	Rate	Amount
<p><u>Plate nailed timber roof truss construction:</u></p> <p>The following is applicable in respect of roof trusses: Trusses are at maximum 1200mm centres. Roof covering is 0,55mm thick IBR-profile roof steel on timber purlins. Ceilings are plasterboard on softwood brandering. The dimensions in the descriptions of the trusses are nominal and actual measurements are to be obtained from the Architect and/or the site before design or fabrication commences.</p> <p><u>PREFABRICATED ROOF TRUSSES, ETC.</u></p> <p><u>The following in plate nailed timber roof trusses with pitch not exceeding 25 degrees from an approved supplier, delivered to site, hoisted into position, fixed and braced on timber wall plates to SABS 0243:</u></p>				
1	No	1		
<p>Design, supply and install roof truss system size complete in accordance with the Standard Building Regulations, including cross battens at hips, valleys, etc. all in accordance with the relevant specifications to building size 42 000mm x 10 000mm on plan and with clear span between walls approximately 7 560mm (approximate on flat 420m2) (17.5 degree pitch)</p> <p>A 1</p>				
2	No	1		
<p>Design, supply and install roof truss system size complete in accordance with the Standard Building Regulations, including cross battens at hips, valleys, etc. all in accordance with the relevant specifications to building size 16 000mm x 10 000mm on plan and with clear span between walls approximately 7 560mm (approximate on flat 160m2) (17.5 degree pitch)</p> <p>B 1</p>				
<p><u>Sawn softwood</u></p>				
3	m	592		
<p>76 x 52mm Purlins</p> <p>A 426 B 166</p>				
4	m	116		
<p>114 x 38mm Wall plates</p> <p>A 84 B 32</p>				
<p><u>Sundries</u></p>				
5	m ²	252		
<p>Two coats "ABE Provonite" or other equally approved coal tar paint on roof timbers at eaves and verges</p> <p>A 183 B 69</p>				
6	No	168		
<p>2.5mm Diameter double strand galvanised wire tie 550mm girth wrapped around rafter and purlin with ends tied together.</p> <p>A 122 B 46</p> <p>The following certificates are required per block</p>				
Carried to Collection				
Section No. 2				
Bill No. 6				
Carpentry And Joinery				
			R	

Amount

BILL NO. 6

CARPENTRY AND JOINERY

COLLECTION

Page No

Brought Forward from Page

58

59

60

61

Carried To Section Summary

R

Section No. 2

Bill No. 6

Carpentry And Joinery

Unit Quantity Rate Amount

SECTION NO. 2

EMGANGENI SECONDARY SCHOOL

BILL NO. 7

CEILING PARTITIONS AND ACCESS FLOORING

<u>Key:</u>	<u>Location Description:</u>
Item	Item
A	Block A - 6 CLASS
B	Block B - 2 CLASS
C	Block C - ABLUTION
Ext	External Works

The tenderer is referred to the relevant clauses in the ASAQS Model Trades Preambles 2008 and to the Supplementary Preambles which are incorporated at the back of these Bills of Quantities.

The tenderer is referred to SANS 10400 for full details of performance and specification requirements. All products and workmanship shall be in compliance with the relevant sections of SANS and approved accordingly.

SUPPLEMENTARY PREAMBLES

Fixing

Items described as 'nailed' shall be deemed to be fixed with hardened steel nails or pins, or to be shot-pinned, to brickwork or concrete

Items described as 'plugged' shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 500mm centres, and where described as 'bolted', the bolts have been given elsewhere

Ceilings

Unless otherwise described ceilings shall be deemed to be horizontal

Bulkheads

Bulkheads are defined as those portions of ceilings which are stepped down from the general ceiling level in a particular room or area and which generally occur along the perimeter. Their purpose is either to conceal services or to create architectural features

Bulkheads have only been described as such where they conform to the above definition and where the horizontal or vertical dimensions do not exceed 900mm. Where these dimensions are more than 900mm such portions of ceilings have been included in the appropriate general items of ceilings

Unless otherwise described bulkheads shall be deemed to be horizontal along the length

Carried to Collection

R

Section No. 2

Bill No. 7

Ceilings Partitions And Access Flooring

		Unit	Quantity	Rate	Amount
<u>Steel components</u>					
All steel components for ceilings, partitions, etc. are to be galvanised in accordance with SANS 121					
<u>CEILING TIMBERS, BEADS, INSULATION, ETC</u>					
<u>Insulation</u>					
1	100mm Thick insulation in blanket from closely fitted and laid on top of brandering between roof timbers etc.	m ²	415		
	A 311 B 104				
<u>NAILED-UP CEILINGS</u>					
<u>9mm Gypsum plasterboard ceiling fixed print side up with 32mm galvanised semi-clout nails at 150mm centres with galvanised H-profile metal cover strips, all in strict accordance with the manufacturers instructions:</u>					
2	Ceilings including 38 x 50mm sawn softwood brandering at 450mm centers in both directions, complete with 38 x 50mm hanger brackets nailed to trusses and nailed to brandering as extra support system.	m ²	415		
	A 311 B 104				
3	Extra over ceiling for 600 x 600mm trap door of 38 x 50mm wrought softwood rebated framing with one cross brander, covered with ceiling board and fitted flush in opening, including necessary trimmers around	No	8		
	A 6 B 2				
<u>Gypsum plasterboard cornice</u>					
4	75mm Coved cornices plugged	m	231		
	A 173 C 58				
Carried to Collection					R
Section No. 2					
Bill No. 7					
Ceilings Partitions And Access Flooring					

Amount

BILL NO. 7

CEILINGS PARTITIONS AND ACCESS FLOORING

COLLECTION

Page No

Brought Forward from Page

63

64

Carried To Section Summary

R

Section No. 2

Bill No. 7

Ceilings Partitions And Access Flooring

Unit Quantity Rate Amount

SECTION NO. 2

EMGANGENI SECONDARY SCHOOL

BILL NO. 8

FLOOR COVERINGS

<u>Key:</u>	<u>Location Description:</u>
Item	Item
A	Block A - 6 CLASS
B	Block B - 2 CLASS
C	Block C - ABLUTION
Ext	External Works

FLOOR COVERINGS

300 x 300 x 2mm Thick semi-flexible vinyl floor tiles to SABS 581:1992 lid in approved adhesive and to manufacturers instructions:

1	On floors	m ²	415		
	A 311 B 104				

POLISH, SEALERS, ETC

Polish

2	Thoroughly clean down and wash, strip with an ammonia based stripping agent and apply three coats of approved polyurethane sealer in strict accordance with the manufacturers instructions	m ²	415		
	A 311 B 104				

Carried To Section Summary

R

Section No. 2
 Bill No. 8
 Floor Coverings

Unit Quantity Rate Amount

SECTION NO. 2

EMGANGENI SECONDARY SCHOOL

BILL NO. 9

IRONMONGERY

<u>Key:</u>	<u>Location Description:</u>
Item	Item
A	Block A - 6 CLASS
B	Block B - 2 CLASS
C	Block C - ABLUTION
Ext	External Works

The tenderer is referred to the relevant clauses in the ASAQS Model Trades Preambles 2008 and to the Supplementary Preambles which are incorporated at the back of these Bills of Quantities.

The tenderer is referred to SANS 10400 for full details of performance and specification requirements. All products and workmanship shall be in compliance with the relevant sections of SANS and approved accordingly.

SUPPLEMENTARY PREAMBLES

Proprietary items

Where applicable the manufacturers' names or product catalogue titles are given in sub-headings preceding the items. Prices are to be based on the specific products/articles specified. If tenderers wish to offer alternative products/articles for certain items, these items are to be clearly marked and the alternative specification given with supporting brochures etc. clarifying the features of the products/articles offered. On request returnable samples are to be provided to the principal agent for consideration.

Finishes to ironmongery

Where applicable finishes to ironmongery are indicated by suffixes in accordance with the following list: BS Satin bronze lacquered CH Chromium plated SC Satin chromium plated SE Silver enamelled GE Grey enamelled AN Anodised natural AS Anodised silver AB Anodised bronze AG Anodised gold ABL Anodised black PB Polished brass PL Polished and lacquered PT Epoxy coated SD Sanded

HINGES, BOLTS, ETC.

SANS approved hinges

1	100mm Galvanised and welded loose pin hinges	No	8				
	A 6 B 2						

Carried to Collection

R

Section No. 2

Bill No. 9

Ironmongery

	Unit	Quantity	Rate	Amount
<u>LOCKS</u>				
<u>SANS approved locks</u>				
2				
	No	8		
Solid Art Four-lever lockset with and including Satin Chrome plated handles				
	A	6	B	2
<u>SUNDRIES</u>				
<u>SANS approved doorstops</u>				
3				
	No	8		
38mm Diameter rubber door stop plugged and screwed to floor with a 50mm long brass screw				
	A	6	B	2
<u>PINNING BOARDS, WRITING BOARDS, PROJECTION SCREENS, ETC.</u>				
<u>SANS approved vitreous enamelled Chalkboard:</u>				
4				
	No	16		
System 1000 vitreous enamel magnetic chalkboards 1140 x 2400mm long complete with aluminium chalkrail, etc, fixed adjacent to similar unit to form panel 4800mm long, including fixing to brickwork, etc				
	A	12	B	4
<u>SANS approved pinning board:</u>				
5				
	No	8		
"Flortime Premier" carpet faced wall mounted pinning board with anodised aluminum channel surround, 1800 x 1200mm high all fixed in strict accordance with the Manufacturer's instructions.				
	A	6	C	2
<u>SANS approved combi boards</u>				
6				
	No	8		
Combi board with and including anodised aluminium frame side 2000mm x 1200mm high plugged				
	A	6	B	2
	Carried to Collection			R
Section No. 2				
Bill No. 9				
Ironmongery				

Amount

BILL NO. 9
IRONMONGERY
COLLECTION

Page No

Brought Forward from Page

67

68

Carried To Section Summary

R

Section No. 2
Bill No. 9
Ironmongery

Unit Quantity Rate Amount

SECTION NO. 2

EMGANGENI SECONDARY SCHOOL

BILL NO. 10

METALWORK

<u>Key:</u>	<u>Location Description:</u>
Item	Item
A	Block A - 6 CLASS
B	Block B - 2 CLASS
C	Block C - ABLUTION
Ext	External Works

The tenderer is referred to the relevant clauses in the ASAQS Model Trades Preambles 2008 and to the Supplementary Preambles which are incorporated at the back of these Bills of Quantities.

The tenderer is referred to SANS 10400 for full details of performance and specification requirements. All products and workmanship shall be in compliance with the relevant sections of SANS and approved accordingly.

SUPPLEMENTARY PREAMBLES

Descriptions of bolts, anchors, etc.

Descriptions of bolts shall be deemed to include nuts and washers

Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete

Items described as 'holed for bolt(s)' shall be deemed to exclude the bolts unless otherwise described

Items described as 'plugged' shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 600mm centres

Hot dipped galvanising:

The mass of hot dip galvanised steelwork has been calculated on the mass before galvanising and no allowance has been made for the additional mass of galvanising for which allowance must be made in pricing.

Unless otherwise stated, all steelwork described as galvanised shall be deemed to include for 'hot-dip' galvanising in accordance with the latest SANS standards.

Carried to Collection

R

Section No. 2
 Bill No. 10
 Metalwork

	Unit	Quantity	Rate	Amount
<u>Drawings:</u>				
Tenderers are to note that where descriptions include reference to drawings, notwithstanding anything contained in the descriptions, tenderers are to price these items in accordance with the drawings. Further, the onus is on the tenderer to ensure that all relevant drawings referenced in the Bills of Quantities are included in the tender documents. No additional time and/or monetary claims resulting from non-adherence to the above will be entertained.				
<u>GALVANISED STEEL GATES, SCREENS, ETC</u>				
<u>Security gates:</u>				
1				
Purpose made single hot dipped galvanised mild steel gate, 1100mm x 2125mm formed of 40 x 60 x 3mm hollow sectioned frames and midrail, filled in with 12mm solid square vertical bars at 110mm centres welded to frame and fitted with 2no. Pin type gate hinges welded to frame and pad lock plates welded to gate and plugged to walls with and including expansion joints				
	No	8		
	A	6	B	2
<u>SUNDRY STEELWORK</u>				
<u>GALVANISED PRESSED STEEL DOOR FRAMES</u>				
<u>1.2mm Double rebated frames suitable for 220mm brick walls complete with 2 brass butt hinges per door leaf with straps for building in:</u>				
2				
Frame for door 813 x 2032mm high.				
	No	8		
	A	6	B	2
<u>GALVANISED STEEL WINDOWS, DOORS, ETC</u>				
<u>Hot dipped galvanised school type windows fitted with and including 19mm mild steel flat bar burglar proofing to opening sections (As per architectural drawing No.1130.16 – 202):</u>				
3				
Window type 14BH over 9-F/LT Composite (W1) 889 x1250mm high				
	No	39		
	A	29	B	10
Carried to Collection				
Section No. 2			R	
Bill No. 10				
Metalwork				

Amount

BILL NO. 10
METALWORK
COLLECTION

Page No

Brought Forward from Page

70

71

Carried To Section Summary

R

Section No. 2
Bill No. 10
Metalwork

Unit Quantity Rate Amount

SECTION NO. 2

EMGANGENI SECONDARY SCHOOL

BILL NO. 11

PLASTERING

<u>Key:</u>	<u>Location Description:</u>
Item	Item
A	Block A - 6 CLASS
B	Block B - 2 CLASS
C	Block C - ABLUTION
Ext	External Works

The tenderer is referred to the relevant clauses in the ASAQS Model Trades Preambles 2008 and to the Supplementary Preambles which are incorporated at the back of these Bills of Quantities.

The tenderer is referred to SANS 10400 for full details of performance and specification requirements. All products and workmanship shall be in compliance with the relevant sections of SANS and approved accordingly.

SUPPLEMENTARY PREAMBLES

Method

The method to be used shall be either the monolithic method or the bonded method

Preparation

For granolithic applied monolithically, the concrete floor shall be swept clean after bleeding of the concrete has ceased and the slab has begun to stiffen; any remaining bleed water shall be removed and the granolithic applied immediately thereafter. For granolithic to be bonded to the floor slab after it has hardened, the slab surface shall be hacked (preferably by mechanical means) until all laitance, dirt, oil, etc. is dislodged and swept clean of all loose matter. The slab shall then be wetted and kept damp for at least six hours before applying the granolithic.

Mix

Granolithic shall attain a compressive strength of at least 41MPa. The coarse aggregate shall comply with SANS 1083 and shall generally be capable of passing a 10mm mesh sieve. Where the thickness of the granolithic exceeds 25mm, the size of the coarse aggregate shall be increased to the maximum size compatible with the thickness of the granolithic.

Carried to Collection

R

Section No. 2
Bill No. 11
Plastering

	Unit	Quantity	Rate	Amount
<u>Panels</u>				
Granolithic shall be laid in panels not exceeding 14m ² for monolithic finishes, not exceeding 9,5m ² for bonded finishes and not exceeding 6m ² for all external granolithic. Wherever possible, panels shall be square but at no time should the length of the panel exceed 1,5 times its width.				
Where possible joints between panels shall be positioned over joints in the floor slab and shall be at least 3mm wide through the full thickness of the finish, separated by strips of wood or fibreboard and finished with V-joints				
<u>Laying</u>				
Monolithic granolithic shall be applied to the partially set slab and thoroughly compacted and lightly wood floated to the required levels				
Bonded granolithic shall be applied to the slab after applying a 1:1 sand-and-cement slurry brushed over the surface and allowed to partially set before applying the granolithic. The granolithic shall be thoroughly compacted and lightly wood floated to the required levels				
After wood floating, the monolithic and bonded granolithic shall remain undisturbed until bleeding has ceased and the surface has stiffened. Any remaining bleed water and laitance shall then be removed and the surface steel trowelled or power floated				
<u>Curing, seasoning and protection</u>				
Granolithic shall be covered with clean hessian with waterproof building foil over and kept wet for at least seven days after laying.				
<u>Colour</u>				
Coloured granolithic shall be tinted with an approved colouring pigment mixed into a true and even colour.				
<u>SCREEDS</u>				
<u>Screeds wood floated, on concrete</u>				
1		Average 25mm thick on floors with upper surface to falls	m ²	580
		A 420 B 160		
<u>INTERNAL PLASTER</u>				
<u>Cement plaster, on brickwork</u>				
2		On walls	m ²	105
		A 94 B 11		
3		On narrow widths	m ²	9
		A 7 B 2		
Carried to Collection				
Section No. 2				
Bill No. 11				
Plastering				
			R	

	Unit	Quantity	Rate	Amount
<u>EXTERNAL PLASTER</u>				
<u>Cement plaster wood floated, on brickwork</u>				
4 On walls	m ²	42		
A 42				
Carried to Collection			R	
Section No. 2				
Bill No. 11				
Plastering				

Amount

BILL NO. 11
PLASTERING
COLLECTION

Page No

Brought Forward from Page

73

74

75

Carried To Section Summary

R

Section No. 2
Bill No. 11
Plastering

Unit Quantity Rate Amount

SECTION NO. 2

EMGANGENI SECONDARY SCHOOL

BILL NO. 12

PLUMBING AND DRAINAGE

<u>Key:</u>	<u>Location Description:</u>
Item	Item
A	Block A - 6 CLASS
B	Block B - 2 CLASS
C	Block C - ABLUTION
Ext	External Works

The tenderer is referred to the relevant clauses in the ASAQS Model Trades Preambles 2008 and to the Supplementary Preambles which are incorporated at the back of these Bills of Quantities.

The tenderer is referred to SANS 10400 for full details of performance and specification requirements. All products and workmanship shall be in compliance with the relevant sections of SANS and approved accordingly.

SUPPLEMENTARY PREAMBLES

Wire gratings

Descriptions of gutter outlets etc. shall be deemed to include wire balloon gratings

Stormwater channels

Descriptions of channels shall be deemed to include necessary excavation, surface preparation, compaction, etc., and disposal of surplus material on site

French drains

Descriptions of French drains shall be deemed to include excavation, stone filling graded from 300mm diameter at bottom to 75mm diameter at top, geofabric filter blanket over stone, 300mm earth filling over and disposal of surplus material on site

Septic tanks

Descriptions of proprietary type septic tanks shall be deemed to include excavation, bedding and jointing, concrete base slabs, jointing to drains and backfilling, compaction, etc. all in accordance with the manufacturer's instructions and disposal of surplus material on site

Carried to Collection

R

Section No. 2
 Bill No. 12
 Plumbing And Drainage

	Unit	Quantity	Rate	Amount
<p><u>Stainless steel basins, sinks, wash troughs, urinals, etc.</u></p> <p>Stainless steel for economy basins, domestic sinks and worktops shall be Type 430 (17/0) Stainless steel for urinals, basins, quality sinks, wash troughs, institutional equipment, etc. shall be Type 304 (18/8) Stainless steel for laboratory sinks, photographic equipment, etc. shall be Type 316 (18/8) Units shall have standard aprons on all exposed edges and tiling keys against walls where applicable</p> <p><u>Sealing of edges</u></p> <p>Outer edges of sinks, basins, baths, urinals, etc. are to be sealed against adjacent surfaces with approved silicone</p> <p><u>uPVC pipes and fittings</u></p> <p>Sewer and drainage pipes and fittings shall be jointed and sealed with butyl rubber rings. Soil, waste and vent pipes and fittings shall be solvent weld jointed or sealed with butyl rubber rings</p> <p><u>uPVC pressure pipes and fittings</u></p> <p>Pipes of 50mm diameter and smaller shall be plain ended with solvent welded uPVC loose sockets and fittings. Pipes of 63mm diameter and greater shall have sockets and spigots with push-in type integral rubber ring joints. Bends shall be uPVC and all other fittings shall be cast iron, all with similar push-in type joints</p> <p><u>High density polyethylene (HDPE) pipes and fittings</u></p> <p>Pipes shall be type IV and of the class specified with Plasson or Alprene compression fittings</p> <p><u>Polypropylene pipes</u></p> <p>Polypropylene pipes 54mm diameter and smaller shall be seamless copper coloured Class 16 pipes jointed with Fast-fuse heat welded thermoplastic or where so described Polylock compression fittings Pipes shall be firmly fixed to walls, etc. with coloured nylon snap-in pipe clips with provision for accommodating thermal movement and jointed and fixed strictly in accordance with the manufacturer's instructions</p>				
<p style="text-align: right;">Carried to Collection</p> <p>Section No. 2 Bill No. 12 Plumbing And Drainage</p>			R	

	Unit	Quantity	Rate	Amount
<p><u>Copper pipes</u></p> <p>Pipes shall be hard drawn and half-hard Maksal pipes of the class described. Class 0 (thin walled hard drawn) pipes shall not be bent. Class 1 (thin walled half-hard), Class 2 (half-hard) and Class 3 (heavy walled half-hard) pipes shall only be bent with benders with inner and outer formers. Fittings to copper waste, vent and anti-syphon pipes, capillary solder fittings and compression fittings shall be SANS approved. Capillary solder fittings shall comply with ISO 2016</p> <p>Copper pipes are to be installed in accordance with the latest revision of the Code of Practice for Copper Plumbing soldering techniques. Flux, solder, etc. to be strictly in accordance with the manufacturer's requirements with special attention to copper flux composition</p> <p><u>Reducing fittings</u></p> <p>Where fittings have reducing ends or branches they are described as 'reducing' and only the largest end or branch size is given. Should the contractor wish to use other fittings and bushes or reducers he may do so on the understanding that no claim in this regard will be entertained</p> <p><u>Fixing of pipes</u></p> <p>Unless specifically otherwise stated, descriptions of pipes shall be deemed to include fixing to walls, etc., casting in, building in or suspending not exceeding 1m below suspension level</p> <p><u>Paper wrapping to pipes</u></p> <p>Pipes chased into brickwork must be wrapped with two layers of stout brown paper tied with wire. Rates are to include for wrapping around joints and fittings</p> <p><u>Disinfection of water pipework</u></p> <p>Water pipework is to be disinfected at completion in accordance with SABS 1200L (provision for disinfection elsewhere)</p> <p><u>Densyl petrolatum anti-corrosion tape</u></p> <p>Pipes to be taped shall be coated with the appropriate primer and the tape shall be applied in the appropriate widths and with 25% overlaps. Couplings and fittings to pipes shall be taped in strict accordance with the manufacturer's instructions including mastic, tape, Layflat sheeting, securing of same, etc.</p> <p>Prices for wrapping of pipes shall include for all work as described to couplings in the length</p>				
			Carried to Collection	R
<p>Section No. 2 Bill No. 12 Plumbing And Drainage</p>				

Amount

BILL NO. 12

PLUMBING AND DRAINAGE

COLLECTION

Page No

Brought Forward from Page

77

78

79

80

81

Carried To Section Summary

R

Section No. 2
Bill No. 12
Plumbing And Drainage

	Unit	Quantity	Rate	Amount
<u>SECTION NO. 2</u>				
<u>EMGANGENI SECONDARY SCHOOL</u>				
<u>BILL NO. 13</u>				
<u>GLAZING</u>				
<u>Key:</u>	<u>Location Description:</u>			
Item	Item			
A	Block A - 6 CLASS			
B	Block B - 2 CLASS			
C	Block C - ABLUTION			
Ext	External Works			
<p>The tenderer is referred to the relevant clauses in the ASAQS Model Trades Preambles 2008 and to the Supplementary Preambles which are incorporated at the back of these Bills of Quantities.</p> <p>The tenderer is referred to SANS 10400 for full details of performance and specification requirements. All products and workmanship shall be in compliance with the relevant sections of SANS and approved accordingly.</p>				
<u>SUPPLEMENTARY PREAMBLES</u>				
<u>Float glass</u>				
The term 'float glass' is used for monolithic annealed glass				
<u>Laminated glass</u>				
Laminated glass to have polyvinyl butyral (PVB) interlayer(s)				
<u>Certificate</u>				
Rates for glazing shall include for the relevant glazing certificates to be issued at completion of project				
<u>GLAZING TO STEEL WITH PUTTY</u>				
<u>6.38mm safety glass:</u>				
1	m ²	37		
Panes exceeding 0,5m ² and not exceeding 2m ²				
B 37				
<u>Glazing Certificate</u>				
2	Item			
Issue of AAAMSA Glass & Glazing Certificate by registered and authorised entity.				
A 1				
Carried To Section Summary				R
Section No. 2				
Bill No. 13				
Glazing				

Unit Quantity Rate Amount

SECTION NO. 2

EMGANGENI SECONDARY SCHOOL

BILL NO. 14

PAINTWORK

<u>Key:</u>	<u>Location Description:</u>
Item	Item
A	Block A - 6 CLASS
B	Block B - 2 CLASS
C	Block C - ABLUTION
Ext	External Works

The tenderer is referred to the relevant clauses in the ASAQS Model Trades Preambles 2008 and to the Supplementary Preambles which are incorporated at the back of these Bills of Quantities.

The tenderer is referred to SANS 10400 for full details of performance and specification requirements. All products and workmanship shall be in compliance with the relevant sections of SANS and approved accordingly.

SUPPLEMENTARY PREAMBLES

Proprietary items or materials:

Proprietary items or materials where specified are to be of the brand specified - or other approved - by the Head: Works.

Tenderers attention is drawn to page SP52 of the standard preambles for all trades - WB20 for all full descriptions of preparatory work to be carried out before painting commences.

SABS Specifications:

Alkali resistant plaster primer: SABS 1416

Matt or eggshell decorative paint for interior works: SABS 515

High gloss enamel paint: SABS 630 Grade I

Oil gloss enamel paint: SABS 631

Primers for wood for external work : SABS 678 type I

Primers for wood for internal work : SABS 678 type III

Zinc chromate primers for steel : SABS 679 type I

Undercoats for paints (except emulsion paint) SABS 681 Type I

Aluminium paint : SABS 682 Grade II

Roof paints: SABS 683 Type B (Oil based)

Roof paints: SABS 940 Type B (emulsion based)

Carried to Collection

R

Section No. 2

Bill No. 14

Paintwork

		Unit	Quantity	Rate	Amount
<p>Structural steel paint : SABS 684 Type B Wash primer (metal etch) : SABS 723 Varnish for interior use: SABS 887 Type I Emulsion paints : SABS 1227 (textured: internal/external) Emulsion paints : SABS 1586 (Gloss, semi gloss, Matt: internal/external) Calcium plumbate primer : SABS 912 Road marking paint: SABS 5731 Part I</p> <p><u>PREPARATORY WORK TO EXISTING WORK</u></p> <p><u>Previously painted plastered surfaces</u> Surfaces shall be thoroughly washed down and allowed to dry completely before any paint is applied. Blistered or peeling paint shall be completely removed and cracks shall be opened, filled with a suitable filler and finished smooth</p> <p><u>Previously painted metal surfaces</u> Surfaces shall be thoroughly rubbed and cleaned down. Blistered or peeling paint shall be completely removed down to bare metal</p> <p><u>Previously painted wood surfaces</u> Surfaces shall be thoroughly cleaned down. Blistered or peeling paint shall be completely removed and cracks and crevices shall be primed, filled with suitable filler and finished smooth</p> <p><u>COLOURS</u> <u>Colours, etc.</u> Unless otherwise described all paintwork shall be deemed to have a colour value in excess of 7 on the Munsell system in accordance with SANS 1091</p> <p><u>ON INTERNAL FLOATED PLASTER SURFACES</u> <u>One coat alkali resistant primer and two coats superior quality, durable and minimum 7 year warranty acrylic emulsion paint</u></p>					
1	Walls	m ²	761		
	A 579 B 182				
Carried to Collection					R
Section No. 2					
Bill No. 14					
Paintwork					

		Unit	Quantity	Rate	Amount
<u>ON EXTERNAL FLOATED PLASTER SURFACES</u>					
<u>One coat alkali resistant primer and two coats superior quality acrylic emulsion paint for interior and exterior use</u>					
2	Walls	m ²	493		
	A 335 B 158				
<u>ON INTERNAL GYPSUM PLASTER SURFACES</u>					
<u>One coat primer and two coats superior quality acrylic emulsion paint for interior and exterior use</u>					
3	Ceilings and cornices	m ²	433		
	A 325 B 108				
<u>ON FIBRE-CEMENT BOARD SURFACES</u>					
<u>One coat alkali resistant primer and two coats superior quality acrylic emulsion paint for interior and exterior use</u>					
4	Fascias and barge boards, including priming metal jointing strips	m ²	73		
	A 48 B 25				
<u>ON METAL SURFACES</u>					
<u>One coat alkyd based zinc phosphate primer and two coats premium quality polyurethane enamel paint, on steel</u>					
5	Windows	m ²	75		
	A 56 B 19				
<u>ON WOOD SURFACES</u>					
<u>One coat primer and three coats premium quality polyurethane enamel paint</u>					
6	Doors	m ²	31		
	A 23 B 8				
				Carried to Collection	
Section No. 2					
Bill No. 14					
Paintwork					
				R	

Amount

BILL NO. 14
PAINTWORK
COLLECTION

Page No

Brought Forward from Page

84

85

86

Carried To Section Summary

R

Section No. 2
Bill No. 14
Paintwork

Unit Quantity Rate Amount

SECTION NO. 2

EMGANGENI SECONDARY SCHOOL

BILL NO. 15

EXTERNAL WORKS

<u>Key:</u>	<u>Location Description:</u>
Item	Item
A	Block A - 6 CLASS
B	Block B - 2 CLASS
C	Block C - ABLUTION
Ext	External Works

The tenderer is referred to the relevant clauses in the ASAQS Model Trades Preambles 2008 and to the Supplementary Preambles which are incorporated at the back of these Bills of Quantities.

The tenderer is referred to SANS 10400 for full details of performance and specification requirements. All products and workmanship shall be in compliance with the relevant sections of SANS and approved accordingly.

Explosives

No explosives whatsoever may be used for demolition purposes unless otherwise stated

General

The contractor shall carry out the whole of the works with as little mess and noise as possible and with minimum disturbance to adjoining classroom blocks and their students. He shall provide proper protection and provide, erect and remove when directed, any temporary tarpaulins that may be necessary during the progress of the works, all to the satisfaction of the principal agent

Water supply pipes and other piping that may be encountered and found necessary to disconnect or cut, shall be effectually stopped off or grubbed up and removed, and any new connections that may be necessary shall be made with proper fittings, to the satisfaction of the principal agent

Removal of materials:

Where removal is included in the heading, sub-heading or item description, prices shall be deemed to include for the necessary costs in removal and appropriate disposal of materials including but not limited to labour, transportation and disposal costs. No further claims in this regard will be entertained.

Carried to Collection

R

Section No. 2
 Bill No. 15
 External Works

	Unit	Quantity	Rate	Amount
<u>DEMOLITIONS</u>				
<u>Demolish and remove:</u>				
1	No	1		
Simple structure ablution block, size approximately 8,00 x 3,00m on plan and approximately 3m high at eaves, including grubbing up and removing of all foundations and foundation walls, filling in trenches with imported G5 fill material and compacting to minimum 98% Mod AASHTO density, and levelling and compacting area of existing building all to engineers approval.				
Ext 1				
2	No	1		
Simple structure tank stand, size approximately 2,50 x 2,50m on plan and approximately 1100m high, including grubbing up and removing of all foundations and foundation walls, filling in trenches with imported G5 fill material and compacting to minimum 98% Mod AASHTO density, and levelling and compacting area all to engineers approval.				
Ext 1				
<u>THE FOLLOWING IN INTERLOCKING BLOCK RETAINING STRUCTURES DESIGNED, SUPPLIED AND INSTALLED COMPLETE BY THE MANUFACTURE OR APPROVED AGENT</u>				
<u>Earthworks (CPAP Work Group 104)</u>				
<u>Excavations</u>				
3	m ³	23		
Excavate in soft excavations and compacted fill material for surface trenches not exceeding 2m deep and deposit on the site				
Ext 23				
4	m ³	1		
Backfilling from excavations to trenches and holes compacted to 98% MOD AASHTO density.				
Ext 1				
<u>Extra over all excavations for carting away</u>				
5	m ³	22		
Surplus material from stock piles on site to a dumping site to be located by the contractor				
Ext 22				
<u>Risk of collapse of excavations</u>				
6	m ²	39		
Sides of trench and hole excavations not exceeding 1.5m deep				
Ext 39				
<u>Concrete (CPAP Work Group No. 110)</u>				
<u>Unreinforced concrete 15MPa/19mm in :</u>				
7	m ³	2		
Blinding				
Ext 2				
Carried to Collection			R	
Section No. 2				
Bill No. 15				
External Works				

	Unit	Quantity	Rate	Amount
<u>Unreinforced concrete 25MPa/19mm in :</u>				
8 Strip footings	m ³	10		
Ext 10				
<u>Test Cubes</u>				
9 Making and testing 150 x 150 x 150mm concrete strength test cube (Provisional)	No	6		
Ext 6				
<u>"Loffelstein" Precast concrete interlocking planter blocks finished smooth on exposed surfaces. (Work Group No. 112)</u>				
10 Retaining structure with stepped face and curves as required to suit slopes using type L300 interlocking planter blocks laid with horizontal bed joints including backfilling with selected earth obtained from the excavations and filling the blocks with gar in superstructure	m ²	65		
Ext 65				
11 Retaining structure with stepped face and curves as required to suit slopes using type L500 interlocking planter blocks laid with horizontal bed joints including backfilling with selected earth obtained from the excavations and filling the blocks with gar in foundations	m ²	33		
Ext 33				
<u>Course river sand filling supplied by the contractor</u>				
12 Behind retaining wall compacted to 95% MOD AASHTO density	m ³	7		
Ext 7				
<u>Slotted PVC-U flexible drainage pipes</u>				
13 100mm Pipes laid behind loffelstein	m	65		
Ext 65				
14 50mm Diameter weep pipe approximately 1200mm long through loffelstein wall, including 110mm Diameter junction, 110mm long eccentric reducer spigot and socket, riversand blinding and wrapped in U14 bidim (A2) fabric or other approved high strength needle punched and polyester non-woven geotextile bidim	No	14		
Ext 14				
<u>Extra over slotted PVC-U flexible drainage pipes for fittings</u>				
15 100mm Bend	No	2		
Ext 2				
16 100mm End cap	No	4		
Ext 4				
Carried to Collection			R	
Section No. 2				
Bill No. 15				
External Works				

		Unit	Quantity	Rate	Amount
<u>THE FOLLOWING IN 5 No NEW WATER TANKS AND PLINTHS TO WATER STORAGE TANKS</u>					
<u>Earthworks</u>					
17	Excavation in earth not exceeding 2m deep for trenches Ext 14	m ³	14		
18	Extra over all excavation for loading, carting and dumping surplus excavated material (no allowance made for increase in bulk) off site to a dump site to be located by the contractor Ext 14	m ³	14		
19	Earth filling of G7 material in accordance with SABS 1200 DM, compacted to 98% MOD AASHTO density in trenches and under surface beds Ext 8	m ³	8		
20	Risk of collapse to sides of trenches and hole excavations not exceeding 2m deep Ext 46	m ²	46		
21	Compaction of ground surface under floors etc including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 93% MOD AASHTO density Ext 25	m ²	25		
22	Approved brand of anti-termite soil poison applied by a registered pest control company and guaranteed against termite infestation for 10 years under floors, steps, paving, etc. Ext 25	m ²	25		
23	Ditto but to bottoms and sides of trenches Ext 70	m ²	70		
<u>Soil Poisoning Certificate</u>					
24	Issue of Soil Poisoning Certificate by registered and authorised entity. A 1	Item			
<u>Concrete, Formwork and Reinforcement</u>					
25	15 Mpa/19mm unreinforced concrete in blinding Ext 1	m ³	1		
26	25 Mpa/19mm unreinforced concrete in footings Ext 5	m ³	5		
27	25 Mpa/19mm reinforced concrete in surface beds Ext 4	m ³	4		
Carried to Collection					
Section No. 2					
Bill No. 15					
External Works					
				R	

		Unit	Quantity	Rate	Amount
<u>Tanks, etc</u>					
Water storage tanks shall carry a minimum 8 year manufacturer guarantee, which certificate shall be handed over to the Client upon practical completion					
39	PVC rainwater harvesting 5000 litre water tank, complete with vermin proof lid, inlets, outlets, etc. and anchored down with and including 4mm diameter galvanised mild steel wire loop double and fixed to top of tank with 15mm diameter rubber hose as sleeve, and anchored to top of concrete plinth with and including 4 No. Y10 high tensile steel reinforcement rods cast into concrete plinth	No	5		
	Ext 5				
40	20 mm diameter PVC ball valve with an including reducing bushes fixed with 90 degree PVC screw elbow, fitting into and including a 22mm extension pipe approximately 250mm long including barrel, nipple and socket and 3mm galvanised steel plate support, with 1 No. 23mm diameter hole at top for pipe inlet and 2no 18mm diameter holes at bottom for and including 2 No. M18 x 15mm rawl bolts cast into concrete plinths (Concrete plinth elsewhere measured)	No	5		
	Ext 5				
41	25mm polypropylene pipes	m	30		
	Ext 30				
42	Extra over 25mm Polypropylene pipes for fitting	No	15		
	Ext 15				
<u>THE FOLLOWING IN STORMWATER CHANNELS TO BUILDINGS</u>					
<u>Earthworks</u>					
43	Excavation in earth not exceeding 2m deep to reduce levels	m ³	193		
	Ext 193				
44	Extra over excavations for carting away excavated material to a dumping site to be located by the contractor	m ³	193		
	Ext 193				
45	Compaction of ground surface under floor, etc including scarrying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 98% MOD AASHTO Density	m ²	644		
	Ext 644				
46	Earth filling of G5 material in accordance with SABS 1200 DM, compacted to 98% MOD AASHTO density in under floors	m ³	97		
	Ext 97				
Carried to Collection					
Section No. 2					
Bill No. 15					
External Works					
				R	

		Unit	Quantity	Rate	Amount
47	Approved brand of anti-termite soil poison applied under floors by a registered pest control company and guaranteed against termites infestation for 10 years Ext 644 <u>Soil Poisoning Certificate</u>	m ²	644		
48	Issue of Soil Poisoning Certificate by registered and authorised entity. A 1 <u>Reinforced concrete cast in-situ channels:</u>	Item			
49	2000mm Wide x 130mm thick overall mesh reinforced concrete "V"-shaped stormwater channels(1000mm wide) and apron slab (1000mm wide) combination of 25 Mpa/19mm concrete construction, "V" -shaped stormwater channel section to be 100mm thick at centre of 500mm wide adjacent surfaces, and both "V" -shaped stormwater channel and apron slab with and including Ref 193 mesh reinforcement, 250 micron waterproof sheeting and rough formwork (Degree of Accuracy III) not exceeding 300mm high extreme to vertical edges of channels and apron slabs. Channels and apron slabs to be cast in 1000mm long panels, with and including bitumen impregnated fibreboard joints between adjacent panels and between panels and adjacent brick walls with approved joint sealant to all joints, and the whole to have a wood floated finish Ext 322	m	322		
50	Ditto, but 3000mm Wide Ext 30	m	30		
51	Extra over 2000mm wide concrete stormwater channel for corner Ext 20 <u>THE FOLLOWING IN STAIRS</u> <u>Earthworks</u>	No	20		
52	Excavation in earth not exceeding 2m deep to reduce levels Ext 4	m ³	4		
53	Extra over excavations for carting away excavated material to a dumping site to be located by the contractor Ext 4	m ³	4		
54	Compaction of ground surface under floor, etc including scarrying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 98% MOD AASHTO Density Ext 4	m ²	4		
Carried to Collection				R	
Section No. 2					
Bill No. 15					
External Works					

		Unit	Quantity	Rate	Amount
55	Approved brand of anti-termite soil poison applied under floors by a registered pest control company and guaranteed against termites infestation for 10 years Ext 4	m ²	4		
	<u>Soil Poisoning Certificate</u>				
56	Issue of Soil Poisoning Certificate by registered and authorised entity. A 1	Item			
	<u>Concrete, Formwork and Reinforcement</u>				
57	25 Mpa/19mm reinforced concrete in steps Ext 2	m ³	2		
	<u>Test Cubes</u>				
58	Making and testing 150 x 150 x 150mm concrete strength test cube (Provisional) Ext 3	No	3		
59	Finishing top surface of concrete smooth with a wood float Ext 11	m ²	11		
60	Rough formwork (Degree of accuracy III) in narrow widths not exceeding 300mm wide to sides of steps Ext 16	m	16		
61	Ref 395 Mesh reinforcement to staircase Ext 4	m ²	4		
	<u>THE FOLLOWING IN SITE WORKS</u>				
62	Excavation in earth not exceeding 2m deep to reduce levels under pavings and stockpile on site Ext 177	m ³	177		
63	Take from stockpile and spread and consolidate topsoil over site including compaction to 93% Mod AASHTO density Ext 177	m ³	177		
64	Compaction of ground surface under floors etc including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 93% MOD AASHTO density Ext 591	m ²	591		
65	Earth filling of approved G5 material in accordance with the relevant part of SANS 10400, supplied by the contractor and filled to the defined levels and compacted to minimum 95% MOD AASHTO density. Ext 177	m ³	177		
	Carried to Collection				
	Section No. 2				
	Bill No. 15				
	External Works				
				R	

		Unit	Quantity	Rate	Amount
66	Earth filling of approved G2 material in accordance with the relevant part of SANS 10400, supplied by the contractor and filled to the defined levels and compacted to minimum 98% MOD AASHTO density. Ext 89	m ³	89		
67	Coarse river sand filing under floors etc. supplied by the contractor Ext 59	m ³	59		
68	In-situ dry density test in accordance with method A10(b) of TMH1 Ext 30	No	30		
69	Maximum dry density test and optimum moisture content test in accordance with method A7 of TMH1 Ext 30	No	30		
	<u>THE FOLLOWING IN HEADWALLS</u>				
	<u>Excavation in earth not exceeding 2m deep:</u>				
70	Trenches Ext 1	m ³	1		
71	Holes Ext 5	m ³	5		
	<u>Extra over all excavations for carting away:</u>				
72	Surplus material from excavations and/or stockpiles on site, to a dumping site to be located by the contractor Ext 4	m ³	4		
	<u>Risk of collapse</u>				
73	Sides of trenches and hole excavations not exceeding 1.5m deep Ext 16	m ²	16		
	<u>Earth filling obtained from the excavations and/or prescribed stockpiles on site, compacted to 95% MOD AASHTO</u>				
74	Backfilling behind retaining walls Ext 1	m ³	1		
	<u>Compaction of surfaces</u>				
75	Compaction of ground surface under floors etc including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 95% MOD AASHTO density Ext 5	m ²	5		
	Carried to Collection			R	
	Section No. 2				
	Bill No. 15				
	External Works				

		Unit	Quantity	Rate	Amount
	<u>Stone pitching of approximately 19mm diameter river stones tightly packed including preparation of ground surface under;</u>				
76	Against cut-off walls Ext 5	m ³	5		
	<u>Soil insecticide in accordance with SANS 5859:</u>				
77	Under floors etc including forming and poisoning shallow furrows against foundation walls etc, filling in furrows and ramming Ext 6	m ²	6		
78	To bottom of and sides of trenches, etc Ext 16	m ²	16		
	<u>Soil Poisoning Certificate</u>				
79	Issue of Soil Poisoning Certificate by registered and authorised entity. A 1	Item			
	<u>25MPa/19mm Concrete:</u>				
80	Strip footings Ext 1	m ³	1		
81	Surface beds Ext 1	m ³	1		
82	Splitter blocks Ext 1	m ³	1		
	<u>Test Cubes</u>				
83	Making and testing 150 x 150 x 150mm concrete strength test cube (Provisional) Ext 3	No	3		
	<u>Finishing concrete smooth with a power float</u>				
84	Surface beds, etc to falls Ext 6	m ²	6		
	<u>Rough formwork to sides</u>				
85	Sides of splitter blocks not exceeding 300mm high Ext 5	m	5		
	<u>Fabric reinforcement:</u>				
86	Type 193 fabric reinforcement in concrete surface beds, etc Ext 9	m ²	9		
	<u>Brickwork of NFP bricks (14 MPa nominal compressive strength) in class II mortar</u>				
87	One brick walls Ext 3	m ²	3		
	Carried to Collection			R	
	Section No. 2				
	Bill No. 15				
	External Works				

	Unit	Quantity	Rate	Amount
<u>Extra Over face bricks pointed with flush horizontal and vertical joints</u>				
88 One brick wall pointed both sides Ext 3	m ²	3		
<u>Brick-on-edge header course copings, sills, etc of "Corobrik Firelight Satin FBX" face bricks, pointed with flush joints on all exposed faces:</u>				
89 220mm Copings on top of one brick walls Ext 2	m	2		
90 Ditto, but raking Ext 6	m	6		
<u>Sundries</u>				
91 Forming opening in one brick wall for 450mm diameter pipe, and making good all edges, etc Ext 2	No	2		
<u>2.5mm Galvanised brick reinforcement</u>				
92 150mm Wide reinforcement built in horizontally Ext 36	m	36		
<u>STORMWATER DRAINAGE (CPAP WORK GROUP NO. 146)</u>				
<u>Class 100D concrete pipes with interlocking joints</u>				
93 450mm Pipes laid in with and including trenches exceeding 1m and not exceeding 2m deep, risk of collapse, backfilling, bedding etc. Ext 30	m	30		
<u>Sumps, catchpits, inspection chambers, etc. including concrete kerbs or precast concrete cover slabs, gratings and covers</u>				
94 Construct 230mm brick catchpit approximately 1255mm x 940mm overall size on plan and approximately 1100mm high, including excavation in earth and cartaway all excess material, 25MPa concrete surface bed with 2 layers of 395 Mesh, concrete benching for 450mm diameter pipe including 520 x 790 heavy duty stormwater grating and frame all as per attached engineering drawing number 04 Ext 3	No	3		
Carried to Collection			R	
Section No. 2 Bill No. 15 External Works				

		Unit	Quantity	Rate	Amount
	<u>BUDGETARY ALLOWANCES</u>				
	<u>Bulk earthworks for the construction of a new ablution block</u>				
95	Allow the sum of R 110 000.00 (One Hundred and Ten Thousand Rand) for the bulk earthworks for the construction of a new ablution block complete.	Item			110 000 00
C	1				
Section No. 2 Bill No. 15 External Works	Carried to Collection			R	

Amount

BILL NO. 15
EXTERNAL WORKS
COLLECTION

Page No

Brought Forward from Page

88

89

90

91

92

93

94

95

96

97

98

99

Carried To Section Summary

R

Section No. 2
 Bill No. 15
 External Works

Amount

SECTION NO. 2

EMGANGENI SECONDARY SCHOOL

BILL NO. 16

PROVISIONAL SUMS

<u>Key:</u>	<u>Location Description:</u>
Item	Item
A	Block A - 6 CLASS
B	Block B - 2 CLASS
C	Block C - ABLUTION
Ext	External Works

CONSTRUCTION OF NEW ABLUTION BLOCK

1	Provide the sum of R804 000.00 (Eight Hundred and Four Thousand Rand) for the construction of a new ablution block complete.	Item	804 000 00
	C 1		
2	Profit	Item	
	C 1		
3	Attendance	Item	
	C 1		

Carried To Section Summary

R

Section No. 2
 Bill No. 16
 Provisional Sums

Amount

SECTION NO. 2

EMGANGENI SECONDARY SCHOOL

SECTION SUMMARY

Bill No.		Page
1	ALTERATIONS	46
2	EARTHWORKS	49
3	CONCRETE, FORMWORK AND REINFORCEMENT	50
4	MASONRY	53
5	ROOF COVERINGS	57
6	CARPENTRY AND JOINERY	62
7	CEILINGS PARTITIONS AND ACCESS FLOORING	65
8	FLOOR COVERINGS	66
9	IRONMONGERY	69
10	METALWORK	72
11	PLASTERING	76
12	PLUMBING AND DRAINAGE	82
13	GLAZING	83
14	PAINTWORK	87
15	EXTERNAL WORKS	100
16	PROVISIONAL SUMS	101

Carried to Final Summary

R

Section No. 2
 SECTION SUMMARY



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE
SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

PART C2.4 BILL OF QUANTITIES - ELECTRICAL WORK

WIMS NO: 063241

EMGANGENI SECONDARY SCHOOL

PREAMBLE TO THE SCHEDULE OF QUANTITIES

- 1 The General Conditions of Contract, the Special and Project Specific Conditions of Contract, the Specifications (including the Project Specifications, Technical Specifications and Additional Specifications) and the Drawings shall be read in conjunction with the Schedule of Quantities.
- 2 The Schedule comprises items covering the Contractor's profit and costs of general liabilities and of the construction of temporary and permanent Works.

Although the Tenderer is at liberty to insert a rate of his own choosing for each item in the Schedule, he should note the fact that the Contractor is entitled, under various circumstances, to payment for additional work carried out and that the Engineer is obliged to base his assessment of the rates to be paid for such additional work on the rates inserted in the schedule by the Contractor.

Where applicable, Clause 8 of each Standardised Specification, the measurement and payment clause of each Particular Specification, and the Scheduled Payment items read together with the relevant clauses of the Standard, Project, Technical and Additional Specifications, all set out which ancillary or associated activities are included in the rates for the specified operations.

For example, where PFA 04.02 and FA 15.02 appear in the "Payment Refers To" column, the specific payment item to be priced shall include all work to be done, material, labour, etc, as described and specified in the Standard and Particular Specifications, Clauses PFA 04.02 and FA 15.02. The "Payment Refer" item numbers appearing in the Schedule of Quantities thus refer to the corresponding item numbers in the Specifications.

- 3 Descriptions in the Schedule of Quantities are abbreviated and may differ from those in the Standardised Specifications. No considerations will be given to any claim submitted on these bases. Should any requirements of the measurement and payment clause of the appropriate Standardised Specification(s) be contrary to the terms of the Schedule, the requirement of the appropriate Standard, Project, Particular, Technical or Additional Specification as the case may be, shall prevail.
- 4 Unless stated to the contrary, items are measured nett in accordance with the Drawings without any allowance having been made for waste.
- 5 The amounts and rates to be inserted in the Schedule of Quantities shall be the full inclusive amounts to the Employer for the work described under the several items. Such amounts shall cover all the costs and expenses that may be required in and for the construction of the work described, and shall cover the costs of all general risks, profits, taxes (but excluding value-added tax), liabilities and obligations set forth or implied in the documents on which the Tender is based.
- 6 An amount or rate shall be entered against each item in the Schedule of Quantities, whether or not quantities are stated. An item against which no amount or rate is entered will be considered to be covered by the other amounts or rates in the Schedule.

Should the Tenderer group a number of items together and tender one lump sum for such group of items, the single tendered lump sum shall apply to that group of items and not to each individual item, or should he indicate against any item that full compensation for such item has been included in another item, the rate for the item included in another item shall be deemed to be nil.
- 7 The Tenderer shall enter a rate or lump sum for each item in the Schedule of Quantities in BLACK INK.
- 8 The Tenderer is also referred to paragraph 7.2 of form PW 782 (07/99): Conditions of Tender, enclosed to the Tender documents.

Phase 14: Storm Damage Programme: Repairs and Renovations To Storm Damage Schools
Throughout The Province Of Kwazulu Natal Southern Region

**SCHEDULE NO 3: INSTALLATION B: 2) ELECTRICAL DISTRIBUTION SYSTEM - ELECTRICAL WORK
EMGANGENI SECONDARY SCHOOL**

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	TOTAL
A	<u>LOW VOLTAGE CABLE</u> Provide, install, test and commission the following 1000V PVC/SWA/PVC copper cables. Prices shall allow for the installation of cables in cable ducts, through sleeves, conduit or installation against vertical and horizontal levels.				
1	10mm ² x 3 Core ECC Copper Cable	Supply Install	m m	100 100	
2	6mm ² x 3 Core ECC Copper Cable	Supply Install	m m	80 80	
3	2.5mm ² x 3 Core ECC Copper Cable	Supply Install	m m	70 70	
B	<u>TERMINATIONS</u> Terminate and make off the following 1000V PVC/SWA/PVC cables in a cable gland according to the manufacturer's instructions. Provide the cores with lugs and bolt onto terminals. The cable gland and marking of the cable shall also be allowed for.				
1	10mm ² x 3 Core ECC Copper Cable	Supply Install	ea ea	4 4	
2	6mm ² x 3 Core ECC Copper Cable	Supply Install	ea ea	4 4	
3	2.5mm ² x 3 Core ECC Copper Cable	Supply Install	ea ea	4 4	
C	<u>CABLE SLEEVES</u> Provide and install the following UPVC sleeves in the ground complete with mild-steel draw wire.				
1	50mm Sleeves	Supply Install	m m	160 160	
2	50mm Bends	Supply Install	ea ea	6 6	
3	Electrical 800 x 800 x 600mm double brick manhole complete with cover	Supply Install	ea ea	3 3	
Carried forward to page					

Phase 14: Storm Damage Programme: Repairs and Renovations To Storm Damage Schools
Throughout The Province Of Kwazulu Natal Southern Region

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
Brought forward from page					
D	<u>DISTRIBUTION BOARDS.</u> New distribution boards, kiosks, etc., supplied and installed in position, complete with all busbar work, switchgear, terminals, wiring, lacing, conduit terminations, meters, and all other items, including full labelling and legend card, all in accordance with the Schematic drawings:				
1	DB-A	Supply Install	ea ea	1 1	
2	DB-B	Supply Install	ea ea	1 1	
3	DB-C(Weatherproof)	Supply Install	ea ea	1 1	
4	DB-D(Weatherproof)	Supply Install	ea ea	1 1	
E	<u>EXCAVATIONS</u> All prices below shall include the excavation of trenches and holes, separating of stones, their original finish.				
1	Excavate in soft ground		m ³	80	
2	Excavate in soft rock		m ³	30	
3	Excavate in hard rock		m ³	10	
4	Supply cable marker tape & Install 400mm below finished ground level.		m	250	
F	<u>REMOVAL OF EXISTING ELECTRICAL INSTALLATION</u>				
1	Removal of existing Electrical installation in Block A		Sum	1	
2	Removal of existing Electrical installation in Block B		Sum	1	
3	Removal of existing Electrical installation in Block C		Sum	1	
Carried forward to page					

Phase 14: Storm Damage Programme: Repairs and Renovations To Storm Damage Schools
Throughout The Province Of Kwazulu Natal Southern Region

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
Brought forward from page					
G	LIGHTNING PROTECTION INSTALLATION AND ISSUING OF CERTIFICATE				
1	Allow for the execution of a Soil Resistivity Survey for the site and for submitting a copy of the reports to the Engineer.	Sum	1		
2	Allow for the testing of the complete installation, including lightning protection earth electrodes and the issuing of test certificates	No	4		
3	50mm PVC insulated for bonding down conductors to earth rods, etc. inclusive of lugs, ferrules, bolts, etc.	m	272		
4	Supply and install corrosion resistant stainless steel terminal for roof connection points and aluminium bond to take aluminium down conductor from roof terminals.	No	18		
5	Supply and Install ferrules and lugs for bonding of any metalwork to air terminal system.	No	38		
6	Supply and install 1.5m copper 16mm diameter earth rods driven into the ground including jointing to copper bonding conductor.	No	18		
7	Supply and install test point connection in each down conductor COMPLETE with 132x82x55mm deep screw lid enclosure.	No	18		
8	Supply and Install 25mm pvc pipe	m	88		
9	Supply and Install 50mm aluminium conductor	m	272		
H	<u>SITE EXTERIOR LIGHTING</u> Luminaires and accessories supplied complete with lamps. All fittings to carry the SABS mark.				
1	Type G, Complete with 4 meter Fibre glass pole	Supply Install	ea ea	2 2	
2	Photo electric-cell complete with 20A contactor	Supply Install	ea ea	1 1	
Carried forward to page					

Phase 14: Storm Damage Programme: Repairs and Renovations To Storm Damage Schools
Throughout The Province Of Kwazulu Natal Southern Region

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
Brought forward from page					
I	Testing and Commissioning Electrical Installation, Cables Distribution Boards and Issuing COC as per SANS 10142.				
1	Block A (DB-A)	Ea	1		
2	Block B (DB-B)	Ea	1		
3	Block C (DB-C)	Ea	1		
4	Block C (DB-C)	Ea	1		
J	5% Allowance for builders work	Sum	1		
Carried forward to the summary page for electrical					

Phase 14: Storm Damage Programme: Repairs and Renovations To Storm Damage Schools
Throughout The Province Of Kwazulu Natal Southern Region

SCHEDULE NO 4: INSTALLATION C: 2) ELECTRICAL INSTALLATION IN BUILDINGS - WORK					
EMGANGENI SECONDARY SCHOOL: BLOCK A, B, C and D					
ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
A CONDUIT					
1	20mm Diameter PVC Conduit	Supply	m	1200	
		Install	m	1200	
2	25mm Diameter PVC conduit	Supply	m	600	
		Install	m	600	
B CIRCUIT WIRING					
The supply and installation in conduit of stranded copper PVCinsulated conductors in groups.					
1	2 x 1.5mm ² and 2.5mm ² earth wire	Supply	m	3600	
		Install	m	3600	
2	2 x 2.5mm ² and 2.5mm ² earth wire	Supply	m	1800	
		Install	m	1800	
3	Draw wire	Supply	m	1800	
		Install	m	1800	
C CONDUIT BOXES					
1	50mm round PVC surface box	Supply	ea	80	
		Install	ea	80	
2	100 x 50 x 50mm galvanised box flush in brickwork	Supply	ea	13	
		Install	ea	13	
3	100mm x 100mm x 50mm galvanised box box cover plate	Supply	ea	11	
		Install	ea	11	
D LIGHT FITTINGS					
Luminaires and accessories supplied complete with lamps. Refer to Luminaire Schedule for detail description of light fittings. All fittings to carry the SABS mark.					
1	Type A luminaires	Supply	ea	30	
		Install	ea	30	
Carried forward to page					

Phase 14: Storm Damage Programme: Repairs and Renovations To Storm Damage Schools
Throughout The Province Of Kwazulu Natal Southern Region

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
Brought forward from page					
2	Type B luminaires	Supply Install	ea ea	28 28	
3	Type E luminaires	Supply Install	ea ea	12 12	
E	<u>SMALL POWER</u> Supply and installation complete with all covers and fixings.				
1	Photo electric-cell with 65mm deep conduit box	Supply Install	ea ea	2 2	
2	Supply & Install 20A Double Pole , 220V Contactor	Supply Install	ea ea	2 2	
3	16A Double Socket Outlet in box	Supply Install	ea ea	11 11	
4	16A single lever one way light switch	Supply Install	ea ea	13 13	
5	16A single lever one way weather proof light switch	Supply Install	ea ea	2 2	
6	Siren complete with all necessary equipment for wiring	Supply Install	ea ea	1 1	
F	Earthing and bonding of complete installation		sum	1	
G	Test and Certify as per SANS 10142		sum	1	
H	Earth Electrode Installation		sum	1	
I	Electrical Installation to New Ablution Block Provide the sum of R 76 839.69 (Seventy Six Thousand, Eight Hundred and Thirty Nine Rand, and Sixty Nine)		sum	1	R 76 839.69
	Profit		Item	1	
	Attendance		Item	1	
Carried forward to the summary page for electrical					

EMGANGENI SECONDARY SCHOOL

SUMMARY OF ELECTRICAL INSTALLATION

ITEM NO	DESCRIPTION	AMOUNT
1	SCHEDULE NO 3: INSTALLATION B: ELECTRICAL DISTRIBUTION SYSTEM	
2	SCHEDULE NO 4: INSTALLATION C: ELECTRICAL INSTALLATION IN BUILDINGS	
	CARRIED FORWARD TO FINAL SUMMARY PAGE FOR BILLS OF QUANTITIES FOR EMGANGENI SECONDARY SCHOOL	



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE
SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

BILL OF QUANTITIES - FINAL SUMMARY

<u>Emgangeeni Summary</u>		Page	Amount
1	Preliminaries	38	
2	Storm Damage Repair	102	
5	Electrical Work	111	
	Sub Total before VAT		
	ADD VAT @ 15%		
	Carried to Form of Offer and Acceptance in Volume 1 of this Tender Document (T2,21)		R
	FINAL SUMMARY CARRIED TO FORM OF OFFER AND ACCEPTANCE		



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

PART C3. SCOPE OF WORKS

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

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

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender no:	ZNTM01263W	Project Code:	063241

1	<u>SECTION 1</u>
	<u>EXTENT OF THE WORKS</u>
	1.1 EMPLOYERS OBJECTIVES Repairs and renovations to storm damaged schools including the provision of new facilities (where applicable).
	1.2 OVERVIEW OF THE WORKS Repairs and renovations to storm damaged schools including the provision of new facilities (where applicable).
	1.3 EXTENT OF THE WORKS Refer to Bills of Quantities and attached drawings for detailed scope of work.
	1.4 LOCATION OF THE WORKS The site is situated within the premises of the Emgangeni Secondary School . The GPS co-ordinates are -30.1169 S,30.6938 E
	1.5 TEMPORARY WORKS All temporary work to comply with the Occupational Health and safety Act (Act 85 of 1993)
	2 <u>ENGINEERING</u>
	2.1 EMPLOYER'S DESIGN The Employer design and related documentation and specification is as per the Appointed Consultants.
	2.2 DESIGN BRIEF As per the drawings and specifications provided by the appointed Structural and Civil Engineer.
	2.3 DRAWINGS See list of drawings/Annexure's attached to this document.
	2.4 DESIGN PROCEDURES As per the design, documentation and specification issued by the Appointed Consultants and/or the Employer.

3

PROCUREMENT

3.1 PREFERENTIAL PROCUREMENT PROCEDURES

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. Tenderers are referred to www.kzntreasury.gov.za for access to the relevant documents. Tenderers 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.

3.2 RESOURCE STANDARD PERTAINING TO TARGETED PROCUREMENT

NOTE : This project will be adjudicated as not exceeding R 50,000 000,00

3.3 SCOPE OF MANDATORY SUBCONTRACT WORK

Not applicable

3.4 PREFERRED SUBCONTRACTORS/SUPPLIERS

Not applicable

3.5 SUBCONTRACTING PROCEDURES

Not applicable

4

CONSTRUCTION

4.1 APPLICABLE SANS 2001 STANDARDS FOR CONSTRUCTION WORKS

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.

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.

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.

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.

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.

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>4.2</p>	<p>APPLICABLE NATIONAL AND INTERNATIONAL STANDARDS</p> <p>See above 4.1</p>												
<p>4.3</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>Model Preambles for Trades 2008</td> <td>1 to 49</td> </tr> <tr> <td>General Electrical Specification</td> <td>E/1 to E/21</td> </tr> <tr> <td>Lightning Protection Installation</td> <td>LP/1 to LP/6</td> </tr> </tbody> </table>	<u>SPECIFICATION</u>	<u>PAGES</u>	Specification for HIV/AIDS Awareness (CIDB)	HIV1 TO HIV3	Specific Construction, Safety, Health and Environmental Plan		Model Preambles for Trades 2008	1 to 49	General Electrical Specification	E/1 to E/21	Lightning Protection Installation	LP/1 to LP/6
<u>SPECIFICATION</u>	<u>PAGES</u>												
Specification for HIV/AIDS Awareness (CIDB)	HIV1 TO HIV3												
Specific Construction, Safety, Health and Environmental Plan													
Model Preambles for Trades 2008	1 to 49												
General Electrical Specification	E/1 to E/21												
Lightning Protection Installation	LP/1 to LP/6												
<p>4.4</p>	<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>4.5</p>	<p>AGRÉMENT CERTIFICATES</p> <p>Not applicable</p>												
<p>4.6</p>	<p>PLANT AND MATERIAL PROVIDED BY THE EMPLOYER</p> <p>Not applicable</p>												
<p>4.7</p>	<p>SERVICES AND FACILITIES PROVIDED BY THE EMPLOYER</p> <p>Not applicable</p>												
<p>4.8</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.</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>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>5</p>	<p><u>MANAGEMENT</u></p> <p>5.1 APPLICABLE SANS 1921 STANDARDS</p> <p>Tenderders are referred to SECTION 2 : SPECIFICATION DATA ASSOCIATED WITH SANS 1921-1:2004 IN THIS DOCUMENT</p> <p>5.2 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>												

The Contractor shall allow in his programme for the following number of days for rain days (rain > 10mm per day) as per the table below:

CURRENT YEAR			YEAR + 1	YEAR + 2
January	w/days		3	3
February	w/days		3	3
March	w/days		3	3
April	w/days		3	3
May	w/days		3	3
June	w/days		3	3
July	w/days		3	
August	w/days		3	
September	w/days		3	
October	w/days		3	
November	w/days		3	
December	w/days	3	3	

5.3 MANAGEMENT MEETINGS

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.

5.4 FORMS FOR CONTRACT ADMINISTRATION

The Employer shall provide all necessary forms.

5.5 ELECTRONIC PAYMENTS

The Contractor shall provide all required information to the Employer to facilitate electronic payments upon request.

5.6 DAILY RECORDS

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.

5.7 BONDS AND GUARANTEES

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.

5.8 PAYMENT CERTIFICATES

Requirements will be in accordance with the Employers prescriptions.

<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.</p> <p>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.</p> <p>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.</p> <p>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 - Soil Protection Certificate - Concrete test and cube certificates - Waterproofing Guarantee certificates - TR1 and TR2 prefabricated roof truss certificates - Soil compaction certificates - Electrical and Mechanical test certificates - Plumbing and drainage pressure test certificates - Fire Compliance Certificate - Entomology Certificate - SANS 10400-A:2010 compliance certificates - Latest National Building Regulation
<p>5.11</p>	<p>INSURANCE PROVIDED BY THE EMPLOYER</p> <p>Not Applicable</p> <p><u>SECTION 2</u></p> <p><u>SPECIFICATION DATA ASSOCIATED WITH SANS 1921-2004</u></p>
<p>Clause Numbers</p>	<p>4.1.7 The requirements for drawings, information and calculations for which the Contractor is responsible are:</p> <p>Prefabricated roof trusses design must be submitted for approval 30 days prior to erections.</p> <p>4.2.1 The responsibility strategy assigned to the Contractor for the works is:</p> <p>Strategy A</p> <p>4.2.2 The structural engineer is:</p> <p>Architronic Consortium (Contact Person - Linda Zungu)</p> <p>4.2.3 Drawings & other info are to be submitted in accordance with the contractors programme</p> <p>N/A</p> <p>4.3 The planning, programme and method statement are to comply with the following:</p> <p>N/A</p>

<p>4.12.1</p>	<p>Samples of materials</p> <p>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. The samples of materials, workmanship and finishes that the Contractor is to provide and deliver to the employer are:</p> <ul style="list-style-type: none"> - Tile sample. - Brick sample. - Light fitting sample. - Screed panel 2m x 2m impact test. - Tested trial mix to be approved by the Engineer.
<p>4.12.2</p>	<p>Fabrication drawings that the contractor is to provide to the employer are:</p>
<p>4.12.3</p>	<p>Office accommodation, equipment, accommodation for site meetings and other facilities for use by the employer and his agents are:</p> <p>OFFICE FOR FOREMAN</p> <p>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.</p> <p>TELEPHONE</p> <p>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.</p> <p>OFFICE FOR INSPECTOR OF WORKS</p> <p>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 alterative 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.</p> <p>TELEPHONE IN OFFICE FOR INSPECTOR OF WORKS</p> <p>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>

	<p>SHED</p> <p>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:</p> <p>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:</p> <p>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:</p> <p>Investigate and provide detail drawings.</p>
<p>4.17.4</p>	<p>Requirement for detection apparatus</p> <p>None</p>
<p>4.18</p>	<p>ADDITIONAL HEALTH AND SAFETY REQUIREMENTS ARE:</p> <p>By the submission of a tender, any Tenderder 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 Tenderder 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.</p> <p>Tenderders 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 Tenderder and submitted with the other tender documents at the time of tender. Failure to do so will invalidate Tenderders 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' . Tenderders 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.</p> <p>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>
<p>4.22</p>	<p>WORK BY NOMINATED AND SELECTED SUBCONTRACTORS COMPRISE:</p> <p>As per the relevant tender returnable.</p>



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

PART 3.2 SPECIFICATION FOR HIV/AIDS AWARENESS

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.*



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

PART C3.3 - HIV/STI COMPLIANCE REPORT

C3.3 - HIV/STI COMPLIANCE REPORT

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

Project Code:

063241

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).



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE
SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

PART C4. SITE INFORMATION

C4.1 SITE INFORMATION
GCC FOR CONSTRUCTION WORKS (2 Edition of 2010)

Project title:	PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL		
Tender No.	ZNTM01263W	Project Code:	063241

C4.1 Site Information

C4.1 GENERAL

- (a) The nature of ground is assumed to be loose, sandy material, possibly interspersed with soft and hard rock.
- (b) The site is an existing, operational school. Extreme care must be taken to ensure that construction areas are kept secure and not accessible to students.
- (c) The Tenderer is to note that various blocks that are currently in use, are required to be worked on. Planning and co-ordination therefore will be required by the Contractor to ensure that school activities are not interrupted, and under no circumstances will the Contractor be allowed to utilize any occupied buildings for any purpose other than the renovation of that building.

C4.2 GEOTECHNICAL INVESTIGATION REPORT

- (a) Not applicable



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

PART C5 - DRAWINGS / ANNEXURES

<u>ANNEXURES</u>	
Annexure 1	Model Preambles for Trades 2008
Annexure 2	General Electrical Specifications
Annexure 3	Lightning Protection Specifications
Annexure 4	Map of Tender submission location
Annexure 5	Joint Venture Agreement
Annexure 6	Project Specific Health and Safety Specification
Annexure 7	Health and Safety Bill of Quantities
Annexure 8	Builders Lien Agreement
Annexure 9	EPWP Employment Contract
Annexure 10	Attendance Register - Infrastructure and Other projects
Annexure 11	EPWP Data Collection tool for Phase 3 system
Annexure 12	Project Specific Electrical Specifications



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

PROVISIONAL SITE PLAN

SCOPE OF WORKS

BLOCK A

- REMOVE DAMAGED GUTTERS AND DOWNPIPES AND REPLACE WITH NEW ALUMINIUM GUTTERS AND DOWNPIPES.
- REMOVE DAMAGED FASCIAS AND BARGE BOARDS AND REPLACE WITH NEW FASCIAS AND BARGE BOARDS.
- REMOVAL OF STORM DAMAGED ASBESTOS SHEETING, REMOVAL OF DAMAGED ROOF SHEETING/ ROOF TILES, REPLACE WITH NEW IBR SHEETING.
- TREAT ALL EXPOSED TIMBER WORK WITH CARBOLINIUM
- BUILD NEW FIRE WALLS TO UNDERSIDE OF ROOF SHEETING.
- INSTALL NEW PURLIN TO INTERIOR AND EXTERIOR OF BEAM FILLING
- PROVISION FOR SAFE DISPOSAL
- INSTALL NEW CEILINGS WITH NEW BANDERING AND CORNICES
- PAINT NEW CEILINGS
- REMOVAL OF DAMAGED WINDOWS TO AFFECTED AREAS AND REPLACE WITH NEW GLAZING AND IRONMONGERY TO MATCH EXISTING
- REMOVAL OF DAMAGED DOORS, FRAMES AND IRONMONGERY TO AFFECTED AREAS AND REPLACE WITH NEW DOORS AND IRONMONGERY TO MATCH EXISTING
- INTERNAL WALLS TO BE RE-PLASTERED TO AFFECTED AREAS AND INTERIOR WALLS TO BE PRIMED AND PAINTED
- INTERNAL PAINTING TO BE REMOVED AND PRIMER AND 2 FINISHING COAT TO BE APPLIED TO AFFECTED AREAS
- INSTALL NEW GALVANIZED SECURITY GATES TO CLASSROOMS
- REMOVE FLOOR COVERINGS AND INSTALL NEW FLOOR COVERINGS
- CONSTRUCT NEW FLOOR
- STRIP OUT EXISTING DAMAGED / UNSAFE ELECTRICAL INSTALLATION
- PROVISION FOR NEW ELECTRICAL INSTALLATION INCLUDING POWER -POINTS AND LIGHTING
- REPAIRS TO UNSAFE ELECTRICAL INSTALLATION
- PROVISION FOR LIGHTNING PROTECTION
- DILAPIDATED CHALKBOARDS TO BE REPLACED WITH NEW IN AFFECTED AREAS
- INSTALL NEW NOTICE BOARD
- RAIN WATER HARVESTING TANK ON CONCRETE PLINTH TO ENGINEER'S DETAIL AND SPECIFICATIONS
- INSTALL NEW CONCRETE APRONS

BLOCK B

- REMOVAL OF STORM DAMAGED ASBESTOS SHEETING.
- REMOVAL OF DAMAGED ROOF SHEETING/ ROOF TILES, REPLACE WITH NEW IBR SHEETING.
- REMOVE DAMAGED GUTTERS AND DOWNPIPES AND REPLACE WITH NEW ALUMINIUM GUTTERS AND DOWNPIPES
- REMOVE DAMAGED FASCIAS AND BARGE BOARDS AND REPLACE WITH NEW FASCIAS AND BARGE BOARDS.
- TREAT ALL EXPOSED TIMBER WORK WITH CARBOLINIUM.
- BUILD NEW FIRE WALLS TO UNDERSIDE OF ROOF SHEETING.
- INSTALL NEW PURLIN TO INTERIOR AND EXTERIOR OF BEAM FILLING
- INSTALL NEW CEILINGS WITH NEW BANDERING AND CORNICES
- PAINT NEW CEILINGS
- REMOVAL OF DAMAGED WINDOWS TO AFFECTED AREAS AND REPLACE WITH NEW GLAZING AND IRONMONGERY TO MATCH EXISTING
- REMOVAL OF DAMAGED DOORS, FRAMES AND IRONMONGERY TO AFFECTED AREAS AND REPLACE WITH NEW DOORS AND IRONMONGERY TO MATCH EXISTING
- INTERNAL WALLS TO BE RE-PLASTERED TO AFFECTED AREAS AND INTERIOR WALLS TO BE PRIMED AND PAINTED
- INTERNAL PAINTING TO BE REMOVED AND PRIMER AND 2 FINISHING COAT TO BE APPLIED TO AFFECTED AREAS
- INSTALL NEW GALVANIZED SECURITY GATES INTO CLASSROOMS
- STRIP OUT EXISTING DAMAGED / UNSAFE ELECTRICAL INSTALLATION
- PROVISION FOR NEW ELECTRICAL INSTALLATION INCLUDING POWER -POINTS AND LIGHTING
- REPAIRS TO UNSAFE ELECTRICAL INSTALLATION
- PROVISION FOR LIGHTNING PROTECTION
- DILAPIDATED CHALKBOARDS TO BE REPLACED WITH NEW IN AFFECTED AREAS
- INSTALL NEW NOTICE BOARD
- RAIN WATER HARVESTING TANK ON CONCRETE PLINTH TO ENGINEER'S DETAIL AND SPECIFICATIONS
- INSTALL NEW CONCRETE APRONS

BLOCK C

- NEW ABLUTION BLOCK

SITE

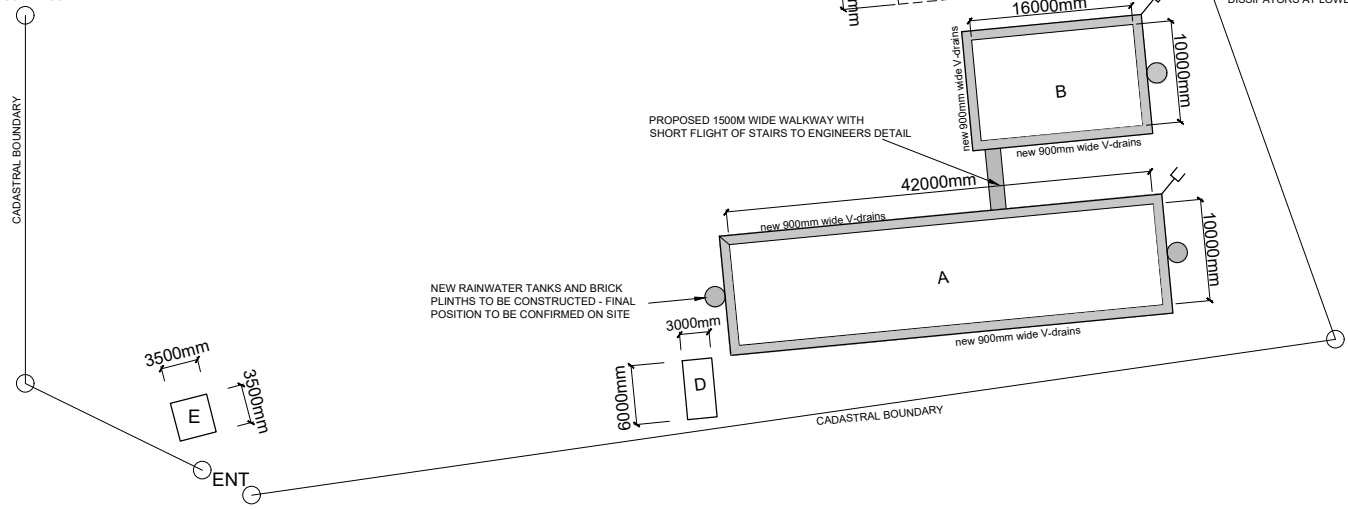
- INSTALL NEW ENTRANCE GATE AT MAIN ENTRANCE.
- CONSTRUCT NEW RETAINING WALLS
- INSTALL NEW JOJO TANKS
- REPAIRS TO EX.TANKS,TAPS AND PLINTHS
- CONSTRUCT NEW WALKWAYS



AERIAL VIEW

LEGEND:

- A - EX. 5 CLASSROOM BLOCK WITH ADMIN AND KITCHEN
- B - EX. 2 CLASSROOM BLOCK
- C - EX. MALE/FEMALE ABLUTION BLOCK (6 CUBICLES)
- D - EX. GUARD HOUSE
- E - UNUSED BUILDING



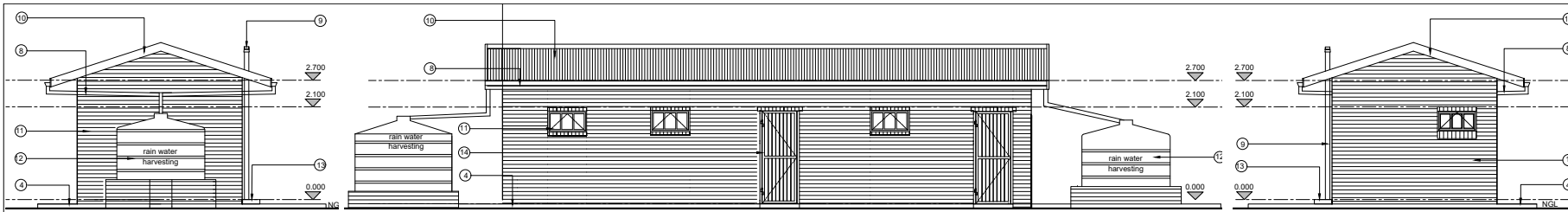
1 SITE PLAN - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SCOPE OF WORKS

GENERAL NOTES:

- ALL DAMAGED ASBESTOS ROOF SHEETING TO BE REPLACED WITH IBR 0.5 ROOF SHEETING WHERE APPLICABLE.
- DAMAGED ROOF TRUSSES TO BE REMOVED AND REPLACED WITH NEW TRUSSES WHERE APPLICABLE
- ALL DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO CONSTRUCTION OR INSTALLATION OF ANY NEW FIXTURES.
- ANY DISCREPANCIES THAT MIGHT BE FOUND TO BE REPORTED TO THE ARCHITECT IMMEDIATELY BEFORE COMMENCEMENT OF ANY WORK.
- DRAWINGS ARE NOT TO BE SCALED.
- ALL WORK IS TO BE EXECUTED IN STRICT ACCORDANCE WITH THE BY-LAWS AND REGULATIONS OF THE LOCAL AUTHORITY.
- WHERE REQUIRED, ARCHITECTS DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ENGINEERS AND OTHER CONSULTANTS DRAWINGS.



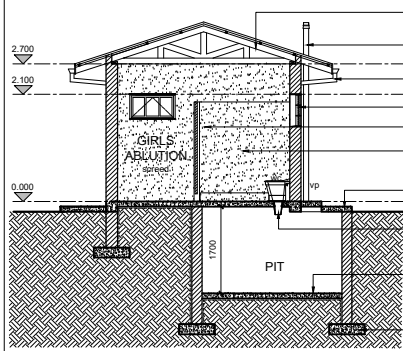
discipline		ARCHITECTURAL	
drawing title			
STORM DAMAGE SCHOOLS FOR THE DEPARTMENT OF PUBLIC WORKS AT EMGANGENI SECONDARY SCHOOL UGU DISTRICT			
VIMS NO: 063241			
PROPOSED SITE PLAN			
ref.no	000000	designed	000000
scale	AS INDICATED	drawn	R.P
date	JAN 2025	checked	MM
drawing number		241 - 201	



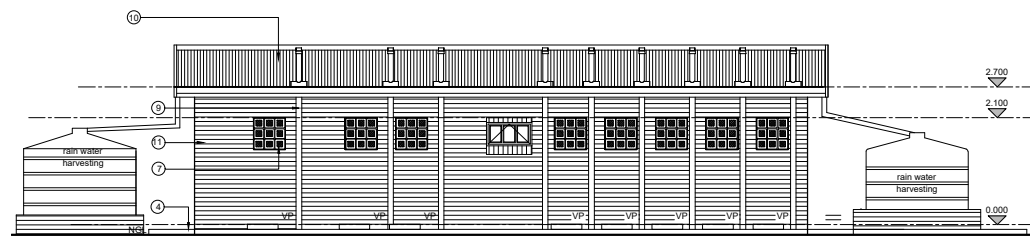
3 SIDE ELEVATION
SCALE 1:50

4 FRONT ELEVATION
SCALE 1:50

5 SIDE ELEVATION
SCALE 1:50



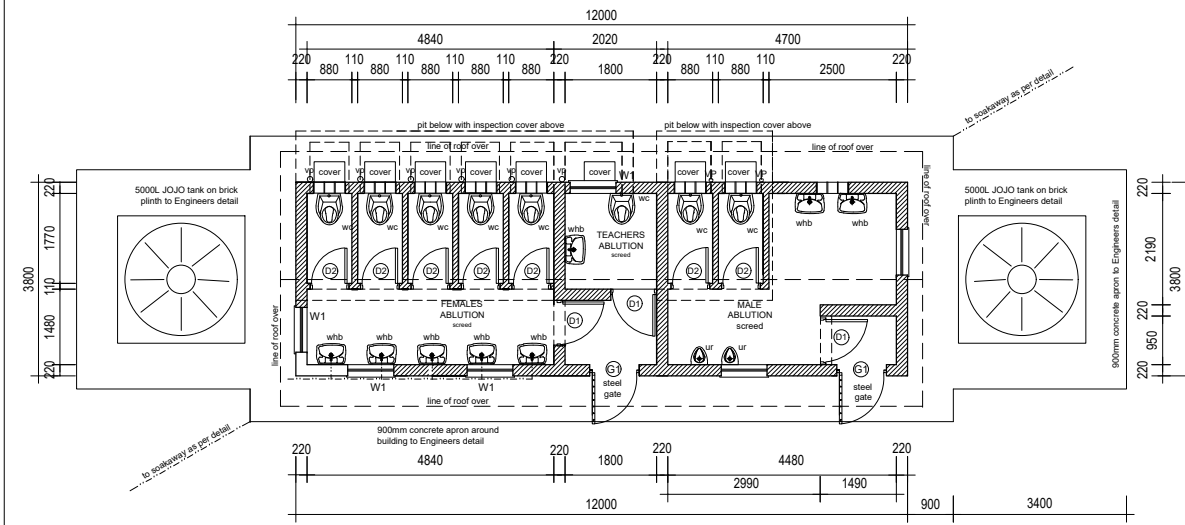
2 SECTION
SCALE 1:50



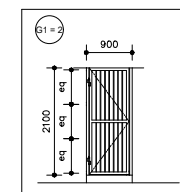
6 REAR ELEVATION
SCALE 1:50

LEGEND:

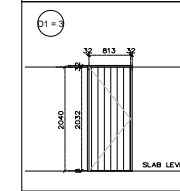
- 1 Reinforced concrete foundations to Engineers design and detail.
- 2 Reinforced concrete pit slab to Engineers design and detail.
- 3 Charlog plastic wc (Atlas) with vip 200 pedestal - CODE 222 AP C/W or similar approved.
- 4 900mm concrete apron and floor slab to Engineers design and detail.
- 5 Internal walls to take 1 coat dulux trade alkali resistant plaster primer, 1 coat dulux trade universal undercoat and 2 coats dulux pearligo.
- 6 TDM interior hollowcore door or similar approved - Refer to schedule.
- 7 190 x 190mm LG GREEN grill block fitted with bird proof mesh.
- 8 Seamless Aluminium Cpee gutters with 100x75mm downpipes with baked enamel finish and fixed to suppliers specification laid to fall into JOJO tank.
- 9 110mm Ø pvc sewer vent pipe to be painted black to vent externally fixed by 110mm holder bats.
- 10 Prefabricated timber roof trusses at 17.5° roof pitch to take 0.59mm IBR Colourplus - AZ 150 roof sheeting and sisalation with ridge flashing.
- 11 Face brick wall to be built of ILIZWE Heritage Travertine.
- 12 5000 litre JOJO tank on brick plinth to Engineers design and detail.
- 13 Concrete pit covers with steel handles for inspection purposes.
- 14 GMS single swing gate to take UNION 'MG47' 47mm Padlock - Refer to schedule.



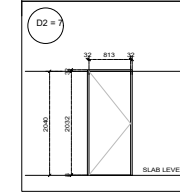
1 PLAN
SCALE 1:50



ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE MANUFACTURING OF ANY DOORS & GATES	
FRAME	35 x 35mm galvanised mild steel frame, fixed to brick wall.
GATE SIZE	2100 x 900 single swing gate by specialist.
INFILL	12mmØ galvanised mild steel bars at equal intervals.
FINISH	Hot dipped galvanised.
FURNITURE	As supplied by manufacturer



EXTERNAL DOOR	2032 x 813 x 44mm SOLID CORE MERANTI HARDWOOD PANEL DOOR WITH COMMERCIAL VENEER
DOOR FINISH	PRIMED, UNDERCOAT AND TWO COATS GLOSS ENAMEL
FRAME	STANDARD 1.2mm DOUBLE REBATED GALVANISED PRESSED METAL FRAME FOR 115mm WALL COMPLETE WITH STRAPS FOR BUILDING IN, 2x10mm GALVANISED AND WELDED LOOSE PIN HINGES, ADJUST. CHROME PLATED STRIKING PLATE
FRAME FINISH	GALVANISED NO PAINTING REQUIRED
FURNITURE	SOLID ART 390313 4 LEVER MORTICE LOCKSET AND SATIN CHROME PLATED HANDLES, 38mm DIAMETER DOOR STOP PLUGGED AND SCREWED TO FLOOR WITH A 50mm LONG BRASS SCREW



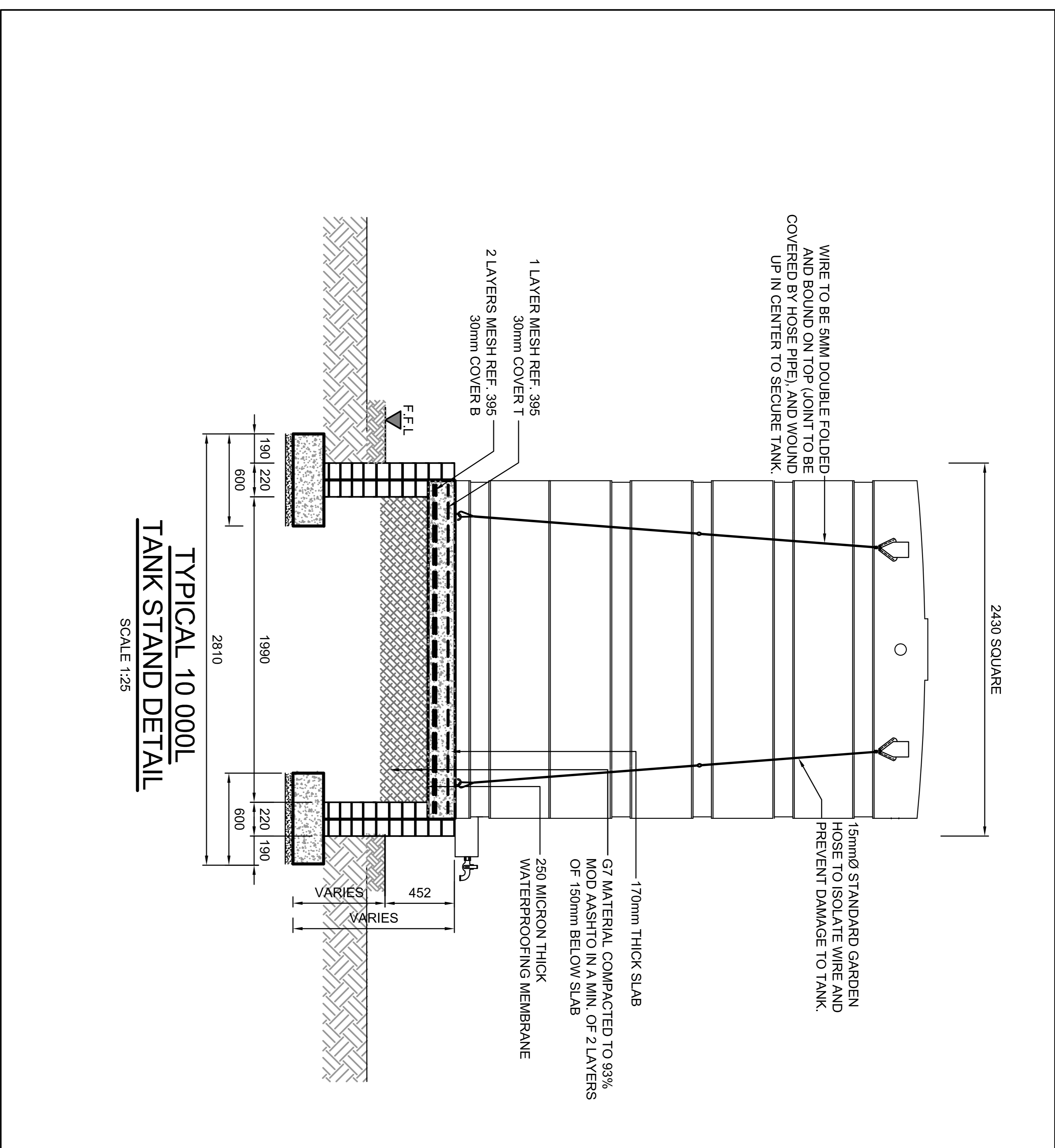
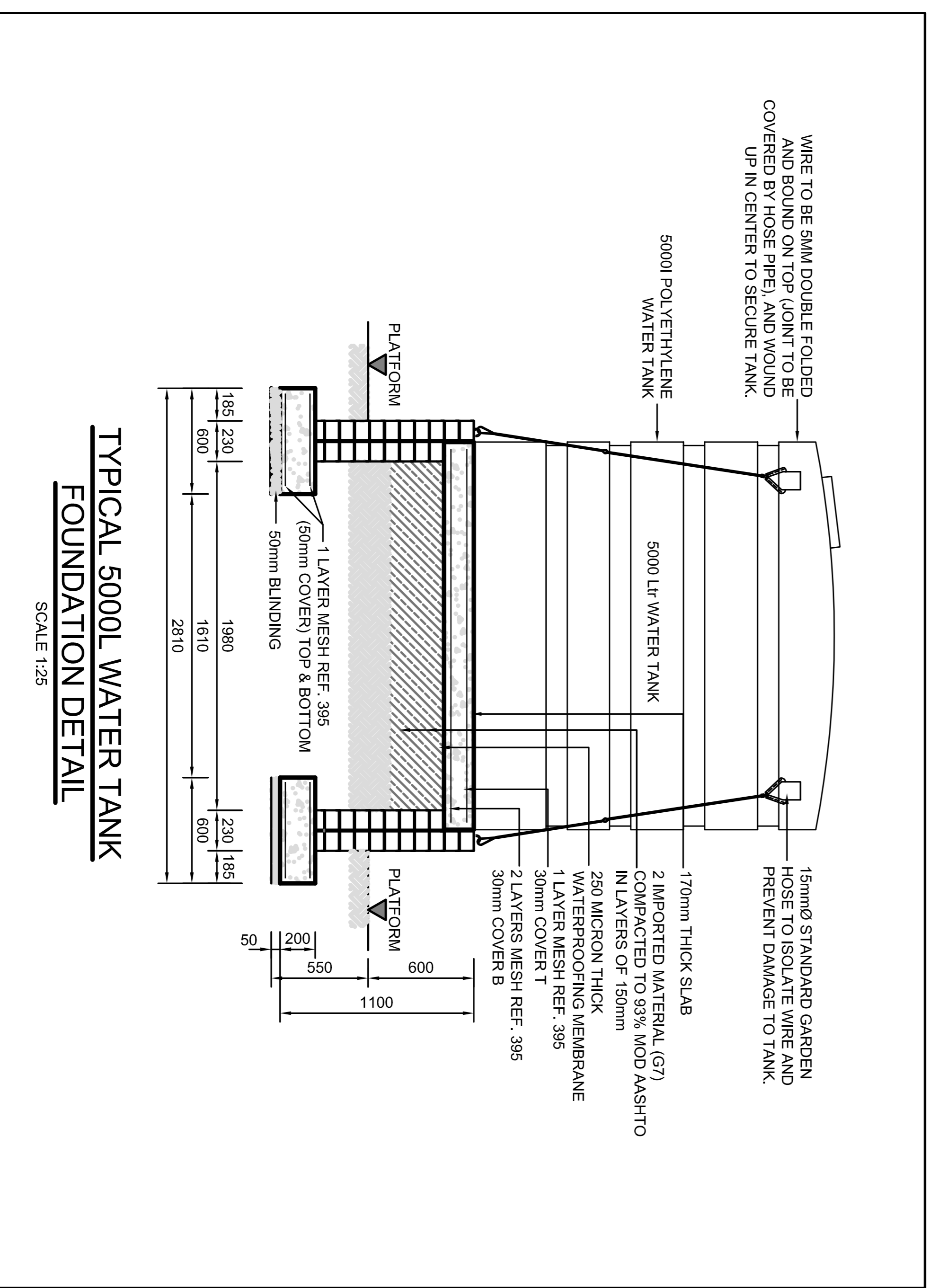
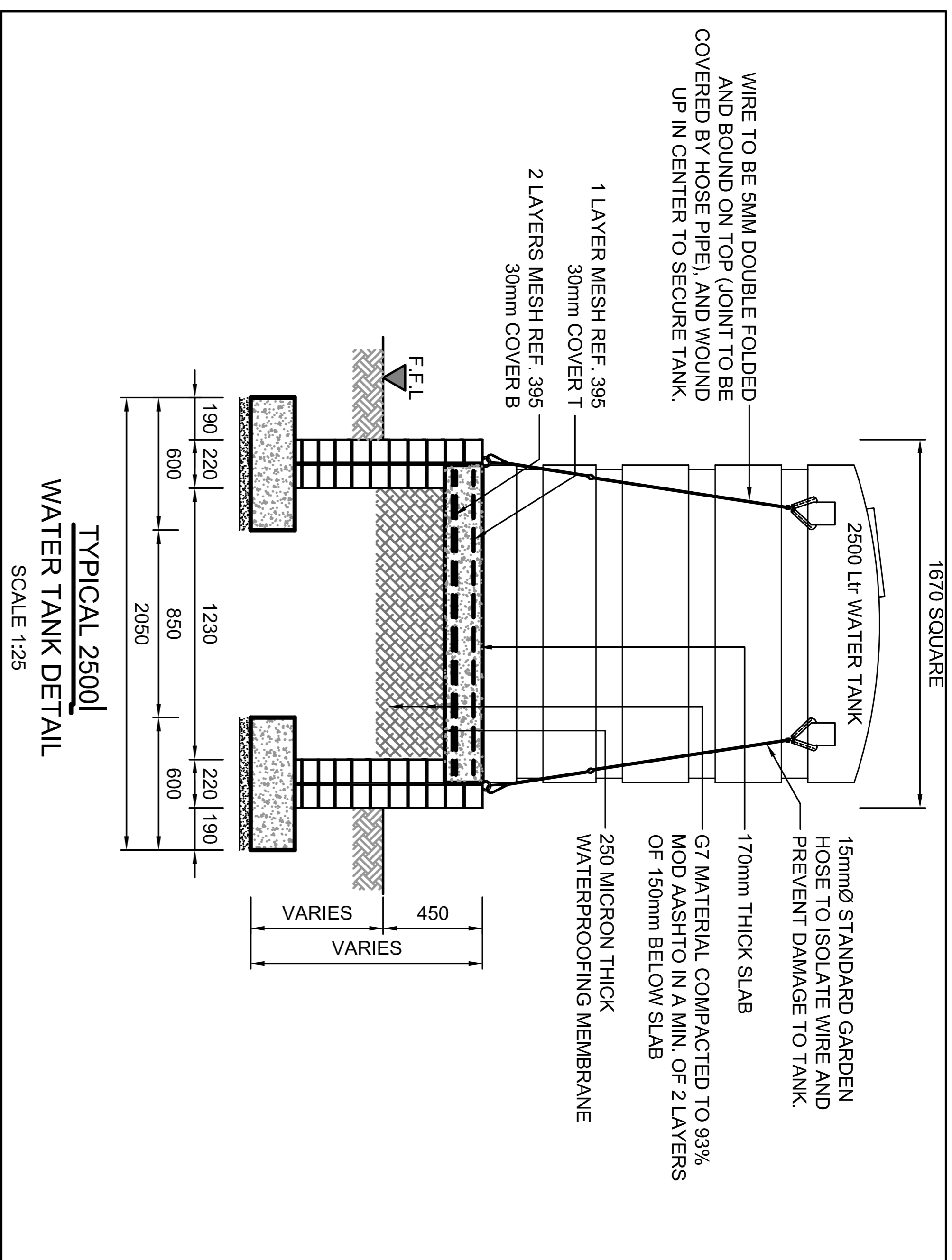
INTERNAL CUBICAL DOOR	2032 x 813 x 44mm HOLLOW CORE HARDWOOD PANEL DOOR WITH COMMERCIAL VENEER
DOOR FINISH	PRIMED, UNDERCOAT AND TWO COATS GLOSS ENAMEL
FRAME	STANDARD 1.2mm DOUBLE REBATED GALVANISED PRESSED METAL FRAME FOR 115mm WALL COMPLETE WITH STRAPS FOR BUILDING IN, 2x10mm GALVANISED AND WELDED LOOSE PIN HINGES, ADJUST. CHROME PLATED STRIKING PLATE
FRAME FINISH	GALVANISED NO PAINTING REQUIRED
FURNITURE	SOLID ART 390313 4 LEVER MORTICE LOCKSET AND SATIN CHROME PLATED HANDLES, 38mm DIAMETER DOOR STOP PLUGGED AND SCREWED TO FLOOR WITH A 50mm LONG BRASS SCREW

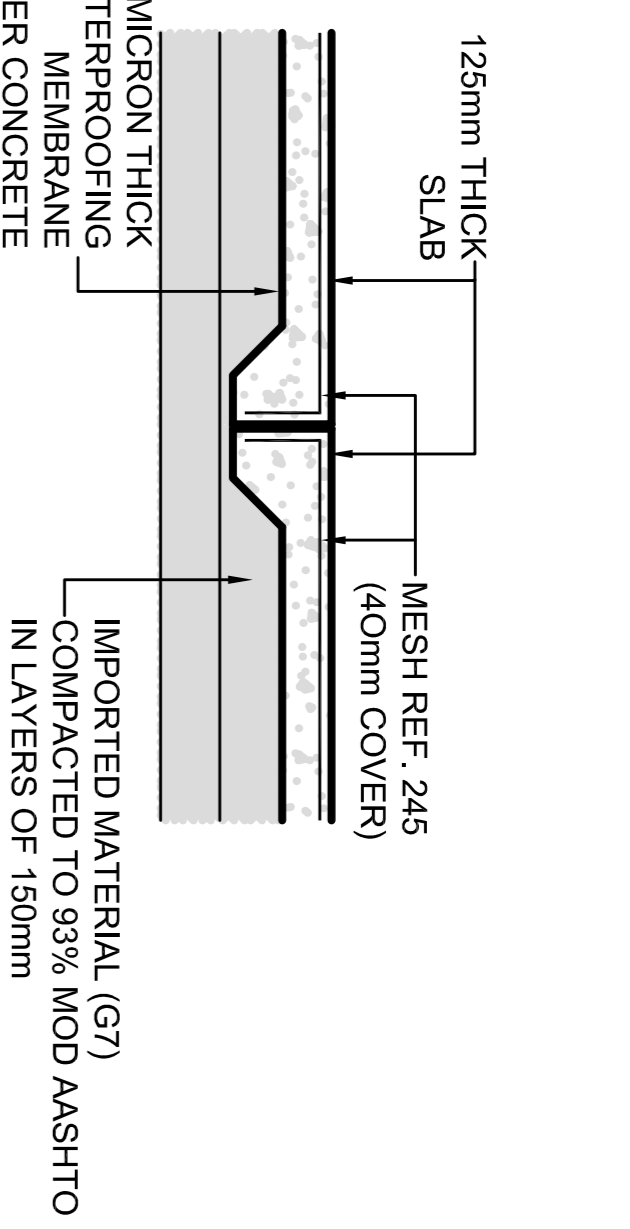
NO.	DATE	AMENDMENT	D.P.W.



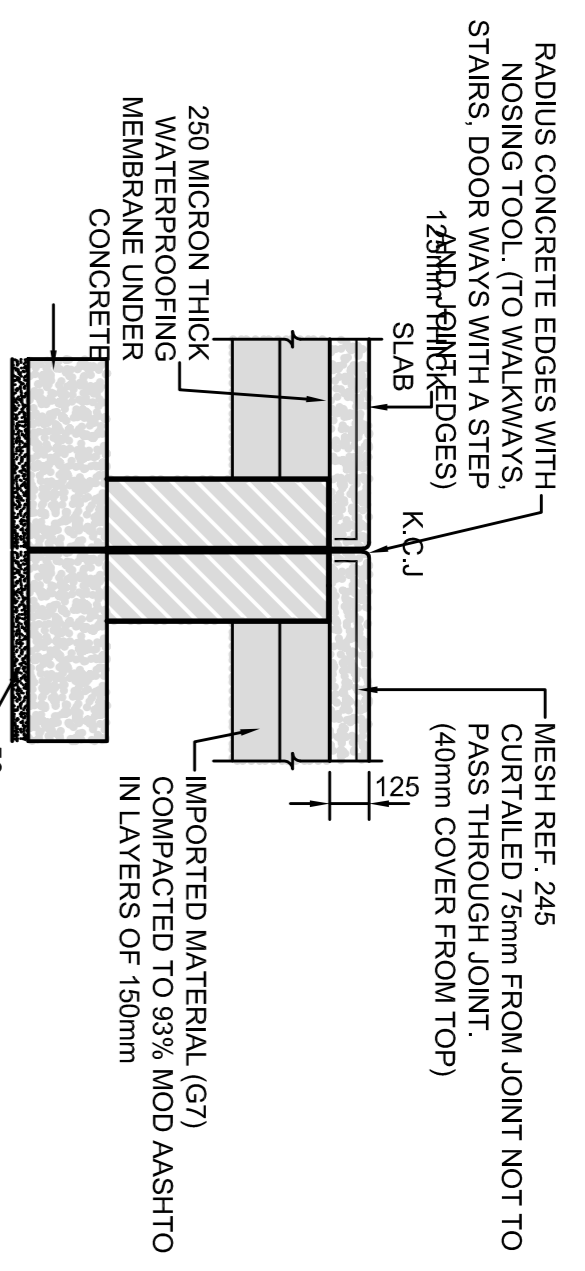
SACAP NO. : 6012

drawing title	
ARCHITECTURAL	
drawing title	
STORM DAMAGE SCHOOLS FOR THE DEPARTMENT OF PUBLIC WORKS AT EMGANGENI SECONDARY SCHOOL UGU DISTRICT	
PROPOSED ABLUTION BLOCK C	
refno 00000	designed 000000
scale AS INDICATED	drawn RP
date JAN 2026	checked MM
drawing number	1130.16 PH14- 208

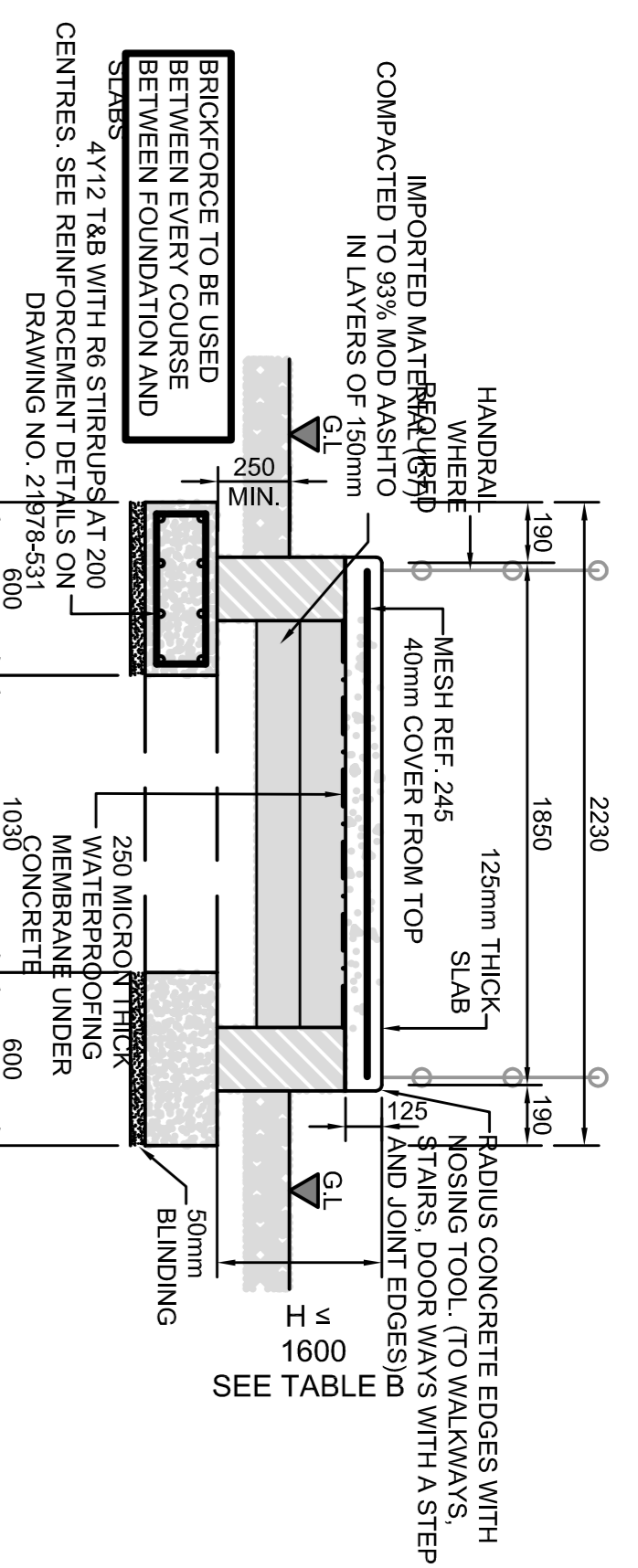




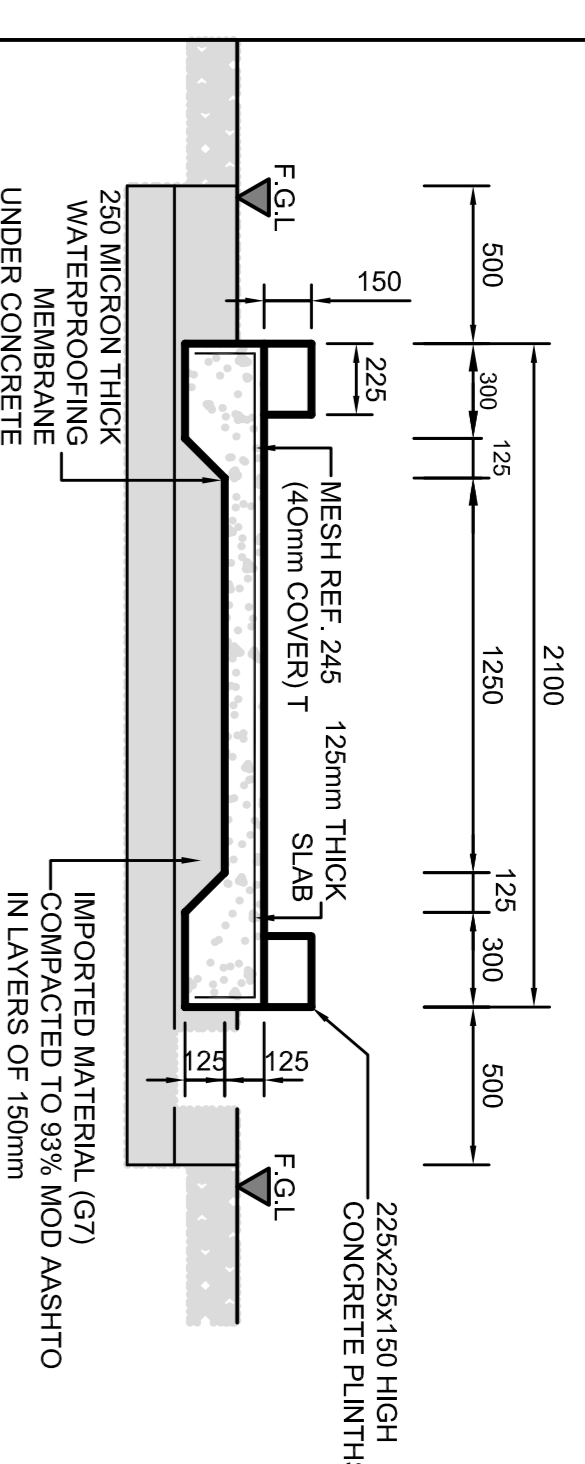
TYPICAL SECTION OF WALKWAYS AT GROUND LEVEL
SCALE 1:25



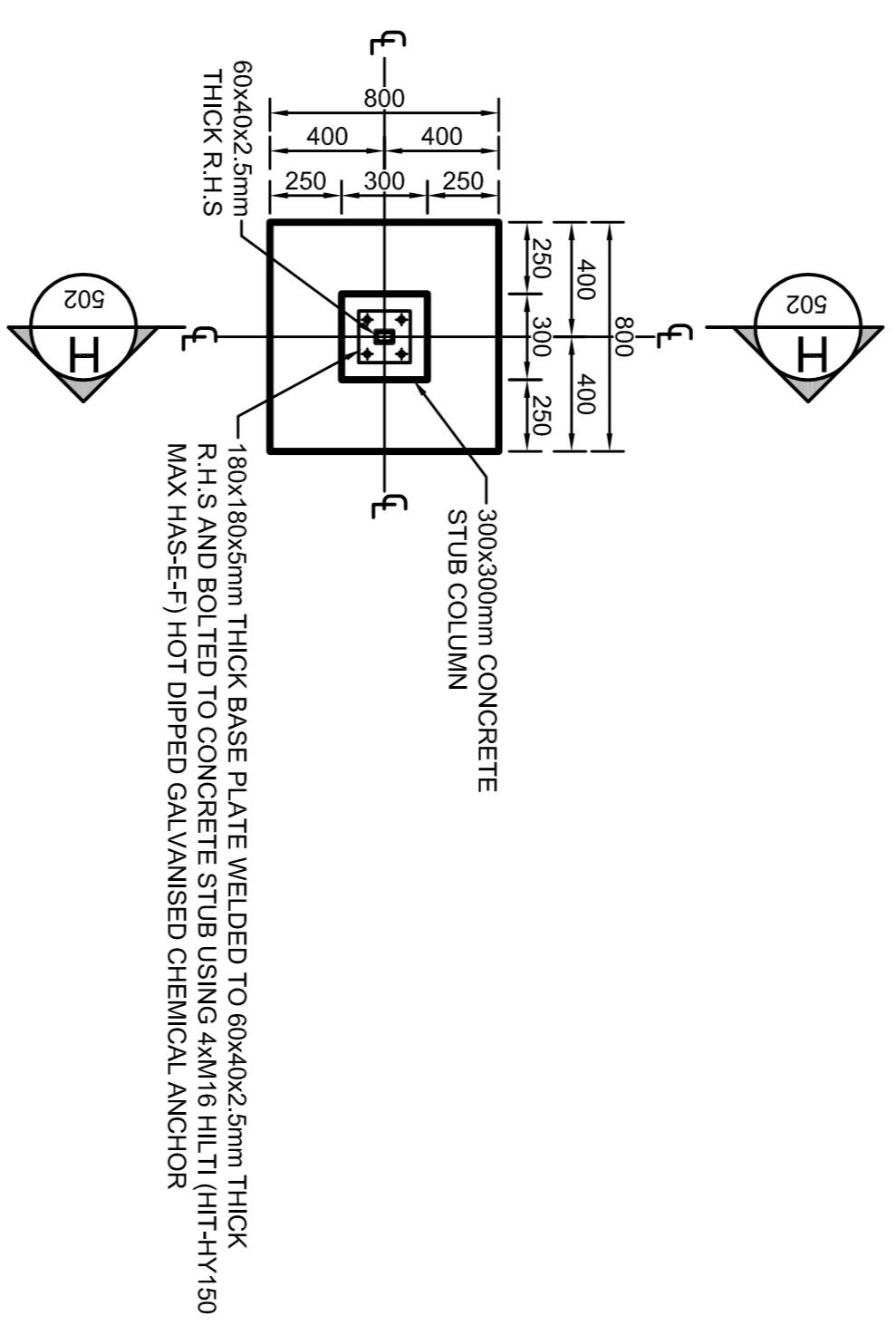
SECTION C-C THROUGH STIFFENERS ON WALKWAY TYPE 'B' AND TYPE 'C'
SCALE 1:25



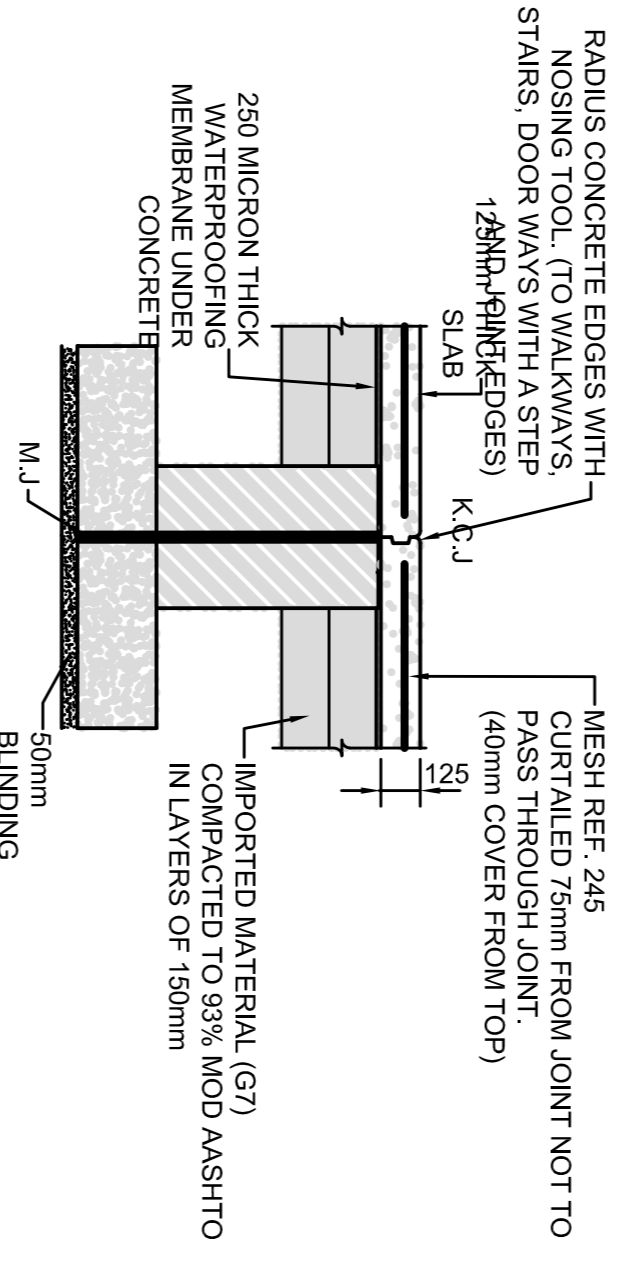
SECTION B-B OF WALKWAY ABOVE GROUND LEVEL WHEN H VARIES
SCALE 1:25



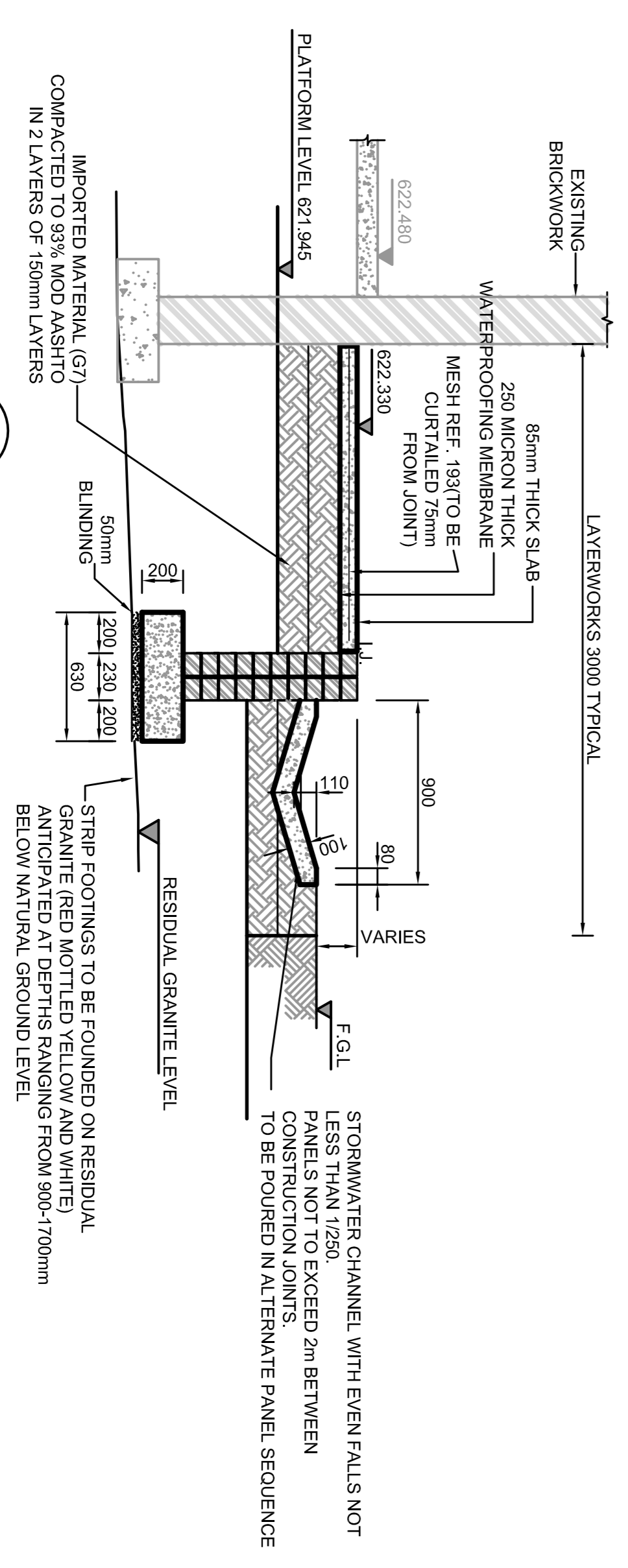
TYPICAL SECTION THROUGH WALKWAYS
SCALE 1:25



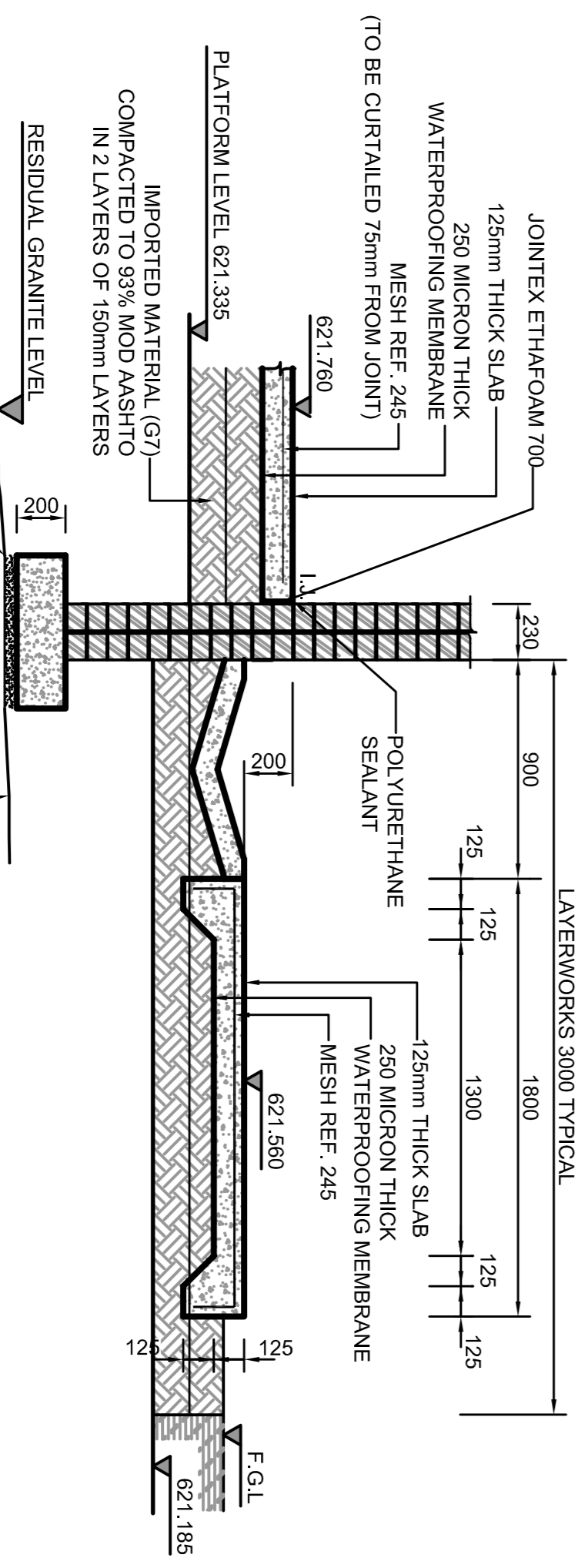
TYPICAL BASE DETAIL FOR NEW SHELTER (BLOCK B)
SCALE 1:25



SECTION C-C THROUGH STIFFENERS ON WALKWAY TYPE 'B' AND TYPE 'C'
SCALE 1:25



F-F SECTION F-F
SCALE 1:25



D-D SECTION D-D
SCALE 1:25

225x225x150 HIGH CONCRETE PLINTHS

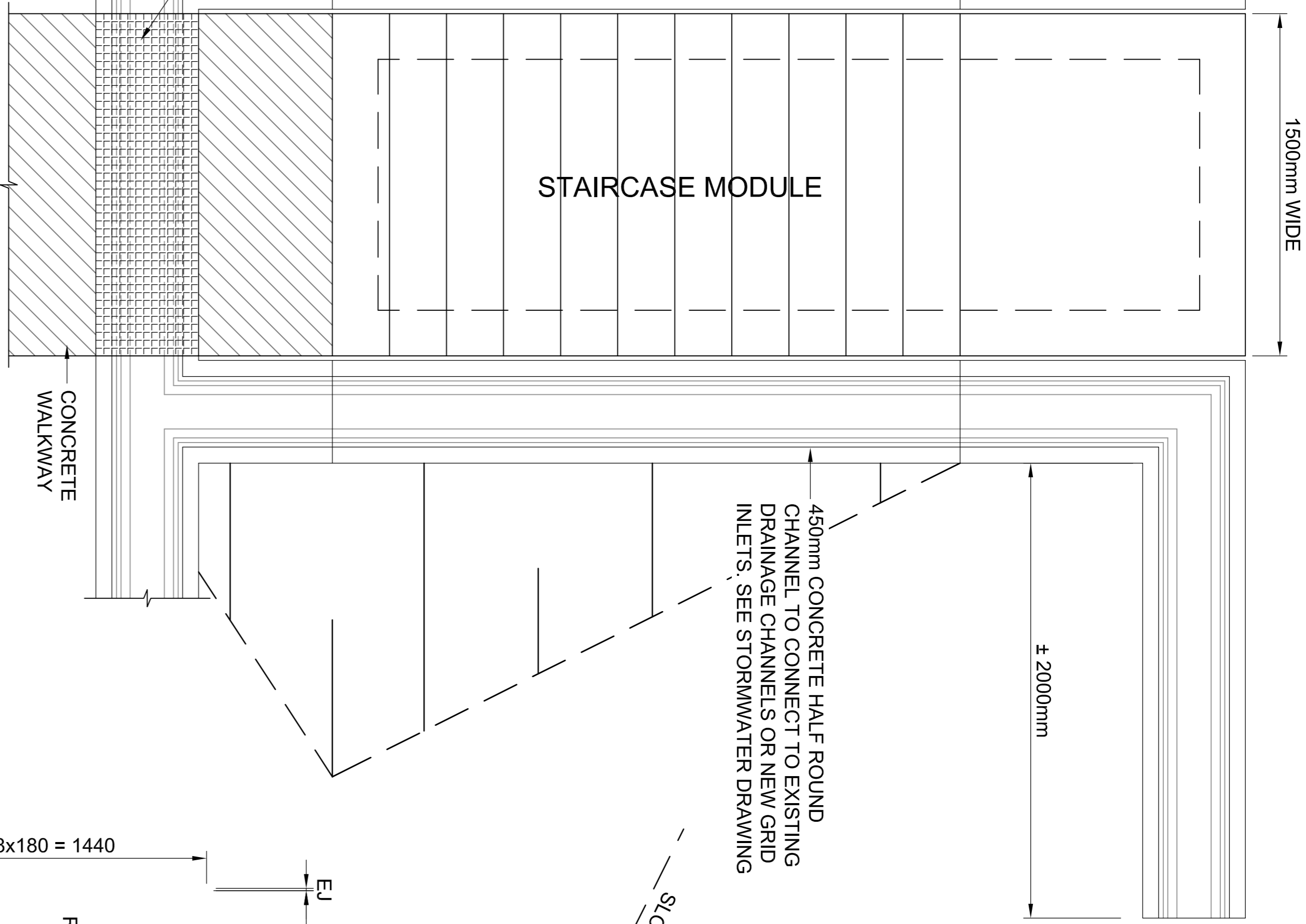
200mmØ HALF ROUND PIPES
REQUIRED IN ±1000mm LENGTHS
FOR MANEUVERABILITY AND
MAINTENANCE REASONS

REINFORCING IN STAIRS
ESTIMATED AT 80kg/m³ OF
CONCRETE

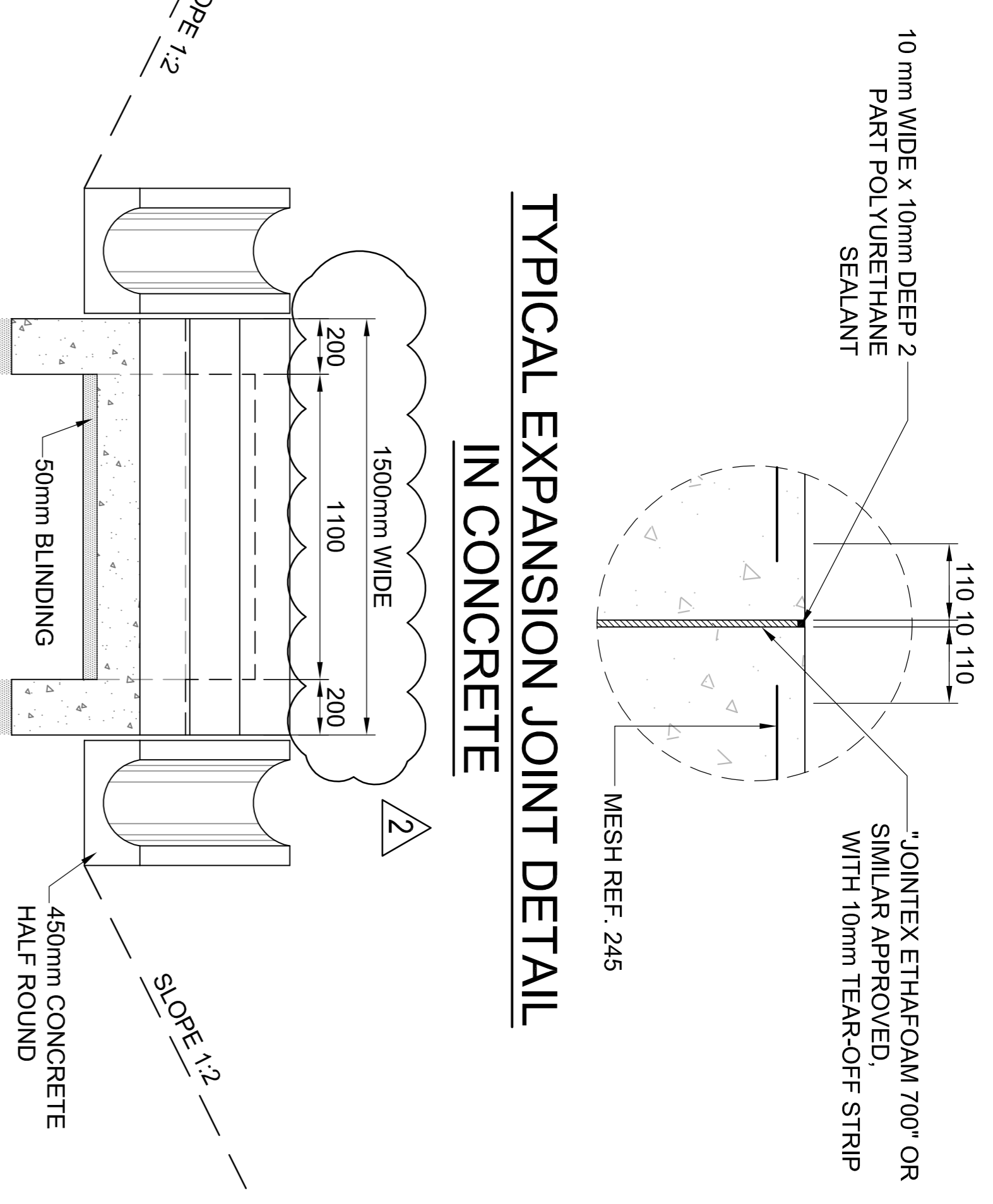
WHERE STAIRS ARE
LOWER THAN ADJACENT
GROUND LEVELS RAKE
BACK AT A SLOPE OF 1:2

STORMWATER RECTAGRID GRATING
(500x1000x50mm) WHERE REQUIRED

OVER EXCAVATION TO BE REPLACED
WITH MASS CONCRETE. MECHANICAL
COMPACTION REQUIRED TO LEVEL
SURFACES

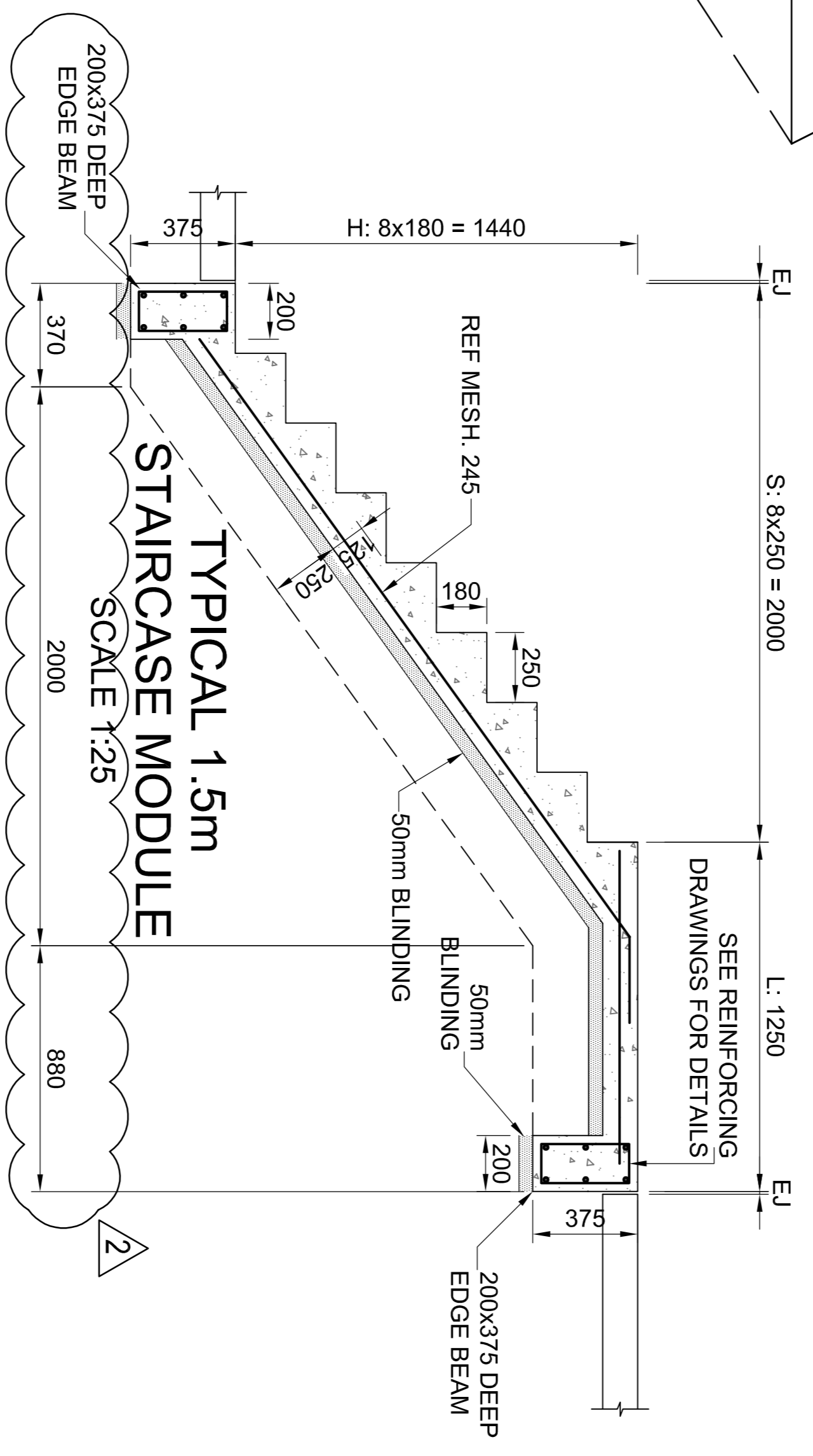


**TYPICAL EXPANSION JOINT DETAIL
IN CONCRETE**

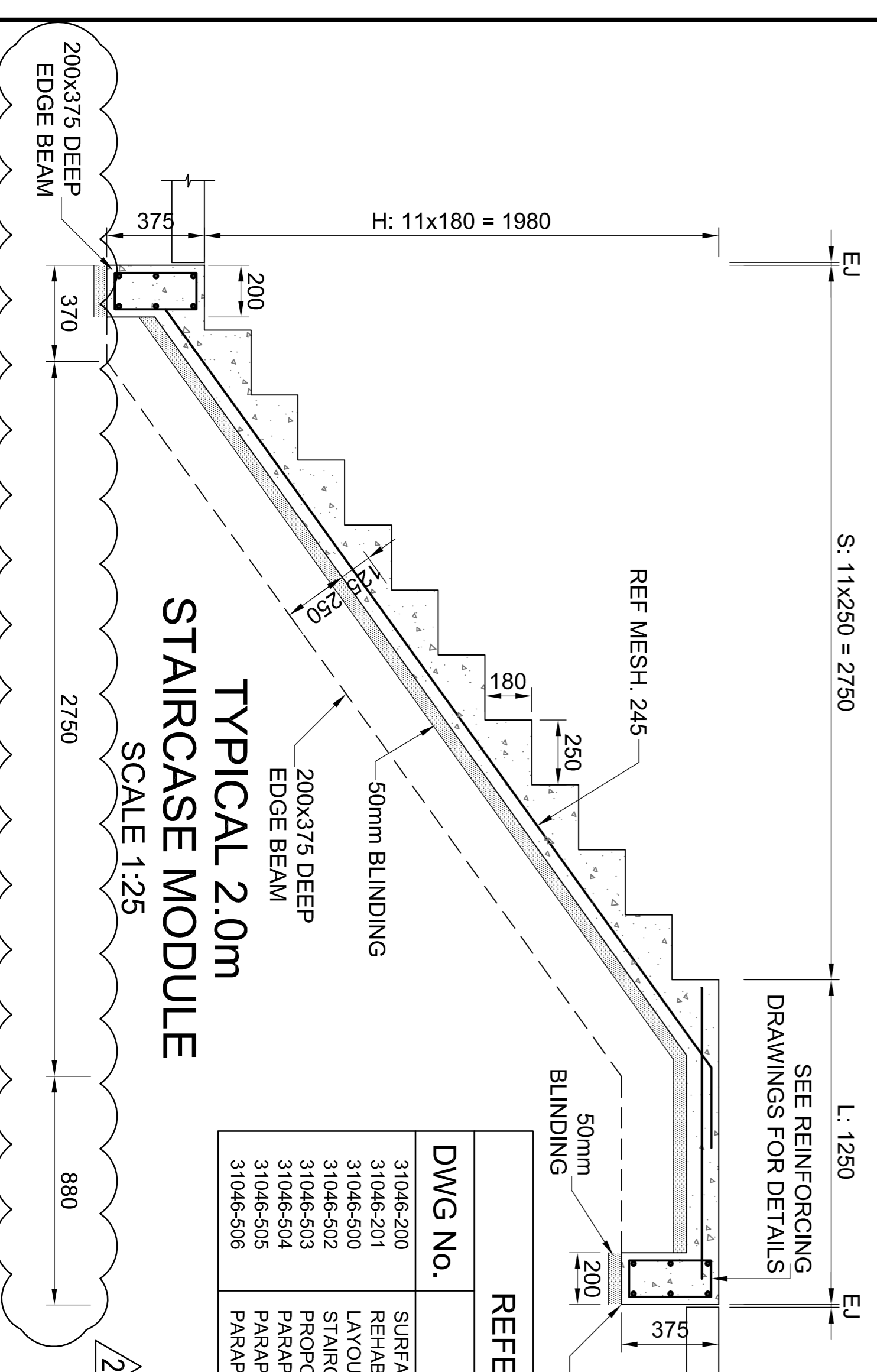


**TYPICAL SECTION SHOWING
HALF ROUND CHANNEL**
SCALE 1:25

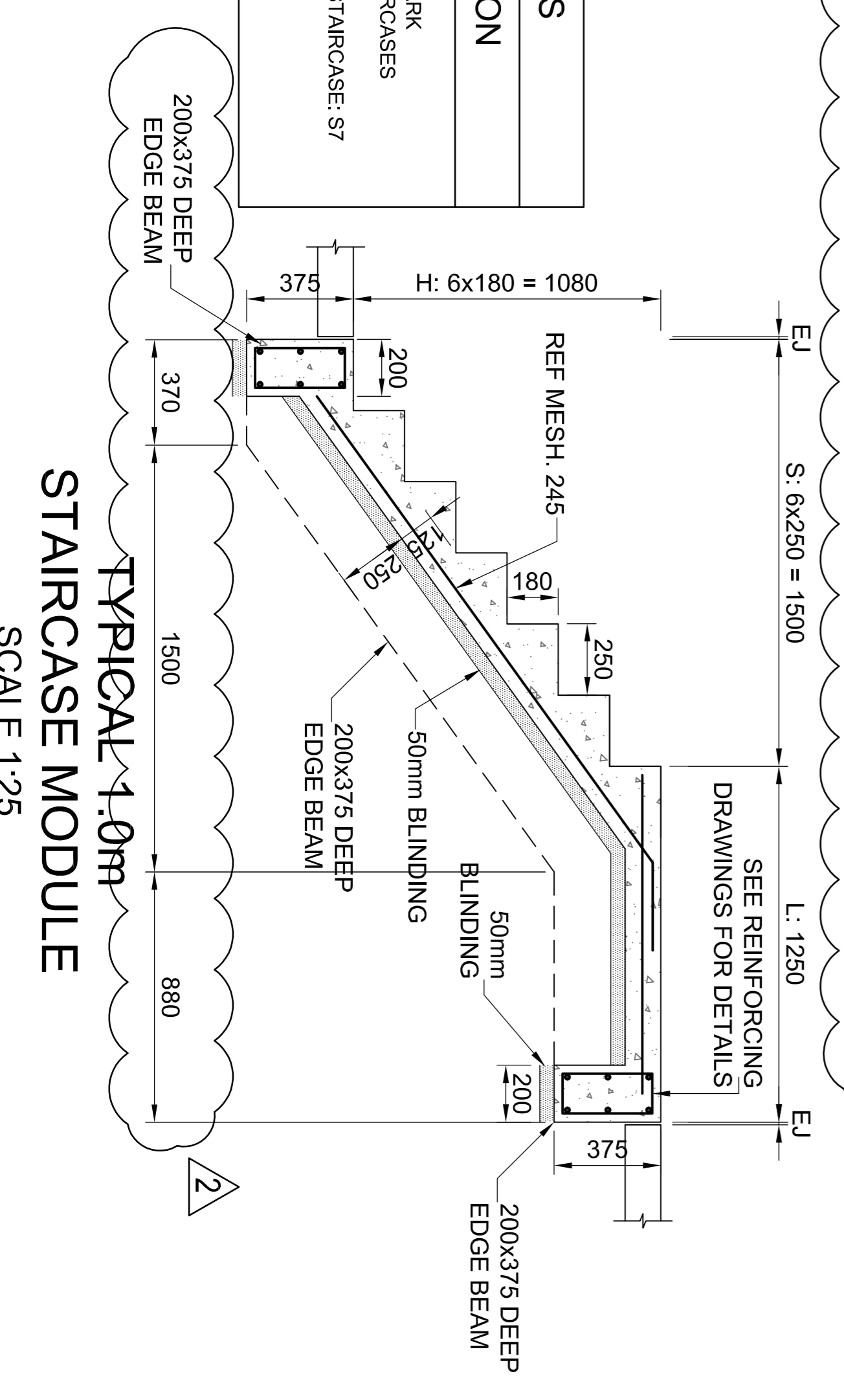
**TYPICAL PLAN SHOWING STAIRCASE
MODULE AND HALF ROUND CHANNELS**
SCALE 1:25



**TYPICAL 1.5m
STAIRCASE MODULE**
SCALE 1:25

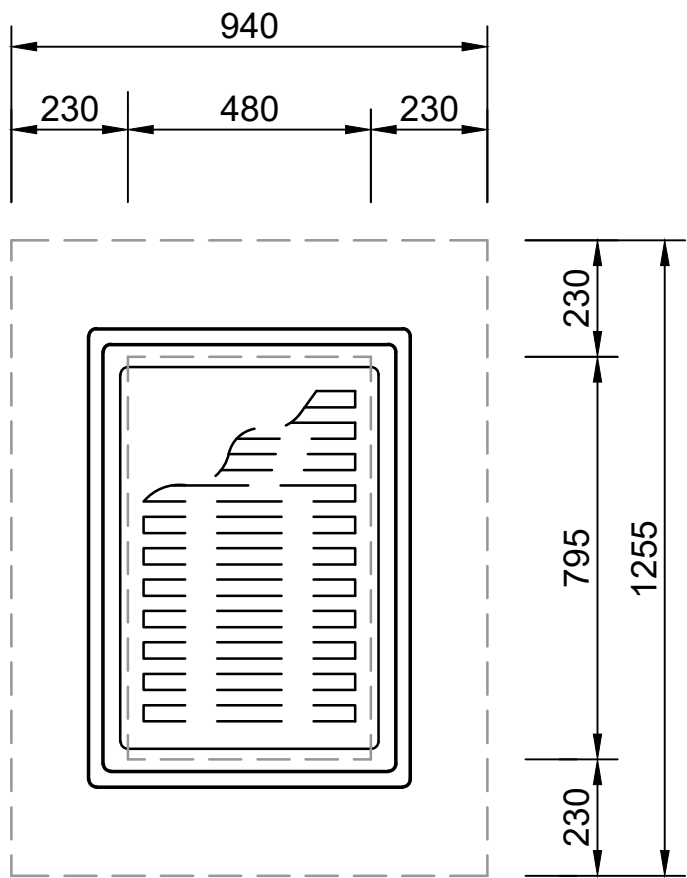


**TYPICAL 2.0m
STAIRCASE MODULE**
SCALE 1:25



**TYPICAL 1.0m
STAIRCASE MODULE**
SCALE 1:25

DWG NO.	DESCRIPTION
31046-500	SURFACE STORMWATER DRAINAGE
31046-201	REHABILITATION OF EXISTING CAR PARK
31046-500	LAYOUT SHOWING RAMPS AND STAIRCASES
31046-502	STAIRCASE TYPES
31046-503	PROPOSED RAMP R1 AND CURVED STAIRCASE: S7
31046-504	PARAPLEGIC RAMP DETAILS 1 OF 3
31046-505	PARAPLEGIC RAMP DETAILS 2 OF 3
31046-506	PARAPLEGIC RAMP DETAILS 3 OF 3

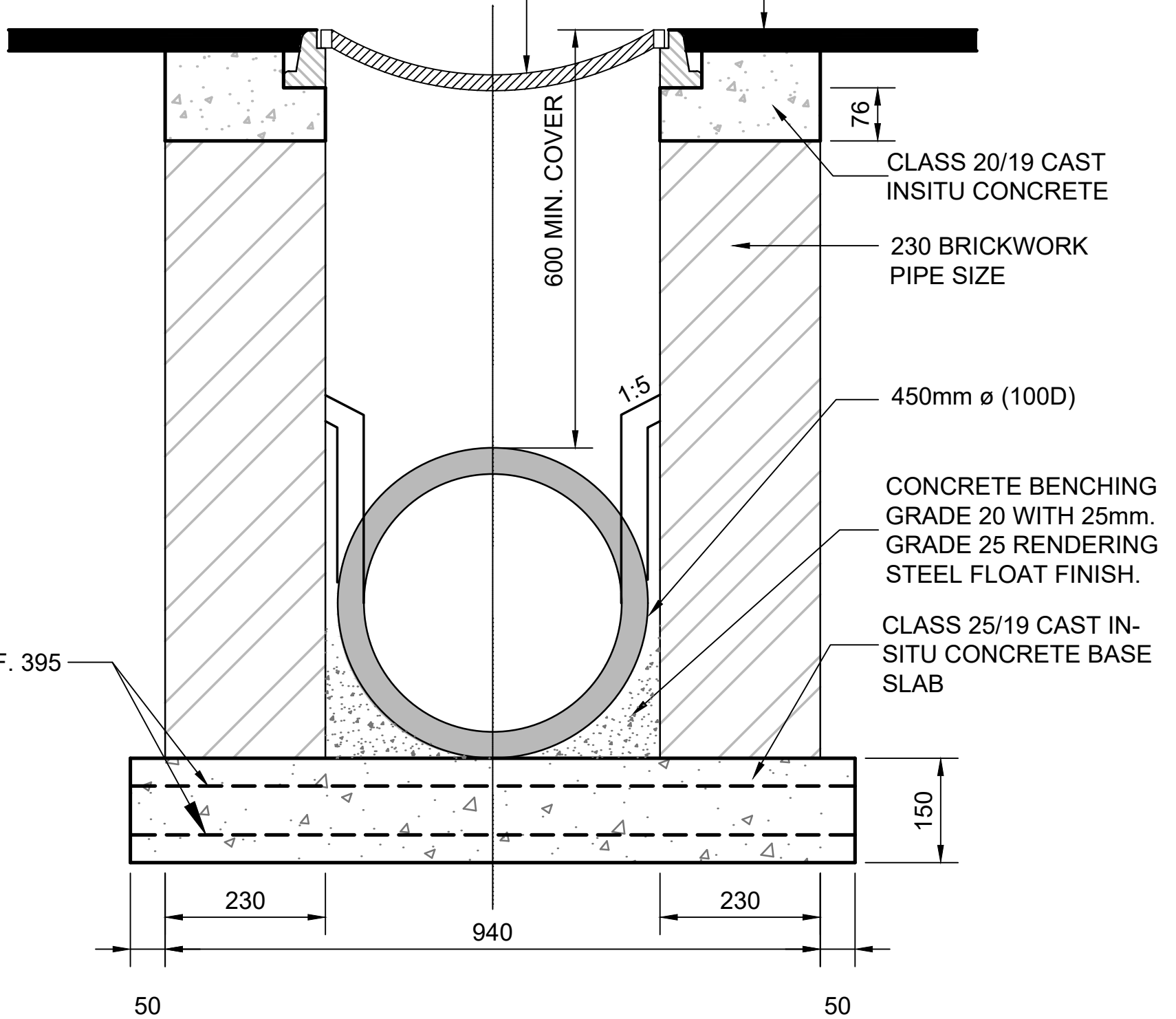


PLAN

SCALE 1:20

520 x 790 HEAVY DUTY STORMWATER GRATING AND FRAME (BESAANS DU PLESSIS PRODUCT OR SIMILAR)

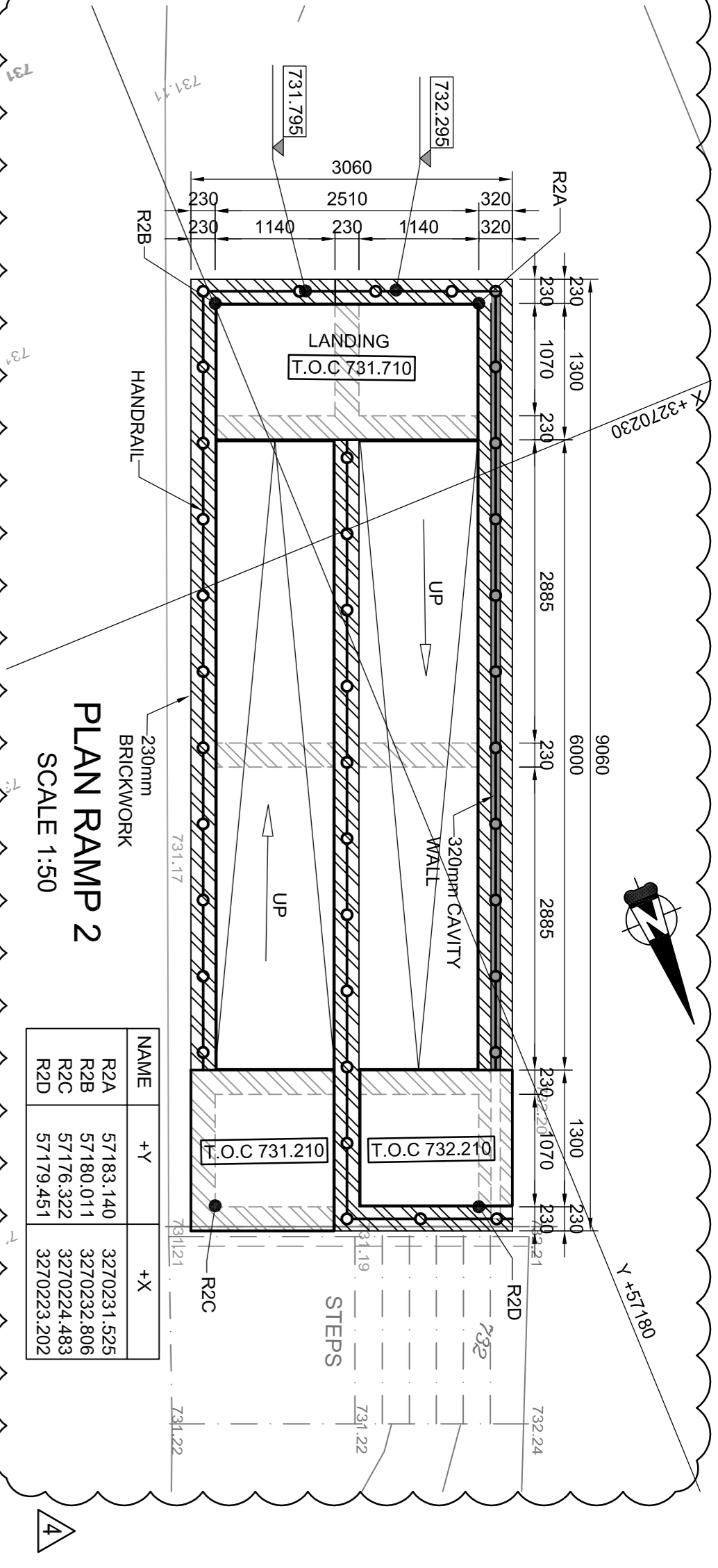
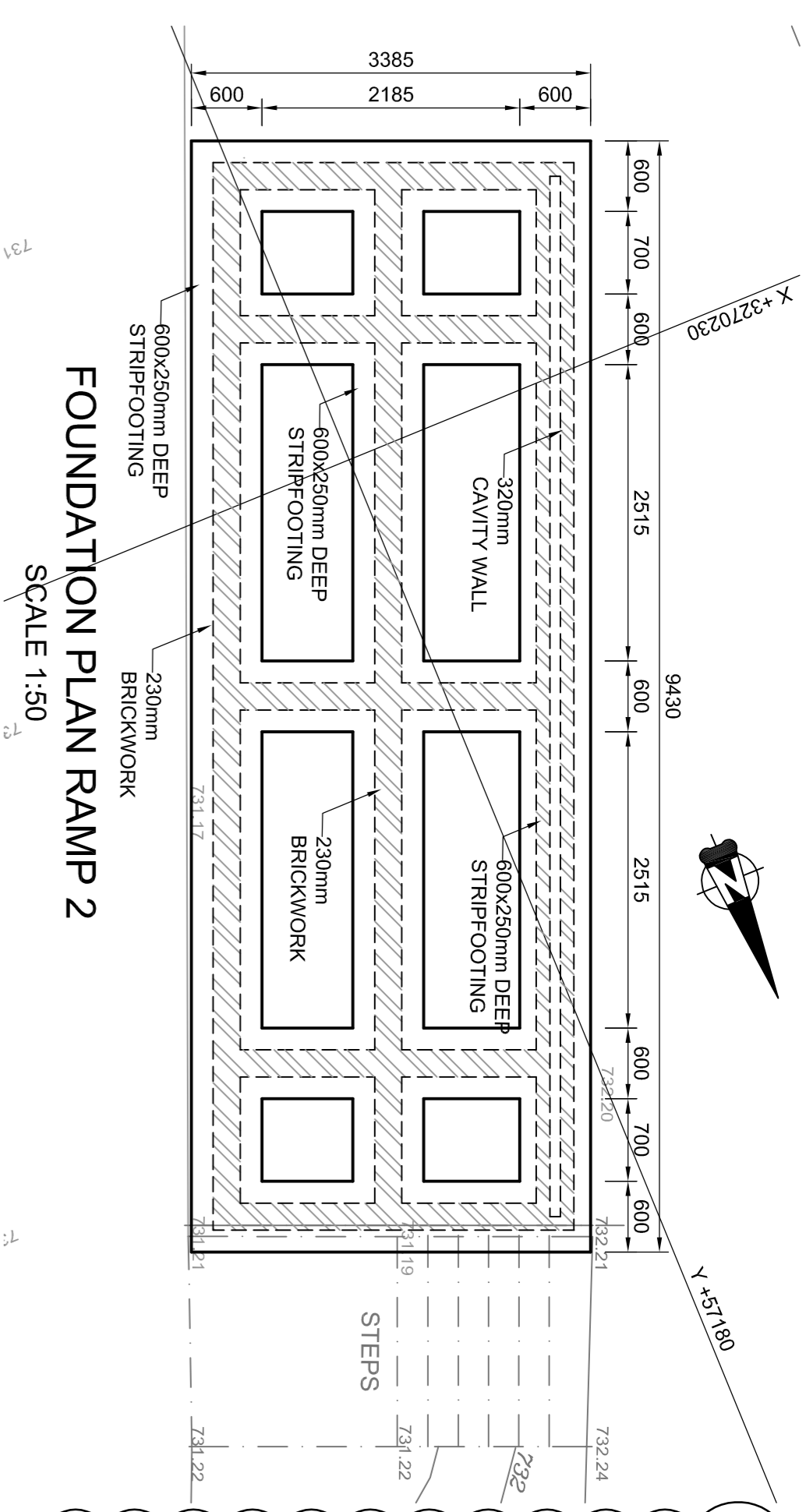
AS PER ARCHITECT'S FINISH



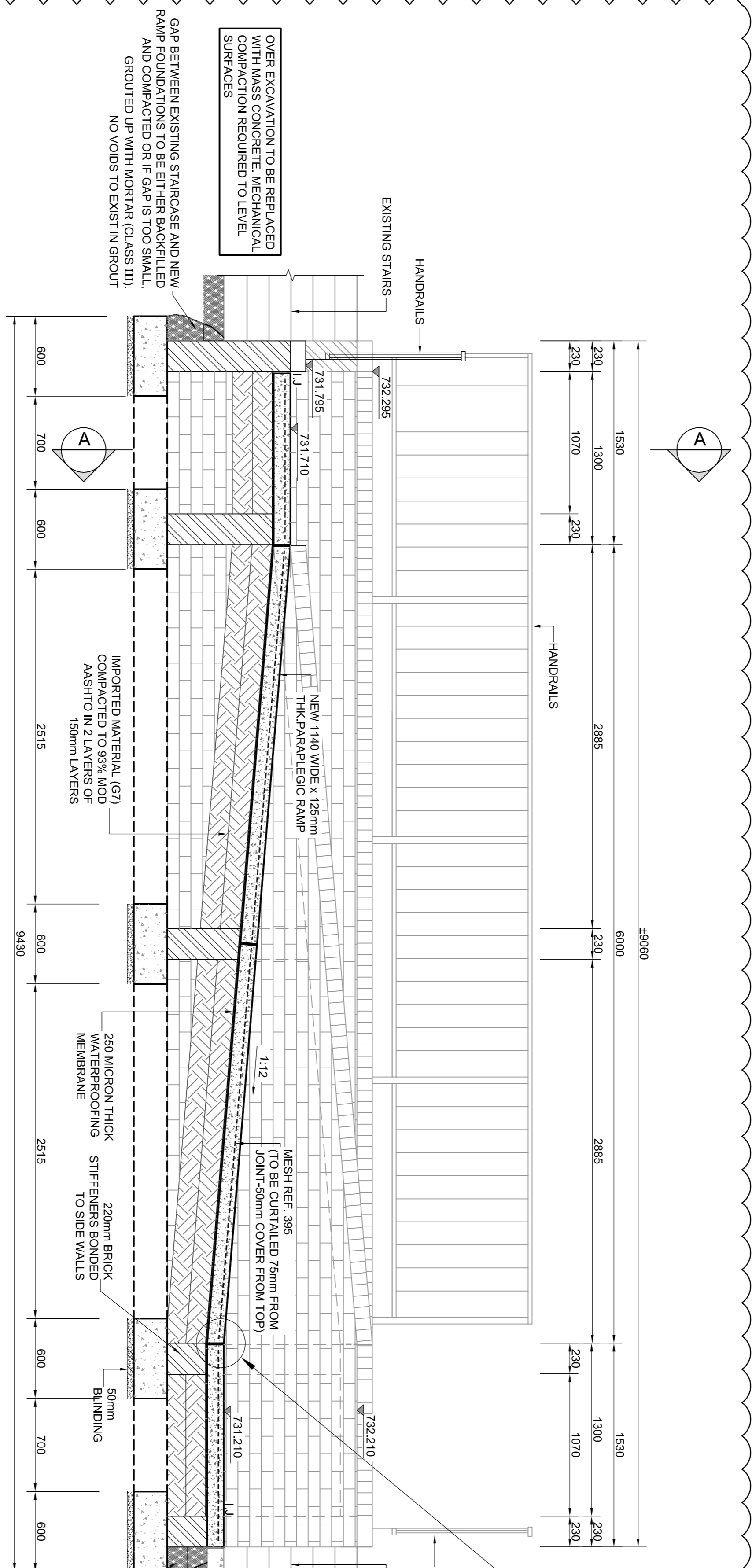
SECTION E-E

TYPE 3

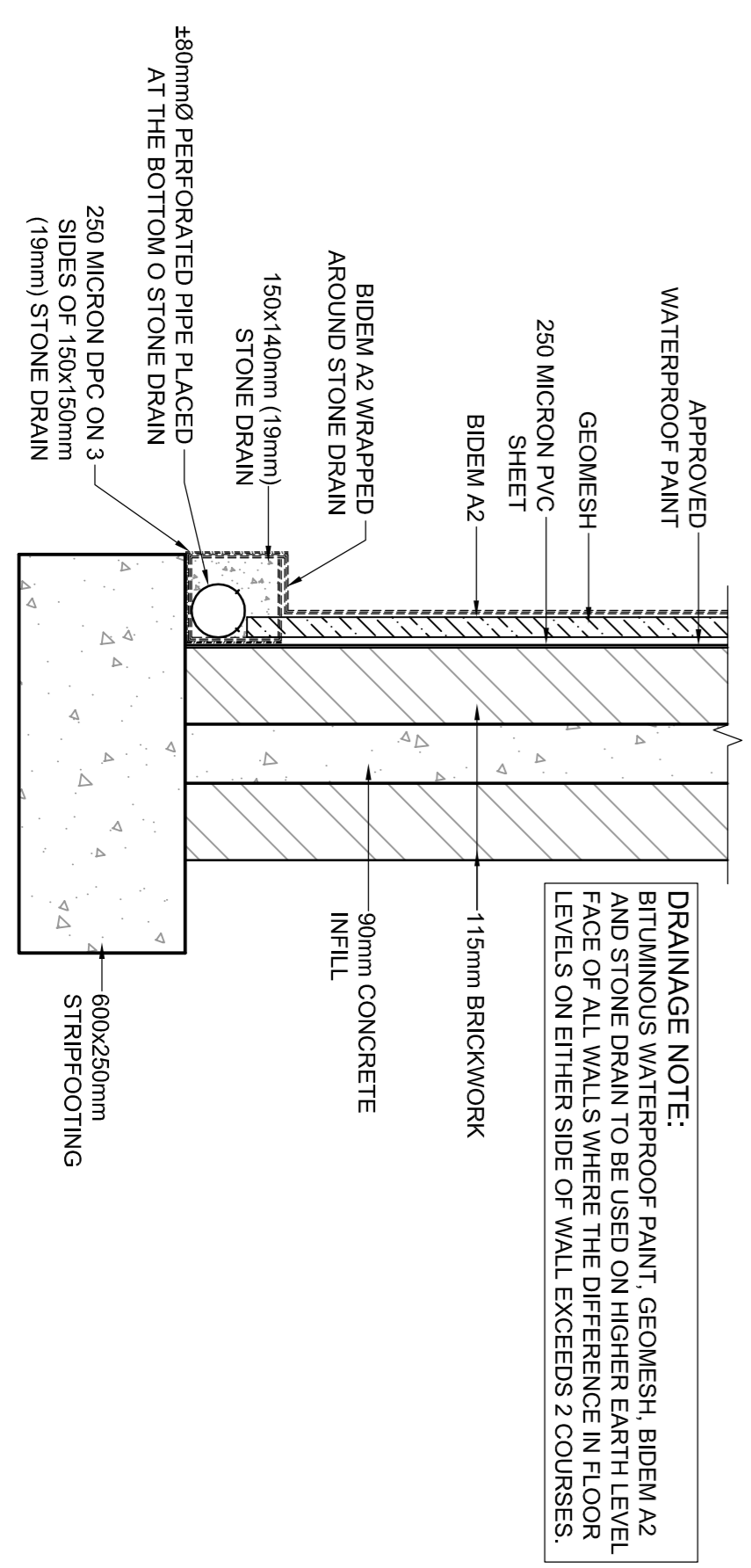
SCALE 1:10



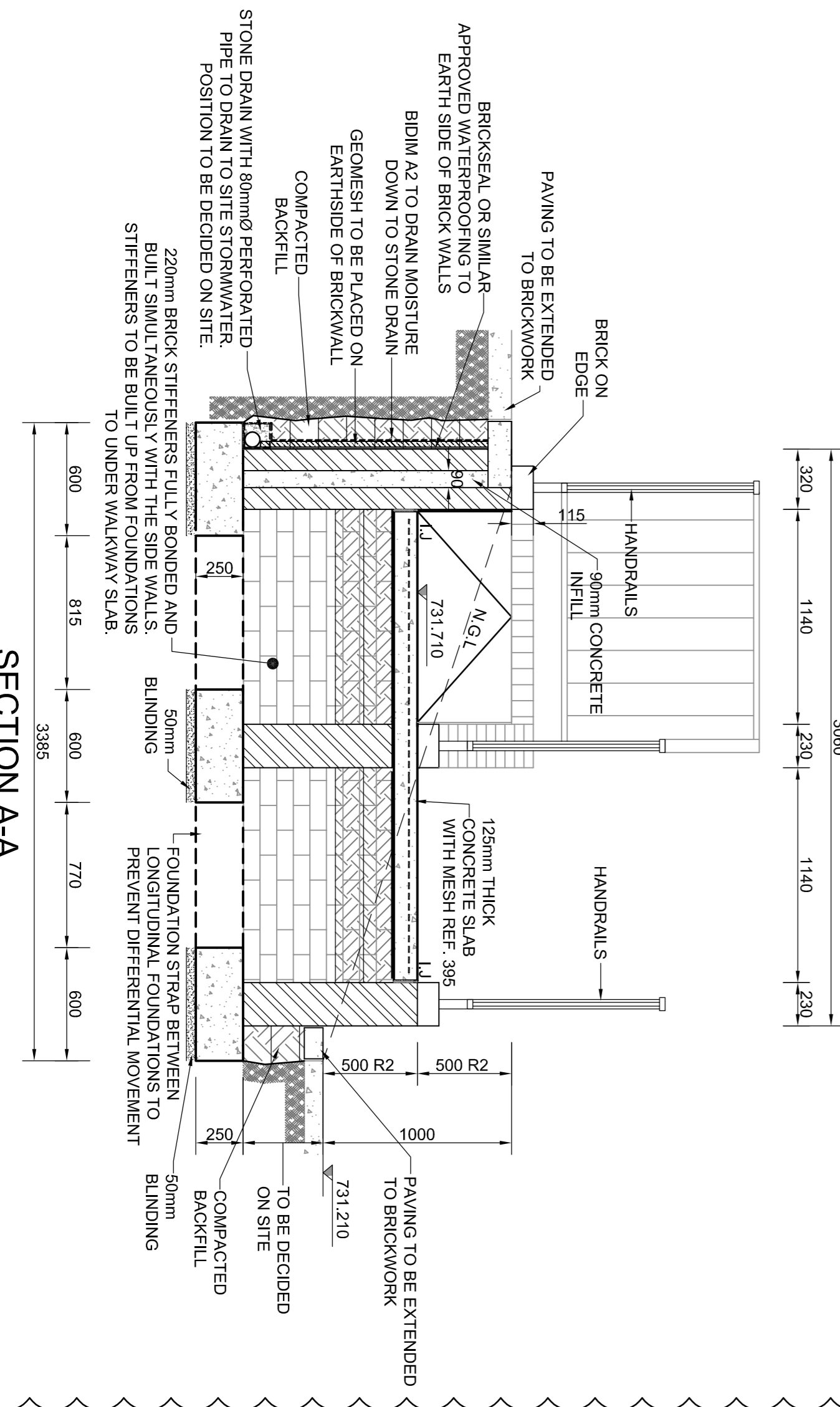
NAME	+Y	+X
R2A	57183.140	3270231.525
R2B	57178.322	3270232.898
R2C	57178.322	3270232.492
R2D	57178.451	3270232.202



SECTION THROUGH R2 (RAMP 2)
No. OFF = 1
SCALE 1:25



TYPICAL DRAINAGE DETAIL
SCALE 1:25



SECTION A-A
SCALE 1:25



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

TABULATED SCOPE OF WORKS



REF.	ITEM	SCOPE OF WORK	BLOCKS	COMMENTS
1.	TEMPORARY ACCOMMODATION	<ul style="list-style-type: none"> Provision for temporary accommodation during construction 		3 Classroom Parkhome structure
2.	ROOFS	<ul style="list-style-type: none"> Removal of storm damaged asbestos roof sheeting Removal of damaged roof sheeting Removal of damaged roof trusses Removal of damaged gutters and downpipes Removal of damaged fascia boards / barge boards Install new roof trusses, including sisalation and fixings Install new IBR roof sheeting Install new gutters and downpipes including painting Install new fascias and barge boards including painting Install new purlin to interior and exterior of beam filling Treat all exposed timber work with carbolinium Repairs to existing roof structure Provision for safe disposal asbestos certificate Paint existing roofs 	<p>A + A1</p> <p>B + A1</p> <p>A, B</p> <p>A, B</p> <p>A, B</p> <p>A, B</p> <p>A, B</p> <p>A, B</p> <p>A, B</p> <p>A, B</p> <p>A, B</p> <p>A, B</p> <p>A, B</p> <p>A, B</p> <p>A, B</p> <p>A</p>	Health and safety requirement
3.	CEILINGS	<ul style="list-style-type: none"> Remove existing damaged ceilings Install new ceilings, bandering and cornice Paint new ceilings 	<p>A, B</p> <p>A, B</p>	
4.	FIRE WALLS	<ul style="list-style-type: none"> Build new fire walls to underside of roof sheeting 	A, B	
5.	WINDOWS	<ul style="list-style-type: none"> New windows Replace Paint windows 	<p>A, B</p> <p>A, B</p> <p>A, B</p>	
6.	DOOR / FRAMES	<ul style="list-style-type: none"> Removal of existing damaged doors Removal of existing damaged frames Install new doors and ironmongery Painting of doors and frames Repairs to existing doors / frames / Ironmongery 	<p>A, B</p> <p>A, B</p> <p>A, B</p> <p>A, B</p>	



GREEN BUILDING COUNCIL SA

MEMBER ORGANISATION



7.	PLASTERING/ PAINTING	<ul style="list-style-type: none"> Repairs to existing plasterwork externally 	A, B	
		<ul style="list-style-type: none"> Repairs to existing plasterwork internally 	A, B	
		<ul style="list-style-type: none"> Painting of plasterwork externally 	A, B	
		<ul style="list-style-type: none"> Painting of plasterwork internally 	A, B	
8.	SECURITY GATES	<ul style="list-style-type: none"> Install new galvanised security gates to classrooms 	A, B	
		<ul style="list-style-type: none"> Install new entrance gate to driveway 	Main entrance	
9.	FLOORS	<ul style="list-style-type: none"> Screed to concrete floors, walkways, corridors 	A, B	
		<ul style="list-style-type: none"> Construct new surface beds 	A	5 No classroom
		<ul style="list-style-type: none"> Remove floor coverings 	A	
		<ul style="list-style-type: none"> Install new floor coverings 	A, B	
10.	STRUCTURAL REPAIRS	<ul style="list-style-type: none"> Repairs to foundations 		Yes-underpinning 2 x classrooms
		<ul style="list-style-type: none"> Repair structural cracks to walls internally/ externally 	A, B	
11.	CHALKBOARDS	<ul style="list-style-type: none"> Remove damaged chalkboards 	A, B	
		<ul style="list-style-type: none"> Install new chalkboards 	A, B	
		<ul style="list-style-type: none"> Install new pinning boards 	A, B	
12.	NOTICE BOARD	<ul style="list-style-type: none"> Install new noticeboards as per D.O.E 		Yes
13.	ELECTRICAL	<ul style="list-style-type: none"> Strip out existing damaged/ unsafe installation 		
		<ul style="list-style-type: none"> Provision for new electrical installation including power-points and lighting 	A, B	
		<ul style="list-style-type: none"> Repairs to unsafe electrical installation 		
		<ul style="list-style-type: none"> Provision for lighting protection 	A, B	
14.	RETAINING STRUCTURES	<ul style="list-style-type: none"> Construct new retaining structures 	Externally	Yes
		<ul style="list-style-type: none"> Install new 1m high wire mesh balustrade above retaining structures 		
15.	EXTERNAL WORKS	<ul style="list-style-type: none"> Provision for layerworks to accommodate retaining structures 	Yes	
		<ul style="list-style-type: none"> Provision repairs to driveway 		



GREEN BUILDING COUNCIL SA

MEMBER ORGANISATION



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

ANNEXURES



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

ANNEXURE 1
MODEL PREAMBLES FOR ALL TRADES (2008)



MODEL PREAMBLES FOR TRADES

2008

*forming part of
the bills of quantities*

Project:

Contract Reference Number:

EXPLANATORY NOTES AND INSTRUCTIONS ON THE USE OF THESE MODEL PREAMBLES

1. The document

- 1.1 This document is published by and is available from the Association of South African Quantity Surveyors, P.O. Box 3527, Halfway House, 1685. Telephone (011) 315 4140. E-mail: administration@asaqs.co.za
- 1.2 The contents of this document are intended to cover workmanship and materials encountered in a significant majority of projects. If a material is not encountered in a significant majority of projects, its preamble will in all likelihood not be included in this document
- 1.3 By its very nature, this document is a "Model" document and one that is designed to act as a basis upon which to build. It is anticipated that it will be supplemented by a "Supplementary Preambles" document included in the text of the bills of quantities that will include, *inter alia*, the following:
 - 1.3.1 supplementary clauses of a general nature that practitioners may deem necessary to cover their own individual requirements,
 - 1.3.2 additional clauses pertaining to specific materials incorporated in a project and not covered by the Model Preambles,
 - 1.3.3 amendments to anything contained in the Model Preambles. A clause has been incorporated in the "General" section of the document stipulating that anything contained in the "Supplementary Preambles" which is at variance to that which is contained in the Model Preambles, will take precedence over the Model Preambles and apply to the works in hand
- 1.4 It is intended that this document will be used by reference only in the text of the bills of quantities and will NOT be bound or reproduced therein

2. The basic philosophy

- 2.1 Wherever possible, reference has been made throughout the preambles to South African National Standards (SANS) to describe materials and methods respectively. It is therefore incumbent on the users of these preambles to have ready access to the relevant Specifications and Codes. Where such Specifications or Codes do not exist, suitable preambles have been compiled
- 2.2 These preambles have been designed to assist in abbreviating descriptions in the text of the bills of quantities and practitioners are encouraged to make use of this facility. e.g. The description of a stormwater catchpit would read:

"Brick stormwater catchpit size internally 600 x 400 x 1 200mm deep to invert fitted with and including a 450 x 300mm x 59kg cast iron grating and frame"
- 2.3 Wherever alternatives exist in respect of materials or workmanship, specific choices have been made in these preambles. Should users require different choices to specific items, these should be referred to in the Supplementary Preambles as outlined in clause 1.3

3. Additional notes in the use of these Model Preambles

3.1 Concrete, Formwork and Reinforcement

The Project Specification embodied in these preambles was compiled in collaboration with the Authors of SANS 1200G, which forms the basis for the Concrete, Formwork and Reinforcement model preambles

Users of these preambles are advised to submit a copy of the Model Preambles to the Engineers involved in a project for their scrutiny. Any amplifications, amendments, etc required by individual Engineers would then be incorporated in the Supplementary Preambles referred to in item 1.3

3.2 Roof Coverings

The roof coverings included in these Model Preambles are limited in their content and therefore any roofing material not included in these Preambles will need to have its full preamble included in the Supplementary Preambles

3.3 Structural Steelwork

The comments made under item 3.1 apply equally to Structural Steelwork

Note that the protective treatment of the structural steel covers only the treatment up to and including the primer (and patching after erection). The finishing coats of paint must be fully described and included either in the "Structural Steelwork" or in the "Paintwork" trade, as the practitioner wishes

MODEL PREAMBLES FOR TRADES

CONTENTS

REFERENCE	TRADE	PAGE
A	General	2
B	Alterations	3
C	Earthworks	4
D	Concrete, Formwork and Reinforcement	6
E	Precast Concrete	10
F	Masonry	11
G	Waterproofing	14
H	Roof Coverings etc	15
I	Carpentry and Joinery	17
J	Ceilings, Partitions and Access Flooring	20
K	Floor Coverings, Wall Linings, etc	22
L	Ironmongery	23
M	Structural Steelwork	24
N	Metalwork	25
O	Plastering	29
P	Tiling	31
Q	Plumbing and Drainage	32
R	Glazing	41
S	Paintwork	42
T	Paperhanging	44
U	External Works	45

A. GENERAL

A.1 APPLICATION OF CLAUSES

These Model Preambles for Trades, and any Supplementary Preambles, shall be read in conjunction with and shall form part of the descriptions of items in the bills of quantities

Where descriptions or Supplementary Preambles in the bills of quantities differ from these Model Preambles for Trades, the descriptions or Supplementary Preambles in the bills of quantities shall take precedence. Where supplementary preambles differ from descriptions in the bills of quantities, the descriptions in the bills of quantities shall take precedence

Except where otherwise stated, all preambles contained in any individual Trade Preamble shall apply equally to any work of a similar nature in all other trades

A.2 ABBREVIATIONS

The following abbreviations shall apply:

AASHTO	–	American Association of State Highway and Transportation Officials
AISI	–	American Institute of Steel Industries
BS	–	British Standard
CKS	–	Coordinating Specifications issued by the Central Coordinating Committee under the auspices of the South African Bureau of Standards
CSIR	–	Council for Scientific and Industrial Research
SANS	–	South African National Standards and the number following shall refer to the relevant specification or code of practice as the case may be

A.3 MATERIALS AND WORKMANSHIP

Materials and workmanship shall be the best of their respective kinds. Only new and undamaged materials shall be used in the Works. Materials to be permanently installed into the works shall not be used for any temporary purposes on site. Work shall be to the approval of the Principal Agent and shall be executed in accordance with the relevant manufacturer's written recommendations and instructions where applicable

A.4 PROPRIETARY PRODUCTS

For the purposes of submission of tenders, rates for items described in the bills of quantities by trade names, catalogue references, etc shall be for the particular type and manufacture specified

The approval of the Principal Agent shall be obtained prior to any substitution and where products or materials etc other than those specified are used, adjustments in the rates will be made if necessary

A.5 ASSEMBLING

Rates for manufactured items shall include assembling complete and handing over in proper working order

A.6 REFERENCES IN DESCRIPTIONS

Any references given in brackets at the end of certain descriptions shall refer to the relevant references on the drawings or schedules

A.7 WATER

Water shall be clean and free from injurious amounts of acids, alkalis, organic matter and other substances and shall be suitable for its intended use

A.8 APPLICATION OF THE NATIONAL BUILDING REGULATIONS

All work shall be executed in accordance with the requirements of SANS 10400

A.9 ACCURACY IN BUILDINGS

The dimensional and positional accuracy of the buildings and their component parts shall comply with Grade II requirements of SANS 10155 unless otherwise stated

A.10 REFERENCES TO OTHER DOCUMENTS

References in these "Model Preambles for Trades" to other documents, including SANS, CKS and BS, shall pertain to the latest edition thereof including all amendments thereto at the date for submission of the tender

B. ALTERATIONS

B.1 ALTERATIONS

In taking down and removing existing work the utmost care shall be observed to prevent any structural or other damage to remaining portions of the building. The Contractor shall ensure the stability of all structures during alteration work

Special care shall be exercised during the progress of the work to ensure that any electrical installations, water supply pipes, telephone and other services which may be encountered are not interfered with and notice shall be given to the Principal Agent if any disconnection or alterations become necessary

The Contractor shall take all precautions necessary to prevent any nuisance from dust whilst carrying out the work

B.2 MATERIALS FROM THE ALTERATIONS, CREDIT, ETC

Materials recovered from the alterations (except where described as to be re-used or to be handed over to the Employer) will become the property of the Contractor, who may allow credit in respect thereof where provided for in the bills of quantities. Such materials shall not be re-used in new work without written permission from the Principal Agent

Materials described as "removed" shall be removed from the site immediately.

Materials described as "handed over to the Employer" shall be carefully dismantled where necessary, neatly stored under cover on the site where directed and protected from damage, until required

Materials described as "set aside for re-use" shall be carefully dismantled where necessary, cleaned, neatly stored under cover and protected from damage until required for re-use. Any damage caused to such materials during removal, storage or refixing shall be made good at the Contractor's expense

B.3 DISPOSAL OF DEBRIS ETC

The Contractor shall be responsible for the removal from the site of all materials, debris and rubbish resulting from the alterations

B.4 MAKING GOOD DAMAGED WORK

The Contractor shall make good in all trades to existing work where damaged or disturbed through the alterations with all necessary new materials to match the existing

B.5 FORMING NEW OPENINGS OR ALTERING OPENINGS IN EXISTING WALLS

Where new openings are formed or openings altered in existing walls, the wall above the opening shall be broken out and a new brick, in situ concrete or prestressed concrete lintel inserted, complete with all necessary reinforcement, formwork, turning piece, etc, the jambs and portions of openings as described shall be built up with new brickwork or blockwork properly toothed and bonded to existing, cavities of hollow walls shall be closed where necessary and finishes shall be made good all round and into reveals

B.6 BUILDING UP OPENINGS

Where existing openings are given in number as built up, the existing surfaces all round shall be prepared as necessary, brickwork or blockwork properly toothed and bonded to existing, wedged up to underside of existing lintel and finishes shall be made good on both sides

C. EARTHWORKS

C.1 DEMOLITIONS

C.1.1 Nature and extent

Descriptions of demolitions give a rough guide only as to the scope of the work. Tenderers are therefore advised to visit the site before submitting a tender and to acquaint themselves with the nature and extent of the work to be done and the value of recoverable materials which are not to be re-used or handed over to the Employer. Unless otherwise stated, loose furniture, kitchen and other equipment, apparatus, machinery, etc shall remain the property of the Employer and the removal thereof does not fall within the scope of this Contract

The Contractor shall completely demolish the buildings etc in a careful, skilful, practical and safe manner down to 150mm below ground level

Demolitions shall include breaking up and removing:

all floors and surface beds;

all external screen walls, steps, ramps, aprons, surface water channels, rainwater sumps, gulleys, etc attached to the building to be demolished;

all services, manholes, etc in ground to a point not less than 1m beyond the perimeter of the building including plugging off ends of all remaining pipes, drains, etc, filling in holes where necessary and ramming and levelling to ground level

Where only a portion of a building is to be demolished, it shall be done without damage to the remaining portion of the building. Any such damage shall be made good by the Contractor at his own expense

C.1.2 Notices etc

The Contractor shall, before commencing work, obtain all necessary authorisation for carrying out the work, by whatever means including the use of pneumatic equipment or blasting, give all necessary notices and pay all charges and fees in connection therewith. He shall also comply with all regulations pertaining to rodent extermination and he shall obtain the requisite Rodent Extermination Clearance Certificate and pay all necessary fees. All receipts and certificates shall be left in the safekeeping of the Principal Agent. All the abovementioned charges and fees shall be paid by the Contractor and included in his prices

The Contractor shall give ample notice to the Principal Agent and Local Authorities regarding any disconnections necessary prior to the removal or interruption of electrical or telephone cables, water and sanitary services etc

C.1.3 Loss

After the handing over of the site to the Contractor, the full risk of any loss or damage to buildings to be demolished shall be the responsibility of the Contractor and he shall take such precautions as he deems necessary against such loss or damage

C.1.4 Materials from the demolitions, credit, etc

Materials recovered from the demolitions will become the property of the Contractor, who may allow credit in respect thereof where provided for in the bills of quantities. Such materials shall not be re-used in any new work without written permission from the Principal Agent

C.1.5 Disposal of debris etc

The Contractor shall be responsible for the removal from the site of all materials, rubble, debris and rubbish resulting from the demolitions

C.2 SOIL INSECTICIDES

The application of soil insecticides shall be carried out in accordance with "The application of soil insecticides for the protection of buildings" - SANS 10124

C.3 FILLING ETC

C.3.1 Filling generally

Filling over site shall be spread, levelled, watered and consolidated in layers not exceeding 300mm

Filling under floors and backfilling to excavations shall be suitable inert material, free from clay, vegetable matter, large stones, etc, having a maximum plasticity index of 10, spread, levelled and compacted to a density of at least 90% Mod. AASHTO

C.3.2 Hardcore

Hardcore shall be broken stone or other approved hard material graded from 25mm to 75mm with the finer material on top and shall be spread, levelled and consolidated

C.4 EXCAVATIONS

C.4.1 Classification of excavated material

“Hard rock” shall mean granite, quartzitic sandstone or other rock of similar hardness, the removal of which requires drilling, wedging and splitting or the use of explosives

“Soft rock” shall mean hard material the removal of which warrants the use of pneumatic tools and includes hard shale, ferricite, compact outcrop and material of similar hardness

“Earth” shall mean all ground other than that classified as “hard rock” or “soft rock” and shall include made-up ground and any loose stones or pieces of concrete not exceeding 0,03m³ in volume

D. CONCRETE, FORMWORK AND REINFORCEMENT

D.1 SPECIFICATION FOR CONCRETE WORK GENERALLY

All in situ concrete work (plain and reinforced) shall comply with SANS 1200G supplemented by the following Project Specification. Where SANS 1200G and the Project Specification are in conflict, the Project Specification shall take precedence

Wherever the term "Engineer" appears in SANS 1200G or in the following Project Specification this shall be deemed to mean the Principal Agent's representative responsible for this section of the Works

PROJECT SPECIFICATION

The following amplifications, additions and amendments to SANS 1200G shall constitute the Project Specification. Clause numbers refer to either the existing clauses in SANS 1200G or to new clauses, which are related to the existing clauses

1. SCOPE

This clause is amended to include:

- 1.1 This specification does not cover the methods by which the finished structure is to be measured for the purpose of payment and the "Standard System of Measuring Building Work" shall apply

2. INTERPRETATIONS

2.1 SUPPORTING SPECIFICATIONS

Clause 2.1(b) shall not apply

2.2 APPLICATION

This clause shall not apply

4. PLANT

4.5 FORMWORK

4.5.2 Finish

Unless otherwise stated the quality of all formwork shall be such that the finished surface of the concrete is "Rough" in terms of clause 5.2.1(a)

5. CONSTRUCTION

5.2 FORMWORK

5.2.1 Classification of Finishes

- (a) **Rough.** No treatment of the surface of the concrete will be required after the striking of the formwork. The finish of the concrete need not be more accurate than Degree of Accuracy III
- (b) **Smooth.** Imperfections such as small fins, bulges, irregularities, surface honeycombing and surface discolorations shall be made good and repaired by approved methods. The finish of the concrete shall be accurate to Degree of Accuracy II
- (c) **Special**
- (i) **Smooth and fair**

This class of finish requires the highest standard of concrete work, formwork, accuracy and technique

Concrete placed in any one structure to give this finish shall be made from cement and aggregates from the same source. The grading of the aggregate shall be kept constant

Formwork shall be metal, wrot timber or other approved material in new condition designed and constructed to suit the particular job in hand and with shutter bolts and joints between panels in a regular pattern approved by the Principal Agent. Joints between panels shall be watertight, but the use of sealing tape which will mark the concrete shall not be permitted

Designated joints shall be in the position and of the details 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 Engineer 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 smooth and fair finished side shall be struck true and level with a trowel

Special care shall be taken to ensure that forms are clean and free 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 etc. Any defect shall be made good by either removing and replacing the defective concrete or, in certain instances only, by patching

5.5 CONCRETE

5.5.1.6 Prescribed mix concrete

Where prescribed mix concrete is specified the proportions of constituents, the maximum size of coarse aggregate and the estimated minimum compressive strength shall be as specified in the following table:

Class of Concrete	Estimated minimum compressive strength in MPa at 28 days	Maximum nominal size of coarse aggregate in mm	Proportions of Constituents		
			Cement (Parts)	Fine aggregate (Parts)	Coarse aggregate (Parts)
A	7	37,5	1	4	8
B	15	19	1	3	5
C	20	19	1	2,5	3,5

Cement shall comply with SANS 50917-1 of strength 32,5N or higher

Should cement and aggregates be mixed by volume, the contents of a 50kg sack of cement shall be taken to be 0,033m³

Notwithstanding the requirements contained in SANS 1200G, the Principal Agent may permit certain items of non-structural concrete to be mixed by hand

If the concrete is mixed by hand, it shall first be mixed in a dry state on a clean non-absorbent surface until it is of uniform colour and consistency. Just enough water shall then be added to permit mixing and working, at which stage the concrete shall continue to be mixed until it is of uniform colour and consistency

5.5.1.7 Strength concrete

Where strength concrete is specified it shall be designated by its specified strength followed by the size of stone used in its manufacture, eg 30 MPa/19mm

The water/cement ratio shall be as Table 5 of clause 5.5.1.5 for moderate exposure conditions

5.5.1.8 "No-Fines" concrete

"No-fines" concrete shall consist of one part cement to eight parts aggregate graded from minimum 6mm to maximum 13mm size

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. Concrete shall be spade worked sufficiently to ensure that it fills the forms but vibrating, tamping or ramming will not be permitted

5.5.3.2 **Ready-mixed concrete**

The use of ready-mixed concrete and the acceptability of test results from a central concrete production facility shall be subject to the written approval of the Engineer

6. **TOLERANCES**

Degree of Accuracy II shall apply for all work unless otherwise stated

7. **TESTS**

7.1 **FACILITIES AND FREQUENCY OF SAMPLING**

7.1.2 **Frequency of sampling**

7.1.2.5 The frequency of sampling shall be as directed by the Engineer, but not less than one set of cubes from every 50m³ cast

8. **MEASUREMENT AND PAYMENT**

This clause shall not apply

D.2 AGGREGATES OF LOW DENSITY

Aggregates of low density shall comply with SANS 794

D.3 HOLLOW BLOCKS, PREFABRICATED BLOCK BEAMS AND PLANKS, ETC

Blocks, block beams, planks, etc shall be fixed and supported in such a manner that no movement can take place before or during the casting of concrete. No broken components shall be used

D.4 SUPERVISION

A competent and experienced foreman shall superintend personally the whole of the concrete construction and pay special attention to:

- (a) The quality, testing and mixing of materials,
- (b) The placing and compaction of concrete,
- (c) The construction and removal of formwork and
- (d) The sizes and position of reinforcement

The Contractor shall obtain the permission of the Principal Agent before commencing concreting of foundations or reinforced structure

No inspection, approval, authorisation to proceed, comment or instructions following from such an inspection, or failure of the Principal Agent to comment on any particular aspect of the work, shall be deemed to relieve the Contractor in any way from his obligation to ensure through his own supervision that the work is constructed in every way in accordance with the Drawings, Specification and Conditions of Contract, nor relieve him from his obligations to make good any fault or defect, nor shall it be deemed that there is any obligation on the Principal Agent to inspect all or any part of the Works or that such inspection is necessarily complete in every respect

D.5 GENERAL

Concrete

Rates for concrete work shall include all "construction joints" other than "designated joints" as defined in SANS 1200G clause 2.4.3 which are measured separately, and for the design of strength concrete mixes and all testing of concrete and materials other than compressive strength testing of concrete samples taken from concrete being placed in the Works. The Contractor shall only be entitled to payment for those samples and compressive strength tests called for by the Engineer and which pass the test requirements

Surface beds cast in panels shall be cast in panels approximately 9m²

Formwork

Formwork to slabs and beams shall be cambered where required

Rates for formwork to soffits shall include propping not exceeding 3,5m high unless otherwise described.

Formwork to walls and columns is not exceeding 3,5m high above bearing level unless otherwise described

Reinforcement

Standard welded steel fabric reinforcement shall be as included in Table 1 of SANS 1024 and shall have 300mm wide laps.

The mass of binding wire is not included in the mass of the reinforcement and the cost thereof shall be included in the rates for the reinforcement

E. PRECAST CONCRETE

E.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Precast concrete paving slabs SANS 541

Cement, water, aggregates and reinforcement shall be as described under D. CONCRETE, FORMWORK AND REINFORCEMENT

E.2 CONCRETE

Concrete shall be as described under D. CONCRETE, FORMWORK AND REINFORCEMENT and unless otherwise stated shall be prescribed mix concrete Class C but with coarse aggregate of an appropriate size

E.3 MOULDS

Before each casting, moulds shall be coated with a suitable release agent which will not in any way discolour the surface of the finished product or impair its strength. Where items are described as "finished smooth from the mould" or as "precast terrazzo", moulds shall be made to a high degree of accuracy and shall be such as to leave even and smooth surfaces

E.4 FINISHES TO BLOCKS

Where described as "precast terrazzo", such surfaces shall have a facing of terrazzo described under O. PLASTERING. The facing shall be poured into the moulds in a wet state (not dry pressed) and thoroughly worked up against finished faces to ensure that it finishes smooth from the mould

Projections shall be rubbed off and faces shall be of even colour and free from blemishes, cracks and other imperfections. Salient angles shall be arris rounded

E.5 CASTING ETC

Items shall be suitably cured, shall not be handled whilst still green and shall not be built in within 21 days of casting

E.6 REINFORCEMENT

Unspecified reinforcement required for manufacturing, handling and erection purposes and for reinforcing projecting and other unwieldy portions of blocks shall be provided by the Contractor at his discretion

E.7 BEDDING, JOINTING AND POINTING

Blocks shall be bedded and jointed solidly in Class I mortar as described under F. MASONRY and shall be pointed with slightly keyed joints

Blocks finished with "precast terrazzo" shall have joints raked out and pointed with slightly keyed joints in tinted waterproofed mortar composed of one part cement and three parts sand to match terrazzo facing

E.8 GENERAL

Precast concrete work shall include reinforcement required for manufacturing, handling and erection purposes, steel rod or wire hooks and/or mortices for lewis bolts required for handling and transporting, any necessary temporary propping and strutting and bedding, jointing and pointing

F. MASONRY

F.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Burnt clay masonry units	SANS 227
Limes for use in building	SANS 523 {Slaked (hydrated) limes}
Aggregates from natural sources – fine aggregates for plaster and mortar	SANS 1090
Concrete masonry units	SANS 1215
Prestressed concrete lintels	SANS 1504
Burnt clay paving units	SANS 1575
Metal ties for cavity walls	SANS 28
Common cement	SANS 50197-1 (Class 32,5N)
Masonry cement	SANS 50413-1 (Class 22,5X)
Concrete masonry construction	SANS 10145
The structural use of masonry	SANS 10164-1
Masonry walling	SANS 10249
Concrete floors	SANS 10109-1&2

F.2 SAND

Sand shall be washed where necessary and screened through a 2,4mm mesh sieve

F.3 BURNT CLAY BRICKS

Burnt clay bricks shall be of nominal size 222 x 106 x 73mm unless otherwise stated

Common bricks shall be General Purpose bricks

Extra hard burnt bricks shall be General Purpose (Special) bricks

Facing bricks shall exhibit a liability to efflorescence not in excess of "Slight" and water absorption when tested in conformity with the requirements of SANS 227 shall not exceed 14%

Particular care shall be taken to preserve arrisses and faces of facing and paving bricks during transit and handling

F.4 CONCRETE BRICKS

Concrete bricks shall have a nominal compressive strength of 8 MPa

F.5 QUARRY TILES ETC

Quarry, cement and similar tiles shall be of approved manufacture, even in shape and size, free from cracks, twists or blemishes and uniform in colour

F.6 WIRE TIES

Wire ties shall be of galvanized steel of the single wire type for solid walls and either the "Butterfly" or Modified PWD type for hollow walls. Ties shall be of sufficient length to allow not less than 75mm of each end to be built into brickwork or embedded in concrete

F.7 BRICKWORK REINFORCEMENT

Brickwork reinforcement shall be manufactured from hard drawn steel wire conforming to BS 785 and shall consist of two 2,8mm diameter main wires with 2,5mm diameter cross wires at 300mm centres welded at intersections

Brickwork reinforcement shall be lapped not less than 300mm at end joints and for a length equal to the width of the widest reinforcement at intersections

F.8 MORTAR

Mortar shall comply with the following table:

1	2	3	4
Mortar Class	Minimum compressive strength MPa	Cement:sand (common cement)	Cement:sand (masonry cement)
I	10	1:4 or 50kg to 130 litres	1:3 or 50kg to 100 litres
II	5	1:6 or 50kg to 200 litres	1:5 or 50kg to 170 litres
III	1,5	1:9 or 50kg to 300 litres	1:6 or 50kg to 200 litres

Mortar shall be Class II unless otherwise specified

Mortar plasticizers may only be used with the approval of the Principal Agent

The materials shall be mixed dry until of uniform colour, water added and the mixture turned over until the ingredients are thoroughly incorporated

Mortar shall be produced in such quantities as can be used before commencement of set and no mortar that has set shall be used

F.9 COMPO MORTAR

Compo mortar shall be Class III mortar in accordance with clause F.8 but with a lime content of 80 litres

The lime and sand shall be mixed dry until of uniform colour, water added and the mixture turned over until the ingredients are thoroughly incorporated. Immediately before use, the cement shall be mixed in and the requisite amount of water added. Compo mortar shall be produced in such quantities as can be used before commencement of set and no compo mortar that has set shall be used

F.10 BRICKWORK

Wherever practicable, brickwork shall be built in stretcher bond. Unless legitimately required to form bond, no false headers shall be used. English bond shall only be used where specifically so indicated or where stretcher bond is not practicable

Brickwork, unless otherwise described, shall be built in Class II mortar

Bricks shall be laid on a solid bed of mortar and all joints shall be grouted up solid

The brickwork shall be carried up in a uniform manner, no part being raised more than 1,2m above adjoining work

Where necessary, bricks shall be wetted before being laid and the course of bricks last laid shall be well wetted before laying a fresh course upon it

Walls in thicknesses of more than one skin shall have at least five wire ties per square metre. Linings to concrete, unless otherwise specified, shall be tied to the concrete with at least five wire ties per square metre

Hollow walls, unless otherwise specified, shall be built of two half brick skins with cavity between, tied together with at least five wire ties per square metre. The cavities shall be kept free of all rubbish, mortar droppings and projecting mortar. Mortar joints to brickwork shall be not less than 8mm or more than 12mm thick

F.11 BLOCKWORK

Unless otherwise described, all blockwork shall be built in stretcher bond. Whole blocks shall be used except where bats or closers are required to form bond. Blockwork, unless otherwise described, shall be built in Class II mortar

Solid blocks shall be laid on a solid bed of mortar and all joints shall be grouted up solid

Hollow blocks shall be laid in shell bedding, ie only the inner and outer shells of the blocks shall be covered with mortar. Vertical joints shall be similarly formed

The blockwork shall be carried up in a uniform manner, no part being raised more than 1,2m above adjoining work

Clay blocks shall be wetted before being laid and the course of blocks last laid shall be well wetted before laying a fresh course upon it

F.12 CENTRES AND TURNING PIECES

Centres and turning pieces to soffits of arches and lintels shall be left in position for not less than 14 days

F.13 FACE BRICKWORK

Face brickwork shall be built in stretcher bond, unless otherwise specified, to a true and fair face. Perpendents shall be vertically aligned

Facing bricks shall be mixed to ensure that the proper blending of bricks within the colour range of each facing brick being used is obtained

F.14 PAVINGS, SILLS, COPINGS, ETC

Clay bricks and tiles shall be wetted before fixing and shall be solidly bedded and jointed in Class I mortar and pointed with slightly keyed joints

G. WATERPROOFING

G.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Bituminous damp-proof courses	SANS 248 (Type FV)
Polyolefin film for damp- and waterproofing in buildings (walls, sills, etc)	SANS 952 (Type B)
Polyolefin film for damp- and waterproofing in buildings (floors and basements)	SANS 952 (Type C)
Mastic asphalt for roofing	SANS 297
Mastic asphalt for damp-proof courses and tanking	SANS 298
Bituminous roofing felt	SANS 92 (Type 60)
Polyolefin film for damp- and waterproofing in buildings (flat roofs)	SANS 952 (Type A)
Chloroprene rubber sheet (for waterproofing)	SANS 580
Sealing compounds for the building industry, two-component, polysulphide base	SANS 110 (Type 2 - Gun Grade)
Sealing compounds for the building and construction industry, two- component, polyurethane base	SANS 1077
The waterproofing of buildings (including damp-proofing and vapour barrier installation)	SANS 10021

G.2 WATERPROOFING TO ROOFS, BASEMENTS, ETC

Waterproofing to roofs, basements, etc shall be carried out by workmen who are experienced in this type of work

G.3 DAMP-PROOF COURSE TO WALLS

All joints in damp-proof course to walls shall be lapped a minimum of 150mm except at junctions and corners where the lap shall equal the full thickness of the wall

H. ROOF COVERINGS ETC

H.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Concrete roofing tiles	SANS 542
Clay roofing tiles	SANS 632
Sawn softwood timber battens	SANS 1783-4
Fibre-cement sheets (flat and profiled)	SANS 685
Aluminium alloy corrugated and troughed sheets	SANS 903
Continuous hot-dip zinc-coated carbon steel sheet of commercial, lock-forming and drawing qualities	SANS 3575
Continuous hot-dip zinc-coated carbon steel sheet of structural quality	SANS 4998
Polyolefin film for damp- and waterproofing in buildings	SANS 952
Metal roofing tiles	SANS 1022
Glass-reinforced polyester (GRP) laminated sheets (profiled or flat)	SANS 1150
Fasteners for roof and wall coverings in the form of sheeting	SANS 1273
Materials for thermal insulation of buildings	SANS 1381-1&4
Expanded polystyrene thermal insulation boards	SANS 1508
Fixing of concrete interlocking roofing tiles	SANS 10062
Roof and side cladding	SANS 10237
Sheet zinc	BS 849
Sheet lead	BS 1178
Sheet aluminium	BS 1470
Sheet copper	BS 2870

H.2 GALVANIZED STEEL PROFILED SHEETS ETC

Galvanized steel profiled sheets, ridge and hip coverings, etc shall be coated with a minimum of 275 g zinc per m² and shall be free of white rust

H.3 GALVANIZED SHEET IRON

Galvanized sheet iron shall be rolled steel sheet coated on both sides with a minimum of 275 g of zinc per m² and shall be free from white rust

H.4 NAILING AND SCREWING

Where nailing and screwing is required:

- galvanized iron nails and screws shall be used for galvanized sheet iron and sheet zinc
- copper or copper alloy nails and screws for sheet copper and sheet lead
- aluminium alloy or stainless steel nails and screws for sheet aluminium

H.5 LAPS

Sheet metal flashings shall have minimum 100mm laps and linings to valleys, secret gutters, etc minimum 225mm laps

H.6 GENERAL

Rates for profiled sheet roofing and rolled edges, ridge and hip coverings, flashing pieces, etc of metal, fibre-cement, plastic, etc shall include fixing accessories

I. CARPENTRY AND JOINERY

I.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Sawn softwood timber : General requirements	SANS 1783-1
Sawn softwood timber : Stress-graded structural timber and timber for frame wall construction	SANS 1783-2
Sawn softwood timber : Brandering and battens	SANS 1783-4
Softwood flooring boards	SANS 629
Hardwood furniture timber	SANS 1099
Hardwood block and strip flooring	SANS 281
Wooden ceiling and panelling boards	SANS 1039
Laminated timber (glulam)	SANS 1460
Gypsum plasterboard	SANS 266
Fibreboard products	SANS 540
Wood-wool panels (cement bonded)	SANS 637
Fibre-cement sheets (flat and profiled)	SANS 685
Fibre-cement boards	SANS 803
Plywood and composite board	SANS 929
Wooden ceiling and panelling boards	SANS 1039
Particle boards	SANS 50312-1to7
Decorative laminates	SANS 4586
Wooden doors	SANS 545
Fire doors	SANS 1253
Materials for thermal insulation of buildings	SANS 1381-1,2,4&6
Expanded polystyrene thermal insulation boards	SANS 1508
Mild steel nails	SANS 820
Metal screws for wood	SANS 1171
Wood-preserving creosote	SANS 539

Softwood shall bear the relevant SABS mark and shall be ordered in the sizes in which it will be used as no scantlings of marked timber will be allowed. Should SABS marked timber be unavailable, the Principal Agent's prior permission shall be obtained before using unmarked timber

I.2 HARDWOODS

All hardwoods shall be specially selected, well seasoned, free from sapwood and well kiln dried. Meranti shall be Red or Medium Brown Meranti, even in grain and colour, selected from "Standard and Better" quality from Malaysia

I.3 INFECTION AND PRE-TREATMENT OF TIMBER

All timber used on the site, whether for permanent or temporary work, shall be free of borer or other beetle and termite infection. If the work under this contract falls within an area designated under Government Notice R2577 of 197812-29, permanent softwood fixed in the building shall be treated against borer etc in accordance with Government Notice R451 of 1969-03-28 using Class B or C preservative

When treated timbers are cut, the cut surfaces shall be effectively brushed with at least two coats of preservative solution

I.4 CONSTRUCTION IN GENERAL

Where applicable, construction methods shall comply with SANS 10082. Wood and laminate flooring shall be installed in accordance with SANS 10043. Roof trusses shall be manufactured, erected and braced in accordance with SANS 10243

I.5 STRUCTURAL TIMBER

Timbers generally shall be in single lengths and jointing of timbers will only be permitted when the required length is unobtainable. Only the absolute minimum of joints to obtain a particular length will be permitted and such joints are to be evenly spaced along the length of the timber

Finger-jointing of structural timber will be permitted, in which case it shall be manufactured in accordance with SANS 10096

I.6 PLATE NAILED TIMBER ROOF TRUSSES

Plate nailed timber roof trusses shall be of approved design and manufacture and constructed with softwood structural timber by a truss Fabricator holding a current Certificate of Competence awarded by the Institute of Timber Construction

Each roof truss shall have all its members accurately cut and closely butted together and rigidly fixed by CSIR approved patented galvanized metal spiked connectors, precision pressed on both sides of each intersection by an approved method, all in accordance with the manufacturer's instructions

The design, manufacture and transportation of the roof trusses, bracing, etc shall be under the control of a registered Structural Engineer in accordance with SANS 1900, SANS 10160 and SANS 10163, who shall, after erection, provide a certificate confirming that the design, manufacture, transportation, erection and bracing has been carried out in accordance with this specification

The design shall include for all live loads, wind loads and for dead loads imposed by roof covering, purlins, ceilings, etc

Fully detailed shop drawings of all trusses etc, indicating sizes, bracing, loading, etc, shall be submitted to the Principal Agent for approval prior to fabrication

Unless specific erection instructions are given, erection shall be carried out in accordance with the procedures and recommendations of the manual "The Erection and Bracing of Timber Roof Trusses" published by the Institute for Timber Construction and the Council for Scientific and Industrial Research or as detailed by the designer

Roof trusses and bracing shall include design and preparation of shop drawings

I.7 TONGUED AND GROOVED BOARDING

Tongued and grooved boards for floors, panelling, etc shall be in long varying lengths with joints tightly cramped up and secret nailed. Flooring boarding shall be flush jointed with staggered heading joints and machine sanded after fixing

I.8 JOINERY

Skirtings, cornices, rails, etc shall be in single lengths wherever practicable and shall have splayed heading joints where necessary. Skirtings shall be trenched at back

All horns of door frames shall be checked and splayed back where frames are fixed projecting or flush with surface and built in

Heads of screws in exposed faces of hardwood joinery shall be sunk and match pelleted

Joinery shall have arris rounded angles and shall be blocked and planted on

I.9 VENEERS

All face veneers shall be of kiln dried timber, free from knots, cracks, patchwork, sapwood and other defects, selected and glued, dried and machine-sanded to a smooth finish. All veneers shall be applied under hydraulic pressure

I.10 DOORS

Flush doors shall have solid timber edge strips with concealed edges. Where doors are to be finished with a transparent finish, the veneer and the edge strips shall be timber of the same species and as far as possible of matching colour. Unless otherwise described all flush doors shall be of interior quality, but where exterior quality doors are specified the glue used shall be of the WBP type

Framed and ledged batten doors described as filled in with V-jointed boarding shall 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 shall be in narrow widths, closely cramped up, rebated or tongued on outer edges and housed to grooves in stiles and rails and twice countersunk brass screwed at each intersection with ledges and braces and the inner edges of the abutting stiles and rails shall be chamfered to form a V-joint at junction with the board

Unless otherwise described double doors shall have rebated meeting stiles

I.11 FIXING

All nails and screws shall be of the size, length and type appropriate to their respective uses. All screws for hardwood joinery work shall be brass

Items described as "plugged" shall be screwed to fibre, plastic or metal plugs at not exceeding 600mm centres. Where items are described as "bolted", the bolts have been given separately

I.12 ADHESIVES

Adhesives shall comply with BS 1204 and 4071 where applicable. Adhesives used in the manufacture of external joinery exposed to excessive moisture (eg kitchen and laboratory worktops) shall be of the WBP type

J. CEILINGS, PARTITIONS AND ACCESS FLOORING

J.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Gypsum plasterboard	SANS 266
Fibreboard products	SANS 540
Gypsum cove cornice	SANS 622
Wood-wool panels (cement-bonded)	SANS 637
Sawn softwood timber : Brandering and battens	SANS 1783-4
Sawn softwood timber : Timber for frame wall Construction	SANS 1783-2
Fibre-cement boards	SANS 803
Plywood and composite board	SANS 929
Wooden ceiling and panelling boards	SANS 1039
Materials for thermal insulation of buildings	SANS 1381-1&4
Expanded polystyrene thermal insulation boards	SANS 1508
Raised access flooring	SANS 1549

J.2 TONGUED AND GROOVED BOARDING

Tongued and grooved boarding for ceilings shall be in long varying lengths, V-jointed one side and with joints tightly cramped up and secret nailed

J.3 CEILINGS ETC

J.3.1 Brandering

Brandering for ceilings and eaves soffit coverings shall be symmetrically arranged with necessary smaller panels. Main branders shall be at right angles to roof timbers, with cross branders cut in between and branders shall be fixed with galvanized wire nails driven in on skew alternately in opposite directions

J.3.2 Ceiling boards

Ceiling boards shall be in long lengths symmetrically arranged with necessary smaller panels, closely butted and secured at 150mm centres to brandering with galvanized or cadmium-plated clout-headed nails

J.4 GYPSUM SKIM PLASTER

Gypsum skim plaster shall be pure gypsum plaster finished with a steel trowel

J.5 EXPOSED TEE-SYSTEM SUSPENDED CEILINGS

The ceiling panels shall be as described in the items and the panels shall be stiffened at back as recommended by the manufacturer to prevent bowing or sagging

The exposed surfaces of all ceiling panels and supporting members shall be uniform in colour and free from surface blemishes

The suspension grid system shall be an approved patent suspension system comprising 38mm galvanized steel main and cross tee bearers spaced in both directions at centres to suit sizes of ceiling panels used, with the cross bearers fitted between and notched to form flush fit with main bearers. The exposed flange of the tees shall be 25mm wide, covered with a rolled aluminium cap painted a low sheen satin white. Cornices etc shall be as described in the items and shall be finished to match the exposed tees

The main tee bearers shall have holes for cross tees at 300mm centres and holes for hangers at 50mm centres. In addition, main and cross tee bearers shall be holed as necessary for and provided with timber wedges or steel clips where recommended by the manufacturer to prevent ceiling panels from lifting

The web of the exposed cross tee bearers shall extend to form a positive interlock with the main tee bearers and the lower flange shall be cut back to provide a joint free appearance

All hangers shall be galvanized and shall be at centres to meet the requirements of the specification with one end fixed to the suspension grid main bearers and the other end fitted with suitable galvanized fixing cleat securely fixed to the structure. Fixing points shall be agreed to by the Principal Agent before any power shot fixings are made. Hangers shall not be suspended from air-conditioning ducts. Where recommended by the manufacturer, hangers shall be of the rigid type

Component parts and fixings shall be non-corrosive and able to withstand atmospheric pollution. Surfaces of aluminium which are in contact with other materials when fixed, particularly metals, shall be suitably insulated to prevent electrolytic corrosion

Ceilings shall comprise hangers, suspension grid system and ceiling panels, shall be constructed in a manner suitable for carrying air-conditioning diffusers and light fittings in the positions required, shall be set out to layouts approved by the Principal Agent and shall have the standard suspension systems modified as necessary to work around any pipes or light fittings

J.6 FLUSH PLASTERED SUSPENDED CEILINGS

Gypsum plasterboard panels of the specified thickness generally in 1200mm widths and in long lengths shall be fixed grey side down with self-tapping screws to the suspension system with the joints between boards loosely butt jointed and covered with 50mm wide strips of self-adhesive fibre tape

The plasterboard panels shall be finished with gypsum skim plaster trowelled to a smooth polished surface to the thickness etc recommended by the manufacturer

The suspension system shall be an approved patent concealed suspension system consisting of galvanized mild steel bearers suspended on approved non-rusting metal hangers spaced generally at 1200mm centres or to suit layout of air-conditioning ducts and other services etc above ceiling with one end bolted to the bearer and the other end fitted with a galvanized fixing cleat securely fixed to the structure as required

Fixing points shall be agreed to by the Principal Agent before any power shot fixings are made. Hangers shall not be suspended from air-conditioning ducting

Ceilings shall comprise hangers, suspension system, ceiling panels and plaster finish, shall be constructed in a manner suitable for carrying air-conditioning diffusers and light fittings in the positions required, shall be set out to layouts approved by the Principal Agent and shall have the standard suspension system modified as necessary to work around any pipes or light fittings

K. FLOOR COVERINGS, WALL LININGS, ETC

K.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Semi-flexible vinyl floor tiles	SANS 581
Resin modified vinyl floor tiles	SANS 586
Flexible vinyl flooring	SANS 786
Hardwood block and strip flooring	SANS 281
Wood mosaic flooring	SANS 978
Textile floor coverings (pile construction)	SANS 1375
Textile floor coverings (needle-punched construction)	SANS 141
Carpet underlays	SANS 1419
The installation of wood and laminate flooring	SANS 10043
The installation of resilient thermoplastic and similar flexible floor covering materials	SANS 10070
The installation of textile floor coverings	SANS 10186
Sheet linoleum (calendered types), cork, carpet and linoleum tiles	BS 810
Solid rubber flooring	BS 1711
Felt backed linoleum	BS 1863

K.2 LAYING OF MATERIAL

Floor tiles shall be laid with continuous joints in both directions

Patterned floor coverings shall be matched at joints

K.3 GENERAL

Floor coverings, wall linings, skirtings, nosings, etc shall include all preparatory work to screeded or plastered surfaces etc, priming coats and adhesives

Floor coverings and wall linings shall be dressed around and into corners. Wood block and wood mosaic flooring shall be sanded with a sanding machine and sealed with a coat of approved penetrating sealer

Plastic handrails shall have welded and polished butt joints

L. IRONMONGERY

L.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Locks, latches and associated furniture for doors. (Domestic type)	SANS 4
Kitchen cupboards: Built-in and free-standing	SANS 1385
Single action closers	SANS 1510
Padlocks	SANS 1533
Fasteners	SANS 1700
Chalk writing boards for schools	CKS 36

L.2 KEYS

Locks shall have the minimum possible number of interchangeable keys. Cylinder locks and locks described as “en suite” shall be clearly marked with consecutive numbers and each key shall be punched with the corresponding number of the relative lock

L.3 FIXING

Unless otherwise described, ironmongery is to be fixed to wood

Items described as “plugged” shall be screwed to fibre, plastic or metal plugs

Screws, bolts, etc for fixing of ironmongery shall be of matching metal and finish, except for aluminium ironmongery or ironmongery fixed to aluminium in which cases stainless steel screws may be used

All necessary preparation of pressed steel door frames for the fixing of ironmongery to the frames has been included with the pressed steel door frames

L.4 KITCHEN CUPBOARDS

Steel cupboards shall be finished with baked enamel. Tops of floor cupboards shall have laminated plastic covering

Cupboards shall be fitted with all necessary hinges, handles, catches, etc. Cupboards shall be securely fixed with all necessary screws and fibre, plastic or metal plugs

Where cupboards are described as a “series”, tops shall be continuous and cupboards shall be bolted or screwed together, including bolts, screws, holes, etc

M. STRUCTURAL STEELWORK

M.1 SPECIFICATION

All structural steelwork shall comply with SANS 1200H or 1200HA as applicable. Structural fasteners shall comply with SANS 1700

Whenever the term "Engineer" appears in SANS 1200H or 1200HA or in the following Project Specification this shall be deemed to mean the Principal Agent's representative responsible for this section of the Works

M.2 PROJECT SPECIFICATION INCORPORATING AMPLIFICATIONS, ADDITIONS AND AMENDMENTS TO SANS 1200H AND 1200HA

The following amplifications, additions and amendments to SANS 1200H and SANS 1200HA shall apply and clause numbers refer to either the existing clauses in the relevant SANS or to new clauses which are related to the clauses therein

SANS 1200H

3.1.1 Weldable structural steel

Weldable structural steel shall comply with SANS 1431

5.1.2 Contractor provides shop details

The Contractor shall be responsible for the preparation of all shop detail drawings

5.1.3 Engineer provides shop details

This clause shall not apply

5.3.9 Protective treatment

Structural steelwork shall be cleaned and prepared by wire brushing in accordance with SANS 10064 and all surfaces shall be primed as specified to a minimum dry film thickness of 30 micrometres before leaving the workshop. Upon delivery to the site and again after erection all bared surfaces shall be made good with similar primer

8. Measurement and payment

This clause shall not apply

SANS 1200HA

5.2.10 Protective treatment

Structural steelwork shall be cleaned and prepared by wire brushing in accordance with SANS 10064 and all surfaces shall be primed as specified to a minimum dry film thickness of 30 micrometres before leaving the workshop. Upon delivery to the site and again after erection all bared surfaces shall be made good with similar primer

5.3.7 Repairs to paint and site painting

This clause shall not apply

8. Measurement and payment

This clause shall not apply

N. METALWORK

N.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Fasteners	SANS 1700
Expanded metal	SANS 190-1&2
Windows and doors made of rolled mild steel sections	SANS 727
Hot-dip galvanized zinc coatings on fabricated iron and steel articles	SANS 121
Strongroom and vault doors	SANS 949
Anodized coatings on aluminium (for architectural applications)	SANS 999
Steel door frames	SANS 1129
Mushroom- and countersunk-head bolts and nuts	SANS 1143
Welding of metalwork	SANS 1044
Adjustable glass-louvred windows	CKS 413
Aluminium sheet and strips	BS 1470
Aluminium extruded tube and hollow sections	BS 1474
Aluminium bars and sections	BS 1476

N.2 STEEL

Steel shall be mild steel of approved commercial quality. Steelwork shall be cleaned and prepared by wire brushing in accordance with SANS 10064 and given one coat of primer as specified before leaving the workshop

N.2.1 Galvanizing of steel

Steelwork described as “galvanized” shall be galvanized by means of the hot-dip process after fabrication. Where welding on site is unavoidable, such welded joints shall be cleaned down and cold galvanized to approval

N.3 STAINLESS STEEL

Stainless steel shall be AISI Type 304 stainless steel and shall be buffed to an even satin finish. Stainless steel screws shall be used for fixing stainless steel

N.4 ALUMINIUM

Aluminium extrusions shall be of 6063-T6 alloy and temper. Aluminium sheet and strips shall be of 1200-H4 alloy and temper.

Joints in all aluminium members shall be formed in an approved manner so that the joints are practically invisible. Screw heads, pins, rivets, etc shall be concealed as far as possible. 300 Series stainless steel screws and bolts shall be used for jointing and fixing aluminium work

The surfaces of all aluminium which are in contact with other materials when fixed shall be suitably insulated with a non-absorbent insulating material to prevent corrosion. All aluminium work shall be suitably protected against damage, deterioration or discolouration caused by mortar droppings, paint, etc by taping with removable tape, covering with temporary casings or by covering with motor oil

N.4.1 Anodizing of aluminium

Aluminium described as “anodized” shall be treated with Grade 25 coating thickness for exterior use or Grade 15 for interior use as specified, to the required finish. All alloys to be anodized shall be suited to anodizing

N.5 BOLTS AND NUTS

Nuts shall be of at least the strength grade appropriate to the grade of bolt or other threaded element with which they are used

N.6 SCREWING OF METALWORK TO STEEL, WOOD, CONCRETE, ETC

Metalwork described as "screwed" to steel, wood, etc or "plugged" to brickwork, concrete, etc shall be fixed at not exceeding 500mm centres, with necessary holes, countersinking, threading, screws, set screws, self-tapping screws and fibre, plastic or metal plugs

N.7 BOLTING OF METALWORK

Where metalwork is described as "bolted" to steel, wood, brickwork, concrete, etc the bolts are measured elsewhere

N.8 WELDING OF METALWORK

All welds shall be cleaned and filed or ground off smooth to approval. All welded joints shall be continuous

N.9 METALWORK GENERALLY

Metalwork shall have all sharp edges ground smooth. Tubular and pipe work shall include running joints. Rails etc described as "continuous" shall be in long lengths with welded joints

N.10 PRESSED STEEL DOORS, FRAMES, ETC

N.10.1 Door frames

Frames shall project not less than 20mm into floor finish. Except where described as galvanized, frames shall be primed as specified before leaving the factory. Frames are to jambs and heads of openings. Frames for single doors shall be provided with two 100mm steel butt hinges and an adjustable striking plate for a mortice lock and frames for double doors shall be provided with four 100mm steel butt hinges. Butt hinges shall be steel butts with loose pins, welded to frames. Where necessary mortar caps shall be welded to frames and back plates shall be welded on behind tappings for screws

N.10.2 Cupboard door frames

Cupboard door frames shall be as described in N.10.1, but with thresholds of unequal channel section, two 100mm steel butt hinges to hanging stiles, two 75mm steel butt hinges to hanging stiles above transoms, necessary striking plates for mortice locks and keeps for barrel bolts

N.10.3 Combination doors and frames

Combination doors and frames shall be manufactured of 1,6mm thick steel plate. Frames shall be as described in N.10.1. Doors shall be standard design and required profile, with a 44mm wide edge all round, vertical reinforcing ribs pressed in and with two reinforcing rails welded on. The door shall be provided with two lever mortice lock with lock box welded to inside. Doors shall be welded to steel butts

N.10.4 Transformer room doors and frames

Transformer room doors and frames shall be manufactured of 1,6mm thick steel plate. Frames shall be as described in N.10.1. Doors shall be of standard design with a 44mm wide edge all round, vertical reinforcing ribs pressed in and with three reinforcing rails welded on. Single doors shall be fitted with a padlock cleat and two 100mm brass pintle hinges and double doors shall be fitted with a padlock cleat, two 150mm bolts and four 100mm brass pintle hinges. Each leaf shall be fitted with a louvered ventilation panel of standard design backed with 6mm mesh galvanized wire vermin proof screen

N.10.5 Sizes

The frame widths given refer to unfinished wall thicknesses

N.10.6 Glazing beads

Where specified, glazing beads shall be 12 x 12mm standard metal glazing beads mitred at angles and countersunk screwed on at not exceeding 300mm centres with self-tapping screws

N.11 STEEL WINDOWS, DOORS, ETC

N.11.1 Windows, doors, etc

All fittings to windows, doors, etc shall be chromium plated. Fixed lights and opening sashes shall be in single squares. Windows etc of single unit construction shall have weather bars at transoms above opening sashes

Composite windows not of single piece construction shall be coupled with standard coupling mullions and transoms that correspond with the window section used

Kicking plates and panels shall be 1,6mm metal plate fixed with standard metal glazing beads mitred at angles and countersunk screwed on at not exceeding 300mm centres with self-tapping screws

Except where described as galvanized, windows, doors, burglar bars, etc shall be primed as specified before leaving the factory

N.11.2 Burglar bars and flyscreens

Where windows are described as fitted with burglar bars or flyscreens, these shall be standard type fitted over opening sashes

N.12 ADJUSTABLE LOUVRE UNITS

Adjustable louvre units shall be suitable for hand or longarm operation

Louvre units shall include glass louvres with polished edges and installation, including holes, screws, rivets, preparation of openings, etc

N.13 ALUMINIUM WINDOWS AND DOORS

The foregoing preambles "N.4 – ALUMINIUM" shall apply to aluminium windows, doors, etc in all respects in so far as they are applicable. Aluminium windows and doors shall be manufactured from extruded aluminium members of 6063T6, 6261-T6 or 6082-T6 alloy and temper

Ancillary members such as sills, flashings, infill panels and the like formed from flat sheet material shall be of an appropriate alloy selected from 1200, 3004 or 5251 complying with BS 1470 of a temper suitable for the method of forming and a composition suitable for anodizing or painting as required

Windows, doors, etc shall be of an approved standard system, manufactured by an approved firm experienced in this type of work, and shall meet with the minimum recommended performance requirements as set out by the Association of Architectural Aluminium Manufacturers of South Africa (AAAMSA) in the latest edition of the Selection Guide

The fittings for all opening sashes shall be substantial and, unless otherwise described, shall be of high quality aluminium alloy finished to match the windows, doors, etc on which they occur. Samples of all fittings shall be supplied to the Principal Agent for approval

Top, side and bottom hung opening sashes shall be hung on two aluminium hinges with 300 Series stainless steel pins, nylon bushes and stainless steel washers. Side hung sashes shall have fasteners and sliding stays, top hung sashes shall have peg stays and bottom hung sashes shall have spring catches and concealed arms

Projected out sashes shall have aluminium fasteners and concealed arms of a non-corrosive material compatible with aluminium

The frames which are to be built into openings in brickwork shall be fitted with the manufacturer's standard type fixing lugs, not less than 20 x 3 x 150mm long, screwed to frame and placed one near each corner and intermediately not more than 450mm apart to sides, top and bottom and where fixed to concrete reveals, wood sub-frames or to preformed openings in brickwork shall have countersunk holes for screws, one near each corner and intermediately not more than 450mm apart to sides, top and bottom

N.13.1 Glazing beads

Where so described, openings and sashes of windows and doors shall be fitted with approved channel section aluminium glazing beads sufficient in size and profile to suit the method of glazing employed, finished to match the windows, doors, etc and neatly mitred. Screws where necessary shall be of aluminium or 300 Series stainless steel and have pan or raised heads finished to match the beads

N.13.2 Finishes

Windows, doors, etc described as "anodized" shall be treated with Grade 25 coating thickness. Windows, doors, etc described as "factory painted" shall have an electrostatically applied oven baked polyester paint coating not less than 25 micrometres thick

N.13.3 General

Aluminium windows, doors, etc shall include glass as described, fixing in position, sealing and protection against damage, deterioration or discolouration by taping with removable tape or covering with temporary casings or motor oil and removing same on completion

N.14 STRONGROOM AND RECORD ROOM DOORS

Strongroom and record room doors shall not be built in as the work proceeds, but shall be fixed later in the openings provided. The Contractor shall ensure that the lock or other important parts of the door are not tampered with. Should any such tampering occur, the Contractor will be held responsible and at the Principal Agent's discretion shall provide a new door or lock and keys at his own expense. The keys shall not be delivered together with the doors to the building site. The Contractor shall arrange for the manufacturer to send the keys direct to the Principal Agent per registered post. If these instructions are not complied with, a new lock and keys shall be provided by the Contractor at his own expense

N.15 STEEL ROLLER SHUTTERS

Roller shutters shall be of approved manufacture comprising curtain, vertical channel guides and top mechanism. The curtain shall be constructed of 1mm thick machine-rolled galvanized interlocking slats with mild steel end locks spot welded to alternate strips. The bottom shall be provided with a galvanized rail riveted on and vertical edges shall slide in galvanized channel guides formed of steel not less than 2,5mm thick bolted to sides of openings

The mechanism shall be covered in a galvanized sheet iron box. The ungalvanized sections shall be primed as specified before leaving the factory

O. PLASTERING

O.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Common cement	SANS 50197-1(Class 32,5N)
Masonry cement	SANS 50413-1(Class 225X)
Limes for use in building	SANS 523 {Slaked (hydrated) limes}
Aggregates from natural sources – Fine aggregates for plaster and mortar	SANS 1090

O.2 PREPARATORY WORK

Surfaces shall be clean and free of oil and thoroughly wetted directly before any plastering or other in situ finishes are commenced. Concrete surfaces shall be slushed with a mixture of one part cement and one part coarse sand or otherwise treated to form a proper key. Preparatory coats shall be thoroughly scored and roughened to form a proper key

O.3 FINISH

All coats of paving and plastering shall be executed in one operation without any blemishes

O.4 SCREEDS

Screeds shall be composed of one part cement and four parts sand

O.5 CEMENT RENDER

Cement render shall be composed of one part cement and three parts sand finished with a steel trowel to a smooth polished surface and cured for at least seven days after laying

Cement render finish shall be divided into panels not exceeding 6m² with V-joints and deep trowel cuts

O.6 GRANOLITHIC

Granolithic shall be composed of one part cement, one part fine sand, two parts coarse sand and one part granite or other approved stone aggregate that will pass through a 5mm sieve, finished with a steel trowel to a smooth polished surface and cured for at least seven days after laying

Coloured granolithic shall be carried out in two coats in one operation and shall be tinted to the required colour with approved colouring pigment mixed into the finishing coat. Under no circumstances is the pigment to be sprinkled on and trowelled in after the granolithic is laid

Granolithic shall be divided into panels not exceeding 6m² with V-joints and deep trowel cuts

O.7 TERRAZZO

Terrazzo shall be applied in two coats. The undercoat shall be composed of one part cement and three parts sand and shall be finished with a wooden float. The finishing coat shall be composed of one part cement and two parts marble or stone aggregate of a colour and size to obtain the required colour and texture and shall be at least 12mm thick, and applied before the undercoat has dried out. The finishing coat shall be compacted by tamping or rolling until superfluous water has been expelled, finished with a steel trowel and cured for at least seven days after laying. The finished surface shall show at least 80% of the aggregate

Surfaces described as “polished” shall be polished by machine using various grades of abrasive and grouting with tinted cement as necessary between polishings

Surfaces described as “polished” shall be polished by machine using various grades of abrasive and grouting with tinted cement as necessary between polishings

Surfaces described as “brushed” shall be brushed with a steel wire brush on the day the terrazzo has been laid to expose the aggregate as required

Where required, brass or other dividing strips shall be embedded in the undercoat to finish flush with the finished surface

Three sample blocks, each size 300 x 300mm, as separately measured shall be prepared for approval by the Principal Agent and kept in an accessible place on the site until the completion of the contract

O.8 SKIRTINGS

Skirtings shall not exceed 25mm thick and shall have a fair edge with arris or rounded external angle at top edge or V-joint to finish flush with plaster and coved or square junction with floor finish

O.9 THICKNESS OF PLASTER

All plaster, other than skim plaster, shall be not less than 10mm and not more than 20mm thick

O.10 CEMENT PLASTER

Cement plaster shall comply with the following table:

1	2	3
Plaster Class	Cement:sand (common cement)	Cement:sand (masonry cement)
I	1:4 or 50kg to 130 litres	1:3 or 50kg to 100 litres
II	1:6 or 50kg to 200 litres	1:5 or 50kg to 170 litres
III	1:9 or 50kg to 300 litres	1:6 or 50kg to 200 litres

O.11 COMPO PLASTER

Compo plaster shall be composed of one part cement, two parts lime and nine parts sand

O.12 GYPSUM SKIM PLASTER

Gypsum skim plaster shall be pure gypsum plaster finished with a steel trowel

O.13 TWO COAT PLASTER WITH GYPSUM FINISH

Two coat plaster with gypsum finish shall comprise an undercoat of Class II cement plaster finished with a wooden float and a finishing coat of gypsum skim plaster

O.14 ROUGH-CAST PLASTER

Rough-cast plaster shall be applied in two coats. The undercoat shall be composed of one part cement and five parts sand finished with a wooden float. The finishing coat shall be composed of one part cement and three parts stone aggregate that will pass through a 4mm sieve. The finishing coat shall be flicked on with a machine before the undercoat has set to obtain an even texture

O.15 FINE ROUGH-CAST PLASTER

Fine rough-cast plaster shall be as for rough-cast plaster but the finishing coat shall be composed of one part cement and three parts coarse sand

O.16 GENERAL

Rates for plastering described as being on vertical surfaces of brickwork or blockwork shall include concrete columns, beams and lintels flush with the face of the wall

P. TILING

P.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Glazed ceramic wall tiles and fittings	SANS 22
Ceramic wall and floor tiles	SANS 1449
Common cement	SANS 50197-1(Class 32,5N)
Masonry cement	SANS 50413-1(Class 22,5X)
Aggregates from natural sources – Fine aggregates for plaster and mortar	SANS 1090
The design and installation of ceramic tiling	SANS 10107

P.2 TILES, MOSAICS, ETC

Tiles, mosaics, etc shall be even in shape and size, free from cracks, twists or blemishes and uniform in colour

P.3 PREPARATORY WORK

Surfaces shall be clean and free of oil and thoroughly wetted directly before any tiling is commenced. Concrete surfaces shall be slushed with a mixture of one part cement and one part coarse sand or otherwise treated to form a proper key

P.4 CERAMIC WALL AND FLOOR TILING

Where tiles are fixed to plaster or screeds with an adhesive, the adhesive shall be as recommended by the manufacturer of the tiles. Joints shall be straight, continuous and flush pointed with an approved grouting compound

P.5 GENERAL

Tiling described as “on walls” is on brick walls or block walls unless otherwise stated and shall include concrete columns, beams and lintels flush with the face of the wall

Q. PLUMBING AND DRAINAGE

Q.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Sheet metal

Sheet zinc	BS 849
Sheet aluminium	BS 1470
Sheet copper	BS 2870

Rainwater systems

Unplasticized poly(vinyl chloride) (PVC-U) components for external rainwater systems	SANS 11
--	---------

Pipes and fittings

Steel pipes : Pipes suitable for threading and of nominal size not exceeding 150mm	SANS 62
Plain-ended solid drawn copper tubes for Potable water	SANS 460
Malleable cast iron fittings threaded to ISO 7-1	SANS 4
Polyethylene (PE) pipes for water supply – Specifications	SANS 4427
Cast iron fittings for asbestos cement pressure pipes	SANS 546
Vitrified clay sewer pipes and fittings	SANS 559
Reinforced concrete pressure pipes	SANS 676
Concrete non-pressure pipes	SANS 677
Cast iron pipes and pipe fittings for use above ground in drainage installations	SANS 746
Unplasticized poly(vinyl chloride) (PVC-U) sewer and drain pipes and pipe fittings	SANS 791
Fibre-cement pipes, couplings and fittings for sewerage, drainage and low-pressure irrigation	SANS 819
Pitch-impregnated fibre pipes and fittings and jointing	SANS 921
Unplasticized poly (vinyl chloride) (PVC-U) pressure pipe systems	SANS 966-1
Unplasticized poly(vinyl chloride) (PVC-U) soil, waste and vent pipes and pipe fittings	SANS 967
Rubber joint rings (non-cellular)	SANS 974-1
Copper-based fittings for copper tubes	SANS 1067-1&2
Fibre-cement pressure pipes and couplings	SANS 1223
Polypropylene pressure pipes	SANS 1315
Non-metallic waste traps	SANS 1321-1&2
Vent valves for drainage installations	SANS 1532
Heavy duty cast iron pipe fittings for drainage and gas and water supplies	BS 78

Lead pipes	BS 602
Cast iron pressure pipes for use in drainage and gas and water supplies	BS 1211
Stainless steel pipes for use with compression fittings	BS 4127
Sanitary fittings etc	
Stainless steel sinks with draining boards (for domestic use)	SANS 242
Stainless steel wash-hand basins and wash troughs	SANS 906
Stainless steel sinks for institutional use	SANS 907
Stainless steel stall urinals	SANS 924
Acrylic sanitary ware : Baths	SANS 1402-1
Glazed ceramic sanitary ware	SANS 497
WC flushing cisterns	SANS 821
Flush valves for WC flushing cisterns	SANS 1509
Taps, valves etc	
Water taps (metallic bodies)	SANS 226
Water taps (plastic bodies)	SANS 1021
Single control mixer taps	SANS 1480
Float valves	SANS 752
Plastic floats for ball valves	SANS 1006
Functional control valves and safety valves for Domestic hot and cold water supply systems	SANS 198
Cast iron gate valves for waterworks	SANS 664
Automatic shut-off flush valves for water closets and urinals	SANS 1240
Check valves (flanged and wafer types)	SANS 1551-1&2
Fire extinguishers	
Portable refillable fire extinguishers	SANS 1910
Portable rechargeable fire extinguishers : Halogenated hydrocarbon type extinguishers	SANS 1151
Water heaters and fire hose reels	
Fixed electric storage water heaters	SANS 151
Fire hose reels (with semi-rigid hose)	SANS 543
Drainage covers, gratings, etc	
Cast iron surface boxes and manhole and inspection covers and frames	SANS 558
Cast iron gratings for gullies and stormwater drains	SANS 1115
The installation of polyethylene and poly (vinyl chloride) (PVC-U and PVC-M) pipes	SANS 10112
Water supply and drainage for buildings	SANS 10252-1&2

Q.2 GENERAL**Q.2.1 Excavations**

Excavations shall be deemed to be in "earth". Backfilling to excavations shall be executed in 300mm thick layers, watered and compacted. Surplus excavated material shall be spread and levelled over site as directed

Q.2.2 Concrete

Unreinforced concrete shall be Class B prescribed mix concrete and reinforced and precast concrete shall be Class C prescribed mix concrete

Q.2.3 Brickwork

Brickwork shall be of extra hard burnt bricks built in Class I mortar

Q.2.4 Plaster

Plaster shall be 1:3 cement plaster finished smooth with a steel trowel. All angles shall be rounded

Q.2.5 Diameters of pipes etc

Diameters stated for pipes, traps, valves, etc are internal diameters except PVC, polyethylene, stainless steel and copper pipes and traps for which external diameters are stated

Q.3 SHEET METAL WORK**Q.3.1 Galvanized sheet iron**

Galvanized sheet iron shall be rolled steel sheet coated on both sides with Class Z275, unless otherwise specified, zinc coating complying with SANS 3575/4998. Sheets shall be free from white rust

Q.4 EAVES GUTTERS**Q.4.1 Galvanized sheet iron gutters**

Galvanized sheet iron gutters shall have beaded edges and all joints shall be riveted and soldered. Angles shall be strengthened with 50 x 0,6mm galvanized sheet iron strips soldered on over the internal faces of mitres

Gutters shall be fixed with falls to outlets on 30 x 3mm galvanized mild steel brackets, bent to the shape of gutters, with front ends taken up to the underside of beaded edge of gutter and each screwed to roof timbers or bolted to fibre-cement fascias with 6mm galvanized gutter bolts. Gutters shall be bolted to brackets at front with 6mm galvanized gutter bolts, one to each bracket

Brackets shall be positioned at joints of gutters and intermediately at not exceeding 1,25m centres

Q.4.2 Fibre-cement gutters

Fibre-cement gutters shall have spigot and socket joints. Gutters shall be fixed with falls to outlets on standard aluminium alloy brackets, screwed or bolted to roof timbers or fascias

Q.4.3 Unplasticized polyvinyl chloride (UPVC) gutters

Gutters shall be fixed with falls to outlets on brackets as supplied by the manufacturer, screwed or bolted to roof timbers or fascias

Q.4.4 Aluminium gutters

Aluminium gutters shall be roll formed on site to required lengths and profiles from 3003H14-3SH4 alloy strip not less than 0,7mm thick factory coated on both sides with baked enamel and two coats of silicone modified polyester to a total minimum thickness of 20 micrometres. Angles, stopped ends, etc shall be prefabricated units pop riveted to gutters with joints sealed with mastic. The guttering shall be in continuous lengths between angles, stopped ends, etc

Q.5 RAINWATER PIPES

Q.5.1 Galvanized sheet iron pipes

Galvanized sheet iron pipes shall have seams at the back and shall be jointed with soldered slip joints. Pipes shall be fixed to walls etc with galvanized mild steel holderbats spaced at not exceeding 2m centres with tails driven in or cut and pinned in 1:3 cement mortar

Q.5.2 Fibre-cement pipes

Fibre-cement pipes shall have spigot and socket joints. Pipes shall be fixed to walls etc with standard aluminium alloy holderbats with tails driven in or cut and pinned in 1:3 cement mortar

Q.5.3 Unplasticized polyvinyl chloride (UPVC) pipes

Pipes shall be fixed to walls etc with patented UPVC or aluminium clips and holderbats as supplied by the manufacturer of the pipe

Q.5.4 Aluminium pipes

Aluminium pipes and fixing straps shall be formed from 3003H14-3SH4 alloy strip not less than 0,7mm thick factory coated on both sides as described for aluminium gutters. Pipes shall be in continuous lengths with formed angles, offsets, shoes, etc. Pipes shall be fixed to walls etc with 20 x 0,6mm straps at not exceeding 1,5m centres screwed to 25 x 75 x 100mm hardwood chamfered and oiled blocks plugged to walls

Q.6 STORMWATER CHANNELS

In-situ concrete stormwater channels shall be constructed of unreinforced concrete with segmental channel formed in top. Channels shall be laid to falls on a well rammed earth bottom and finished smooth on exposed surfaces

Precast concrete channels shall be of 25 MPa concrete, generally in 1m lengths, finished smooth from the mould on exposed surfaces, laid to falls on a well rammed earth bottom, jointed in 1:3 cement mortar and pointed with keyed joints

Q.7 JOINTS

Joints of pipes not covered by SANS shall be as follows:

Pipes

Fibre-cement, concrete, pitch-impregnated fibre and vitrified clay pipes for use under ground in non-pressure pipe lines

Cast iron for use above ground

Cast iron for use below ground

Galvanized mild steel

Joints between pipes of different materials shall be as follows:

Between cast iron and mild steel

Between cast iron and clay

Between mild steel or copper and clay

Joints

Flexible joints in accordance with the manufacturer's instructions

Spigot and socket joints with tarred rope yarn and caulking compound

or

Plain ended joints with stainless steel couplings with neoprene rubber sleeves

Spigot and socket joints with tarred rope yarn and caulking compound

Joints of screwed galvanized steel sockets or bolted galvanized iron flanges

Screwed joints with plastic jointing tape or hemp

Flanged joints which shall be bolted and provided with rubber gaskets and with flanges screwed to pipes

Spigot and socket joints with tarred rope yarn and caulking compound

Spigot and socket joint with semi-dry cement caulking and 1:2 cement mortar fillet

Spigot and socket joint with either bitumen or semi-dry cement caulking and 1:2 cement mortar fillet

Q.8 FIXING OF PIPES

Pipes shall be fixed as follows:

Q.8.1 Galvanized mild steel (except those stated in Q.8.3)

To walls with galvanized mild steel brackets for pipes not exceeding 80mm diameter and with galvanized cast iron hinged holderbats with brass pins or bolts for pipes exceeding 80mm diameter; both types with tails cut and pinned in 1:3 cement mortar

To woodwork with screw-on type galvanized mild steel holderbats

Q.8.2 Copper and stainless steel

To walls with brass holderbats or screw-on type two-piece spacing clips for pipes not exceeding 75mm diameter and with purpose made holderbats for pipes exceeding 75mm diameter; both types with tails cut and pinned in 1:3 cement mortar

To woodwork with screw-on type brass holderbats

Q.8.3 Cast iron and galvanized mild steel for soil, waste and vent pipes

To walls with hinged cast iron holderbats with brass bolts and with tails cut and pinned in 1:3 cement mortar

To woodwork with screw-on type galvanized mild steel holderbats

Q.8.4 Polyethylene, polypropylene and patented UPVC or unplasticized polyvinyl chloride

To walls, woodwork, etc with aluminium clips and holderbats as supplied by the manufacturer of the pipes

Q.8.5 Fibre-cement

To walls with aluminium alloy holderbats with tails cut and pinned in 1:3 cement mortar

Q.8.6 Pipes fixed to ceilings

Fixed with holderbats and standard or purpose made hangers, with extended hangers for pipes to falls

Q.9 PIPES LAID IN GROUND

Q.9.1 Water pipes etc

Water pipes, gas pipes, etc laid in ground shall be at least 400mm deep from the crown of the pipe to the finished surface

Q92 Drain pipes

Excavations taken out too deep shall be filled in with selected soil and compacted. Backfilling to sides and up to 300mm above plastic pipes shall be free from stone or hard substances which will not pass a 10mm mesh

Q.10 CLEANING EYE LIDS

Cleaning eye lids for drain pipe fittings shall be fixed and sealed as follows:

Pipe fittings

Method of sealing and fixing

Fibre-cement

Sealed with synthetic rubber or bituminous mastic packing and fixed with screws

Vitrified clay

Polypropylene lid sealed with synthetic rubber packing and pressed into position

Polypropylene and unplasticized polyvinyl chloride

Sealed with synthetic rubber packing and screwed on or pressed into position

Cast iron

Sealed with tallow or putty and fixed with non-ferrous metal screws

Galvanized malleable cast iron and cast brass

Sealed with synthetic rubber packing and screwed in

Q.11 CLEANING EYES

Cleaning eyes shall consist of cast iron frames and lids with letters "CE" (or "SO") cast in lids. The lids shall be secured with non-ferrous metal screws. Frames shall be jointed to vertical drain pipes. Cleaning eyes shall be encased in unreinforced concrete taken up to ground level and plastered on exposed surfaces

Q.12 INSPECTION EYE MARKER SLABS

Inspection eye marker slabs shall be 350 x 350 x 50mm thick precast concrete finished smooth from the mould, with letters "IE" (or "IO") formed in top and placed flush in ground or paving

Q.13 GULLEYS

Gulleys shall be built up of traps, vertical piping and gulley heads with loose gratings, all encased in unreinforced concrete to finish flush with gulley head top and taken up to at least 50mm above surrounding finished surfaces. The outer top edge of the concrete encasing shall be splayed and the exposed surfaces plastered

Q.14 DISHED GULLEYS

Dished gulleys shall be built up of traps, vertical piping and gulley heads with loose gratings, all encased in unreinforced concrete and with dished unreinforced concrete hopper size 450 x 450mm overall around gulley head with rounded kerb 50mm wide to front and sides and 25mm wide at back, 100mm high above top of dishing and the hopper plastered on exposed surfaces. Top of hopper shall be taken up to at least 50mm above surrounding finished surfaces

Q.15 SUMPS, CATCHPITS, INSPECTION CHAMBERS, ETC

Q.15.1 Rainwater sumps

Rainwater sumps shall be built with half-brick sides on 100mm thick unreinforced concrete bottom, plastered internally on walls and with 80mm high unreinforced concrete kerb at top rebated for grating or cover and plastered on exposed surfaces

Q.15.2 Stormwater catchpits and inspection chambers

Brick catchpits and inspection chambers shall be built with one-brick sides on 150mm thick unreinforced concrete bottom projecting 100mm beyond walls all round, plastered internally on walls and with 100mm thick reinforced concrete cover slab with opening rebated for frame of grating or cover and plastered on exposed surfaces

Precast concrete catchpits and inspection chambers shall be constructed in accordance with the applicable details shown on Drawing LE-1 of SANS 1200LE. Precast concrete manhole sections and slabs shall comply with SANS 1294 and pipes shall be SC type and in accordance with SANS 677

Q.15.3 Sewer inspection chambers

Brick inspection chambers shall be built as for brick stormwater inspection chambers and with the bottom of the chamber well benched around half round channels, bends, junctions, etc up to sides of chamber in unreinforced concrete finished smooth

Precast concrete inspection chambers shall be constructed in accordance with the applicable details shown on Drawing LD-5 of SANS 1200LD. Precast concrete manhole sections and slabs shall comply with SANS 1294 and the pipes shall be SC type in accordance with SANS 677

Q.15.4 Stormwater drain junction boxes

Junction boxes shall be formed of 150mm thick unreinforced concrete bottom and sides to suit the various sizes of the drain pipes and built after the pipes have been laid, with the sides taken up slightly higher than the highest pipe and finished level on top for and covered with a 75mm thick loose precast concrete slab

Q.15.5 Step irons

Where inspection chambers exceed 1,2m deep, cast iron step irons shall be provided, built into the wall at 300mm centres and staggered regularly in vertical rows spaced at 200mm centres horizontally

Q.16 STOPCOCK AND METER BOXES

Stopcock and meter boxes shall be built with half-brick sides with a cast iron box and lid complying with SANS 558 set in 75mm wide unreinforced concrete kerb for the full depth of the cast iron box and plastered on exposed surfaces

Q.17 VALVE CHAMBERS

Valve chambers shall be built with half-brick sides with 100mm thick unreinforced concrete kerb to top with rebate for cover and frame to finish flush with adjacent paving or finished ground level and plastered on exposed surfaces

Q.18 CAST IRON COVERS, GRATINGS, ETC

All cast iron covers, gratings, frames and surface boxes shall be coated with preservative solution. Frames shall be cast into concrete. Covers, except covers to stormwater drainage or electrical cable inspection chambers, shall be set in grease

Q.19 CONCRETE ENCASING

Concrete encasing for pipes, bends, traps, gulleys, grease traps, etc shall be unreinforced concrete not less than 100mm thick all round

Q.20 SANITARY FITTINGS

Q.20.1 General

Glazed ceramic, acrylic and porcelain enamelled sanitary fittings and component parts shall be white. Accessories for sanitary fittings shall be chromium plated brass

Waste outlets for baths, basins, etc shall comprise chromium plated brass waste union with grating, rubber washers and locknut, fitted with rubber or vulcanite plug on a chromium plated brass chain and stay

Q.20.2 Stainless steel sanitary fittings

Stainless steel sinks and draining boards, basins, wash troughs and urinals shall be AISI Type 304 satin finished stainless steel. All stainless steel fittings shall be treated on the back with a vermin proof sound deadening coating. Sinks, basins and wash troughs shall be provided with 40mm diameter screwed waste outlets

Q.20.3 Precast concrete wash troughs

Reinforced precast concrete wash troughs shall have a sloping front with ribbed rubbing surface and shall be finished smooth on exposed faces with top edges and inner angles rounded. Each compartment shall be fitted with a 40mm diameter waste outlet. Wash troughs shall each be supported on two reinforced precast concrete pedestals finished smooth on exposed faces

Q.20.4 Steel baths

Steel baths shall be porcelain enamelled internally and painted externally and fitted with waste outlet and overflow grating with coupling

Q.20.5 Acrylic resinous baths

Acrylic resinous baths shall be fitted with waste outlet and overflow grating with coupling

Q.20.6 Acrylic resinous wash hand basins

Acrylic resinous wash hand basins and vanity units shall have a smooth high gloss finish, with outlet openings, soap recesses, tap-holes and integral overflow and shall be fitted with waste outlet and overflow grating with coupling

Q.20.7 Glazed ceramic sanitary fittings

Sinks shall be provided with integral weir overflows

Washdown closet pans shall have washdown action and be provided with smooth finished injection moulded polypropylene heavy duty double flap seats fixed with non-ferrous bolts. Urinal channels shall be provided with outlet gratings fitted in bitumen

Q.20.8 Flush and sparge pipes

Flush pipes for high level cisterns shall be of plastic or drawn galvanized steel

Flushpipes for low level cisterns shall be of plastic

Flush and sparge pipes for urinals with high level cisterns shall be of chromium plated copper piping and of the sizes recommended by the manufacturer of the urinal

Q.21 INSTALLATION OF SANITARY FITTINGS

Sanitary fittings shall be installed as follows:

Q.21.1 Precast concrete wash troughs

Precast concrete wash troughs shall be bedded on top of pedestals which shall be bedded on floors in 1:3 cement mortar

Q.21.2 Stainless steel wash troughs and wash hand basins

Stainless steel wash troughs and wash hand basins shall be fixed to walls on a pair of galvanized mild steel gallows brackets bolted to wall with 6mm diameter expanding bolts

Q.21.3 Acrylic resinous wash hand basins

Acrylic resinous wash hand basins shall be fixed to walls on a pair of standard painted cast iron brackets screwed to underside of basin and bolted to wall with 6mm diameter expanding bolts

Q.21.4 Ceramic wash hand basins

Ceramic wash hand basins shall be fixed to walls on a pair of standard painted steel or cast iron brackets bolted to wall with 6mm diameter expanding bolts

Q.21.5 Acrylic resinous baths

Acrylic resinous baths shall be bedded in 1:5 cement mortar on three cross rows of bricks or bedded solid on a layer of dry river sand and fixed to wall with galvanized steel brackets under edges (in the middle of the sides against walls) bolted to wall with 6mm diameter expanding bolts and sealed along top against wall finishes with patent mildew resistant silicone rubber

Q.21.6 Washdown closet pans and cisterns

Washdown closet pans shall be bedded on floors in 1:3 cement mortar. Cisterns shall be fixed to walls with 6mm diameter expanding bolts

Q.21.7 Ceramic urinals

Ceramic stall and slab urinals shall be bedded on floors and against walls in 1:3 cement mortar. Slabs, channels, treads, etc shall be jointed in 1:3 cement mortar and pointed in white cement

Ceramic bowl urinals shall be fixed to walls on standard steel brackets bolted to wall with 6mm diameter expanding bolts. Cisterns shall be fixed to walls on standard brackets bolted to wall with 6mm diameter expanding bolts

Q.21.8 Stainless steel urinals

Stainless steel stall and slab urinals shall be bedded on floors in 1:3 cement mortar and with backs and sides against walls filled in with fine unreinforced concrete. Cisterns shall be fixed as cisterns for ceramic urinals

Q.22 FIRE HOSE REELS

Fire hose reels shall each be fitted with a 30m long hose of internal diameter not less than 19mm with a 4,8mm internal diameter chromium plated brass nozzle

Q.23 FIRE EXTINGUISHERS

All fire extinguishers shall be fully charged

Q.24 TESTS

Sewerage pipe lines, sanitary plumbing including fittings and hot and cold water supply and fire service shall be tested to the approval of the Principal Agent and Local Authority

The Contractor shall provide all testing apparatus, material and labour required for the tests and inspections

R. GLAZING

R.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Glass in building	SANS 50572-1 to 5
Glazing putty for wooden and metal window frames	SANS 680
Silvered glass mirrors for general use	SANS 1236
Safety and security glazing materials for buildings	SANS 1263-1 to 3
Sealing compounds for the building industry, one Component, silicone-rubber based	SANS 1305
The installation of glazing materials in buildings	SANS 10137
Work on glass for glazing	SANS 1817

R.2 PUTTY ETC

Glazing putty shall be Type I for wooden sashes and Type II for steel sashes. Putty for glazing to unpainted hardwood shall be tinted to match the colour of the wood

Back putty shall not exceed 3mm thick. Putty shall not be painted until it has formed a surface crust, and if the putty does not form a surface crust it shall be replaced

Butyl putty shall be used where glass is to be fixed in aluminium sashes with glazing beads

Non-setting compounds shall be used where laminated glass is fixed in sashes with glazing beads

S. PAINTWORK

S.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Decorative paint for interior use	SANS 515
Decorative high gloss enamel paints	SANS 630
Primers for wood (for external work)	SANS 678
Primers for wood (for internal work)	SANS 678
Zinc phosphate primer for steel	SANS 1319
Undercoats for paints (except emulsion paint)	SANS 681
Aluminium paint	SANS 682
Varnish for interior use	SANS 887
Emulsion paints	SANS 1586

Materials for paintwork shall be delivered to the site in unopened containers and applied in accordance with the manufacturer's instructions. Materials shall be suitable for application to the surfaces concerned. Undercoats shall be as recommended by the manufacturer of the finishing coats

S.2 PREPARATORY WORK

S.2.1 Plastered surfaces etc

Plastered surfaces shall be thoroughly inspected and, if necessary, washed down and brushed in order to remove any traces of efflorescence and allowed to dry completely before any paint finish is applied. Before any paint is applied, holes, cracks and irregularities in plaster and other surfaces shall be filled with a suitable filler and finished smooth. Unfinished concrete surfaces shall have all projections rubbed off and shall be thoroughly cleaned with a spirits-of-salts solution (1 part concentrated spirits-of-salts to 4 parts water)

S.2.2 Metal surfaces

Metal surfaces shall be sanded, where necessary, washed with a suitable cleaning agent and left smooth

Protective coatings applied by manufacturers to galvanized metal surfaces shall be removed with a suitable agent and the surfaces washed down

Rust, grease and defective factory primers on metal surfaces, as well as pitch on cast iron pipes, shall be removed

S.2.3 Wood surfaces

Knots in woodwork shall be treated with knotting. Minor blemishes shall be filled with a suitable filler. Wood surfaces shall be sanded smooth

S.3 APPLICATION OF PAINT

Primers to wood surfaces shall be applied by brush. Primers to other surfaces may be applied by roller with the approval of the Principal Agent. Undercoats and finishing coats may be applied by brush or roller

Paint shall not be sprayed on except in the case of cellulose and other special paints where spray painting is the accepted method of application

Before subsequent coats of paint are applied the previous coat shall be properly dry and shall be sanded down where necessary

S.4 COLOUR SCHEME

A colour scheme comprising colours and the blending of colours approved by the Principal Agent shall be used for the paintwork. The tints of the undercoats shall closely match the finishing coat but nevertheless differ sufficiently to indicate the number of undercoats. Colour samples of the finishing coats shall be provided in all cases

S.5 GENERAL

Paintwork shall include the preparation of surfaces, filling, stopping, sanding and priming of nail heads and screws. Where windows, sashes, etc are to be painted, the rebates of the openings to be glazed shall be primed

T. PAPERHANGING

T.1 PREPARATORY WORK

Plaster surfaces to be papered shall be dry, thoroughly cleaned down, filled with a suitable filler as necessary to obtain a smooth surface and painted thereafter with a single coat of emulsion paint

Wood surfaces to be papered shall be knotted, stopped and sanded

T.2 PAPERHANGING

Wallpaper shall be hung in vertical long lengths. Vertical joints shall be close-fitted and plumb and the paper shall be tightly fitted to skirtings, ceilings, door frames, windows, etc. Horizontal joints will not be allowed

U. EXTERNAL WORKS

U.1 GENERAL

U.1.1 Excavations

Excavations shall be deemed to be in "earth"

U.2 LANDSCAPING

U.2.1 Topsoil

Topsoil shall vary between sandy loamy soil and sandy clayey soil with an ideal composition of 15% to 25% clay, 10% silt/sludge and 65% to 75% sand, with a minimum ratio of organic material of 2%. All material shall be free of harmful deposits as well as unwanted seeds

U.2.2 Compost

Compost shall be composed of properly decayed organic material, free from harmful deposits, salts, seeds and other waste material and shall have a pH of more than 4 and less than 7

U.2.3 Mulch

Mulch shall be approved organic material free from small particles of bark residue, fungus, disease, etc

U.2.4 Lime

Lime shall be agricultural lime of an approved manufacture

U.2.5 Fertilizer

Fertilizer shall be of the type specified, mixed thoroughly into the soil as prescribed. No fertilizer shall be added more than two weeks prior to planting

U.2.6 Backfilling

Backfilling in plant and tree holes shall be composed of two parts topsoil to one part compost mixed thoroughly together and compacted by foot in 100mm layers. Fertilizer shall only be added if prescribed

U.2.7 Pebbles

Pebbles shall be smooth with a uniform colour and form and ranging in size from 50mm to 75mm diameter. Removal of pebbles from river beds shall be done selectively to avoid any major disruption to the ecology of the river and environment

U.2.8 Plant material

U.2.8.1 General

All plant material (plants, shrubs, trees, etc) shall be obtained from a registered nursery and shall be free from damaged parts, parasites, fungus, other plant diseases or insects. No container-bound plants will be acceptable

U.2.8.2 Trees

The height of trees described in the bills of quantities shall be measured from the top of the root ball to the top of the tree. Where trees are pruned, such prune wounds shall not be more than 25mm in diameter and be sealed with an approved sealing compound

U.2.8.3 Shrubs and small plants

Shrubs and small plants shall meet the requirements for height and spread as specified. Thin or sparsely branched plants shall not be accepted. Branches shall be well spread with ample young branches and the plant as a whole shall be growing well

U.2.8.4 Groundcover

Groundcover shall be dense and healthy and shall comply with the minimum requirements for leaf density as specified

Formal grass shall be planted as runners in 50mm deep drills at 150mm centres unless otherwise described

U.2.9 **Cultivation and preparation of planting areas etc**

All surface rocks and stones larger than 50mm shall be removed before commencing cultivation and preparation. The entire area shall be ripped and rotavated using approved machinery by breaking up the earth to a depth of 300mm at 600mm centres in both directions, unless otherwise described, and then levelled. Where fertilizer or compost is specified, it shall be worked into the topsoil after ripping and rotavation to a depth of 300mm and finished to final levels

All fertilizer to areas to be grassed shall be strewn on the final layer before final finishing is commenced and worked mechanically into the top 150mm soil

U.2.10 **Planting procedure**

Holes for shrubs and groundcover shall be as follows:

Shrubs – 500 x 500 x 500mm deep

Groundcover – 300 x 300 x 300mm deep (if not planted in drills)

Holes for trees shall be square, of adequate size to accommodate the root system and suitable for the height of the tree

All plant material shall be watered thoroughly before careful removal from the container and planted in the prescribed planting medium with the top of the soil in the container finishing level with the surrounding area. Water dams size 800mm diameter x 150mm deep and 500mm diameter x 150mm deep shall be formed around trees and shrubs respectively and all planting material shall be watered immediately after planting. Trees, shrubs, etc shall be properly staked or stayed, depending on their size, on the prevailing windy side with patent tree ties

U.2.11 **Maintenance**

All planted areas shall be maintained for a period of three months after practical completion as defined in the contract with the exception of hydroseeded areas which shall be maintained for 12 months after an acceptable cover has been obtained

This maintenance shall consist of keeping clear of weeds and litter, loosening soil where necessary every two weeks, replacing damaged, diseased or dead plants, pruning, cutting and mowing as necessary and watering so as to keep the plant material in a healthy growing condition

U.3 **ROADWORK**

U.3.1 **Filling**

Filling under roads etc shall be of inert material having a maximum plasticity index of 10, free from large stones etc spread, levelled, watered and compacted in layers not exceeding 200mm thick to a density of 98% Mod AASHTO

U.3.2 **Preparation of sub-grade**

The sub-grade shall be prepared by scarifying for a depth of 150mm and compacting to a density of 98% Mod. AASHTO, including trimming to the correct levels and grades

U.3.3 **Base course**

The base course shall consist of crusher run stone compacted to a density of 98% Mod. AASHTO and finished to the correct levels and grades

U.3.4 **Weed killer**

The completed sub-grade shall be treated with an approved total weed killer

U.3.5 **Bituminous premix road surfacing**

Before spreading the premix material, the base course shall be swept clean and free from all dust, dirt and loose particles, lightly wetted and sprayed with a prime coat of cutback bitumen complying with SANS 308 at the rate of 1 litre/m²

The material shall consist of semi-gap graded crushed stone aggregate having the following grading:

Sieve size (mm)	% By mass passing sieve
13,2	100
4,75	45-60
2,36	42-55
1,18	40-52
0,3	25-45
0,075	5-12

The aggregate shall be mixed with bituminous road tar binder complying with SANS 748 at the rate of 1m³ of stone to 120 litre of emulsion at atmospheric temperature

The binder shall be added to the stone and mixed until the stone is uniformly coated. Thereafter 5% of clean, dry quartzitic sand shall be added and mixed until evenly distributed through the mixture

The premix shall be applied only after the primer has dried out completely and shall be spread immediately after mixing and rolled on the same day

Spreading shall be done evenly over the prepared base course to a loose depth sufficient to ensure the consolidated thickness specified

Rolling shall commence as soon as the binder has set sufficiently, followed after three days by a final rolling

U.3.6 Precast concrete block road surfacing

Paving blocks shall be precast concrete blocks complying with SANS 1058

Blocks shall be laid to true levels and grades on and including a 25mm thick layer of river sand with joints exceeding 2mm and not exceeding 6mm wide

After laying, the paving shall be compacted by means of a vibrating plate compactor, with joints between the blocks filled in, after compaction, by sweeping in fine sand

Infill areas at edges of paving constituting less than 25% of a full block unit and of 25mm minimum dimension shall be filled with Class C prescribed mix unreinforced concrete with top surface trowelled smooth to match blocks. Smaller areas shall be filled with 1:4 cement mortar

U.3.7 Precast concrete kerbs and channels

Precast concrete kerbs and channels shall comply with SANS 927, generally in 1m lengths and finished smooth from the mould on exposed surfaces. Kerbs and channels shall be bedded on and jointed in 1:3 cement mortar and pointed with keyed joints. Bases to kerbs shall be Class B prescribed mix unreinforced concrete

U.3.8 Process control tests

The Contractor shall be responsible for carrying out all necessary process control tests on the density and moisture content of the compacted sub-grade, base course, etc to ensure that the required compaction is being attained

U.4 FENCING ETC

U.4.1 Materials

Materials and workmanship shall comply with the following specifications and requirements :

Wooden poles, droppers, guardrail posts and spacer blocks	SANS 457-2&3
Zinc-coated fencing wire	SANS 675
Prefabricated concrete components for fencing	SANS 1372
Chain-link fencing and its wire accessories	SANS 1373

Fasteners SANS 1700

Anti-intruder fences CKS 451

Metal droppers and standards CKS 451

U.4.2 **Galvanized wire**

All galvanized wire shall be zinc coated wire with Class B zinc coating. Straining wire shall be 4mm diameter galvanized mild steel wire. Tie wire shall be 1,6mm diameter galvanized mild steel wire

U.4.3 **Plastic coated wire**

Plastic coated straining wire shall be 3,15mm diameter Class C galvanized mild steel wire plastic coated to an overall diameter of 3,95mm

Plastic coated tie wire shall be 1,8mm diameter Class C galvanized mild steel wire plastic coated to an overall diameter of 2,5mm

U.4.4 **Galvanized barbed wire**

Galvanized barbed wire shall be 2,5mm diameter mild steel double strand reverse twist zinc coated barbed wire with Class A zinc coating

U.4.5 **Galvanized wire mesh**

Galvanized wire mesh shall be 50mm mesh chain link netting of 2,5mm diameter Class C galvanized mild steel wire

U.4.6 **Plastic coated wire mesh**

Plastic coated wire mesh shall be 50mm mesh chain link netting of 2,5mm diameter Class C galvanized mild steel wire plastic coated to an overall diameter of 3,25mm

U.4.7 **Galvanized welded wire mesh**

Galvanized welded wire mesh shall be fabricated from pre-galvanized wires to rectangular pattern welded together at each intersection using a welding method which forms a zinc oxide protective coating at each intersection

U.4.8 **Razor wire**

Razor wire shall be fabricated from 2,5mm diameter galvanized high tensile steel wire fitted with razor barbs formed of 0,5mm galvanized steel strip clipped on at 37,5mm centres

U.4.9 **Metal droppers and standards**

Droppers shall be of ridged T-section mild steel with a mass of not less than 0,55kg/m. Standards shall be of I-section mild steel with a mass of not less than 3kg/m or of ridged edge Y-section mild steel with a mass of not less than 2,5kg/m, and shall be driven 600mm deep into the ground

Droppers and standards shall have either galvanized, sprayed metal or painted finish as described in the items and in accordance with CKS 451. In addition, those surfaces of standards embedded in the ground shall be coated with bitumen

U.4.10 **Metal posts and stays**

Posts and stays shall comply with CKS 451 and shall be of black galvanized mild steel tubing as specified

Straining posts shall be of 108mm outside diameter x 3mm wall thickness tubing, each with a 300 x 300 x 5mm thick mild steel sole plate and a steel cap welded on

Intermediate posts shall be of 50mm outside diameter x 2,5mm wall thickness tubing, each with a 230 x 230 x 5mm thick mild steel sole plate and a steel cap welded on

Stays for straining posts shall be of 50mm outside diameter x 2,5mm wall thickness tubing, each with a 230 x 230 x 5mm thick mild steel sole plate welded on and fixed raking with top end flattened, bent, holed and bolted to straining post with and including a 5mm diameter galvanized mild steel bolt with nut and washer

Posts and stays shall have either galvanized or painted finish as described in the items and in accordance with CKS 451. In addition, sole plates and portions of posts and stays embedded in ground shall be coated with bitumen

U.4.11 Timber posts, stays and droppers

Timber posts shall be 125mm diameter, timber stays shall be 100mm diameter and timber droppers shall be 30mm diameter

U.4.12 Prestressed concrete posts and stays

Prestressed concrete posts and stays shall be finished smooth from the mould and uniformly stressed by means of high tensile longitudinal prestressing wires with concrete cover to wires of not less than 20mm

Corner and straining posts shall be 100 x 100mm and intermediate posts and stays shall be 75 x 75mm. Stays shall be fixed raking with top end splayed and glued to posts with a suitable epoxy compound

U.4.13 Bolts, nuts and washers

Straining eye bolts, hinge bolts, bolts, nuts and washers shall be galvanized

U.4.14 Precast concrete fencing

Precast concrete fencing over sloping terrain shall be stepped to suit terrain, including the use of increased lengths of posts as necessary, excavation, etc

U.4.15 Concrete bases

Bases in ground for posts, stays, etc shall be of Class B prescribed mix concrete with tops 100mm below surface of ground

Sizes of concrete bases for posts, stays, etc shall be as follows:

Straining and gate posts	–	450 x 450 x 700mm deep
Intermediate posts	–	300 x 300 x 600mm deep
Stays	–	600 x 300 x 500mm deep

U.4.16 Security overhangs

Where fencing is described as having a security overhang, the posts and standards shall have angular (single arm) extension arms

Extension arms shall be attached to the posts and standards by welding in the case of steel and by spiking in the case of timber

Concrete extension arms shall be cast integrally with the post or standard

Barbed wire to security overhangs shall be tightly strained and wired at each intersection with extension arms and shall have barbed wire braces at 450mm centres between standards, posts, etc wired onto the barbed wire and the top straining wire

U.4.17 Gates

Gates shall be formed of 40mm outside diameter x 2,5mm wall thickness mild steel tubular framework with welded joints, strongly braced as necessary and filled in with wire mesh as described above, properly strained and securely bound to framework with tie wire



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

ANNEXURE 2
GENERAL ELECTRICAL SPECIFICATIONS

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 brandering interferes with the installation of the ceiling point specified, the Contractor must trim the brandering 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 under-ground 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 $\frac{3}{4}$ 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.



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

ANNEXURE 3
LIGHTNING PROTECTION SPECIFICATION

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.

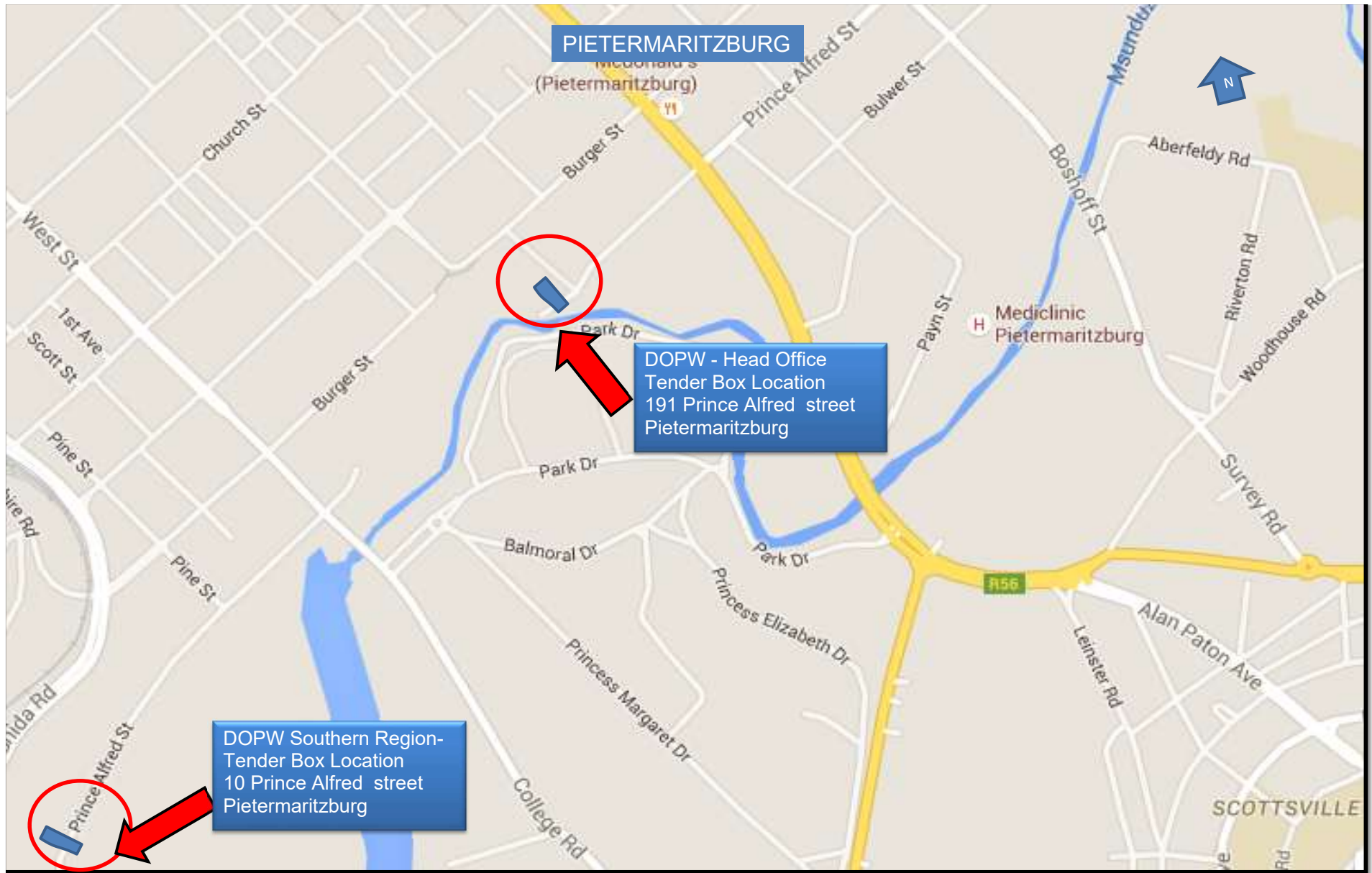
N.B. : The maximum useful length of a dead-ended trench earth is 80 metres.



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

ANNEXURE 4
MAP OF BID SUBMISSION LOCATION





KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

**ANNEXURE 5
JOINT VENTURE AGREEMENT**



Annexure 5
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 Public Works in respect of the following project:

for *(brief description of Contract)*

PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL

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.

No remuneration shall be paid by the Joint Venture to Representatives or their alternates for serving on the Management

4.2.2 *Meetings*

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].



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

ANNEXURE 6

PROJECT SPECIFIC HEALTH AND SAFETY SPECIFICATION



public works

Department:
Public Works
PROVINCE OF KWAZULU-NATAL

Occupational Health and Safety Specification (OHSE SPEC)

Project Name : Emgangeni Secondary School

WIMS no. : 063241

**Client OHS
Representative** : N S MBATHA

Region : Southern Region

District : Ugu

TABLE OF CONTENTS

1. Introduction
2. Definitions
3. Scope of application
4. Contractual Issues
5. Administrative Requirements
 - 5.1 *Notification of Construction Work*
6. Appointment of Safety Officers
7. Annexures
 - i. *Annexure A – Structure of the detailed OHSE Plan*
 - ii. *Annexure B – Client Specific Legal Requirements*
 - iii. *Annexure C – OHS Declaration for Tenders*
 - iv. *Annexure D - Baseline Risk Assessment*

1. Introduction

The *KwaZulu Natal Department of Public Works* is deemed as the “**Client**” in terms of the definitions of Construction Regulations of 2014 as published in *Government Gazette No. 37305*. The Construction Regulations of 2014 under *CR(5)(1)* stipulates that the client must prepare a suitable, sufficiently documented and coherent site specific Occupational Health and Safety Specification for the intended construction work based on the baseline risk assessment.

The purpose of this Occupational Health and Safety Specification document (which hereinafter will be referred to as OHSE Spec) is to provide designers and the successful tenderer with essential OHS information to ensure effective safety management during the design and construction phase of the project.

This OHSE Spec forms an integral part of the contract between the Client and the Principal Contractor, so as to ensure compliance with the Occupational Health and Safety Act, Act 85 of 1993 and its applicable regulations and must serve as the basis for the Principal Contractor to develop his/her Project Safety, Health and Environmental Management Plan. As with any other plan for it to be implemented and managed effectively it requires the allocation of sufficient funds to achieve the objectives set out in the plan. In line with this requirement Construction Regulation 5(1)(g) requires the Client to ensure that the Principal Contractor has made adequate provisions for the cost of Health and Safety Measures in their tenders.

It must be noted that this OHSE Spec as much as it is detailed it is not exhaustive and the onus is on the Principal Contractors to ensure that they comply with Section 8 of the OHS Act, Act 85 of 1993 which states that “*Every Employer shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees.*” this means that Principal Contractors as they are employers in their own right must at all times ensure continuous assessments are done for continued provision and maintenance of a healthy and safe working environment.

2. Definitions

For the purpose of the OHSE Spec, the abbreviations or definitions given hereunder shall apply and the reference to on gender will also apply to the other gender.

“CR” refers to the Construction Regulations 2014

“Agent (Pr.CHSA)” means a competent person who acts as a representative for a Client in terms of regulation (5)5.

“Client” means Department of Public Works

“Competent person” means a person who-

(a) Has in respect of the work or task to be performed the required knowledge, training and experience and, where applicable, qualifications, specific for that work or task: Provided that where appropriate qualifications and training are registered in terms of the provisions of the National Qualifications Framework Act, 2000 (Act No.67 of 2000), those qualifications and that training must be regarded as the required qualifications and training; and

(b) Is familiar with the OHS Act, Act 85 of 1993 and with the applicable regulations made under the Act;

"Construction Manager (Site Agent)" means a competent person responsible for the management of the physical construction processes and the coordination, administration and management of resources on a construction site;

"Construction Site" means a work place where construction work is being performed;

"Construction Supervisor" means a competent person responsible for supervising construction activities on a construction site;

"Construction Vehicle" means a vehicle used as a means of conveyance for transporting persons or material, or persons and material, on and off the construction site for the purposes of performing construction work;

"Construction work" means any work in connection with –

(a) The construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure; or

(b) the construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system; or the moving of earth, clearing of land, the making of excavation, piling, or any similar civil engineering structure or type of work;

"Construction Work Permit" means a document issued in terms of regulation 3 of the Construction Regulations 2014;

"Contractor" means an employer who performs construction work;

"Demolition Work" means a method to dismantle, wreck, break, pull down or knock down of a structure or part thereof by way of manual labour, machinery, or the use of explosives;

"Fall Protection Plan" means a documented plan, which includes and provides for-

- (a) All risks relating to working from a fall risk position, considering the nature of work undertaken;
- (b) The procedures and methods to be applied in order to eliminate the risk of falling; and
- (c) A rescue plan and procedures;

"Health and Safety File" means a file, or other record containing the information in writing required by these Regulations;

"Health and Safety Plan" means a site, activity or project specific documented plan in accordance with the client's health and safety specification;

"Health and Safety Specification" means a site, activity or project specific document prepared by the client pertaining to all health and safety requirements related to construction work;

"Medical Certificate of Fitness" means a certificate contemplated in regulation 7(8) of Construction Regulations 2014;

"Principal Contractor" means an employer appointed by the client to perform construction work;

"Safety Officer" – a person deemed competent by SACPCMP under the relevant category of registration.

"Professional Engineer or Professional Certificated Engineer" means a person holding registration as either a Professional Engineer or Professional Certificated Engineer in terms of the Engineering Profession Act, 2000 (Act No. 46 of 2000);

3. Scope of Application

This OHSE Specification document stipulates the minimum Occupational Health, Safety, and Environmental requirements that the tenderer need to address in his/her OHSE Plan. This Specification also addresses legal compliance, hazard identification, 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. This OHSE Spec is exclusively applicable to the following project pending any change of scope which may necessitate changes to the OHSE Specification;

EMGANGENI PRIMARY SCHOOL

This OHSE Specification further seeks to achieve the following;

- a) To provide Principal Contractors with the Structure of the Detailed OHSE Plans they will have to prepare and submit for this project. **See Annexure A**
- b) Provide the overarching framework within which the Principal Contractor is required to demonstrate compliance with certain requirements for occupational health and safety established by the Occupational Health and Safety Act, Act 85 of 1993, all applicable regulations and Client Specific Requirements. **See Annexure B**
- c) To bring to the attention of the Bidding Principal Contractors that they need to make an undertaking that the costs for executing the project includes the costs of complying with the OHS Act, Act 85 of 1993, all applicable regulations including Client Specific requirements. Such undertaking is made by appending signatures on the OHS Declaration for Tenders. **See Annexure C**
- d) Ensure that the Principal Agent as the Professional Service Provider appointed by the Department to manage the project on its behalf in terms of the Conditions of Contract applicable to this project ensures that the contents of this document and the attached Baseline Risk Assessment are taken into consideration during design by all professions appointed and that the OHSE Specification is incorporated into the tender documents. **See Annexure D**

4. Contractual Issues

Acceptance by the Principal Contractor of the contract with KZN DOPW shall constitute acknowledgement that the Principal Contractor has familiarised him/herself with the contents of the OHSE Spec and that he/she will comply with all its obligations in respect thereof.

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.

The Client or its duly appointed Construction H&S Agent reserves the right to stop any Principal Contractor or Sub-Contractors from working whenever Safety, Health or Environmental requirements are being violated as required by regulation 5(1)(q). Any resultant costs of such work stoppages will be for the relevant Contractor's account.

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 when the Client deems fit to address issue of OHSE Compliance.

The Client will not entertain any claim of any nature whatsoever which arises as a 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.

5. Administrative Requirements

a) Notification of Construction Work

If the submitted tender does not meet any of the criteria as stipulated under paragraph 5(a) then the successful tenderer must at least within 07 working days before commencing with construction work notify the Provincial Director in writing using **Annexure “2”** if the project meets the following threshold. A copy of the notification once stamped by a DoL Official must be submitted to the client prior to commencing with construction work.

6. Appointment of a Fulltime/ Part time Safety Officer

The Principal Contractors will have to appoint a competent Construction H&S Officer per cluster if the following criteria may exist;

- *If it is not be possible to barricade the entire work area occupied by him off, and or*
- *If his activities may in any way pose a risk to the health and safety of school children and members of the public*

Further to the above criteria, should the Client or its Representative having considered the risks present and lack of compliance to the Occupational Health and Safety Act, Act 85 of 1993 and its applicable Regulations the Client or its Representative may issue an instruction that a Part/ Full Time Construction Health and Safety Officer must be appointed, such a requirement will have to be met.

Annexure A

Structure of the Detailed OHSE Plan

A detailed OHSE Plan is to be submitted by the successful tenderer as per section 8 above. 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 –

EMGANGENI PRIMARY SCHOOL

1. The notification to commence with construction work made to the Provincial Director of Labour using Annexure 2. (*Filled in only to be submitted on approval of the Safety Plan*)
2. Letter of Good Standing with Compensation Commissioner or Compensation insurer
3. The Contractor's Health, Safety & Environmental Policy, signed by the chief executive officer, which outlines the Contractor's OHSE compliance objectives and how they will be achieved.
4. Pre-Construction risk assessment (*Site specific*)
5. Relevant checklists and registers.
6. Site specific OHSE Organogram
7. Preliminary Induction Program
8. Fall Protection Plan
9. Environmental Management Plan
10. Public Safety Management Plan
11. Proof of competency for the following legal appointees;
 - 11.1. *Construction Manager – (Detailed CV reflecting qualification, relevant experience and references from previous clients)*
 - 11.2. *Construction Work Supervisor – (Detailed CV reflecting qualification, relevant experience and references from previous clients)*
 - 11.3. *Construction H&S Officer – SAMTRAC or equivalent*
 - 11.4. *Risk Assessor – SAMTRAC or equivalent*
 - 11.5. *Accident Investigator - SAMTRAC or equivalent*
 - 11.6. *Fall Protection Planner - SAMTRAC or equivalent*
 - 11.7. *Electrician – wireman's licence*

Legal appointments to be appointed	
Prior Site Handover	After Site Handover on commencement with Construction work
<ul style="list-style-type: none"> • 16.2 • Construction Manager • Assistant Construction Manager • Construction Work Supervisor • Construction H&S Officer • Risk Assessor • Fall protection Planner 	<ul style="list-style-type: none"> • Scaffold Erectors • Scaffold Inspectors • First Aiders • Emergency co-ordinator • Fire Marshalls • Fire team members • Portable Electrical tool inspector • Hand tools inspector • Housekeeping inspector • Stacking and storage inspector • Construction Vehicle and mobile plant inspector • Traffic Controller (Flagman) • Temporary electrical installation inspector • Flammable liquids Storage Inspector • Hazardous substance storage inspector • Ladder inspector • Health and safety representatives • Accident investigator

Annexure B

Client Specific Requirements

Items	Client Specific Requirements
Site Office location	<ul style="list-style-type: none">The location of the site office should be in an area that will not require visitors to pass through or enter area where construction work is active and will not require the re-location of the office as the project progresses.
Medical Certificates	<ul style="list-style-type: none">In compliance with the requirements of the Construction Regulations 2014 section 7(8) the Contractor must ensure that all of his employee's onsite have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3.
Appointment of a Part-time safety officer	<ul style="list-style-type: none">The Principal Contractors will have to appoint a competent Part Time Construction H&S Officer for this project and the part time safety officer will have to visit the site at least once in every 30 days for the duration of this project.
Extreme weather conditions	<ul style="list-style-type: none">If the weather condition poses a threat to the health & safety of employees be it extreme heat, cold, lightning or any adverse weather condition appropriate safety measures have to be taken.
Change to scope of work	<ul style="list-style-type: none">Should there be changes to the original scope of work, the Principal Agent must inform appointed Construction Health and Safety Agent to effect changes to the OHSE Specification.
Safety Plan Submission	<ul style="list-style-type: none">The successful Tenderer must submit a copy of the detailed OHSE Plan for approval and keep the original for onsite use during construction. The principal Contractor will not be allowed to start site establishment before his/her SHE Plan has been approved in writing.
Bylaws	<ul style="list-style-type: none">The Principal Contractor must incorporate any aspects of the Local Municipal bylaws which affect the, Safety and Environmental wellbeing of the employees and the public into his/her OHSE Plan and ensure compliance to such bylaws.
Risk assessment for construction work	<ul style="list-style-type: none">To comply with CR(9) and to also address environmental issuesTo also include exposure to hazardous gases <i>See the attached baseline risk assessment to be considered by both the designer and the principal contractor.</i>

Fall protection	<ul style="list-style-type: none"> • To comply with CR (10), • Edge protection and protection of floor openings need to be of such a manner as to properly protect employees from falling off elevated positions or falling into floor openings
Structures	<ul style="list-style-type: none"> • To comply with CR (11)
Scaffolding	<ul style="list-style-type: none"> • To comply with CR(16) and the following; • Scaffolding Inspectors and Scaffolding Erectors must be different individuals. • Scaffold Harness must be used on Scaffolding, normal Harnesses may not be used on scaffolding • Sufficient Scaffolding material e.g., tags, trapdoors etc. need to be on site as determined by the activities on site • Scaffold bases may not be supported by materials such as bricks and chipboard. Suitable material needs to be used as per SANS 10085
Construction vehicles and mobile plant	<ul style="list-style-type: none"> • To comply with CR (23) and the following;
Electrical installations and machinery on construction sites	<ul style="list-style-type: none"> • To comply with CR (24)
Use and temporary storage of flammable liquids on construction sites	<ul style="list-style-type: none"> • To comply with CR (25)
Housekeeping and general safeguarding on construction sites	<ul style="list-style-type: none"> • To comply with CR (27) and the following; • Contractor to designate areas for placing refuse and rubble prior to being removed from site • Contractor must implement a daily task site clean-up for all activities these should cover work areas, stairways, walkways etc. to free of any construction debris obstruction. • Refuse to be separated for recycling purposes • Hazardous materials such as asbestos may not be included in general rubble and need to be disposed of as per applicable legislative requirements
Stacking and storage on construction sites	<ul style="list-style-type: none"> • To comply with CR (28)
Fire precautions on construction sites	<ul style="list-style-type: none"> • To comply with CR (29) and the following; • No smoking may be permitted on site except in designated smoking areas

Construction employees' facilities	<ul style="list-style-type: none"> • To comply with CR (30) and the following; • Gender signs to be placed at appropriate locations • All welfare facilities to be kept in a hygienic condition at all times • Employees to be trained in good hygiene practices
Public Safety & Signage	<ul style="list-style-type: none"> • The Principal Contractor engaged in construction work must ensure that each person working on or visiting a site, and the general public in the vicinity of the construction site, shall be made aware of the dangers likely to arise from onsite activities and the precautions to be observed to avoid or minimise those dangers. • Appropriate signage shall be posted at conspicuous points within and around the perimeter of the site. The steps to comply with this requirement must be outlined in the OHSE Plan. • The public or visitors may only be permitted on site if they go through an appropriate health and safety induction detailing hazards and risks they may be exposed to and what measures are in place to control these hazards and risks • The entire project site must be secured against unauthorized access and provided with appropriate warning signage. Where roadways or walkways must be encroached or closed due to work, adequate barriers shall be installed to safely redirect the flow of vehicles and pedestrians and protect them from construction activities. • Whenever it is necessary to maintain public use of work areas (such as sidewalks, ramps, entrances to buildings, corridors, or stairways), the public shall be protected with appropriate guardrails, barricades, temporary fences, overhead protection, or temporary partitions and hoarding. The public must also be adequately protected from any work created hazards, such as excavations. Appropriate warnings, signs, warning lights and instructional safety signs shall be conspicuously posted and placed where necessary. • The public must also be protected from falling debris and objects from the project site. Overhead protection shall be provided that will fully protect the public and be capable of withstanding the maximum forces that could be applied from potential falling objects. Special attention shall also be given to developing adequate means to protect against wind-blown debris and construction-related materials.
On Site Health and Safety Training & Induction	<ul style="list-style-type: none"> • The Principal Contractor shall ensure that all site personnel and visitors undergo a risk-specific health & safety induction training session before starting work or being permitted to enter the site. A record of attendance shall be kept in the health & safety file. • The Principal Contractor shall ensure that, on site periodic toolbox talks take place at least once per week. These talks should deal with risks relevant to the construction work at hand. A record of attendance shall be kept in the health & safety file. The above should also cover all sub-contractors that are onsite. • All Contractors have to comply with this minimum requirement. Environmental issues to be included in toolbox talks where required.

<p>General Record Keeping</p>	<ul style="list-style-type: none"> • The Principal Contractor and all Sub Contractors must keep and maintain Health and Safety records to demonstrate compliance with this Specification, The OHS Act 85/1993; and with the Construction Regulations of 2014. The Principal Contractor shall ensure that all records of incidents/accidents, training, inspections; audits, etc. are kept in a health & safety file held in the site office, which must be present on site at all times. • The Principal Contractor must ensure that every Sub Contractor opens its own health & safety file, maintains the file and makes it available on request.
<p>Health & Safety Audits, Monitoring and reporting</p>	<ul style="list-style-type: none"> • The Client or its duly appointed Agent shall conduct monthly health & safety audits. The Principal Contractor is obligated to conduct similar audits on all Sub Contractors appointed by them at least once a month. Detailed audit reports must be presented and discussed at all levels of project management meetings and a copy of such audit will be provided to the Client or its duly appointed Agent within 7 working days of such audit. Copies of the Client's audit reports shall be kept in the Principal Contractors Health & Safety File.
<p>Emergency Procedures</p>	<ul style="list-style-type: none"> • The Principal Contractor shall submit a detailed Emergency Plan for approval by the Client prior to commencement on site. The plan shall detail the response procedure including the following key elements: <ol style="list-style-type: none"> 1. List of key competent personnel; 2. Details of emergency services; 3. Actions or steps to be taken in the event of the specific types of emergencies; 4. Information on hazardous material/situations.
<p>First Aid Boxes and First Aid Equipment</p>	<ul style="list-style-type: none"> • The appointed First Aider(s) to be in possession of a valid first aid training certificate Level 2. Valid certificates are to be kept in the Site Safety File. All Sub Contractors with more than 5 employees shall supply their own first aid box, except if otherwise agreed upon between Principal and Sub- Contractor in writing.
<p>Accident / Incident Reporting and Investigation</p>	<ul style="list-style-type: none"> • Injuries are to be categorised into Near miss, first aid, LTI, fatal etc. Fatal accidents to be reported in addition to applicable legislative requirements to the Client or its duly appointed Agent with immediate effect. The Principal Contractor must stipulate in its construction phase OHSE Plan how it will handle each of these categories. When reporting injuries to the Client, these categories shall be used. The Principal Contractor shall investigate all injuries, with a report being forwarded to the Client immediately. All Sub- Contractors have to report on the abovementioned categories of injuries to the Principal Contractor at least monthly. All categories of incidents/accidents must be in the Statistics Section of the Monthly Audit Reports, submitted to the Client or it's duly appointed Agent.

Hazards and Potential Situations	<ul style="list-style-type: none"> • 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. • 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.
Personal Protective Equipment (PPE) and Clothing	<ul style="list-style-type: none"> • The Principal Contractor must ensure that all workers are issued with the required PPE as required by the risks associated with the activities they perform .The minimum PPE to be worn on site will be Safety Shoes/Boots, Hard Hats, Overalls and reflective vests. No Visitors may enter the site without Safety Shoes/Boots and Hard hats. The Principal Contractor and all Sub Contractors shall make provision and keep adequate quantities of SABS approved PPE on site at all times. All employees issued with PPE to be trained in correct use, records of training and issue to be kept in the Site SHE File .Procedure to be in place to deal with: <ul style="list-style-type: none"> • 1 Lost or stolen PPE; • 2 Worn out or damaged PPE replacement. • 3. Employees not utilising PPE as required • The above procedure applies to Principal Contractors and their appointed Sub- Contractors, as they are all employers in their own right.
Permits	<ol style="list-style-type: none"> 1) The Principal Contractor shall prepare and issue the required written permits relating to but not limited to the following: <ul style="list-style-type: none"> • Hot Work • Roof Work; and • Electrical work (both temporary and permanent) • Confined Space Entry 2) The Principal Contractor must ensure that where permits are required that they are properly implemented and adhered to.
Speed Restrictions and Protections	<p>Unless otherwise stipulated, the maximum speed limit on sites must be limited to 10 km/h.</p> <ol style="list-style-type: none"> 1) Vehicle movement routes on site must be clearly indicated where applicable. 2) 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.
Hazardous Chemical Substances (HCS)	<ol style="list-style-type: none"> 1) To comply with Hazardous Chemical Substances Regulations as published in Government Notice No. R. 1179 dated 25 August 1995. 2) In addition to the abovementioned, Material Safety Data Sheets must be kept on site for all materials, which may contain hazardous chemical substances
Fire Extinguishers and Fire Fighting Equipment	<ol style="list-style-type: none"> 1) The Principal Contractor and Sub-Contractors must allow for and provide 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

	<p>as required</p> <p>3) Contractors may not utilize fire protection equipment belonging to the Client without prior consent</p>
Ladders and Ladder Work	<p>1) The Principal Contractor must 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.</p> <p>2) Records of inspections must be kept in a register on site.</p>
General Machinery	To comply with Driven Machinery Regulations as published in Government Notice No. R. 1010 dated 18 July 2003
Portable Electrical Tools and Hand Tools	<p>1) The Principal Contractor shall ensure that all electrical tools, electrical distribution boards, extension leads, and plugs are kept in a safe working order.</p> <p>2.) The Principal Contractor shall ensure that all portable electrical Equipment, is clearly numbered, inspected by a Competent appointed person and records of such inspections to be kept on record in an appropriate register on the site SHE file</p> <p>3) The Principal Contractor shall allow for and ensure the following in relation to hand Tools:</p> <p>That a “Competent Person” undertakes routine inspections and records are kept on site.</p> <p>That only authorized trained persons use the tools.</p> <p>That safe working procedures apply.</p> <p>That PPE is provided and used.</p>
High Voltage Electrical Equipment Installations and Equipment	<p>1) All Employees 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.</p> <p>2) Precautionary measures such as Isolation and Lock-Out of electrical systems or the use of electrically isolated tools must be used.</p>
Adequate Lighting	All Contractors must allow for and ensure that adequate lighting is provided to allow for work to be carried out safely.
Transportation of Workers	<p>1) In addition to CR 23 the following will apply</p> <p>The Principal Contractor and Sub-Contractors shall not:</p> <ul style="list-style-type: none"> • 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 • No driver may transport more than six people on the back of a 1 Ton LDV

	<p>and more than four passengers on the back of a ½ Ton LDV.</p> <p>2) The driver of any LDV may not permit more than two passengers to occupy the cab of any LDV.</p> <p>3) Drivers of such vehicles must have a valid driver’s license for the code of vehicle being driven by them.</p> <p>4) No servicing of vehicles will be permitted on a Construction Site. No Vehicles or machinery leaking oil will be permitted on site due to the risk posed to the environment.</p> <p>5) Any oil or diesel spilled on site must be cleaned up as per accepted environmental practice</p> <p>In the event that Earth Moving Machinery is present on site the following must be adhered to:</p> <ul style="list-style-type: none"> • 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
Occupational Hygiene	<p>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.</p> <p>2) All Contractors must prevent inhalation, ingestion and absorption of any harmful chemical or biological agents</p> <p>3) 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.</p>
Environmental Management	<ul style="list-style-type: none"> • The Principal Contractor and Sub-Contractors must comply with the requirements of NEMA Act..... • The Principal Contractor must develop a waste management plan, implement and maintained it onsite • Cement mixing to be done at a predetermined location on site which must include a solid, slab, and bunded edges to prevent runoff • Contaminated run off water from the site must be treated such as to ensure that it does not pose a risk to the environment • 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. • 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. • Plans to deal with spillages must be in place and maintained. • No waste materials (liquid or solid) may be disposed of in drains. • No burning of waste material may take place on site as such material being burned may result in pollution of the air or give off toxic vapours

	<p>which could be harmful to the health of employees or any other person present on site.</p>
Alcohol and other Drugs	<ul style="list-style-type: none">• No alcohol and other drugs will be allowed on site without the express permission of the Principal Contractor• No person may be under the influence of alcohol or any other drugs while on the construction site.• 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 immediately.• 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.• Any person on the construction site who is suspected of being under the influence of alcohol or other drugs must be removed from site 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 C

CONTRACTOR'S SAFETY, HEALTH AND ENVIRONMENTAL DECLARATION FOR TENDERS

INTRODUCTION

In terms of *Construction 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, the Construction Regulations of February 2014 and the Construction Safety, Health and Environmental Specification attached in the tender document.
2. I hereby declare that my company and its employees has the necessary competency and resources to safely carry out the construction work 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 Specification.
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 Specification.
4. I confirm that I may not commence with any part of construction work under the contract until my Construction Safety, Health and Environmental Plan has been approved in writing by the Client.
5. 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, and
 - d) Construction Regulations of February 2014.
6. 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 Construction Regulations 2014, and accept that my tender will be rejected.

Signature:.....

Date:.....

(Person duly authorised to sign on behalf of Tenderer)

Annexure D
Baseline Risk Assessment

Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Site Establishment	Barricading and Installation of temporary gates and fencing	Struck by tools, tripping, falling into small excavations	Back strain, cuts, abrasion, heat exhaustion, noise exposure, dust inhalation	Littering from poor housekeeping	Tripping hazard, dust , noise	Risk Assessment Training to employees; Safe & proper use of hand tools; Wearing required PPE, practise of proper manual lifting of material	Contractor
	Placement / building of site office	Struck by tools, electrocution, tripping.	Back strain, cuts, abrasion, heat exhaustion, noise exposure, dust inhalation	Littering from poor housekeeping	Tripping hazard, dust , noise	Safety Induction Training to employees; Safe & proper use of hand tools; practise of proper manual lifting of material; Wearing required PPE	Contractor
	vehicles entering and exiting	Vehicles colliding with other vehicles, employees knocked / run-over by construction vehicles	Cuts, abrasions, death	Leaking of petrol and oil from construction vehicles.	Noise, dust, collisions, death	Construction vehicles operated by competent operators; Vehicle route to be demarcated; Display speed limit.	Contractor
	Establishing water connections	Struck by tools, Tripping, Falling into excavations	Back strain, cuts, abrasion, heat exhaustion, noise exposure, dust inhalation	none	none	Safety Induction Training to employees; Safe & proper use of hand tools; Wearing required PPE	Contractor
	Establishing Electricity connections	Struck by tools, electrocution, tripping, Falling into excavations	Back strain, cuts, abrasions, Heat exhaustion, noise , dust, etc.	none	none	Risk Assessment Training to employees; Safe & proper use of portable electrical tools; Wearing required PPE	Contractor

Remedial Work Roof Structure

Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Stripping of Roof Sheeting/ Fixtures (Asbestos)	Implementation of precautionary steps to prevent dust becoming airborne such as dampening down, placing of containment sheets below roof sheeting , warning signage, ppe etc	Falling through fragile material, persons being struck by falling objects, hands being caught between surfaces etc	Inhalation of respirable asbestos particles, inhalation of moulds, bacteria or others similar contaminanats,Cuts, abrasions, fractures etc from galling etc	Release of asbestos contaminated dust into the surrounding environment	Inhalation of air contaminated with respirable asbestos, moulds etc dust	Fall Protection Plan. , Provision of appropriate PPE, Supervision, placing of signage, Training etc	Contractor
	Removal of roof Sheets	Falling through fragile material, persons being struck by falling objects, hands being caught between surfaces etc	Inhalation of respirable asbestos particles, inhalation of moulds, bacteria or others similar contaminanats,Cuts, abrasions, fractures etc from galling etc	Release of asbestos contaminated dust into the surrounding environment	Inhalation of air contaminated with respirable asbestos, moulds etc dust	Fall Protection Plan. Documented method statement for removal of sheets, Dampng procedures, Warning signage, Placing and securing PVC sheeting below roof structure to contain dust released, correct lifting of sheets, placing in approved skips, cleaning up etc. Obtaining Asbestos Disposal certificate etc.	Contractor
	Stripping of fixtures	Struck by tools, falls, tripping	Cuts, abrasions, fractures	Littering from poor housekeeping	fixtures being removed falling on public, noise	Risk Assessment Training to employees; Safe & proper use of hand tools; Wearing required PPE, practise of proper manual lifting of material	Contractor

	Removal of damaged gutters and downpipes	Struck by tools; cuts; abrasion; trip & falls; fracture / hand injuries; etc.	Back strain; dust inhalation; exposure to noise; etc.	none	none	Training, PPE, safe systems of work and supervision	Contractor
	Removal of damaged fascia boards / barge boards	Struck by tools; cuts; abrasion; trip & falls; fracture / hand injuries; etc.	Back strain; dust inhalation; exposure to noise; etc.	none	none	Training, PPE, safe systems of work and supervision	Contractor
	Use of hand tools	Struck by hand tools, tripping,	Abrasions, burns, hand injuries, eye injuries, back injury, heat exhaustion	none	none	Training in pre-use inspection, maintenance; Training in using correct tools, inspection; Wearing required PPE (<i>i.e. Overalls, hard hats, safety shoes, goggles, etc.</i>)	Contractor
	Removing of rubble, machine and labour	Tripping, struck by, bumping against,, machine colliding with vehicles &People	Back strain, heat exhaustion, bruising,, cuts, abrasions, death	Spilling of oil, diesel, petrol	Noise, dust, collisions, death	Training in pre-use inspection, maintenance; Training in using correct tools, inspection; Wearing required PPE (<i>i.e. Overalls, hard hats, safety shoes, goggles, etc.</i>)	Contractor
Installation of Roof Trusses and Roof Covering including sisalation	Installation of timber roof Trusses	Falls, Struck by, hands caught between,	Back strain, cuts, abrasions, Heat exhaustion, noise, fractures and death/	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Fitting of battens	Falls, Struck by, hands caught between,	Back strain, cuts, abrasions, Heat exhaustion, noise, fractures and death	None	None	Training, PPE, safe systems of work and supervision	Contractor

	Fitting of roof sheets	Falls, struck by, bumping against objects, sharp edges	Back strain, cuts, abrasions, Heat exhaustion, noise, fractures and death etc.	none	Sheets being fitted falling on public	Training, PPE, safe systems of work and supervision	Contractor
Installation of sisalation	Securing sisalation	Falls, hazardous dust, bumps, sharp edges, struck by falling objects	Muscular strains, dust inhalations, cuts and abrasions	Hazardous dust being release into the environment	None	Training, PPE, safe systems of work and supervision	Contractor
Installation of gutters and down pipes	Lifting into position	Falls, hazardous dust, bumps, sharp edges, struck by falling objects	Muscular strains, cuts and abrasions	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Drilling and securing	Falls, hazardous dust, bumps, sharp edges, struck by falling objects	Muscular strains, cuts and abrasions, noise	None	None	Training, PPE, safe systems of work and supervision	Contractor
Installation of barge boards and new fascias	Lifting into position	Falls, hazardous dust, bumps, sharp edges. Struck by falling objects	Muscular strains, dust inhalations, cuts and abrasions	Hazardous dust being release into the environment	None	Training, PPE, safe systems of work and supervision	Contractor
	Drilling and securing	Falls, hazardous dust, bumps, sharp edges, struck by falling objects	Muscular strains, dust inhalations, cuts and abrasions	Hazardous dust being release into the environment	None	Training, PPE, safe systems of work and supervision	Contractor
Painting of new gutters, downpipes, new fascias and barge boards - and Treatment of exposed timber at eaves.	Painting work	Falls, hazardous dust, bumps, sharp edges, etc	Muscular strains, cuts and abrasions, inhalation of toxic vapours	Contamination of natural resources	Contamination of natural resources	Training, PPE, safe systems of work and supervision	Contractor

Installation of new purlin to interior and exterior of beam filling	Installation of new purlin	Falls, Struck by falling objects, sharp edges, Manual Handling	Muscular strain, Muscular strain, Cuts, Fracture and Death etc.,	None	None	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	Contractor
Repairs to existing roof structure	Roof repairs	Physical injuries from falling from roof height and from materials falling from heights; Injuries from falling off during wet weather work & windy conditions. Cuts / laceration / electrical shocks from using unsafe angle grinders.	Back strain from lifting heavy material; heat exhaustion; etc	None	None	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	Contractor
Painting of existing roof	Painting	Poor working posture, repetitive motion, hazardous chemical substances, Falls, hazardous dust etc.	Dermatitis ,muscular strain etc.	Contamination of natural resource, spillage and disposal	None	Training, PPE, safe systems of work and supervision	Contractor

Ceilings							
Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Remove existing damaged ceilings	Removal of ceilings	Manual Handling, Struck by falling items. Sharp edges, Poor working posture, Tripping. etc.	Muscular strain, Bruising, fractures, Cuts, abrasion, Lower back strain, Fractures, grazing etc.	Back pains, fatigue, abrasions etc.	Littering from poor housekeeping etc	HIRA , Competent Supervision and Management, Insulated tools ,Lock out, testing and tagging , permit issue, PPE etc.	Contractor
Installation of ceilings	Fitting of ceiling boards	Falls, hazardous dust, bumps, sharp edges, etc.	Muscular strains, cuts and abrasions, inhalation of toxic vapours	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Fitting of cornices	Falls, hazardous dust, bumps, sharp edges, etc.	Muscular strains, cuts and abrasions, inhalation of toxic vapours	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Skimming	Falls, hazardous dust, bumps, sharp edges, etc.	Muscular strains, cuts and abrasions, inhalation of toxic vapours	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Painting	Falls, hazardous dust, bumps, sharp edges, etc.	Muscular strains, cuts and abrasions, inhalation of toxic vapours	Contamination of natural resources	Contamination of natural resources	Training, PPE, safe systems of work and supervision	Contractor

Brickwork – Build of Fire walls							
Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Build new fire walls	Construction of new fire walls	Caught in-Between demolished structure, Flying particles, Struck against surface, Abrasive surfaces, Dust, Excessive Environmental Temperatures Noise,, etc.	Fractures, death Eye injuries, Abrasions, Dust inhalation, Dehydration, Noise induced hearing loss etc.	None	None	HIRA, Engineers Recommendation, Competent Management, Competent Supervision, Demolition Plan, safe systems of work, Medical Fitness Certificates, continuous housekeeping signage and barricading, training. PPE etc.	Contractor
Windows							
Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Replace / repair broken Windows	Repair / replace windows	Falls, hazardous dust, bumps, sharp edges, etc.	Burns, Inhalation of hazardous vapours	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Glazing	Contact with sharp edges , Hazardous substances, falling	Cuts and lacerations ,, fractures , death	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Painting of windows	Hazardous dust, bumps, sharp edges	Inhalation of hazardous dust and vapours	None	None	Training, PPE, safe systems of work and supervision	Contractor

Doors / Frames							
Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Removal of existing damaged doors and frames	Removal of existing damaged doors	Struck by tools; cuts; abrasion; trip & falls; fracture / hand injuries; etc.	Back strain; dust inhalation; heat exhaustion; exposure to noise; etc.	none	none	Training, PPE, safe systems of work and supervision.	Contractor
	Removal of existing damaged frames	Struck by tools; cuts; abrasion; trip & falls; fracture / hand injuries; etc.	Back strain; dust inhalation; heat exhaustion; exposure to noise; etc.	none	none	Training, PPE, safe systems of work and supervision	Contractor
	Install new doors and ironmongery	Falls, Struck by falling objects, sharp edges, Manual Handling	Muscular strain, Muscular strain, Cuts, Fracture and Death etc.,	None	None	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	Contractor
	Install new galvanized steel frames and ironmongery	Falls, Struck by falling objects, sharp edges, Manual Handling	Muscular strain, Muscular strain, Cuts, Fracture and Death etc,	None	None	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	Contractor

	Painting of doors / frames	Hazardous dust, bumps, sharp edges	Inhalation of hazardous dust and vapours	None	None	Training, PPE, safe systems of work and supervision	Contractor
Plastering and Painting							
Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Plaster work external and internal		Bumps, sharp edges, Incorrect working positions	Grazing, dermatitis,, cuts and abrasions	Minimal	None	Training, PPE, safe systems of work and supervision	Contractor
Painting of Plaster work external and internal		Struck by hand tools, tripping,	Back strain, heat exhaustion, bruising, hand injuries	Land pollution (from poor housekeeping); paint spillage; etc.	none	Training, PPE, safe systems of work and supervision	Contractor
Security Gates							
Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Install new galvanized security gates to classrooms and new entrance gates to driveways.	Install new security gates	Physical exertion, bump against, caught between etc.	Muscular strain, bruising etc.	None	None	HIRA, Safe Systems of work, barricading, training, supervision, Flagmen, PPE etc.	Contractor

Floors							
Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Screed to floors, walkways and corridors		Poor working position ,caught between surfaces, dust	Muscular strain , dust inhalation, abrasions, dermatitis etc.	None	None	Training, PPE, safe systems of work and supervision	Contractor
Construction of new surface beds	Excavation	Poor posture, Bumps, sharp edges etc.	Muscular strains, dust inhalation, cuts and abrasions	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Formwork	Tripping, poor posture, bumps,, sharp edges etc.	Muscular strains, dust inhalation, cuts and abrasions	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Concrete pouring	Poor posture, Bumps, sharp edges etc.	Muscular strains, dust inhalation, cuts and abrasions	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Brick work	Rough surfaces, hazardous substances, flying particles, falling objects	Cuts, abrasions, burns, fractures, death	None	None	Training, PPE, safe systems of work and supervision	Contractor

Floor covering	Remove floor covering and installation of new floor covering	Struck by tools, hands caught between areas, Flying particles , sharp edges, poor posture	cuts, abrasions, dust inhalation, fractures	None	None	Training, PPE, safe systems of work and supervision	Contractor
Structural repairs							
Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Repairs to foundation and cracks to walls internal / external	Excavation	Poor posture, Bumps, sharp edges etc.	Muscular strains, dust inhalation, cuts and abrasions	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Formwork	Tripping, poor posture, bumps,, sharp edges etc.	Muscular strains, dust inhalation, cuts and abrasions	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Concrete pouring	Poor posture, Bumps, sharp edges etc.	Muscular strains, dust inhalation, cuts and abrasions	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Brick work	Rough surfaces, hazardous substances, flying particles, falling objects	Cuts, abrasions, burns, fractures, death	None	None	Training, PPE, safe systems of work and supervision	Contractor

Repairs structural cracks to walls internal / external	Repairs structural cracks to walls and Plaster walls.	Abrasive surfaces, Poor working posture, Hot climatic conditions, Falls Cement Dust, HCS etc.	Abrasions, Muscular strain, Heat exhaustion, Dermatitis, Lung infection, Fracture and Death etc.	None	None	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	Contractor
Chalkboards and Notice board							
Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Remove damaged chalkboard		Falls, hazardous dust, bumps, sharp edges, etc.	Muscular strains, cuts and abrasions, inhalation of toxic vapours	none	none	Training, PPE, safe systems of work and supervision.	Contractor
Install new chalkboards and pinning boards and notice board	Install new chalkboards, pinning boards and notice boards	Falls, hazardous dust, bumps, sharp edges, etc.	Muscular strains, cuts and abrasions, inhalation of toxic vapours	None	None	Training, PPE, safe systems of work and supervision	Contractor

Electrical work							
Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Strip out existing damage / unsafe electrical installation. and Install new power points, light and lighting protector.	Disconnection of services	Electrocution, struck by tools, sharp edges,	Burns, respiratory failure ,cuts, abrasions, death	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Chasing	Electricity, moving part, entanglement, struck by flying items, sparks, noise , dust, entanglement	Burns, Electrocution, cuts abrasions, dust inhalation, noise induced hearing loss	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Fitting of plug boxes, junction boxes ,Distribution boards etc.	Noise , dust , Electricity ,bumping against, struck by flying items, entanglement , moving parts	Electrocution ,cuts and abrasions , dust inhalation ,noise induced hearing loss	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Wiring	Muscular exertion ,bumping against , sharp surfaces	Muscular strain ,cuts and abrasions ,	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Lights Installations	Cuts & abrasion; trips & falls; Electric shock; Electrocution; Falls from height, etc.	Back strain; dust inhalation; Electrocution; etc.	None	None	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	Contractor

	Lighting protection installation.	Cuts / laceration / electrical shocks; Electrical burns, Electrocutation, Falls from height, Dust etc.	Cuts, abrasions, burns, Electrocutation, fractures, death, Muscular strain, Dust Inhalation, Bruzing, Grazing, etc.	None	None	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	Contractor
Retaining structure							
Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Construction of new retaining structure	Excavation	Poor posture, Bumps, sharp edges etc.	Muscular strains, dust inhalation, cuts and abrasions	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Concrete pouring	Poor posture, Bumps, sharp edges etc.	Muscular strains, dust inhalation, cuts and abrasions	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Block movement	Poor posture, Bumps, etc.	Muscular strains, dust inhalation, cuts and abrasions, crushing of fingers etc.	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Construction of retaining structure	Falls from elevated positions; Struck by objects; Cut & abrasion; slip / trip & falls; eye injuries; etc.	Back strain; dust inhalation; etc.	Littering from poor housekeeping	None	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous	Contractor

						housekeeping signage, training. PPE etc.	
--	--	--	--	--	--	---	--

External works							
Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Repair work to existing driveways	Preparation and levelling	Tripping ,bumping against, Poor working positions, dust	Muscular strain ,dust inhalation , abrasions	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Compaction (Sub base)	Noise , dust ,Flammable substances ,struck by, vibration	Muscular strain, dust inhalation , noise induced hearing loss	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Compaction	Heated materials ,Noise Dust, hazardous substances, , struck by, vibration	Muscular strain, dust inhalation , noise induced hearing loss, burns	None	None	Training, PPE, safe systems of work and supervision	Contractor

Ablution & Plumbing							
Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Plumbing of sanitary ware and refurbish of damaged ablution.	Chasing	Electricity, moving part, entanglement, struck by flying items, sparks, noise , dust	Electrocution, cuts abrasions, dust inhalation, noise induced hearing loss	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Chiselling	Struck by tools, hands caught between areas, Flying particles	cuts, abrasions, dust inhalation, fractures	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Excavations	Struck by tools , tripping, Falling into excavations,	Back strain, heat exhaustion, bruising,, cuts, abrasions, death	None	None	Training, PPE, Barricading, safe systems of work and supervision.	Contractor
	Compaction	Noise , dust ,Flammable substances ,struck by, vibration	Muscular strain, dust inhalation , noise induced hearing loss	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Fitting of fixtures	Noise , dust, sharp edges, bumping against ,	Muscular strain, dust inhalation , noise induced hearing loss	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Soldering of pipes	Hazardous substances , heated surfaces, flammable substances, Sharp edges	Inhalation of hazardous vapour ,burns, noise induced hearing loss	None	None	Training, PPE, safe systems of work and supervision	Contractor

Storm water control and Sewer							
Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Construction of new – drains, walkways, aprons etc.	Excavation	Poor posture, Bumps, sharp edges etc.	Muscular strains, dust inhalation, cuts and abrasions	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Formwork	Tripping, poor posture, bumps,, sharp edges etc	Muscular strains, dust inhalation, cuts and abrasions	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Concrete pouring	Struck by vehicle, vehicle colliding with other vehicles, Impact hazard, Caught between parts, falling	Back strain, heat exhaustion, abrasions, fractures, death	Pollution due to cement spillage, leaking of oil and diesel	Noise	Minimal speed limit and flag man. Training of personnel on the use of HCS; Wearing required PPE Supervision	Contractor
Repair concrete v -drains	Repair concrete v-drains	Abrasive surfaces, heavy load, poor working posture etc.	Abrasions, muscular strain etc.	None	None	Safe systems of work, training, PPE, Good Housekeeping Practises, Supervision; etc.	Contractor
Replace damaged sewer lines, septic tanks and sewer drains		Abrasive surfaces, heavy load, poor working posture etc.	Abrasions, muscular strain etc.	None	None	Safe systems of work, training, PPE, Good Housekeeping Practises, Supervision; etc.	Contractor

Water tanks / Conc. Plinths							
Main Activity	Sub Activity	Safety	Health Risk	Environmental Risk	Public Safety Risk	Control Measures	Responsible Person
Install new jojo tanks including plinths	Excavation	Poor posture, Bumps, sharp edges etc	Muscular strains, dust inhalation, cuts and abrasions	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Formwork	Tripping, poor posture, bumps,, sharp edges etc	Muscular strains, dust inhalation, cuts and abrasions	None	None	Training, PPE, safe systems of work and supervision	Contractor
	Concrete pouring	Poor posture, Bumps, sharp edges etc	Muscular strains, dust inhalation, cuts and abrasions	None	None	Training, PPE, safe systems of work and supervision	Contractor
Repair work to existing tanks, taps and plinths		Tripping ,bumping against, Poor working positions, dust	Muscular strain ,dust inhalation , abrasions	None	None	Training, PPE, safe systems of work and supervision	Contractor



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

ANNEXURE 7
HEALTH AND SAFETY BILL OF QUANTITIES

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						



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

**ANNEXURE 8
BUILDERS LIEN AGREEMENT**

WAIVER OF CONTRACTOR'S LIEN

DEFINITIONS

Contractor: _____

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

Agreement: GCC FOR CONSTRUCTION WORKS - SECOND EDITION 2010

Works (description): **PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

Site: -30.1169 S,30.6938 E

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



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

**ANNEXURE 9
EPWP EMPLOYMENT CONTRACT**



(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.

9.14.5 A worker who does not attend required training events, without good reason, will have terminated the contract. However, the worker may be re-engaged if a position becomes available.

Notice procedure is as follows;

- One week if employed for four weeks or less
- Two weeks if employed for more than four weeks but not more than a year
- Four weeks if employed for one (1) year or more

9.15. Certificate of Service

9.15.1 On termination of employment, a worker is entitled to a certificate stating;

- (a) the worker's full name;
- (b) the name and address of the employer;
- (c) the Project on which the worker worked; the work performed by the worker;
- (d) any training received by the worker;
- (e) the period for which the worker worked on the Project; and
- (f) any other information agreed on by the employer and worker.

9.16. DOMICILE

The address to which notices and all legal documents may be delivered or served are as follows:

Employee Details

Name & Surname: _____

ID No: _____

Residential Address: _____

Contact No: _____

Date of Employment: _____

To be supervised by:

Main Contractor:
or **Sub Contractor:**

Category of employment:

Skilled:
Semi-skilled:
Unskilled:

For Skilled & Semi-skilled state the trade: _____

Period of employment: Fixed for until when your services are still required on site

I confirm that I have been inducted and fully understand the condition of my appointment.

Employee Signature: _____

Witness by SGB/CLO: _____

Signature by Witness: _____

Employer Details

Name & Surname: _____

Designation: _____

Contact No: _____ **Signature:** _____



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

ANNEXURE 10
**ATTENDANCE REGISTER - INFRASTRUCTURE AND OTHER
PROJECTS**



The Attendance Register for on-site Workers

Reporting month: _____
 Surname: _____

Cell No: _____
 First Name: _____

Project Name: **PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

Project Code: **063241**

Tender No **ZNTM01263W**

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						



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

ANNEXURE 11

EPWP DATA COLLECTION TOOL FOR PHASE 3 SYSTEM

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
Monthly Data collection for LOCAL Labour



Name of Contractor: _____

Project Code: **063241**

Project location name (area): _____

Name of Project: _____

PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL

Reporting month: _____

Project location (Ward No.): _____

No	Beneficiary Details										Experience/Literacy				Location Details				Household Details										
	First Name	Initial	Surname	ID number				D.O.B	Gender F/M	Disability Y/N	Start Date on the current month	End Date on the current month	Total days worked	Job description	Registered on UIF (Y/N)	Registered with COIDA (Y/N)	Are you receiving any Gov grant? (Y/N)	1st Language	Other Language 1	Other Language 2	Education Level (See Codes below)	Highest Level of Education	Address	Ward No.	Cell No.	Nationality	No. of people in Household	No. of Dependents in Household	No. of Children attending school
1																													
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													

- Education Levels – use the codes (1,2,3) on the excel spreadsheet
- o (1) Unknc (3) Grade 1-3 (Sub A – Std 1) (5) Grade 5-6 (Std 3-4) ABET 2 (7) Grade 9 (Std 7) ABET 4 (9) Grade 12 (Std 10)
 - o (2) No Sc (4) Grade 4 (Std 2) ABET 1 (6) Grade 7-8 (Std 5-6) ABET 3 (8) Grade 10-11 (Std 8-9) (10) Post Matric

Contractor sign: _____

DPW Official/Consultant sign: _____

EPWP Official sign: _____

Designation: _____

Designation: _____

Designation: _____

Date: _____

Date: _____

Date: _____

Contact no: _____

Contact no: _____

Contact no: _____

KZN PUBLIC WORKS



Worker payment capture form for LOCAL Labour

Name of Contractor: _____

Project Code: **063241**

Name of Project: **PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

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 PUBLIC WORKS

Worker Training capture form for LOCAL Labour



KWAZULU-NATAL PROVINCE
 PUBLIC WORKS
 REPUBLIC OF SOUTH AFRICA



EXPANDED PUBLIC WORKS PROGRAMME

Name of Contractor: _____

Name of Project: _____

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
 DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

Project Code: _____

063241

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: _____

Designation: _____

Date: _____

Contact no: _____

DPW Official/Consultant sign: _____

Designation: _____

Date: _____

Contact no: _____

EPWP Official sign: _____

Designation: _____

Date: _____

Contact no: _____

Location

Locality Name	
Municipality	
Subplace	
Ward	
Government Facility	
Latitude	
Longitude	
Physical Address/Location	



KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM
DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

ANNEXURE 12
PROJECT SPECIFIC ELECTRICAL SPECIFICATIONS

ELECTRICAL INSTALLATION

FOR

PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL

GENERAL SPECIFICATION

CONTENTS

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
1	GeneralNotes	1
2	Termination of conduits and conduits accessories	3
3	Installation of Wiring channels & Power skirting	14
4	Installation of Cable Trays and ladders	18
5	Wiring	20
6	Installation of Cables	22
7	Installation of Light switches and Socket-outlets	35
8	Installation of Photo-electric cell	38
9	Installation of Luminaires	39
10	Connection to Equipment	42
11	Earthing	46
12	Provision for Telephone Installation	52
13	Inspection, Testing, Commissioning & Hand Over	55

SECTION A

PRE-AMBLE TO STANDARD SPECIFICATION FOR ELECTRICAL INSTALLATIONS

GENERAL

1. INTRODUCTION

- (a) These Standard Specifications cover the general technical requirements for the equipment, materials, installation, testing, commissioning and maintenance of electrical installations for the Department. These requirements shall be read in conjunction with the Documents as specified below.
- (b) "Document" shall mean the complete set of contract documents, including the Department's Tender Conditions, Tender Qualifications, the Standard Specification and the Detail Technical Specification including all drawings and variation orders issued in terms of the contract.
- (c) "Contractor" shall mean the person, partnership, company or firm appointed for the supply, installation, testing, commissioning and maintenance of the Electrical Installation. In the case of the Electrical Installation being a sub-contract, nominated in terms of the Main Contract or otherwise, the word "Contractor" shall also mean "Sub-Contractor" in terms of the Sub-Contract Conditions for the specific installation. Where applicable the Builder or Principal Contractor shall be referred to as "Main Contractor".

2. INSTALLATION WORK

- (a) The complete installation shall comply with the requirements of this Specification. Should any discrepancies or contradictions exist between this specification and the Detail Technical Specification for the specific installation, then the latter shall take precedence.

In the event of discrepancies between the drawings, specifications and bill of quantities the Department shall decide whether the work as executed shall be re-measured on site or whether re-measurement shall be effected from the working drawings only.

- (b) The Department's authorised representative will inspect the installation from time to time during the progress of the work. Discrepancies will be pointed out to the Contractor and these shall be remedied at the Contractor's expense. Under no circumstances shall these inspections relieve the Contractor of his obligations in terms of the Documents.
- (c) The Contractor shall notify the Department timeously when the installation reaches important stages of completion (e.g. before closing cable trenches, before casting concrete, etc.) so that the Department's authorised representative may schedule his inspections in the best interest of all parties concerned.

3. REGULATIONS

- (a) The installation shall be erected and tested in accordance with the Acts and Regulations as indicated in PW 379 or PW 379 (Civil) – "Standard Conditions in respect of the Supply-, Delivery and Installation of Electrical-, Mechanical-, Pneumatic- and Vacuum Operated Equipment, Control Systems, Plant and Materials".
- (b) The Contractor shall issue all notices and pay all of the required fees in respect of the installation to the authorities, and shall exempt the Department from all losses, claims, costs or expenditures which may arise as a result of the Contractor's negligence in complying with the requirements of the regulations.
- (c) It shall be assumed that the Contractor is conversant with the above-mentioned requirements. Should any requirement, by-law or regulation, which contradicts the requirements of this Document, apply or become applicable during erection of the Installation, such requirement, by-law or regulation shall overrule this Document and the Contractor shall immediately inform the Department of such a

contradiction. Under no circumstances shall the Contractor carry out any variations to the installation in terms of such contradictions without obtaining the written permission to do so from the Department.

4. SITE CONDITIONS

Tenderers are advised to visit the site and acquaint themselves with all local conditions pertaining to the execution of the installation before tender closing date. No claims from the Contractor which may arise from insufficient knowledge of site access, type of site, labour conditions, establishment space, transport and loading/unloading facilities, power and water supply, etc. will be considered after submission of tenders.

For services where prior permission is required before contractors can visit the site, a visit will be arranged for all interested parties.

5. ARRANGEMENTS WITH THE SUPPLY AUTHORITY

- (a) The contractor shall give all notices required by and pay all necessary fees, including any inspection fees, which may be due to the local Supply Authority unless specified to the contrary.
- (b) It shall be the responsibility of the Contractor to make the necessary arrangements with the local Supply Authority at his own cost and to supply the labour, equipment and means to inspect, test and commission the installation to the satisfaction of the Local and Supply Authorities.
- (c) The Contractor shall supply and install all notices and warning signs that are required by the relevant laws, regulations and/or the Documents.

6. MATERIAL AND EQUIPMENT

- (a) All material and equipment shall conform in respect of quality, manufacture, tests and performance, with the requirements of the South African Bureau of Standards or where no such standards exist, with the relevant current Specification of the British Standards Institution.
- (b) All material and equipment shall be of high quality and suitable for the conditions on site. These conditions shall include weather conditions as well as conditions under which materials are installed, stored and used. Should the materials not be suitable for use under temporary site conditions then the Contractor shall at his own cost provide suitable protection until these unfavourable site conditions cease to exist.
- (c) The Contractor shall, where requested to do so, submit samples of equipment and material to the Department for approval prior to installation. Samples may be retained in the Department's possession until the contract is completed after which they will be returned.

7. CONNECTIONS INVOLVING ALUMINIUM (CABLES AND TRANSFORMERS)

As a result of the fact that aluminium flows when subjected to pressure and electrical connections based on this principle thus loses proper contact during the course of time, it should be noted that bolted connections between aluminium and copper or any other metal is not acceptable to this Department.

8. CODES OF PRACTICE OR STANDARD SPECIFICATION

Where reference is made to any Code of Practice or Standard Specification in this document the latest edition or amendment shall be applicable, except where specified to the contrary.

SECTION B1

INSTALLATION AND TERMINATION OF CONDUITS AND CONDUIT ACCESSORIES

1. GENERAL

1.1 SCOPE

1.1.1 This section covers the installation of conduits and conduit accessories in buildings and other structures under normal environmental conditions and for system voltages up to 600 V.

1.1.2 The following types of conduit installations are included:

- (a) Screwed metallic conduit - black enamelled and galvanised.
- (b) Plain-end metallic conduit - black enamelled and galvanised.
- (c) Non-metallic conduit.
- (d) Flexible conduit.

1.1.3 Conduits may be installed as follows:

- (a) In open roof spaces.
- (b) Cast in concrete.
- (c) Surface mounted against walls, concrete slabs, etc.
- (d) In wall chases.

1.1.4 Where conduits are to be installed in concrete, this shall be undertaken while the building work is still in progress. Conduits may only be surface mounted where specified or where the Department has given its written consent.

1.1.5 Under no circumstances will conduit having a wall thickness of less than 1,6mm be allowed in screeding laid on top of concrete slabs.

1.1.6 Bending and setting of conduit must be done with special bending apparatus manufactured for the purpose and which are obtainable from the manufacturers of the conduit systems. Damage to conduit resulting from the use of incorrect bending apparatus or methods applied must on indication by the Department's inspectorate staff, be completely removed and rectified and any wiring already drawn into such damaged conduits must be completely renewed at the contractor's expense.

1.1.7 Tenderers must ensure that general approval of the proposed conduit system to be used is obtained from the local electricity supply authority prior to the submission of their tender. Under no circumstances will consideration be given by the Department to any claim submitted by the contractor, which may result from a lack of knowledge in regard to the supply authority's requirements.

1.1.8 For light and socket outlet circuits, the conduit used shall have an external diameter of 20mm. In all other instances the sizes of conduit shall be in accordance with the "Wiring Code" for the specified number and size of conductors, unless otherwise directed in part 2 of this specification or indicated on the drawings.

1.2 OTHER SERVICES

Conduits may not be installed closer than 150 mm to pipes containing gas, steam, hot water or other materials, which may damage the conduits or conductors. Conduits may not touch pipes of other service

installations in order to prevent electrolytic corrosion. Where this is unavoidable, cathodic protection shall be provided.

Conduit and conduit accessories used for flame-proof or explosion proof installations and for the suspension of luminaries as well as all load bearing conduit shall in all instances be of the metallic screwed type.

2. SCREWED METALLIC CONDUIT

2.1 GENERAL

2.1.1 In general, screwed steel conduit shall be used in the wiring of buildings.

2.1.2 The installation shall comply with SANS 10142.

2.2 GALVANISED CONDUIT

Galvanised conduit and accessories shall be used in the following:

- (a) In damp areas.
- (b) In areas exposed to the weather.
- (c) For all installations within 50 km of the coast.
- (d) In plenum chambers containing humidifying equipment.
- (e) For surface mounted conduit installations in kitchens and boiler rooms.
- (f) In screeds resting directly on soil.
- (g) For connection points to future installations.
- (h) For underground conduit containing earthing conductors.
- (l) In buildings where animals are housed such as cattle, sheep, dogs, etc.

2.3 TERMINATIONS

2.3.1 Spouted Connections.

Conduits shall be connected directly to draw-boxes with spouted connections. Conduits shall be screwed tightly home and no threads shall be visible.

2.3.2 Switchboards, Power skirting, etc.

Conduits shall be terminated by means of a brass female bush and two locknuts in pressed steel switchboards and distribution boxes, cable ducts, power skirting, etc. The conduit end shall only project far enough through the entry hole to accommodate the bush and locknut. Alternatively the method detailed in 2.3.3 may be used.

2.3.3 Draw-boxes.

A female bush and two locknuts shall be used to terminate conduits at draw-boxes and outlet boxes without spouts, should there be sufficient room in the box. Where there is insufficient room, a coupling, brass male bush and locknut may be used with sufficient allowance for the reduction of the internal diameter by the male bush.

2.3.4 Holes.

Holes to accommodate brass bushes shall be large enough to accommodate the bush with a minimum of clearance.

2.3.5 Bush-nuts.

Bush-nuts for the connection of earth conductors to conduits are not acceptable.

2.4 SCREWS, BOLTS AND NUTS

Steel locknuts of thick gauge steel with milled sides shall be used in all cases. Cadmium-plated bolts and nuts shall be used except where the installation is exposed to the weather in which case brass bolts and nuts shall be used. Screws shall be installed in all tapped holes in fittings and accessories to prevent damage to the screw thread by concrete or plaster. The screws shall be screwed completely down to prevent damage to the thread on the screw.

2.5 CONDUIT ENDS

Conduit ends shall be cut at right angles to ensure that ends butt squarely at joints. Threads shall not be visible at joints and connections except at running joints. The total length of the thread on the two conduit ends shall not exceed the length of the coupling.

2.6 JOINTS

All conduit ends shall be reamed and all joints tightly screwed. Only approved couplings shall be used. Running joints with long threads shall be kept to a minimum and locknuts shall be provided to ensure a strong mechanical and a continuous electrical joint. Running joints in screwed conduit are to be avoided as far as possible and all conduit systems shall be set or bent to the required angles. The use of normal bends must be kept to a minimum with exception of larger diameter conduits where the use of such bends is essential.

2.7 FINISH

All joints shall be painted with red lead to prevent them from rusting in damp areas, areas within 50 km of the coast and in cases where the installation is exposed to the weather for any length of time. Where the galvanising or black paint has been damaged, the area shall first be cleaned and a coat of zinc base paint applied subsequently. Additional coats of paint shall only be applied after the undercoat has completely dried. All surface mounted non-galvanised metallic conduit must be painted. (Refer to par. 8.8 of Section B1).

2.8 CONTINUITY

Mechanical and electrical continuity shall be maintained throughout the conduit installation.

3. PLAIN-END METALLIC CONDUIT

As an alternative to the screwed conduit, plain-end conduit complying with the SANS 10142 standard specification for "CONDUITS AND CONDUIT ACCESSORIES", may be installed subject to the following additional conditions:

- 3.1 Bending and setting of plain-end conduit must be done with special benders and apparatus manufactured for this purpose and which are obtainable from the suppliers of the system. Damaged conduit resulting from the use of incorrect bending apparatus shall be completely removed and any wiring already drawn into such damaged conduits shall be completely renewed at the Contractor's expense.
- 3.2 Screwed conduit must be used in the following instances:
 - (a) In flameproof installations.
 - (b) Load bearing conduit.
 - (c) For the suspension of luminaries.
 - (d) Surface mounted conduit.
- 3.3 Plain-end conduit and associated accessories shall be manufactured of mild steel having a minimum thickness of 1,2 mm and shall comply with SANS 1065. Conduit manufactured of lighter gauge material, i.e. 0,97 mm, will not be permitted.

- 3.4 All conduit and accessories used in areas within 50 km of the coast shall be hot-dip galvanised to SANS 32 & 121. In inland areas Electro-galvanised or cadmium-plated accessories will be accepted.

4. NON-METALLIC CONDUIT

4.1 INSTALLATION CONDITIONS

Where specified for a particular service, non-metallic conduit may be installed under the following conditions:

- 4.1.1 All non-metallic conduit shall comply fully with SANS 950 and shall be installed in accordance with Appendix C of the same specification as well as SANS 10142.
- 4.1.2 Insulated heat-resistant boxes shall be used for outlets of totally enclosed luminaries and other fittings where excessive temperatures are likely to occur.
- 4.1.3 Luminaries and other fittings shall not be supported by non-metallic conduit or conduit boxes. These fittings shall be secured to the surrounding structure in a way that is acceptable to the Department. Refer to the Department's standard specification for "INSTALLATION OF LUMINAIRES", Section B8.
- 4.1.4 The conduit shall be supported and fixed with saddles with a maximum spacing of 1 m, even in roof spaces. (Refer to SANS 10142.) The Contractor shall supply and install all additional supporting timbers required.
- 4.1.5 It shall be possible to rewire the completed installation in the future without undue difficulty.
- 4.1.6 Non-metallic conduit and fittings shall not be used under the following conditions:
- (a) Outside a building (unless protected, or sheltered under eaves).
 - (b) For mechanical load bearing.
 - (c) Where they may be subjected to temperatures below -10°C or above 70°C for prolonged periods.
 - (d) As primary electrical insulation.
 - (e) In areas where they may be subject to mechanical damage.
 - (f) For applications other than those for which they are designed.
 - (g) In concrete slab unless specified to the contrary.

4.2 PAINTING OF CONDUITS

Exposed conduit may be painted with normal oil or PVA paints, but care must be taken to ensure that the paint used does not contain any component that will soften or have any other detrimental effect on the materials from which the conduit and fittings are manufactured.

4.3 CONNECTING OF CONDUIT TO METAL EQUIPMENT/COMPONENTS

When any part of a non-metallic conduit system has to be connected to metal equipment or components (e.g. switchboard, surface socket-outlet or switch box, existing metallic conduit system, etc.) fittings and joints manufactured specifically for this purpose must be used. Non-metallic conduit must not be threaded to fit metallic connectors.

4.4 BENDS

In conduit of nominal size not exceeding 25 mm, bends may be made in accordance with par. 4.5. In all other cases bends must be achieved by the use of accessories that are introduced into the conduit run. Bends shall comply with SANS 10142.

4.5 BENDING

Conduit of nominal size up to and including 25mm may be cold bent by hand provided that the radius of the bend is greater than six times the nominal size of the conduit, and that the external angle of the bend does not exceed 90°. The procedure (which involves the use of a bending spring) should be as follows:

- (a) Determine the angle through which the conduit is to be bent.
- (b) Warm the cold conduit over the length to be bent by rubbing with hands.
- (c) Select a bending spring which matches the conduit size and insert in to the conduit at the point where the bend is required.
- (d) Bend the conduit slowly with one motion (either with the hands alone approximately 1 m apart, or across the knee) to double the required angle, release the conduit and, when its position is stable, withdraw the bending spring (turning it in an anti-clockwise direction to reduce its diameter) and gently correct the angle.
- (e) Install and secure the conduit immediately following bending.

4.6 ADHESIVE JOINTS

All adhesive joints must be made in a clean dry area. The surfaces of all components to be bonded must be dry and clean.

The insertion depth should be marked on the conduit end and the adhesive applied (by means of a soft clean brush) as quickly as possible to the surfaces to be bonded by brushing lengthwise along the conduit, ensuring that a thin coating of uniform thickness is formed. The joint must be made immediately after the application of the adhesive by pushing the prepared parts squarely together with a twisting motion to the full insertion depth. Care must be taken to avoid squeezing adhesive into the cableway and all excess adhesive must be wiped off.

NOTE: Solvent adhesives contain highly volatile liquids and their containers should not be left open.

4.7 Cutting

A fine-tooth hacksaw should be used to cut conduit to the required length. Each cut end should be square and free from swarf, burrs and loose material. When determining the length of conduit to be cut, allowance must be made for the length of couplings or accessories attached to the conduit. Incorrect determination will cause bulging of the conduit or insufficient joint length.

5. FLEXIBLE CONDUIT

- 5.1 In installations where the equipment has to be moved frequently to enable adjustment during normal operation, for the connection of motors or any other vibrating equipment, for the connection of thermostats and sensors on equipment, for stove connections and where otherwise required by the Department, flexible conduit shall be used for the final connection to the equipment.
- 5.2 The installation shall comply with SANS 10142.
- 5.3 Flexible conduit shall preferably be connected to the remainder of the installation by means of a draw-box. The flexible conduit may be connected directly to the end of a conduit if an existing draw-box is available within 2 m of the junction and if the flexible conduit can easily be rewired.
- 5.4 Flexible conduit shall consist of metal-reinforced plastic conduit or PVC-covered metal conduit with an internal diameter of at least 15mm, unless approved to the contrary. In false ceiling voids, flexible conduit of galvanised steel construction may be used. connectors for coupling to the flexible conduit shall be of the gland or screw-in type, manufactured of either brass or mild steel plated with either zinc or cadmium.

6. INSTALLATION REQUIREMENTS

6.1 POSITIONS OF OUTLETS

All accessories such as boxes for socket-outlets, switches, lights, etc. shall be accurately positioned. It is the responsibility of the Contractor to ensure that all outlets are installed level and square, at the correct height from the floor, ceiling or roof level and in the correct position relative to building lines and equipment positions as specified. It shall be the responsibility of the Contractor to determine the correct final floor, ceiling and roof levels in conjunction with the Main Contractor. Draw-boxes shall not be installed in positions where they will be inaccessible after completion of the installation. Draw-boxes shall be installed in inconspicuous positions to the approval of the Department's representative and shall be indicated on the "as built" drawings.

6.2 COVER PLATES

All draw-boxes and outlets shall be fitted with cover plates, either as part of the switch or socket assembly or with blank cover plates if unused. Blank cover plates shall match other cover plates in the same area. Flush mounted cover plates in both ceilings and walls shall overlap the draw-box and edges of the recess. If the fixing lugs are substantially deeper than the finished wall surfaces, suitable coiled steel wire or tubes shall be used as spacers.

6.3 DRAW-WIRES

Galvanised steel draw-wires shall be installed in all unwired conduits e.g. conduits for future extensions, telephone installations and other services.

6.4 BENDS

A maximum of two 90 bends or the equivalent displacement will be allowed between outlets and/or boxes.

Draw-boxes shall be installed at maximum intervals of 15 m in straight runs. All bends shall be made without heating the conduit or without reducing the diameter of the conduit. The inside radius of a bend shall not be less than five times the outside diameter of the conduit. (Refer to SANS 10142,

6.5 WALL SOCKET-OUTLETS

Where more than one socket-outlet is connected to the same circuit, the conduit shall be looped from one outlet box to the following on the same circuit. Where a metal channel is used, the conduit may be installed from the channel directly to the outlet box on condition that the conductors can be looped from one outlet to the next without making any joints in the wires.

6.6 LUMINAIRES

Where the conduit end is used to support luminaries, a ball-and socket type lid shall be fitted to the pendant box in all cases where the conduit is longer than 500 mm. In all other cases a dome lid may be used. Where luminaries are specified which are fixed directly to the pendant box, the pendant box shall be fixed independently of the conduit installation except where the pendant box is cast into concrete.

6.7 FLUSH MOUNTED OUTLET BOXES

The edges of flush mounted outlet boxes shall not be deeper than 10 mm from the final surface. Spacer springs shall be used under screws where necessary.

6.8 EXCESS HOLES

All excess holes in draw-boxes or other conduit accessories shall be securely blanked off by means of brass plugs to render the installation vermin proof.

6.9 DEBRIS

Care shall be taken to prevent debris or moisture from entering conduits during and after installation. Conduit ends shall be sealed by means of a solid plug which shall be screwed to the conduit end. Conduits shall be cleaned and swabbed to remove oil, moisture or other debris that may be present before conductors are installed. Swabs shall not be attached to the conductors.

6.10 Defects

Each length of conduit shall be inspected for defects and all burrs shall be removed. All conduits that are split, dented or otherwise damaged or any conduits with sharp internal edges shall be removed from site. The Contractor shall ensure that conduits are not blocked.

6.11 WITHDRAWAL OF CONDUCTORS

To ensure that all electrical conductors are easily withdrawable from conduits and to ensure that there are no joints in the conductors, the Department's representative will have the right to have the conductors of any circuit removed at his discretion. If the conductors are found to be in a satisfactory condition after having been withdrawn, the Department shall bear the cost of withdrawing and re-installing such conductors. If the conductors are found to have been damaged during installation or removal or if joints are found, they shall be replaced and the cost shall be borne by the Contractor.

7. INSTALLATION IN CONCRETE

7.1 TIMEOUS INSTALLATION

In order not to delay building operations, the Contractor shall ensure that all conduits and accessories which are to be cast in concrete are placed in position in good time. The Contractor or his representative shall be in attendance when the concrete is cast.

7.2 DRAW-BOXES

Draw-boxes, expansion joints and round ceiling boxes shall be installed where required and shall be neatly finished to match the finished slab and wall surfaces. Ceiling draw-boxes shall be of the deep type. In hollow block slabs, rear-entry draw-boxes shall be used. In columns where flush mounted draw-boxes are installed, the conduits shall be offset from the surface of the column immediately after leaving the draw-box.

7.3 ELBOWS

Elbows for conduits of 32mm dia. and smaller and sharp bends will not be allowed in concrete slabs.

7.4 COVER PLATES

Draw-boxes and/or inspection boxes shall, where possible, be grouped together under a common approved cover plate, and must preferably installed in passages or male toilets. The cover plate shall be secured by means of screws.

7.5 NEUTRAL AXIS

All conduits shall be installed as close as possible to the neutral axis of concrete beams, slabs and columns. The conduits shall be rigidly secured to the reinforcing to prevent movement towards the surface of the concrete.

7.6 FIXING TO THE SHUTTERING

All conduits, draw-boxes etc. shall be securely fixed to the shuttering to prevent displacement when concrete is cast. Draw-boxes and outlet boxes shall preferably be secured by means of a bolt and nut installed from the back of the box through the shuttering. Fixing lugs may also be used to screw the boxes to the

shuttering. Wire will not be accepted for securing boxes to the shuttering where off-shutter finishes are required. Where fibreglass shuttering is used by the Builder, the equipment shall be fixed to the steel only and no holes shall be drilled or made in shuttering. All draw-boxes and outlet boxes shall be plugged with wet paper before they are secured to the shuttering.

Before any concrete slabs are cast, all conduit droppers to switchboards shall be neatly spaced and rigidly fixed.

7.7 CONCRETE FLOOR SLABS

Conduits will not be allowed in concrete floor slabs of boiler rooms (or boiler houses), laundries or other damp areas. All socket outlets and three phase outlets in damp areas shall be supplied from above with galvanised conduit and accessories.

7.8 EXPANSION JOINTS

As far as possible, conduits shall not be installed across expansion joints. Where this is unavoidable a conduit expansion joint shall be provided. (Refer to par. 10)

7.9 SCREEDS

The installation of conduits in floor screeds shall be kept to a minimum. Where conduits are installed in screeds, the top of the conduit shall be at least 20 mm below the surface of the screed. Where the screed is laid directly on the ground, galvanised conduits shall be used. This ruling will always be applicable to the lowest floor of a building. A minimum distance of twice the outside diameter of the conduit shall be left free between adjoining conduits. Conduits shall be secured to the concrete slab at intervals not exceeding 2 m. The Contractor shall ensure that conduits are not visible above the screed where the conduits leave the screed.

7.10 INSPECTION

All draw-boxes, conduits, etc. which are installed in concrete shall be cleaned with compressed air and provided with draw-wires two days after removal of the shuttering. Errors that occurred during the installation of the conduits, or any lost draw-boxes, or blocked conduits shall be immediately reported to the Department by telephone and confirmed in writing in order that an alternative route can be planned and approved by the Department before the additional concrete is cast. Any additional cost shall be for the Contractor's account.

8. SURFACE INSTALLATIONS AND INSTALLATIONS IN ROOF SPACES

Wherever possible, the conduit installation is to be concealed in the building work; however, where unavoidable or otherwise specified, conduit installed on the surface must be plumbed or levelled and only straight lengths shall be used.

8.1 APPEARANCE

- (a) All conduits shall be installed horizontally or vertically as determined by the route and the Contractor shall take all measures to ensure a neat installation.
- (b) Where conduits are to be installed directly alongside door frames, beams, etc. that are not true, conduits shall be installed parallel to the frames, beams, etc.
- (c) All labels shall be removed from surface mounted conduit.

8.2 SADDLES

Conduits shall be firmly secured by means of saddles and screws and in accordance with SANS 10142. Where saddles are used to secure vertical lengths of conduit connected to surface mounted switch boxes or socket outlet boxes, the saddles shall be spaced so that the intervals between the box and the first saddle, between any two successive saddles and between the last saddle and the ceiling or roof are equidistant.

Conduits shall be secured within 150 mm before and after each 90° bend and within 100mm of each outlet box.

8.3 JOINTS

Joints will only be allowed in surface conduit lengths exceeding 3,5 m. Threads shall not be visible at joints of completed installations, except where running joints are used. Running joints will be allowed only when absolutely necessary. All running joints shall be provided with locknuts and shall be painted with red lead immediately after installation.

8.4 ACCESSORIES

Inspection bends or tee pieces shall not be used. Non-inspection type bends may be used in the case of 32mm or 50 mm diameter conduits. All draw-boxes supporting luminaries or other equipment shall be fixed independently of the conduit installation.

8.5 OFFSETS

Where an offset is required at conduit terminations or crossovers, the conduit shall be saddled at the offset.

8.6 CROSS-OVER

Conduit routes shall be carefully planned to avoid crossovers. Where a crossover is inevitable, one conduit only shall be offset to cross the other. Crossovers shall be as short as possible and shall be uniform. Alternatively, crossovers shall be installed in purpose-made boxes. This method shall be employed on face brick walls and in other circumstances where required by the Department.

8.7 PARALLEL CONDUIT

Parallel conduit runs shall be equidistant and saddles shall be installed in line. Alternatively, a special clamp may be used to secure all conduits in unison. In the case of conduits of different diameters, the latter method shall only be used if a purpose-made clamp designed to accommodate the various conduit sizes, is provided.

8.8 PAINTING OF CONDUIT

All surface mounted conduits and accessories shall be painted with two coats of a high quality enamel paint or as otherwise specified. The colour shall comply with the colour code specified for the installation or where no code has been specified, shall match the colour of the surrounding finishes.

8.9 CONDUIT IN ROOF SPACES

8.9.1 In open roof spaces (no ceiling) conduits shall run along the wall plates and the rafters. The installation of conduits suspended between the rafters is not acceptable.

8.9.2 Conduit in roof spaces shall be installed parallel or at right angles to the roof members and shall be secured at intervals not exceeding 1,5 m by means of saddles screwed to the roof timbers for metallic conduit and 1m for non-metallic conduit.

8.9.3 Nails or crampets will not be allowed.

8.9.4 Under flat roofs in false ceilings or where there is less than 900 mm clearance, or in instances where the ceilings are insulated with glass-wool or other insulating material impeding access, the conduit shall be installed in a manner which allows for wiring from below the ceilings.

8.9.5 Conduit runs from switchboards shall terminate in fabricated sheet steel draw-boxes installed directly above or in close proximity to the boards. Refer to the Department's standard specification for "CONNECTIONS TO SWITCHBOARDS", par. 2 of Section B10.

- 8.9.6 Spare conduits covering the total number of spare ways on switchboards, shall be provided between the boards and the roof draw-box.
- 8.9.7 Where non metallic conduit has been specified for a particular service, the conduit shall be supported and fixed with saddles with a maximum spacing of 450mm throughout the installation. The contractor shall supply and install all additional supporting timbers in the roof space as required.

8.10 FIXING TO WALLS

Only approved plugging materials such as aluminium inserts, fibre plugs or plastic plugs, etc., and round-head screws shall be used when fixing saddles, switches, plugs etc. to walls. Wood plugs are not acceptable nor should plugs be installed in joints in brick walls.

9. FUTURE EXTENSIONS

9.1 OPEN ROOF SPACES

Conduits intended for future switches and socket outlets, shall terminate 40 mm above the tie beams in roof spaces with more than 900 mm free space. The conduit ends shall be threaded and fitted with a coupling and brass plug.

9.2 CONCRETE SLABS

Conduit ends shall protrude 150 mm from the concrete to facilitate the installation of future extensions above, below or to the side of the concrete slabs. All these conduits shall be connected to a draw-box, which is cast into the concrete within 2 m of the end of the concrete. Conduit ends shall be threaded and fitted with a coupling and brass plug. In cases where holes cannot be drilled through the shuttering to accommodate the conduit end, a deep draw-box with rear entry may be placed over the conduit end.

9.3 COVER PLATES

Unused boxes for switches and socket-outlets shall be covered with metal cover plates. Unused boxes for luminaries shall be covered with round galvanised metal cover plates, which fit tightly against the finished surface. The cover plate shall overlap the outlet box and recess.

9.4 GALVANISED CONDUIT

Galvanised conduit shall be installed at all free ends intended for future extensions. The conduit shall be treated with a paint, which will prevent corrosion and white rust.

10. EXPANSION JOINTS

- 10.1 Where conduits cross expansion joints in the structure, approved draw-boxes which provide a flexible connection in the conduit installation shall be installed. Refer to the Department's standard drawing No EE3/136/139.
- 10.2 The draw-box shall be installed adjacent to the expansion joint of the structure and a conduit sleeve, one size larger than that specified for the circuit, shall be provided on the side of the draw-box nearest the joint. The one end of the sleeve shall terminate at the edge of the joint and the other shall be secured to the draw-box by means of locknuts.
- 10.3 The circuit conduit passing through the sleeve shall be terminated 40 mm inside the draw-box and in the case of metallic conduit, the conduit end shall be fitted with a brass bush. The gap between the sleeve and the conduit at the joint shall be sealed with 'Pratley Tic-Tac' or equal sealing compound, to prevent the ingress of wet cement. In the case of metallic conduit, an earth clip shall be fitted to the conduit projection inside the draw-box and the conduit bonded to the box by means of 2,5mm² bare copper earth wire and a brass bolt and nut.
- 10.4 The end of the other circuit conduit shall be secured to the draw-box by means of locknuts and a brass bush in the case of screwed metallic conduit or a standard bushed adaptor for other conduit types.

- 10.5 In the case of metallic conduit, a 2,5mm² bare copper wire shall be installed between the first conduit boxes on either side of the joint, in addition to an earth wire, which may be specified for the circuit. The conduit boxes shall be drilled and tapped and the earth wire shall be bonded to the boxes by means of lugs and brass screws.
- 10.6 Suitable steel cover plates shall be screwed to draw-boxes installed along the expansion joint. The cover plates shall be installed before the ceilings are painted.
- 10.7 Where a number of conduits are installed in parallel they shall cross the expansion joint of the structure via a single draw-box. A number of draw-boxes adjacent to each other will not be allowed.

11. CHASES AND BUILDER'S WORK

- 11.1 Except where otherwise specified the Builder or Main Contractor shall be responsible for the builder's work related to the installation of conduits, outlet boxes, switchboard trays, bonding trays and other wall outlet boxes and will undertake the necessary chasing and cutting of walls and the provision of openings in ceilings and floors for luminaries and other electrical outlets. The Contractor shall notify the Builder or Main Contractor of his requirements and the responsibility lies with the Contractor to ensure that all builder's work is clearly indicated or marked in accordance with his requirements.
- 11.2 Electrical materials to be built in must be supplied, placed and fixed in position by the Contractor when required to do so by the Builder or Main Contractor. The Contractor shall also ensure that these materials are installed in the correct positions.
- 11.3 Where no Builder or Main Contractor is available, the Contractor must provide all chases and is required to cover conduits installed in chases by a layer of 4:1 mixture of coarse sand and cement, finished 6 mm below the face of the plaster and roughened. Chases shall be deep enough to ensure that the top of conduits are at least 12 mm below the finished surface of the plaster.
- 11.4 Where the Contractor is responsible for the cutting of chases or the building in of conduits and other equipment, he will be held responsible for all damage as a result of this work and will be required to make good to the satisfaction of the Department.

This ruling is particularly applicable but not exclusively to the rewiring and renewal of existing installations. Chases shall be made by means of a cutting machine.

- 11.5 Under no circumstances shall face brick walls or finished surfaces be chased or cut without the written permission of the Department. Where it is necessary to cut or drill holes in the concrete structure, the prior permission of the Department shall be obtained.

SECTION B2

INSTALLATION OF WIRING CHANNELS, UNDERFLOOR DUCTING AND POWER SKIRTING

1. RESPONSIBILITY OF THE CONTRACTOR

The Contractor shall supply and install all wiring channels, underfloor ducting and power skirting as specified or as required for the cable, socket outlet and wiring installation including the necessary supports, hangers, fixing materials, bends, angles, junctions, T-pieces, etc. He shall further liaise with the Main contractor to verify the position of holes and access routes through the structure and finishes.

2. WIRING CHANNELS

2.1 FIXING

The Contractor shall supply and install all hangers, supports or fixings for the channels. Channels up to and including 76 x 76 mm shall be supported at maximum intervals of 600 mm and larger channels at maximum intervals of 1 m. Channel runs shall be carefully planned to avoid clashes with other services and to ensure that all covers can be removed after completion of the entire installation. Purpose made clamps, hangers, etc. shall be used as required. Where it is not possible to support the channels at the specified intervals, they shall be supported in a sound manner to the satisfaction of the Department.

2.2 INSTALLATION IN CONCRETE

Where channels are cast into concrete, the insert type shall be used. Additional spacer blocks shall be used where necessary to prevent ducts from being deformed while the concrete is cast. Channels shall be filled with polystyrene or other suitable fillers to prevent the ingress of concrete and shall be securely fixed in position to the shuttering.

2.3 COVER PLATES

All channels up to and including 127mm width shall have snap-in cover plates of metal or PVC. Cover plates for wider channels shall be of metal and shall be fixed by means of screws at suitable intervals to prevent warping. Cover plates shall be installed over the full length of the channels. Flush mounted wiring channels shall be fitted with overlapping metal cover plates with plastic edge trim to cover irregularities in the wall recess.

2.4 JOINTS

Adjoining lengths shall be aligned and securely joined by means of fishplates fixed by mushroom bolts, washers and nuts or connection pieces that are pop-riveted to both adjoining sections. All adjoining sections shall be rectangular and shall butt tightly. Covers shall fit tightly across the joints.

Where channels cross expansion joints in the structure, suitable expansion joints shall be provided in the channels by means of fishplates pop-riveted or screwed to the channel on one side of the expansion joint and floating freely in the channel on the other side of the expansion joint.

2.5 SUPPORT FOR CONDUCTORS

All conductors in inverted cable channels shall be retained by means of metal clips or metal spacer bars at not more than 1m centres. Where vertical duct lengths exceed 5m, conductors installed in the channels shall be secured at intervals not exceeding 5m to support the weight of the conductors. Clamps shall be provided in suitable draw-boxes for this purpose.

2.6 CONDUIT CONNECTIONS

Conduit connections shall be terminated by means of two locknuts and a brass female bush. Where the channel is wide enough, conduit connections may be made by means of a conduit box and hole through the back or side of the channel. All holes through which conductors pass shall be fitted with bushes or grommets or shall be sleeved.

2.7 INTERNAL FINISHES

Bends and T-joints shall be constructed to ensure compliance with the allowable bending radii specified in SANS 10142, Appendix D in the case of PVC-insulated cables and conductors and shall comply with the relevant specification in the case of other cables. Burrs and sharp edges shall be removed and the inside edges of the joints shall be lined with rubber cement or other suitable rubberised or plastic compound to prevent laceration of the conductor insulation.

2.8 VERMIN PROOFING

All cable channels shall be vermin proofed after installation. Holes shall be covered by means of screwed metal plugs or by means of metal strips, which are bolted, or pop-riveted to the channel. Wooden or other plugs which are driven into holes or other temporary plugs or covers are not acceptable.

2.9 SERVICES

Multiple duct runs or internal metal partitions shall be used where conductors for power, control, communication and other services are present.

3. UNDERFLOOR DUCTING

3.1 GENERAL

3.1.1 Two or three compartment underfloor ducting as specified shall be supplied and installed in the positions and according to the layouts indicated on the drawings.

3.1.2 Three compartment ducting shall have a cross-section of approximately 200 x 32mm, subdivided into three approximately equal compartments, of which the centre compartment shall be used for electrical power distribution with the two outer compartments for telephone and other light current services respectively.

3.1.3 Unless specified to the contrary in the Detail Technical Specification or on the drawings, each compartment shall be provided with openings (occurring in line) at 1,5 m centres to permit installation of pedestals or recessed outlets in accordance with the design of the system. The openings shall have removable, flush, cover plates and shall have prepared fixing holes for future installation of pedestals or recessed outlets. The centre of the openings shall be offset a distance of 200 mm from the building nodule lines.

3.2 JUNCTIONS

The underfloor ducting installation shall be provided with flush cross-over, T-junction and right angle bend draw-boxes installed in the runs of ducting, generally as indicated on the drawings. The junction boxes shall be complete with cross-over of services. The junction boxes shall have nominal 300 x 300mm removable cover plates secured by means of four countersunk screws.

3.3 PEDESTAL UNITS

Where the system accommodates floor pedestal units, these shall consist of pressed steel or die cast aluminium units, suitable for either two or three services, as specified in the Detail Technical Specification. Where the pedestals are installed on vinyl tiled or similar floors which will be subject to washing, a matching waterproofing gasket shall be supplied below each pedestal to render the junction waterproof.

3.4 INSTALLATION

The underfloor ducting, junction boxes, pedestals, outlets and other accessories shall be installed strictly in accordance with the manufacturer's instructions and according to the following procedure:

- a) The underfloor ducting shall be installed on a mortar bed, provided by the Plasterer for purposes of levelling the channel to the final floor screed level. The Contractor shall assist the Plasterer in marking out the layout of the ducting to enable the mortar bed to be laid. Final height of the underfloor ducting shall be determined in close liaison with the Builder.
- b) After installation of the mortar bed, the components of the underfloor ducting shall be assembled and installed by the Contractor, following which the screeding will be completed.

3.5 TERMINATIONS

Up bends manufactured by the supplier of the underfloor ducting shall be supplied and installed wherever the ducting is terminated at a switchboard, telephone duct or telephone distribution box or where the ducting terminates behind power skirting.

3.6 WIRING

3.6.1 Power circuit wiring shall be installed in the centre compartment of the underfloor ducting. Sufficient slack shall be provided to allow for the installation of a floor pedestal outlet at each opening in the ducting, whether an outlet is specified at that position or not. This provision shall take the form of loops in the wiring, including the earth wire, wherever the openings occur. The loops shall be pushed back into the channel and the cover plates replaced. In the instances where pedestals/outlets are not installed, these provisions shall of necessity only be made for the area covered by the circuit and not for the run from the switchboard.

3.6.2 The entire underfloor ducting installation shall be effectively earthed and bonded together.

3.6.3 Galvanised draw-wires shall be supplied and installed along the entire length of the telephone and light current service compartments of the underfloor ducting. The draw-wires shall be interrupted at the junction boxes, with enough slack left coiled up to facilitate the drawing in of cables by others.

3.7 EXPANSION JOINTS

Where expansion joints in the buildings are crossed by underfloor ducting, expansion joints shall be provided as detailed in par. 2.4 of this section.

4. POWER SKIRTING

4.1 GENERAL

4.1.1 Two or three compartment power skirting as specified shall be supplied and installed in the positions and according to the layouts indicated on the drawings.

4.1.2 The top compartment shall be used for power wiring and switched socket outlets, whilst the bottom compartments shall be for telephone and other light current services.

4.2 MODULE

4.2.1 The power skirting shall be manufactured from 1mm (minimum) thick sheet steel or aluminium (as specified) in approximately 2,5m lengths.

4.2.2 The covers shall be manufactured in modular lengths, as specified in the Detail Technical Specification or otherwise in 1 m lengths and shall be secured to the wall channel by means of toggle or swivel nuts. Snap-in covers are also acceptable.

- 4.2.3 At the building module lines, covers of specified length or otherwise in 250 mm lengths shall be installed, against which partition walls may be installed, thereby trapping these covers. The removable modular covers shall be installed between these "fixed" covers.
- 4.2.4 Each modular cover associated with the power compartment shall be punched and prepared for the installation of either a 13A or a 16A, 3-pin standard flush switched socket outlet, whether any is specified or indicated for that module or not. Where socket outlets are not installed, the punched holes shall be blanked off with a metal blanking plate, painted the same colour as the power skirting and installed at the back of the covers. These blanking plates shall be easily removable to permit future installation of socket outlets.
- 4.2.5 Unless otherwise specified, no provision shall be made on the covers of the telephone or light current services compartments for the installation of sockets.
- 4.2.6 Factory-made end covers shall be installed at the ends of all runs of power skirting. All internal and external bends or offsets shall be factory-made and shall be installed to provide a neat and workmanlike appearance.
- 4.3 PAINTING

The power skirting shall be painted in a colour as specified in the Detail Technical Specification. The painting of steel power skirting shall comply with the Department's "STANDARD PAINT SPECIFICATION", Section C39. Aluminium power skirting shall be anodised. The power skirting channels and covers shall be individually wrapped or packed to protect them against damage in transit and before installation.

4.4 SOCKET-OUTLETS

- 4.4.1 Standard 13 A or 16 A, 3-pin flush switched socket outlets (100 x 50 mm nominal size) shall be supplied and installed in the positions indicated on the drawings and as specified in the Detail Technical Specification.
- 4.4.2 The switched socket outlets shall be secured to the channel by means of suitable brackets.
- 4.4.3 After installation of the modular front covers, they shall be screwed to the socket outlets to ensure proper alignment between the two components. Separate standard covers need not be provided for the socket outlets.

4.5 CONDUIT FEEDERS

- 4.5.1 Conduits for the circuit wiring to the power skirting shall be installed in the floor slab and shall terminate in flush conduit or boxes, behind the power skirting and installed to match the height of the power, telephone and light current services compartments of the skirting.
- 4.5.2 The wiring/cables shall pass through large diameter holes cut in the rear of the power skirting. The holes shall be suitably bushed or trimmed to prevent damage to the wiring or cables.
- 4.5.3 Alternatively conduits feeding to the telephone compartment may be terminated in boxes facing upwards in the floor slab immediately below the power skirting, with suitable bushed or trimmed openings being provided through the bottom of the power skirting duct for the cables to pass through. (Applicable only where the power skirting occurs at floor level).

4.6 POWER SKIRTING AT DOORWAYS

Where a section of power skirting is interrupted by a doorway, bridging conduits shall be installed to interconnect the power skirting sections. Where conduits are not specifically indicated, a minimum of 1 x 32mm bridging conduit shall be installed for each of the power, light current and telephone compartments.

4.7 CLEANING

Prior to fitting front covers, the power skirting shall be thoroughly cleaned to remove all dust and rubble and damage to paintwork where this has occurred, shall be repaired.

SECTION B3

INSTALLATION OF CABLE TRAYS AND LADDERS

1. GENERAL

Cable trays and cable ladders complying with the Department's standard specification for "CABLE TRAYS AND LADDERS" shall be supplied and installed where specified and/or where generally suitable for cable distribution.

2. RESPONSIBILITY OF THE CONTRACTOR

The Contractor shall supply and install all cable trays and/or ladders as specified or as required by the cable routes including the necessary supports, clamps, hangers, fixing materials, bends, angles, junctions, reducers, T-pieces etc. He shall further liaise with the Main Contractor for the provision of holes and access through the structure and finishes.

3. SUPPORTS

Cable tray supports shall consist of two steel hangar rods, at least 8mm in diameter, on both sides of the tray with a substantial steel cross-member on the underside of the tray and bolted to the rods. Alternatively, cable trays may be cantilevered from walls on suitable brackets.

4. SPACING OF HORIZONTAL SUPPORTS

4.1 Horizontal trays shall be supported at the following maximum intervals:

- | | | |
|-----|---|----------------------|
| (a) | 1,2 mm to 1,6 mm thick metal with 12mm to 19 mm return trays. | 1m maximum spacing |
| (b) | 2,5 mm thick metal trays with 76 mm return | 1,5m spacing. |
| (c) | Cable ladders with 76mm side rail of 2mm thickness and with crossrungs. | 1,5m spacing |
| (d) | Metal cable ladders other than c) above, including site manufactured angle iron types | 1m spacing |
| (e) | 3 mm thick PVC trays with 40mm return. | 1m maximum spacing |
| (f) | 4 mm thick PVC trays with 60mm return | 1,5m maximum spacing |

4.2 In addition to the above spacing on the longitudinal run, trays and ladders shall be supported at each bend, offset and T-junction.

5. JOINTS

5.1 Joints shall be smooth and without projections or rough edges that may damage the cables. The Contractor will be required to cover joints with rubber cement or other non-hardening rubberised or plastic compounds if in the opinion of the Department joints may damage cables.

5.2 Joints shall as far as possible be arranged to fall on supports. Where joints do not coincide with supports, joints shall be made by means of wrap-around splices of the same material as the tray and at least 450mm long. The two cable tray ends shall butt tightly at the centre of the splice and the splice shall be bolted to each cable tray by means of at least 8 round head bolts, nuts and washers. Splices shall have the same finish as the rest of the tray.

5.3 Splices as described above shall be provided at joints, which do coincide with supports if the loaded tray sags adjacent to the joint due to the interruption of the bending moment in the tray.

6. FIXING TO SUPPORTS

Trays shall be bolted to supports by at least two round head bolts per support. Bolts shall be securely tightened against the tray surface to avoid projections which might damage cables during installation.

7. FIXING TO THE STRUCTURE

- 7.1 Where installed on concrete or brick, the supports for cable trays and ladders shall be securely fixed by means of at least 2 heavy duty, expansion type anchor bolts. Cantilevered trays shall be supported by a minimum of two 6mm diameter expansion bolts per support.
- 7.2 It is the responsibility of the Contractor to ensure that adequate fixing is provided since cable trays and ladders that work loose shall be rectified at his expense. The fixing shall take into account site conditions that prevail during installation.
- 7.3 Where installed on vertical steelwork, cable trays and ladders shall be fixed by means of 6mm diameter bolts and nuts.
- 7.4 On horizontal steelwork, use may alternatively be made of "CADDY" type fasteners.
- 7.5 Horizontal trays and ladders shall in general be installed 450 mm below slabs, ceilings, etc. to facilitate access during installation of cables.
- 7.6 Multiple runs shall be spaced at least 300 mm apart unless a different spacing is specified in the Detail Technical Specification.

8. INSTALLATION OF CABLES

Cables shall be installed adjacent and parallel to each other on the trays with spacing's as specified in the Department's standard specification for "INSTALLATION OF CABLES", Section B6, and snaked slightly to allow for expansion. Cables shall present a neat appearance and shall under no circumstances be bunched. Cables shall be clamped at maximum intervals of 3 m when installed on horizontal trays and at maximum intervals of 600 mm when installed on vertical trays.

9. EARTHING

Metal trays and ladders shall be bonded to the earth bar of the switchboard to which the cables are connected. Additional bare copper stranded conductors or copper tape shall be bolted to the tray or ladder where the electrical continuity cannot be guaranteed. These additional conductors or tapes shall always be installed in outdoor applications and in coastal regions.

10. CORROSION

PVC trays shall be used in corrosive atmospheres. All supports shall be adequately protected against corrosion, preferably with a powder coated paint finish in accordance with the Department's "STANDARD PAINT SPECIFICATION".

SECTION B4

WIRING

This section covers wiring in approved wire-ways for electrical installations in buildings or other structures under normal environmental conditions for 50 Hz systems not exceeding 600 V.

1. TYPE OF CONDUCTORS

PVC-insulated or equivalent, stranded copper conductors and bare stranded or green PVC-insulated copper earth conductors complying with the SANS 10142 specification for "PVC-INSULATED CABLES", shall be used exclusively. Only where cables are specified or in instances where the exceptions stipulated in SANS 10142 are applicable, may the Contractor deviate from this requirement.

2. WIRE-WAYS

- 2.1 All unarmoured conductors shall be installed in conduits, cable channels (trunking) or power skirting and shall under no circumstances be exposed. Cable channels and power skirting shall be of metal construction unless specifically approved to the contrary.
- 2.2 Tenderers must note that common wire-ways will only be permitted for relatively light current-carrying conductors such as lighting and socket-outlet circuits. Refer also to par. 4 below. Heavy current-carrying conductors such as feeders to distribution boards and large power points, must be installed in separate conduits or wire-ways.

3. ORDER OF WORK

Wiring shall only be carried out after the wire-way installation has been completed, but before painting has commenced. Debris and moisture shall be removed from the wireways prior to the installation of the conductors.

4. CIRCUITS

Conductors that are connected to different switchboards, shall not be installed in the same wireway. The wiring of one circuit only will be allowed in a 20 mm dia. conduit with the exception of the wiring from switchboards to fabricated sheet metal boxes close to switchboards in which case more than one circuit will be allowed. For larger conduit sizes the requirements of SANS 10142, shall be met.

5. LOOPING AND JOINTS

A loop-in wiring system where conductors are looped from outlet to outlet, shall be employed. Joints in conductors shall be avoided as far as possible but where it becomes unavoidable, joints will be accepted in cable channels only and not in conduits. Joints shall be soldered or shall alternatively consist of approved ferruling, properly covered with heat-shrink sleeves. The use of PVC insulation tape is not acceptable.

6. GROUPING OF CONDUCTORS

In cases where the conductors of more than one circuit are installed in the same wireway, the conductors of each separate circuit (including earth conductor) shall be taped at intervals of 1m with PVC insulation tape. The conductors of different circuits shall however remain separate in order that any given circuit can be withdrawn. Conductors entering switchboards or control boards shall be grouped and bound by means of plastic or metal bands (not tape).

7. CABLE TRAYS

Conductors may only be installed directly on cable trays if specifically approved by the Department. In these cases cable trays shall be at least 2m above walkways or working areas. Conductors of the same circuit shall be grouped in the same manner as described in the previous paragraph. All the conductors on the

cable tray shall then be tied down securely to the cable tray at intervals of 2m or less by means of plastic or metal bands (not tape).

8. DRAWING-IN OF CONDUCTORS

When conductors are drawn through conduit, care shall be taken that they are not kinked or twisted. Care shall also be taken that the conductors do not come into contact with materials or surfaces that may damage or otherwise adversely affect the durability of the conductor.

9. THREE-PHASE OUTLETS

9.1 With the exception of three-phase outlets, circuits connected to different phases shall not normally be present at lighting, switch or socket outlet boxes. Where this is unavoidable, barriers shall be provided between terminals or connections of the various phases and the box shall be suitably labelled internally to indicate the presence of three phase voltages.

9.2 A neutral conductor shall be installed to all three phase outlets intended for equipment connection, whether sockets or isolators, irrespective of whether the particular equipment normally requires a neutral or not.

10. VERTICAL CONDUIT INSTALLATION

Conductors installed in vertical wire-ways shall be secured at intervals not exceeding 5m to support the weight of the conductors. Clamps shall be provided in suitable drawboxes for this purpose.

11. CONNECTIONS

The insulation of conductors shall only be removed over the portion of the conductors that enter the terminals of switches, socket outlets or other equipment. When more than one conductor enters a terminal, the strands shall be securely twisted together. Under no circumstances shall strands be cut off.

12. EARTHING CONDUCTORS

12.1 When earth continuity conductors are looped between terminals of equipment, the looped conductor ends shall be twisted together and then soldered or ferruled to ensure that earth continuity is maintained when the conductors are removed from a terminal.

12.2 The installation shall be earthed to comply with SANS 10142.

12.3 The installation shall be bonded to comply with SANS 10142.

13. COLOURS

The colours of conductor insulation shall comply with SANS 10142. The colours of conductors for sub-circuits shall as far as possible correspond with the colour of the supply phase. The colours of conductors for wiring to two-way and intermediate switches shall preferably differ from the colour of phase conductors.

14. SINGLE-POLE SWITCHES

Single-pole switches shall be connected to the phase conductor and not to the neutral conductor.

15. SIZE OF CONDUCTORS

Where conductor sizes are not specified, the following minimum conductor sizes shall be used:

Lighting circuits: 1,5mm² and 2,5mm² copper earth conductor

Socket-outlet circuits: 2,5mm² and 2,5mm² copper earth conductor.

Bell circuits: 1,5mm²

Stove circuits: 10mm² and 6mm² copper earth conductor

Clock circuits: 1,5mm²

16. PARTITIONS

16.1 When wiring is installed in removable partitions, the vertical and/or horizontal metal supports of the walls may be utilised for wiring on condition that:

- (a) the conductors are not exposed,
- (b) the metal supports are properly earthed,
- (c) a separate bare earth continuity conductor is drawn in together with the current carrying conductors and is earthed to the metal parts of the switches and/or the socket-outlets, and
- (d) conductors are installed in the metal and non-inflammable sections of the partitions.

16.2 Conductors enclosed in a copper braiding (harness wiring) may be installed in removable partitions. The braiding can be used as earth continuity conductor. The wiring shall be joined to the conduit (or cable) installation by interconnecting the conductor and the earth conductors in a draw-box using suitable ferrules and heat-shrink sleeves or screwed terminals.

SECTION B5

INSTALLATION OF CABLES

This section covers the installation of cables for the distribution of power in buildings, other structures and in ground for system voltages up to 11 kV, 50 Hz.

1. GENERAL

1.1 CABLE TYPES

- (a) All cables and jointing and termination accessories used for power distribution shall comply with the Department's Quality Specifications.
- (b) Cables with copper conductors shall be used throughout unless otherwise specified or approved.
- (c) All unarmoured cables shall be installed in metal trunking, sleeves or conduit unless clearly specified to the contrary.
- (d) XLPE Cables shall only be used in exceptional circumstances with the written permission of the Department.

1.2. COMPETENCE OF PERSONNEL

It is a definite requirement that the Contractor shall only employ personnel fully conversant with cable manufacturer's recommendations for joining and terminating cables.

2. IDENTIFICATION OF CABLES

- 2.1 Cables shall be identified at all terminations by means of punched metallic bands or marked with labels or tags. (Refer also to SANS 10142).
- 2.2 The use of PVC tape with punched characters is not acceptable.
- 2.3 The identification numbers of cables shall be shown on "as built" drawings of the Installation.

3. TRENCHING

3.1 GENERAL

- 3.1.1 The Contractor shall be responsible for all trenching excavations unless specified to the contrary.
- 3.1.2 The Contractor shall, before trenching commences, familiarise himself with the routes and site conditions and the procedure and order of doing the work shall be planned in conjunction with the general construction programme for other services and building requirements.
- 3.1.3 The Contractor shall acquaint himself with the position of all the existing services such as stormwater pipes, water mains, sewer mains, gas pipes, telephone cables, etc. before any excavations are commenced. For this purpose he shall approach this Department's representative, the local municipal authority and any other authority which may be involved, in writing.
- 3.1.4 The Contractor will be held responsible for damage to any existing services brought to his attention by the relevant authorities and shall be responsible for the cost of repairs.
- 3.1.5 The Contractor shall take all the necessary precautions and provide the necessary warning signs and/or lights to ensure that the public and/or employees on site are not endangered.
- 3.1.6 The Contractor shall ensure that the excavations will not endanger existing structures, roads, railways, other site constructions or other property.

3.2 MECHANICAL EXCAVATORS

3.2.1 Power driven mechanical excavators may be used for trenching operations provided that they are not used in close proximity to other plant, services or other installations likely to be damaged by the use of such machinery.

3.2.2

3.2.2 The use of power driven mechanical excavators shall be subject to the approval of the Department. Should the excavator produce trenches that exceed the required dimensions, payment based on volumetric excavation rates will be calculated on the required dimensions only.

3.3 BLASTING

3.3.1 No guarantee is given or implied that blasting will not be required.

3.3.2 Should blasting be necessary and approved by the Department, the Contractor shall obtain the necessary authority from the relevant Government Departments and Local Authorities. The Contractor shall take full responsibility and observe all conditions and regulations set forth by the above authorities.

3.4 ROUTES

3.4.1 Trenches shall connect the points shown on the drawings in a straight line. Any deviations due to obstructions or existing services shall be approved by the Department beforehand. Refer also to par. 10.4.

3.4.2 The Department reserves the right to alter any cable route or portion thereof in advance of cable laying. Payment in respect of any additional or wasted work involved shall be at the documented rates.

3.4.3 The removal of obstructions along the cable routes shall be subject to the approval of the Department.

3.5 SHORING AND WATERLOGGING

3.5.1 The Contractor shall provide shoring for use in locations where there is a danger of the sides of the trench collapsing due to waterlogging or other ground conditions. The Occupational Health and Safety Act.

3.5.2 The strength of shoring must be adequate for site conditions prevailing and the shoring must be braced across the trench.

3.5.3 The Contractor shall provide all pumps and equipment required to remove accumulated water from trenches. Water or any other liquid removed shall be disposed of without any nuisance or hazard.

3.6 TRENCHING

3.6.1 Trenching shall be programmed in advance and the approved programme shall not be departed from except with the consent of the Department.

3.6.2 Trenches shall be as straight as possible and shall be excavated to the dimensions indicated in this specification.

3.6.3 The bottom of the trench shall be of smooth contour, and shall have no sharp dips or rises which may cause tensile forces in the cable during backfilling.

3.6.4 The excavated material shall be placed adjacent to each trench in such a manner as to prevent nuisance, interference or damage to adjacent drains, gateways, trenches, water furrows, other works, properties or traffic. Where this is not possible the excavated materials shall be removed from site and returned for backfilling on completion of cable laying.

3.6.5 Surplus material shall be removed from site and disposed of at the cost of the Contractor.

- 3.6.6 Trenches across roads, access ways or footpaths shall not be left open. If cables cannot be laid immediately the Contractor shall install temporary "bridges" or cover plates of sufficient strength to accommodate the traffic concerned.
- 3.6.7 In the event of damage to other services or structures during trenching operations the Contractor shall immediately notify the Department and institute repairs. (Refer to par. 3.1.3 and 3.1.4)
- 3.6.8 Prior to cable laying the trench shall be inspected thoroughly and all objects likely to cause damage to the cables either during or after laying shall be removed.
- 3.6.9 Where ground conditions are likely to reduce maximum current carrying capacities of cables or where the cables are likely to be subjected to chemical or other damage or electrolytic action, the Department shall be notified before installing the cables. The Department will advise on the course of action to be taken.
- 3.6.10 Extreme care shall be taken not to disturb surveyor's pegs. These pegs shall not be covered with excavated material. If the surveyor's pegs are disturbed, they shall be replaced by a person qualified to do so.

3.7 DIMENSIONS OF TRENCHES

- 3.7.1 Cable trenches for one or two cables shall not be less than 300 mm wide and need not be more than 450 mm wide. This dimension shall be valid for the total trench depth.
- 3.7.2 The width shall be increased where more cables are installed to allow for the spacings stipulated in par. 4.2.
- 3.7.3 Where trenches change direction or where cable slack is to be accommodated, the Contractor shall ensure that the requirements of the relevant SANS Specification regarding the bending radii of cables are met when determining trench widths.
- 3.7.4 Trench depths shall be determined in accordance with cable laying depths and bedding thickness.
- 3.7.5 Payment will be made on a volumetric excavation rate calculated on the basis of the given maximum dimensions or the actual dimensions, whichever is the lesser. Refer also to par. 3.2.2 and 3.7.1 above.

3.8 JOINT HOLES

Where cable joints are required to be made in the course of a cable run, a joint hole shall be excavated of sufficient size to enable the cable jointer to work efficiently and unimpeded.

3.9 BEDDING

- 3.9.1 The bottom of the trench shall be filled across the full width with a 75mm layer of suitable soil sifted through a 6mm mesh and levelled off.
- 3.9.2 Only sandy clay or loam soil with a satisfactory thermal resistivity (not exceeding 1,5°C m/W) may be used for this purpose. Sea or river sand, ash, chalk, peat, clinker or clayey soil shall not be used. The use of crusher sand is acceptable.
- 3.9.3 Where no suitable soil is available on site, the Contractor shall import fill from elsewhere and make all the necessary arrangements to do so. The cost of importing soil for bedding purposes shall be included in the unit rates for excavations.
- 3.9.4 After cable laying a further layer of bedding shall be provided to extend to 75 mm above the cables.
- 3.9.5 The bedding under joints shall be fully consolidated to prevent subsequent settling.

3.10 CABLE SLEEVES

- 3.10.1 Where cables cross under roads, railway tracks, other service areas, etc. and where cables enter buildings, the cables shall be installed in Polyethylene (6mm thickness), asbestos cement pipes or earthenware pipes. Pitch fibre and PVC pipes are not acceptable because of the adhesion that occurs after a period of time between the pipe and the sheathing or outer serving of the cables.
- 3.10.2 Pipes shall be joined in accordance with the manufacturer's instructions.
- 3.10.3 Sleeves shall cross roads and railway tracks at right angles.
- 3.10.4 Sleeves shall have a minimum diameter of 100mm. They shall extend at least 2m beyond the tracks of a railway line or of the outermost tracks where there is more than one line. In the case of roads, the sleeves shall extend at least 1m beyond the road edge or kerb on both sides of the road.
- 3.10.5 All sleeves shall be graded 1:400 for water drainage.
- 3.10.6 Cable sleeves shall be installed to the spacings and depths stated in paragraph 4 below.
- 3.10.7 Galvanised metallic sleeves up to and including 76mm dia. shall be supplied and installed by the contractor.
- 3.10.8 The ends of all sleeves shall be sealed with a non-hardening watertight compound after the installation of cables. All sleeves intended for future use shall likewise be sealed.

3.11 BACKFILLING

- 3.11.1 The Contractor shall not commence with the backfilling of trenches without prior notification to the Department so that the cable installation may be inspected. Should the Contractor fail to give a timeous notification, the trenches shall be re-opened at the Contractor's cost. Such an inspection will not be unreasonably delayed.
- 3.11.2 For high voltage cables (1 kV to 11 kV) a coloured plastic marking tape shall be installed 400 mm above the cable. The tape shall be yellow, marked with the words "ELECTRIC CABLE/ELEKTRIESE KABEL" in red. These markings shall not be more than 1m apart from centre to centre.
- 3.11.3 Backfilling shall be undertaken with soil suitable to ensure settling without voids. The maximum allowable diameter of stones present in the backfill material, is 75mm.
- 3.11.4 The Contractor shall have allowed in his tender for the importation of suitable backfill material if required.
- 3.11.5 The backfill shall be compacted in layers of 150mm and sufficient allowance shall be made for final settlement. The Contractor shall maintain the refilled trench at his expense for the duration of the contract. Surplus material shall be removed from site and suitably disposed of.
- 3.11.6 On completion, the surface shall be made good to match the surrounding area.
- 3.11.7 In the case of roadways or paved areas the excavations shall be consolidated to the original density of the surrounding material and the surface finish reinstated.

3.12 CABLE MARKERS (FOR HV CABLES ONLY, EXCEPT WHERE OTHERWISE SPECIFIED)

- 3.12.1 Cable markers shall be provided along all HV cable routes but need only be provided along LV cable routes where specified.
- 3.12.2 Cable markers shall consist of concrete blocks in the shape of truncated pyramids, approx. 300mm high, 150 x 150mm at the top and 250 x 250mm at the bottom.
- 3.12.3 Brass plates shall be cast into the tops of the blocks in such a manner that they cannot be prised loose. The wording "ELECTRIC CABLE/ELEKTRIESE KABEL" shall be stamped on the brass plates as well as direction arrows and the cable voltage rating.

- 3.12.4 Cable markers shall be installed on the surface along all the underground routes and shall project 35 mm above normal ground level unless the projected markers could be a hazard to pedestrian or other traffic in which case they shall be installed flush with the surface.
- 3.12.5 Cable markers shall be installed at the beginning and end of a cable run (e.g. where a cable enters a substation or building), at all changes of direction, above all joints, above cable pipe entries and exits and at intervals not exceeding 50 m along the cable route.
- 3.12.6 The position of cable markers shall be indicated on the "as built" drawings.
- 3.13 TRANSNET, PROVINCIAL ADMINISTRATION OR NATIONAL ROAD CROSSINGS
- 3.13.1 The Contractor shall not trench beneath any railway tracks without the TRANSNET Administration's supervision. The Contractor shall request the Department timeously to arrange for the necessary supervision. The cost of such supervision will be paid for by the Department.
- 3.13.2 The Department will arrange for the necessary wayleave and permission to cross TRANSNET property and railway tracks, or Provincial or National road reserves and TELKOM Authority approval of proposed cable routes.
- 3.13.3 The Contractor shall carry out the crossing installation in strict accordance with the TRANSNET and Provincial Administration's requirements and stipulations. Where these requirements are in contradiction with this specification, the Department's ruling shall be sought.
- 3.13.4 The Contractor shall ensure that he will comply with the various Administration's requirements regarding crossing of Provincial and National roads, especially with regard to the safeguarding of the public. The Contractor shall also provide proof of adequate insurance cover against any claim from any accident as a result of work done by the Contractor during the crossing operation. The Department shall also be indemnified from all liability in this regard.
- 3.13.5 The Contractor shall liaise with the various Administrations well in advance regarding the intended dates, times and expected duration of the crossing operations and obtain their approval of the programme and method of operation before commencing with the work.

4. INSTALLATION OF UNDERGROUND CABLES

4.1 INSTALLATION DEPTHS

- 4.1.1 Cables shall be installed at the following minimum depths below final ground level :

Up to 11kV : 800mm

- 4.1.2 All cable depth measurements shall be made to the top of the cable when laid directly in ground or to the top of the duct or sleeve where these are provided.
- 4.1.3 The above depths shall apply to the top layer where cables are installed in layers.
- 4.1.4 The Contractor may only deviate from the above depths provided prior authority in writing has been obtained from the Department. In this event the cables shall be protected with a suitable concrete covering.
- 4.1.5 The depth of cable pipes or ducts beneath railway lines or roads shall be not less than 1,1 m below the formation level.

4.2 CABLE SPACINGS

- 4.2.1 Cables installed in the same trench shall be laid parallel to each other with the following spacings between cables (LV: up to 1 kV; HV: 1 kV to 11 kV):

LV/LV : 2 cable diameters

LV/HV	:	150mm minimum
HV/HV	:	150mm minimum
LV/HV/PILOT	:	1 cable diameter

4.2.2 Where HV and LV cables have to be installed in the same trench, both shall be laid at a depth of 800 mm and then covered with 200mm of soil. The soil shall then be compacted, and then backfilled layer by layer and compacted until the trench is completely backfilled.

4.2.3 Cables for telephones, communication systems and other low voltage systems (less than 50 V) shall be separated from power cables by at least 1m. All control or pilot cables without a lead sheath and steel armouring shall be laid at least 300mm from power cables.

4.2.4 Cables shall not be buried on top of each other unless layers are specified. The minimum spacing between layers shall be 200mm.

4.3 CABLE LAYING

4.3.1 Except where ducts, tunnels or pipes are provided, cables shall be laid directly in the ground.

4.3.2 The cable shall be removed from the drum in such a manner that the cable is not subjected to twisting or tension exceeding that stipulated by the cable manufacturer.

4.3.3 Cable rollers shall be used as far as possible to run out cables. Rollers shall be spaced so that the length of cable in the trench will be totally suspended during the laying operation and sufficiently close to prevent undue sagging and the cable from touching the ground. Rollers shall also be placed in the trench in such a manner that they will not readily capsize.

4.3.4 Cable rollers shall have no sharp projecting parts liable to damage the cables.

4.3.5 Where cables have to be drawn around corners, well-lubricated skid plates shall be used. The skid plates shall be securely fixed between rollers and shall constantly be examined during cable laying operations.

4.3.6 Where cables have to be drawn through pipes or ducts, a suitable cable sock shall be used and particular care shall be exercised to avoid abrasion, elongation or distortion of any kind. In the case of oil filled cables, a cable sock may never be used. Special eyes giving access to the interior of the cable, must be utilised.

4.3.7 The maximum allowable tension when pulling a cable, is 70 N/mm² of conductor area.

4.3.8 It will be assumed that the price or rates contained in the tender includes for the installation of cables in pipes and ducts or below existing or newly installed services.

4.3.9 The Department shall be informed timeously of the intention to carry out all cable laying operations to allow an inspection of the works by the Department if so required.

5. INSTALLATION OF CABLES IN CONCRETE TRENCHES

5.1 GENERAL

This paragraph covers the installation of cables in building trenches, service ducts, etc. The trenches, ducts, etc. inside buildings will be constructed and installed by others.

5.2 INSTALLATION

Cables shall be installed in one of the following ways:

- (a) On horizontal cable trays.
- (b) On horizontal metal supports with suitable clamps.

- (c) On vertical cable trays or metal supports fixed to the side of the trench. The cables shall be clamped in position.

Cables shall not be bunched and laid on the floor of the building trenches.

5.3 COVERS

5.3.1 The covering of concrete trenches shall as a rule fall outside the scope of the electrical installation. The Contractor shall however be responsible for the cutting or drilling and smoothing of holes for cables through chequer plates, concrete or other coverings as required.

5.3.2 Cables shall enter and exit the trench through sleeves protruding 300mm beyond the covering. The sleeves shall be permanently secured in position and the open space between the cable and sleeves shall be sealed with a non-hardening, watertight compound.

5.4 FILLED TRENCHES

5.4.1 Where specified, floor trenches shall be filled with fine crusher sand (no river or sea sand).

5.4.2 If a sand filling is specified, the cables shall be fixed to non-corroding supports.

5.4.3 Sand-filled trenches other than in substations shall be covered in one of the following ways:

- (a) Reinforced concrete covers.
- (b) Sand and cement screed.
- (c) Removable chequer plates.

5.4.4 Method (a) above shall be used where vehicular traffic may be encountered over trenches. Unless otherwise specified allowance for a mass of 2 tons shall be made.

5.4.5 Cable trenches in substations, switch rooms and generator rooms shall be covered in accordance with the Department's standard specification for "COVERING AND SEALING OF CABLE TRENCHES", Par. 9 of Section B13.

6. FIXING OF CABLES TO TRAYS OR STRUCTURES

6.1 INSTALLATION

Cables may be installed in one of the following ways:

- (a) On horizontal cable trays.
- (b) Against vertical cable trays with suitable clamps.
- (c) Against horizontal or vertical metal supports or brackets with suitable clamps.
- (d) On clamps which are fixed to the structure.

6.2 CLAMPS

Suitable clamps (cleats) which will secure cables without damage shall be used. Metal clamps or drilled hard wood blocks shall be used. Clamps shall consist of adjustable metal wings which clamp to a metal support, or consist of two halves that are bolted together. The correct clamp size to fit the cable shall be used. Cables of different sizes may only be fixed by a common clamp when the clamp is specially made to accommodate the various cables.

6.3 SPACING OF SUPPORTS

Two methods of supporting cables are found in practice. The most generally known method is the restrained installation where the distance between supports is small enough to prevent any noticeable sag in the cable. The alternative method is the unrestrained installation where the distance between supports should be great enough to ensure that there will be obvious sag in each span between supports.

6.4 SPACING OF SUPPORTS OF UNRESTRAINED CABLES

Large single core cables shall always be installed according to this method. Generally, single core cables with conductors exceeding a cross sectional area of 185mm² should be supported at spacings in excess of 2m since the sag between supports will safely accommodate any thermal expansion.

Reducing the spacing between the supports to 1,5m or less shall be avoided at all costs, as expansion cannot be taken up by a change of sag and chances of sheath failure become considerable.

6.5 SPACING OF SUPPORTS OF RESTRAINED CABLES

Additional cleats shall be installed at each bend or offset in the cable run. The maximum distance between supports or cleats for multi-core control cables shall be 20 times the outside diameter of the cable with a maximum spacing of 550mm for unarmoured cables and 30 times the outside diameter of the cable with a maximum spacing of 900mm for armoured cables. Spacing of supports for cables for high voltage lighting shall be in accordance with Table 8 of SANS 10142. A minimum of 20mm ventilation clearance shall be maintained between cables and the wall to which they are cleated.

7. GROUPING AND SPACING OF CABLES IN BUILDINGS AND STRUCTURES

7.1 SPACING CORRECTION FACTORS

Cables shall as a rule be spaced two cable diameters apart, for which no grouping correction factor need be applied.

7.2 CABLES ON DIFFERENT LEVELS

Where parallel cable runs are installed at different levels (e.g. on parallel cable trays) and where the spacing of the layers is not specified, a minimum spacing of 300mm shall be maintained.

7.3 SINGLE CORE CABLES

Where single core cables are installed along a three-phase circuit, the cables shall be installed in trefoil formation and bound together at 300mm intervals.

7.4 HIGH VOLTAGE CABLES

High voltage cables shall be separated from other cables and services throughout the installation and shall as far as possible be installed in separate floor trenches, pipes or metal channels. Where this is not feasible a minimum spacing of 500 mm shall be maintained.

7.5 CABLES FOR OTHER SERVICES

Cables for telephones, communication systems and other low voltage systems (less than 50 V) shall be separated from power cables. In building ducts a physical barrier shall be provided between power cables and cables for other services. Where armoured cables are used for such other services, they shall be installed on separate cable trays or shall otherwise be at least 1m away from power cables. Where unarmoured cables are used for these other services, they shall be installed in separate conduits or metal channels.

TABLE B6.1

Cross-Sectional Area of Cable Conductors (mm ²)	MAXIMUM SPACING OF SUPPORTS (CLEATS) (mm) FOR RESTRAINED CABLES			
	Wire Armoured Cables		Other than Wire Armoured Cables and Unarmoured Cables	
	Horizontal Cable Routes	Vertical Cable Routes	Horizontal Cable Routes	Vertical Cable Routes
1,5	450	750	300	400
2,5	450	750	300	400
4,0	600	750	300	400
6,0	600	750	300	400
10,0	750	900	400	450
16,0	750	1000	400	550
25,0	900	1000	450	550
35,0	900	1000	450	550
Bigger than 35,0	900	1000	450	550

For larger cables the spacing shall be 10 x outside diameter of the cable.

8. TERMINATION AND JOINTING OF CABLES

8.1 GENERAL

8.1.1 Cable ends shall be terminated with glands or in cable boxes with the associated accessories such as clamps, shrouds, etc. complying in all respects with the Department's quality specifications, Section C.

8.1.2 Connection of cables to switchgear shall always be effected in such a way that the various phases, seen from the front of the switchgear will be in the following positions:

- No. 1 conductor: left (red) (A)
- No. 2 conductor: centre (white) (B)
- No. 3 conductor: right (blue) (C)

8.1.3 Exposed armouring shall be covered with bitumen-base paint.

8.1.4 All cable ends shall be supplied with the necessary earth connection.

8.1.5 A channel or other approved means of support shall be provided to remove mechanical stress from the glands.

8.1.6 Cable cores shall be marked with heat-shrunk sleeves where necessary to identify the phases. Refer to SANS 10142.

8.1.7 The current-carrying capacity and breakdown voltage of the cable end shall be the same as for the complete cable.

8.1.8 Cables shall be terminated in accordance with the recommendations laid down by the manufacturers of the cables and glands employed.

8.2 TERMINATION OF PAPER-INSULATED CABLES

8.2.1 The ends shall be terminated in cable end boxes filled with bituminous, cold filling or resin oil semi-fluid compound or heat-shrinkable terminations in accordance with the Department's standard specification for "CABLE END BOXES AND COMPOUND", Section C8 or "CABLE TERMINATIONS AND JOINTS", Section C6.

- 8.2.2 Heat-shrinkable materials shall only be used in exceptional circumstances with the written permission of the Department.
- 8.2.3 Before terminating or jointing paper-insulated cables, a test to establish the presence of moisture must be carried out.
- The following procedure may be followed:
- (a) Place an adequate quantity of cable impregnating oil in a suitable container and heat up to $130\text{ C} \pm 5\text{ C}$.
 - (b) Cut a small length ($\pm 300\text{mm}$) of the cable concerned and remove the armouring and sheath, taking care not to handle the dielectric in any way.
 - (c) Dip a section of the outer insulating impregnated paper (belt paper) in the heated oil, taking care not to contaminate the tapes with moisture from the hands. If frothing appears on the surface of the oil, this is a clear indication of the presence of moisture in the paper.
 - (d) The same procedure should then be repeated on the insulating impregnated paper around the conductors (especially those layers closest to the conductors). Frothing will also indicate the presence of moisture.
 - (e) Should only a small number of bubbles appear on the surface of the oil, this is an indication of air bubbles on the paper and not moisture since the presence of moisture will result in a series of bubbles rising to the surface of the oil for a number of seconds, until all moisture has been removed.
- 8.2.4 The armouring shall be bonded to the main earth bar of the switchgear or transformer, but the bond shall be easily removable for testing purposes.
- 8.2.5 The lead sheath shall be wiped against the conical wiping gland.
- 8.2.6 All cut cable ends which will be exposed to the atmosphere for more than two hours shall be sealed and wiped to prevent penetration of moisture.
- 8.3 TERMINATION OF XLPE CABLES
- 8.3.1 These cables shall only be used in exceptional circumstances and only with the written permission of the Department.
- 8.3.2 Cross-linked polyethylene cables (XLPE) shall be terminated in accordance with the Department's standard specification for "CABLE TERMINATIONS AND JOINTS", Section C6 unless a pre-fabricated system based on pre-moulded slip-on EPR stress cones is used.
- 8.3.3 The copper tapes of the earth screen on the cable shall be bonded to the main earth bar of the switchgear or transformer, but the bond shall be easily removable for testing purposes.
- 8.3.4 The cable shall be firmly secured on the switchgear by means of a clamp to prevent mechanical stress on the cable and terminations.
- 8.4 TERMINATION OF PVC-INSULATED CABLES
- 8.4.1 Cable ends shall be terminated by means of adjustable glands in accordance with the Department's standard specification for "GLANDS FOR PVC-INSULATED CABLES", Section C5.
- 8.4.2 The glands shall be fitted in accordance with the cable and gland manufacturers instructions.
- 8.4.3 The correct size and type of gland shall be used for the particular cable and application.
- 8.5 CONNECTION OF CABLE CONDUCTORS
- 8.5.1 Suitable lugs shall be used, preferably solidly sweated to the cable conductor ends. Lugs may be crimped, using mechanical or pneumatic tools designed for this purpose, on condition that evidence

is submitted that the method used complies with the performance requirements of BS 4579, Part 1 : "COMPRESSION JOINTS IN COPPER".

- 8.5.2 Contact surfaces shall be thoroughly cleaned and smoothed and fixing bolts shall match the hole size of the lug.
- 8.5.3 Cables that are connected to clamp type terminals where the clamping screws are not in direct contact with the conductor, need not be lugged but the correct terminal size shall be used.
- 8.5.4 Ferrules shall be used as far as possible where cable conductors are connected directly to equipment with screws against the conductor strands.
- 8.5.5 When cutting away insulation from cable conductors to fit into lugs, care shall be taken that no strands are left exposed. Under no circumstances may any of the conductor strands be cut away to fit into lugs.

8.6 JOINTS

- 8.6.1 Joints in cable runs will not be allowed unless specified in the Detail Technical Specification or authorised by the Department.
- 8.6.2 Jointing shall be carried out strictly in accordance with the manufacturer's instructions and by personnel competent in jointing the types of cables used.
- 8.6.3 During outdoor jointing operations, the joint bays shall be adequately covered by tents of waterproof material suitably supported. Where necessary a trench shall be excavated around the bay to prevent the ingress of moisture. The sides of the hole shall be draped with small tarpaulin or plastic sheeting to prevent loose earth from falling in during jointing operations.
- 8.6.4 The joint shall not impair the anti-electrolysis characteristics of the cable.
- 8.6.5 The Contractor shall notify the Representative of the Department timeously of the day on which jointing is to be carried out in order that an inspection may be arranged if so required. Any cable joint not inspected by the Representative of the Department because of insufficient notice being given, shall be opened for inspection and redone at the discretion of the Department at the cost of the contractor.
- 8.6.6 HV cable joints on paper insulated cables shall be of the compound cast type and the compound used shall comply with the SANS 10142 standard specification for "CABLE END BOX FILLING COMPOUND".
- 8.6.7 HV cable joints on XLPE-insulated cables shall be of the heat shrinkable type and shall comply with the SANS 10142 standard specification for "CABLE TERMINATIONS AND JOINTS" or shall be based on a prefabricated system utilising pre-moulded slip-on stress cones.
- 8.6.8 LV cable joints shall be of the epoxy-resin type.
- 8.6.9 Joints shall be fully water and air tight and shall be free of voids and air pockets.
- 8.6.10 The crossing of cores in joints will not be permitted under any circumstances.

9. TESTING

- 9.1 Each cable shall be tested after installation in accordance SANS 1507 (up to 1 kV) and SANS 97 (up to 11 kV) as well as the requirements of the Local and Supply Authorities.
- 9.2 LV Cables shall be tested by means of a suitable megger at 1 kV and the insulation resistance shall be tabulated and certified.

TABLE B6.2

Cable Rating (kV)	TEST VOLTAGE (Applied for 15 minutes) (kV)				
	Paper-insulated cables				XLPE-insulated cables
6,6 11	Between conductors		Conductors to sheath		Conductors to screen
	AC (r.m.s)	DC	AC (r.m.s)	DC	DC
	12 20	18 30	12 20	18 30	11 18

- * High Voltage test with DC to 2kV for 1 minute only. Discharge cable slowly via discharge stick (1 minute). Clamp all conductors to earth for 24 hours.
- 9.3 HV Cables shall be high voltage tested in accordance with Table B6.2 and the exact leakage current shall be tabulated and certified.
- 9.4 The Contractor shall make all arrangements, pay all fees and provide all equipment for these tests. The cost of testing shall have been included in the tender price.
- 9.5 The Contractor shall notify the Department timeously so that a representative of the Department may witness the tests.
- 9.6 On completion of the tests on any cable, the Contractor shall without delay, submit three copies of the certified Test Reports to the Department.

10. MEASUREMENTS

- 10.1 All measurements for payments shall be made jointly by the representatives of the Department and the Contractor and the Contractor shall obtain the signature of the Department's representative including approval of such measurements.
- 10.2 No allowance shall be made for the breaking away of the trench sides, other earth movements or for trenches excavated in excess of the stipulated dimensions. Refer also to par. 3.7.5 above.
- 10.3 The classification shall be as follows:

Very hard rock shall mean rock that can only be excavated by means of explosives.

Hard rock shall mean granite, quartzitic sandstone, slate and rock of similar or greater hardness, solid shale and boulders in general requiring the use of jack hammers and other mechanical means of excavations.

Soft rock and earth shall mean rock and earth that can be loosened and removed by hand-pick and shovel.

- 10.4 Where very hard rock and hard rock are encountered, the prior approval of the Department shall be obtained before proceeding with the excavation. This requirement is stipulated in order to afford the Department the opportunity to determine whether an alternative cable route is justified.
- 10.5 All cable lengths indicated in the Detail Technical Specification and/or shown in the cable route drawings shall be regarded as estimates and are given for tendering purposes only. The successful tenderer shall measure actual cable lengths on site before ordering.
- 10.6 The final price for the supply and installation of all cables will be adjusted, on the basis of the actual lengths of installed cables, in accordance with the unit rates quoted at the time of tendering. Cable

lengths shall be measured on site to the nearest 500mm for this purpose and surplus cable will not be paid for.

11. COMPLETION

- 11.1 The Department reserves the right to inspect the installation at any stage during the course of construction. Such inspections will however not deem the portions inspected as being complete or accepted and the Contractor shall remain responsible for completing the installation fully in accordance with the Contract Documents.
- 11.2 The Contractor shall carry out a final "as built" survey of the cable routes and present to the Department "as built" route plans of the complete installation. The following information shall be reflected on the plans or submitted as separate schedules with the plans :
- (a) Overall length of each cable.
 - (b) Locations of all joints (if any) in relation to permanent reference points. Dimensions shall be shown and the method of triangulation i.e. two dimensions to each joint, shall be used.
 - (c) Identification of each cable.
- 11.3 The works will be deemed to be incomplete until all tests have been conducted successfully and all "as built" drawings and schedules have been handed to the Department.

SECTION B6

INSTALLATION OF LIGHT SWITCHES AND SOCKET-OUTLETS

1. GENERAL

1.1 STANDARDS

Light switches and socket-outlets shall comply with the Department's quality specification for "LIGHT SWITCHES", and UNSWITCHED AND SWITCHED SOCKET-OUTLETS". Surface or flush mounted boxes and cover plates, complying with the Department's quality specification for "CONDUIT AND CONDUIT ACCESSORIES", shall be provided.

1.2 POSITION OF OUTLETS

Switches and socket-outlets shall be accurately positioned in accordance with the drawings. It is the Contractor's responsibility to ensure that all outlets are installed level and square, at the correct height from the floor and at the correct position relative to building lines and equipment positions as specified. It is the Contractor's responsibility to determine the correct final floor level and ceiling level in conjunction with the Main Contractor.

1.3 COVER PLATES

All switches and socket-outlets shall be fitted with standard metal cover plates. The colour of cover plates shall be as specified or shall otherwise match the surrounding finishes as closely as possible. Unless specified to the contrary, ivory cover plates shall be installed on painted walls. Cover plates in the same area shall have the same colour. Flush mounted cover plates shall overlap the draw-box and edges of the recess. Cover plates shall under no circumstances be cut unless authorised by the Department.

1.4 ESCUTCHEON PLATES

Where flush mounted switches or socket-outlets are installed in special wall finishes e.g. wood or board panels, acoustic tiles or other cladding, etc. and where the wall finishes must be cut to accommodate the switch, it may be necessary to fix an escutcheon plate to the wall to cover the cut-outs. The escutcheon plate shall fit closely around the outlet boxes and shall be fixed independently of the boxes and cover plates. Bevelled cover plates shall be fixed to the outlet boxes and shall fit firmly against the escutcheon plate.

1.5 APPEARANCE

The sides of adjacent switches, plugs, push-buttons etc. shall be parallel or perpendicular to each other and uniformly spaced. A common escutcheon plate shall be placed around flush mounted outlets and accessories where the standard cover plates do not cover the cut-outs in the finishes.

1.6 DEEP BOXES

Where switch or socket-outlet boxes have been set deep, spiral type steel wire spacers shall be used to fix the yoke of the switch or socket.

2. INSTALLATION OF SOCKET-OUTLETS

2.1 MOUNTING HEIGHT

Unless specified to the contrary, socket-outlets shall be installed at the following heights above finished floor level, measured to the centre of the outlet:

Flush mounted in general:	300mm
Showrooms, shops, servants quarters:	1,4m
Domestic kitchens, tea kitchens:	1,05m
Commercial kitchens:	1,4m

Factories, workshops, garages: 1,4m

2.2 WALLS

In cases where socket-outlets must be mounted at a nominal height of 300mm and where the lower portion of the wall consists of face bricks and the upper portion is plastered, the outlets shall be installed in the plastered portion of the wall. If however the plastered portion of the wall commences 500mm or more above floor level the outlets shall be installed in the face bricks. Where a wall has different surface finishes the outlets shall be installed within the same finish and not in the dividing lines between the different wall finishes. All outlets shall be installed at least 150mm away from door frames.

3. INSTALLATION OF LIGHT SWITCHES

3.1 MOUNTING

Light switches shall be installed 1,4m above finished floor level unless specified to the contrary. Mounting heights given shall be measured from the finished floor level to the centre of the switch. All single switches shall be installed with the long side of the toggle vertical.

3.2 DOORS

Unless specified to the contrary, switches adjacent to doors shall be installed on the side containing the lock. If the position of the lock is not shown on the drawings, the position shall be verified before the switch-box is installed. Switch boxes in brick or concrete walls shall be installed 150mm from the door frame. Light switches installed in partitions or door frames shall be of the type designed for that purpose.

3.3 WALLS

Where the lower portion of a wall is face brick and the upper portion plastered, light switches shall be installed wholly in the plaster provided that the lower edge of the plaster is not higher than 1,6m above the finished floor level. In general where different wall finishes are used in the same area. Switches shall be installed within the same finish and not on the dividing lines between finishes.

3.4 PARTITIONS

Light switches installed in partitions shall preferably be of the type designed to be accommodated in the partition construction. Switches installed in the metal supports do not require switch boxes. Switches may not be flush mounted in partition walls without switch boxes.

3.5 WATERTIGHT SWITCHES

Switches that are exposed to the weather or are installed in damp areas, shall be of the watertight type complying with the Department's quality specification for "WATERTIGHT SWITCHES", par. 3 of Section C10.

3.6 MULTIPLE SWITCHES

Where several switches are required in one position, multi-lever switches in a common switch box shall be provided wherever possible. All circuits wired into this box shall be on the same phase in order that voltages in excess of 250 V are not present in the box. Where it is not possible or practical to do this, barriers shall be installed and a label shall be prominently displayed within the box stating that voltages in excess of 250 V are present.

SECTION B7

PHOTO-ELECTRIC DAYLIGHT SENSITIVE SWITCH FOR OUTSIDE LIGHTING

1. INSTALLATION

- 1.1 The outside lighting of each individual building i.e. light circuits marked "T" on the drawings, shall be controlled by photo-electric daylight sensitive switches.
- 1.2 The positions of the switches as indicated on the drawings are provisional and the exact positions shall be confirmed with the representative of the Department on site.
- 1.3 Individual outside lighting circuits on a building may be connected directly to the daylight sensitive switch.
- 1.4 Where two or more lighting circuits are to be controlled by a single daylight sensitive switch, a contactor actuated by the unit shall be provided in the switchboard.
- 1.5 A by-pass switch enabling the lights to be turned on at any time, shall be provided.

2. CONSTRUCTION

- 2.1 The unit shall comprise a photo cell, thermal actuator and change-over switch. The cover of the unit shall be manufactured from a tough, durable material providing protection against tampering. The cover shall have good weathering properties. It shall be ultraviolet-resistant and shall not deteriorate when exposed to sunlight for prolonged periods.
- 2.2 The unit shall be of the wall mounting type and shall be supplied complete with a suitable bracket.
- 2.3 The operational level shall be factory preset for "ON" at a light level of approximately 54 lux and "OFF" at approximately 108 lux. Voltage variations shall not materially affect the operational levels.
- 2.4 A time delay of not less than 15 seconds shall be provided to prevent the unit from functioning due to short period changes in illumination.
- 2.5 The unit shall be effectively safeguarded against voltage surges by means of a suitable surge protector which shall preferably form an integral part of the unit.

SECTION B8

INSTALLATION OF LUMINAIRES

1. POSITIONS

The mounting positions of luminaires shall be verified on site. All luminaires shall be placed symmetrically with respect to ceiling panels, battens, beams, columns or other architectural features of the space unless otherwise indicated. The layout as shown in the Documents shall generally be adhered to but any discrepancies or clashes with structural or other features must be referred to the Department, before commencing erection of the installation.

2. COVER PLATES

Cover plates shall be fitted over all draw-boxes and outlets intended for luminaires that are not covered by the luminaires canopy, lamp-holder, ceiling rose or similar accessories.

3. FIXING TO DRAW-BOXES

Where an outlet box or draw-box provides the necessary support for a luminaires, all luminaires with the exception of fluorescent luminaires mounted against ceilings, shall be fixed directly to the box. Fluorescent luminaires and luminaires with a mass in excess of 10kg shall however be suspended independently of the outlet box.

4. HANGERS AND SUPPORTS

Where provision has not been made for the fixing of luminaires, the Contractor shall supply the necessary supports, hangers, conduit extensions, angle brackets or any other fixing method approved by the Department.

5. SUSPENDED LUMINAIRES

The necessary hangers shall be provided where luminaires which are of the non-suspension type have to be fixed below false ceilings or roof slabs. The use of 20mm conduits fixed to the roof slab or ceiling is preferred. Provision shall be made for adjustments to enable the levelling of luminaires. Suspended conduits shall be fixed to the ceiling by means of screwed dome lids, bolts and nuts. Ball-and-spigot type domelids shall be used where conduit lengths exceed 600mm. Wiring shall be installed in the conduit hangers.

6. SUSPENDED WIRING CHANNELS

Luminaires (especially fluorescent luminaires) may also be suspended from ceilings by means of suspended metal channels. The metal channel may be supported by conduits or threaded rods. Should metal rods be utilised, these shall be screwed to anchor bolts fixed in the roof slab. Wiring shall either be installed in conduits fixed to the metal channel or in the metal channels and covered with a suitable cover plate. Purpose-made clamps shall be used to fix the luminaires to the cable channel.

7. CEILING BATTENS

Where wooden blocks are used to suspend luminaires, ceiling battens shall not be cut. The wooden blocks shall be cut to fit around battens and shall be screwed to the ceiling. Battens may however be cut where fluorescent or incandescent luminaires with metal canopies have to be installed against a false ceiling.

8. GLASS-BOWL LUMINAIRES

Unless specified to the contrary, suspended glass-bowl luminaires shall be installed with the underside at least 2,1 m above finished floor level.

9. FLUORESCENT LUMINAIRES FIXED TO CONCRETE SLABS

Fluorescent luminaires to be installed directly against concrete slabs or walls shall be securely fixed to the outlet box and at two additional points. Shot-fired fixings are not acceptable. Where approved, fluorescent luminaires may be installed against metal wiring channels in which the wiring is housed. The channel fixing may in this case be shot-fired. Purpose-made fluorescent fixing adaptors shall be used to fix luminaires to cable channels.

10. FLUORESCENT LUMINAIRES FIXED TO CEILINGS

- 10.1 In all cases where luminaires are fixed to false ceilings, the Contractor shall ensure that the ceiling is capable of carrying the weight of the luminaires before commencing installation. Should any doubt exist in this regard, the matter shall be referred to the Department.
- 10.2 In cases where the weight of the luminaire is not carried by the ceiling but by a support or other suspension method, provision shall be made to prevent relative movement between the ceiling and luminaire, ceiling rose or connection point.
- 10.3 Surface mounted fluorescent luminaires shall fit firmly against the ceiling branding without leaving gaps between luminaire and ceiling. The luminaire shall be fixed directly to the ceiling by means of brass plated round-head wood screws and washers.
- 10.4 In the case of tiled ceilings with exposed or concealed T-section supports, surface mounted luminaires shall be fixed only to the tiles by means of butterfly screws or bolts with nuts and washers. The tiles shall be suitably reinforced.
- 10.5 Luminaires may alternatively be fixed to metal cross-pieces resting in the ceiling tees.
- 10.6 Drilling of holes in ceiling tees to support luminaires will not be allowed.
- 10.7 Luminaires shall be fixed in neat relation to the ceiling lay-out.

11. CONTINUOUS ROWS OF LUMINAIRES

In cases where fluorescent luminaires are installed in tandem, only one connection outlet need be supplied per circuit. All luminaires shall be coupled to one another by means of nipples or brass bushes and locknuts to ensure that wiring is not exposed and that earth continuity is maintained. Luminaires on the same circuit may be wired through the channel formed by the luminaire bodies. In this case silicon-rubber insulated conductors shall be used and internal connections shall be made at porcelain terminal blocks. "SCREW-IT" or similar connectors may only be used if prior permission is obtained from the Department. The wiring for any other circuits or outlets, even though these may be in the same row, may not be installed through the luminaire bodies. The Contractor shall ensure that continuous rows are straight and parallel to the relevant building lines.

12. RECESSED LUMINAIRES

- 12.1 Where recessed luminaires are specified, the Contractor shall maintain close liaison with the ceiling Contractor. In the case of tiled ceilings, the luminaires shall preferably be installed while the metal supports are being installed and before the tiles are placed in position. The Electrical Contractor shall be responsible for the co-ordination of the cutting of ceiling tiles with the other contractors concerned.
- 12.2 All mounting rings and other accessories shall fit closely into cut-outs to ensure a proper finish.
- 12.3 In all false ceilings where wiring channels are used, recessed luminaires shall be connected to the wiring channels by means of unswitched 5 A socket-outlets.
- 12.4 The following requirements shall be adhered to:
 - (a) Socket-outlets used shall comply with the Department's quality specification for "UNSWITCHED AND SWITCHED SOCKET-OUTLETS", par. 4 of Section 11 and shall be of 5 A minimum rating.

- (b) The connector cord attached to the luminaire may not exceed 3m in length and shall consist of 1,5mm² minimum, 3-core, PVC-insulated flexible cord.
- (c) The 5A socket-outlets shall be positioned such that they are not more than 600mm above the false ceiling.

13. SPECIAL CEILINGS

In cases where special ceilings e.g. aluminium strips, decorative glass, metal leaves, etc. are to be installed, the Contractor and the Manufacturer of the ceiling shall agree upon the method of fixing of luminaires in the ceiling.

14. BULKHEAD LUMINAIRES

Surface mounted bulkhead luminaires shall not be screwed directly to conduit ends. The conduit shall terminate in a round draw-box at the top or rear of the luminaire. The PVC-insulated conductors shall terminate in a porcelain terminal strip in the draw-box. Silicon-rubber-insulated conductors shall be installed from the terminal strip to the luminaire lamp-holder. "SCREW-IT" or similar connectors may only be used if prior permission is obtained from the Department.

15. TYPE OF CONDUCTOR

PVC-insulated conductors, unless protected by an approved heat-resistant sheathing, shall not be used where the temperature of the insulation is likely to exceed 70°C. In unventilated luminaires or luminaires capable of housing incandescent lamps over 60W, the interconnecting wiring from the lamp-holder to the circuit wiring shall consist of silicon-rubber insulated conductors. Silicon-rubber insulated conductors shall be used exclusively in the case of high bay fittings. Refer also to the provisions of SANS 10142.

16. WIRING OF LAMPHOLDERS

The central terminal of Edison Screw (E.S.-type) LAMP-HOLDERS shall be connected to the phase conductor and the screwed housing to the neutral conductor.

SECTION B9

CONNECTIONS TO EQUIPMENT

1. GENERAL

This section covers the final electrical connections to switchboards and various equipment in general electrical installations under normal environmental conditions for system voltages up to 600 V. Refer also to the Department's standard specifications for "WIRING", Section B4 and "INSTALLATION OF CABLES", Section B5.

2. CONNECTIONS TO SWITCHBOARDS

2.1 CONDUIT ENTRIES

2.1.1 Where sufficient space for conduit entries as well as adequate space for future conduit entries is available, conduits may be terminated directly on the switchboard.

2.1.2 Alternatively, conduits connected to switchboards shall terminate in a common fabricated sheet steel draw-box installed in the vicinity of the switchboard. In open roof spaces this draw-box shall be placed in a roof space of not less than 900mm clearance.

2.1.3 Lighting and socket-outlet circuits may be separately grouped in common conduits or metal ducts (trunking) from the distribution board to the draw-box. The drawbox shall be of sheet steel with a minimum thickness of 1,6mm and shall be fitted with a removable cover plate.

2.2 FLUSH MOUNTED SWITCHBOARDS

Where flush mounted switchboards are required, the recessed switchboard tray shall be built into the brick or concrete wall. All conduits from the floor or roof shall be fully recessed and shall be bonded directly to the tray by means of locknuts on both sides and the ends of the conduits fitted with a brass bush.

2.3 SURFACE MOUNTED SWITCHBOARDS

Where surface mounted switchboards are specified but where the conduits can be fully recessed, the conduit shall be connected to a recessed connection box installed behind the switchboard. An opening with the same dimensions as the connection box shall be cut in the back of the switchboard and fitted with a suitable grommet.

2.4 SPARE CONDUITS

Where conduits from a switchboard run into a false ceiling space above the board, a minimum of two 25mm and two 20mm spare conduits shall be installed into the ceiling space immediately above the board.

2.5 CABLE CONNECTIONS

2.5.1 Where underground cables are to be connected to switchboards, it shall be the responsibility of the Contractor to ensure that metal, earthenware, asbestos-cement or other approved sleeves are built in correctly to enable installation and connection of the cable to the switchboard.

2.5.2 PVC or pitch fibre sleeves are not acceptable.

2.5.3 Sleeves shall be installed with a fall from inside to outside of the building to facilitate drainage. The sleeves shall be sealed with a non-hardening compound after installation of the cables to render the installation vermin proof and waterproof.

2.5.4 A metal cable channel with removable metal cover plate shall be installed by the Contractor and shall extend from the switchboard to the floor or into the ceiling void as required. The channel shall

coincide with the position of sleeves. The channel shall be flush mounted except in the case of surface mounted switchboards and then only with the permission of the Department's representative.

2.5.5 The cable channel shall be large enough to permit the installation of cable glands and future cables, particularly where spare sleeves have been provided.

2.5.6 The colour of the channel cover shall match that of the associated switchboard.

2.6 CABLE TRENCHES

Where cables in floor trenches have to be connected to wall mounted switchboards, approved sleeves or conduits shall be installed from the side of the trench to the bottom of the switchboard. These sleeves shall be positioned and fixed before the concrete is cast.

3. CONNECTIONS TO MOTOR DRIVEN EQUIPMENT.

3.1 An isolator or starter containing an isolator shall be installed within 2m of motor driven equipment. The requirements of SANS 10142 shall be met. If this isolator cannot be installed on a wall, switchboard or other suitable place, an approved free-standing pedestal shall be provided. The pedestal shall be 1m high and outside normal walkways, access routes, etc.

3.2 The connection to the equipment shall be carried out as follows:

(a) Metal reinforced plastic or PVC-covered flexible metal conduits with individual conductors or a multi-core PVC insulated cable and separate bare earth conductor installed inside the conduit may be used. The flexible conduit shall not exceed 600mm. Screwed conduit shall be used from the end of the flexible conduit to the isolator and/or starter. Refer to the department's standard specification for "FLEXIBLE CONDUIT", Section B1, par. 5.

(b) Multi-core armoured PVC- or rubber-insulated cable and earth conductor. The installation and termination of the cables shall comply with the Department's specification for "INSTALLATION OF CABLES, Section B5.

(c) Cables and flexible conduits shall be provided with sufficient slack to allow positional adjustment of the equipment.

3.3 Supply cables to equipment may not be installed across floors which are for general use.

4. CONNECTIONS TO WATER HEATERS

4.1 Each water heater shall be connected to a separate circuit with a separate earth conductor.

4.2 The conduit from the switchboard to the water heater shall terminate in a draw-box within 1 m of the water heater terminals. The connection from the draw-box shall be conductors in conduit or PVC-insulated cable. Only in instances where heaters are mounted out of normal reach may flexible conduit and round boxes with dome lids be used for the final connection.

4.3 The mounting of the water heater and the provision of the water connections will be undertaken by others. The Contractor shall ensure that the elements and thermostats can easily be replaced.

4.4 Before testing a water heater, the Contractor shall confirm with the Plumbing Contractor that the unit is filled with water.

4.5 Unless otherwise specified in the Detail Technical Specification, the wiring of hot water heater circuits not exceeding 4 kW shall consist of 4mm² conductors and 2,5mm² earth conductor.

4.6 Unless it is specified that isolators for water heaters shall be provided in the switchboard, a local isolator shall be provided for each water heater. In the case of water heaters not exceeding 4 kW, a 30 A double-pole metal-clad isolator shall be surface mounted over the flush conduit outlet box.

5. CONNECTIONS TO HEATERS, FANS AND AIRCONDITIONING UNITS

5.1 ISOLATORS

A flush mounted suitably rated double-pole isolator shall be provided within 1m of the unit. Where the equipment is mounted out of reach, the isolator shall be installed at 1,5m above floor level. Only where units are mounted in easily accessible positions and where an isolating switch is incorporated in the unit, may this isolator be omitted. Where flush isolators are used, flush conduit shall be installed to link with the equipment outlet point. Flexible cords of sufficient rating may be used for the final connection to the equipment.

5.2 WIRING

The minimum conductor size to be used shall be 4 mm². Each fan, heater or air-conditioning unit shall be on a separate circuit.

5.3 FLUSH MOUNTED CONVECTION HEATERS

The heater frame or tray shall be built or cast into the wall at a height such that the underside of the heater is at 250mm above floor level. Conduits shall terminate on the frame near the terminals.

5.4 SURFACE MOUNTED EQUIPMENT

5.4.1 Connections to surface mounted equipment shall consist of a draw-box located in the vicinity of the terminals of the unit. In workshops and industrial areas the connections shall be made by means of flexible conduit connected to dome lids on the draw-box. Conductors shall be connected directly to the unit.

5.4.2 In non-industrial applications PVC-insulated 3-core flexible cables may be used for the connection.

5.4.3 Where flexible cables are used, a bush shall be provided at the rear of the unit for cable entry and a bush and clamp (or gripper gland) at the draw-box. The clamp shall tightly grip the outer insulation of the cable to prevent tension on the connections between cable and conductors in the draw-box.

5.4.4 Where heaters or air-conditioning units are situated above power skirting, the isolator shall be installed in the power skirting and the flexible cable or cord to the unit shall be installed in the power skirting through a gripper or compression gland. The cable shall be made as short as practical and shall be neatly saddled to the surface of the wall.

5.5 RADIANT HEATERS

The installation of radiant heaters and asbestos heaters, where specified, shall comply with the requirements of paragraph 5.4, with the exception that they shall be mounted on spacers, 25mm away from the mounting surface.

5.6 FAN HEATERS

5.6.1 The contractor shall allow for the supply, installation and electrical connection of the fan heaters as indicated on the drawings. The fan heaters shall be rated at 3 kW and shall be complete with control units.

5.6.2 The heaters shall be secured by means of approved expansion bolts at 2,4m above floor level in positions as shown, with the control units at 1,5m above floor level, directly below the unit.

5.6.3 The fan heater shall be installed on a box directly behind the unit.

5.6.4 Each connection shall be protected by means of a single-pole circuit-breaker on the associated switchboard.

5.6.5 Brass bushes shall be provided to protect the wiring at the rear cable entries to the control unit and fan connection box.

6. CONNECTIONS TO UNDERFLOOR HEATING

- 6.1 Where underfloor heating cable is specified, the Contractor shall supply the cable and thermostats which shall be purchased from a specialist supplier. The cable shall be laid by the specialist supplier and connected by the Contractor. The Contractor shall also be responsible for testing of the cables prior to their being covered by the screed and immediately thereafter. Details of circuit wiring and control of underfloor heating will be specified in the Detail Technical Specification.
- 6.2 PVC-insulated heating cable with a rating of not higher than 13 W per linear metre shall be used. Thermal insulation will be provided by the Builder.
- 6.3 The capacity of the heating cable shall be sufficient to give a 20°C temperature rise with an outside ambient temperature of 5°C.
- 6.4 The total heating load shall, however, not be more than 135 W/m².

7. CONNECTIONS TO INCINERATORS

7.1 GENERAL

This section covers connections to incinerators used for domestic purposes in buildings. Unless specified to the contrary, the supply and installation of incinerators will form part of the electrical installation and shall comply with the Department's quality specification, "INCINERATORS".

7.2 FLUSH MOUNTED INCINERATORS

Where flush mounted incinerators have been specified, the Contractor shall supply the mounting tray to the Builder in good time for it to be built into the structure.

7.3 MOUNTING HEIGHT

Unless specified to the contrary, incinerators shall be installed with the bottom 1m above finished floor level.

7.4 ISOLATOR

A flush mounted 30 A double-pole isolator shall be installed approximately 1,5m above the finished floor level adjacent to each incinerator. The isolator cover plate shall wholly fall within either the tiled or plastered surface of the wall. Unless specified to the contrary, the cover plate shall be finished in white baked enamel. An engraved label shall be provided at each isolator marked as follows:

"SWITCH OFF TO CLEAN AND REMOVE ASH"
"SKAKEL AF VIR SKOONMAAK EN ASVERWYDERING"

7.5 FLUES

The Contractor shall supply flue pipes to the Builder for installation. Two bends and an "H" piece exhaust canopy shall be allowed for each flue pipe.

7.6 EXHAUST FANS

Where more than 5 incinerators are connected to the same flue or where more than two 90° bends are used in the flue, an exhaust fan shall be installed at the flue outlet. In addition a small fan must be provided at each incinerator.

7.7 WIRING

Single incinerators shall be connected by means of 2 x 4mm² PVC insulated conductors and a 2,5mm² bare copper earth conductor in a 20mm conduit. Each incinerator shall be connected to a separate circuit where a common exhaust fan is not used. Where a common exhaust fan is needed, the following applies:

- (a) All fans and incinerators connected to the same flue shall be on the same circuit.

- (b) The current rating of the circuit-breaker shall be sufficient to allow the simultaneous operation of all the fans and 50 % of the incinerators.
- (c) A 30 A double-pole isolator shall be flush mounted adjacent to each incinerator as described in paragraph 7.4. However if the current rating of the circuit-breaker protecting the circuit is larger than 15A, a 15A fuse and fuse holder shall be installed at each incinerator in addition to the isolator. The draw-box and cover plate for the isolator shall be large enough to accommodate the isolator and fuse. Alternatively, a 15A circuit-breaker may be installed adjacent to each incinerator in lieu of the isolator and fuse.
- (d) The circuitry shall be arranged to ensure that all the fans will operate when any one of the incinerators is switched on.
- (e) Earth leakage protection shall be installed on all incinerator circuits.

8. CONNECTIONS TO COOKING APPLIANCES

- 8.1 Unless specified to the contrary, the circuit connection to each cooking appliance shall consist of:
- (a) 2 x 10mm² PVC-insulated conductors and 6mm² bare copper earth conductor for single phase connections, or
 - (b) 4 x 4mm² PVC-insulated conductors and 2,5mm² bare copper earth conductor for three phase connections.
- 8.2 A 60A double pole or 30A triple pole micro-gap isolator flush mounted in a wall outlet box, shall be installed 1,5m above floor level to the left or right of the appliance in accordance with SANS 10142. A white baked enamel cover plate shall be provided, situated wholly on the tiled or plastered surface as applicable.
- 8.3 The conduit shall terminate 450mm above floor level behind the appliance position. The conduit end shall be approximately 75mm long and shall face downwards. Connections from the conduit end to the appliance shall be installed in accordance with SANS 10142. Sufficient slack shall be provided in the flexible connection to move the appliance 600mm away from its normal position for cleaning or maintenance.
- 8.4 Alternatively a 45A, 3-pin socket-outlet may be mounted on a round draw-box 450mm above floor level. The connection to the appliance shall consist of a plug and 10mm², rubber-insulated and sheathed cable in accordance with SANS 1520. The cable shall be long enough to enable the appliance to be moved 600mm from its normal position for cleaning or maintenance.
- 8.5 Crimped or soldered lugs shall be provided on all conductors intended for connection to cooking appliances.
- 8.6 Each appliance shall be connected to a separate circuit. A separate earth wire shall be provided for each appliance.

SECTION B10

EARTHING

This section covers the earthing of electrical installations in buildings or other structures. The total earthing system of any electrical installation shall be in complete accordance with SANS 10142.

1. GENERAL RECOMMENDATIONS ON THE PRACTICAL INSTALLATION OF EARTH ELECTRODES

1.1 REQUIREMENTS OF AN EFFECTIVE EARTH

- 1.1.1 An effective earth must prevent dangerous over voltages arising between metallic structures, frames, supports or enclosures of electrical equipment and the ground during fault conditions.
- 1.1.2 An effective earth must be able to permit fault currents of sufficient magnitude to flow so as to operate protective devices to isolate the fault before damage can occur.
- 1.1.3 The ohmic resistance of an effective earth must be low enough to ensure that the step potential on the ground in the vicinity of the earthing point is within safe limits under fault conditions i.e. a voltage gradient not exceeding 40 V/m for fault durations exceeding 1s.

1.2 TYPES OF EARTH ELECTRODES

Three types of earth electrodes are suitable:

1.2.1 Trench Earths

Trench earths comprise a bare copper or galvanised iron conductor laid at a minimum of 800mm below ground level, usually when underground cables are installed. This type of earth electrode provides a relatively large contact area between electrode and surrounding ground, makes contact with a variety of types of soil and soils of varying moisture content en route and is economical to install.

1.2.2 Spike Earths

Spike earths comprise rods of bare copper, copper-coated steel, stainless steel or galvanised steel designed for the purpose of penetrating ground to depths of up to several metres. A low resistance earth may sometimes be obtained by driving multiple spikes at some distance from each other in order to provide parallel paths.

In hard or rocky ground, it is usually necessary to drill holes into which earth spikes are inserted and then packed with soft soil.

1.2.3 Foundation Earths

Foundation earths comprise bare copper or galvanised iron conductors laid under the foundations of buildings, miniature substations, distribution pillars, bases of wooden, concrete or steel poles and structures. Because soil under foundations usually retains moisture, foundation earths are located to take advantage of this favourable condition. Furthermore, they are economical to install.

1.3 MATERIALS FOR EARTH ELECTRODES

- 1.3.1 Bare copper, either in stranded, strip or rod form, is considered the most suitable general purpose material for earth electrodes. Its main disadvantage is its cost and susceptibility to theft.
- 1.3.2 Bare galvanised iron and steel, either in stranded, strip or rod form, has a satisfactory record of survival in non-aggressive soils and is more economical than copper.

1.3.3 Bare aluminium is unsuitable as electrode material.

1.4 CORROSION

Because galvanised ferrous metals corrode sacrificially to copper, galvanised iron and steel electrodes should not be buried in close proximity to bare copper.

2. TECHNICAL REQUIREMENTS OF NEUTRAL EARTHING

The following relevant aspects have been extracted from the "AMEU CODE OF PRACTICE FOR THE APPLICATION OF NEUTRAL EARTHING ON LOW VOLTAGE DISTRIBUTION SYSTEMS."

2.1 DISTRIBUTION SYSTEMS

Multiple Earthed Neutral (MEN) and Protective Multiple Earthing (PME) systems.

Distribution equipment associated with transformer substations that are either ground mounted or pole mounted and fed by underground cable or overhead line, with or without an earth continuity conductor, (ECC), should be installed, connected and earthed in accordance with the following requirements:

- (a) Where the resistance to earth of the HV equipment earth is 1 ohm or less, it is permissible to earth the LV neutral to the HV earth electrode.
- (b) Where the HV equipment earth exceeds 1 ohm the LV neutral shall be earthed at a minimum distance of 6m from the HV equipment earth (i.e. 6m from the HV electrode/s and also from any earthed metalwork connected thereto).
- (c) Notwithstanding the requirements of (a) above, where transformers are associated with HV overhead lines, it is considered good practice to separate the HV and LV earth electrodes. The minimum earth separation should be 6m or one LV span.
- (d) The overall resistance to earth of the neutral of an LV distributor or distribution system must not exceed 10 ohms.
- (e) The LV neutral may be connected to other supply neutrals, earth electrodes, cable sheaths and armouring and these connections used to obtain the required earthing value of 10 ohms or less specified in par. (d). above.
- (f) The neutral of underground and overhead LV distributors must be earthed at the remote ends of each distributor.
- (g) Where the overall resistance to earth of the neutral of the distribution system exceeds 10 OHMS, the neutral shall be earthed at intermediate positions on the distributor/s to reduce its resistance to earth to below this limit.
- (h) The cross-sectional area of the neutral of all LV distributors must not be less than that of a phase conductor.
- (i) No circuit-breakers, isolators, fuses, switches or removable links shall be installed in the neutral between the transformer star point and the remote end of any LV distributor or service connection.
- (j) All metallic sheathing and armouring of cables and all metalwork associated with meter cabinets, fuse pillars, etc., supporting or enclosing LV cables shall be bonded to the distributor neutral conductor.
- (k) Where a Separate Neutral Earth (SNE) cable is part of an MEN or PME system, the armouring and/or metallic sheath and any ECC shall be bonded to the neutral at the supply end of the cable.
- (l) To ensure the integrity of the neutral, it is recommended that all connections and joints on or to overhead line conductors be made by compression fittings or, alternatively double bolted connectors.

- (m) MEN or PME may be applied to any single LV distributor without alterations to other LV distributors supplied from the same transformer.

2.2 PROTECTIVE NEUTRAL BONDING (PNB) SYSTEM

Since the neutral is earthed at one point only, the question of multiple earthing does not arise and there is therefore no necessity to meet the MEN/PME technical requirements.

2.3 SERVICE CONNECTIONS

2.3.1 MEN System

The following conditions apply to consumers' service connections as well as service connections to traffic signals, road signs, street lighting and other power-consuming equipment installed in public places:

- (a) All service connections must be by means of cable with an insulated phase, an insulated neutral conductor and an ECC.
- (b) A single phase service connection comprises a live, a neutral and an ECC.
- (c) A polyphase service connection comprises two or three phase conductors, a neutral and an ECC.
- (d) The service neutral and ECC must be solidly and separately connected to the distributor neutral at the tee-off point.
- (e) The consumer's earthing lead is connected to the Supply Authority's earth terminal which is in turn connected to the ECC in the service cable at the consumer's supply point.
- (f) The neutral must not be connected to earth at the consumer's supply point.
- (g) If required by the Supply Authority, an earth electrode must be installed at the consumer's supply point.
- (h) In a service connection to traffic signals, street light and other power-consuming equipment installed in public places, such equipment is earthed to the ECC of the service connection.

2.3.2 PME System

- (a) All service connections must be by means of a cable with an insulated phase and an insulated neutral conductor.
- (b) A single phase service comprises a live conductor and a neutral.
- (c) A polyphase service connection comprises two or three phase conductors and a neutral.
- (d) The consumer's earthing lead is connected to the supplier's neutral and to a mandatory earth electrode at the consumer's supply point.
- (e) A label must be attached at the consumers supply point on his premises indicating that the installation is part of a PME system.

Note: It is not recommended that the PME system be applied to supply traffic signals, street signs or other power-consuming equipment installed in public places, because the PME system is inherently unsafe under "broken-neutral" conditions.

3. EARTHING OF A GENERAL ELECTRICAL INSTALLATION

5.1 GENERAL

All earth conductors shall be stranded copper with or without green PVC insulation. The conductors shall comply with the SANS 01042 for "PVC-INSULATED CABLES". All earth conductor sizes shall be

determined in accordance with SANS 10142, par. 4.6 where the earth does not form an integral part of the cable.

5.2 SWITCHBOARDS

A separate earth connection shall be supplied between the earth busbar of the main switchboard and the earth busbar of every sub-switchboard. These connections shall consist of bare or insulated stranded copper conductors installed along the same routes as the supply cables or in the same conduit as the supply conductors. Alternatively armoured cables with earth continuity conductors included in the armouring may be utilised.

5.3 SUB-CIRCUITS

The earth conductors of all sub-circuits shall be connected to the earth busbar in the supply switchboard in accordance with SANS 10142.

5.4 RING MAINS

Common earth conductors may be used where various circuits are installed in the same wiring channel in accordance with SANS 10142. In such instances the sizes of earth conductors shall be specifically approved by the Department. Earth conductors for individual circuits branching from the ring main shall be connected to the common earth conductor with T-ferrules or soldered. The common earth shall not be broken.

5.5 CONNECTIONS

Under no circumstances shall connection points, bolts, screws, etc. used for earthing be utilised for any other purpose. It will be the responsibility of the Contractor to supply and fit earth terminals or clamps on equipment and materials that must be earthed where these are not provided. Unless earth conductors are connected to proper terminals, the ends shall be tinned and lugged. Lugs may be crimped, using mechanical or pneumatic tools designed for this purpose, on condition that evidence is submitted that the method used complies with the performance requirements of BS 4579, "COMPRESSION JOINTS IN COPPER."

5.6 NON-METALLIC CONDUIT

Where non-metallic conduit is specified or allowed, stranded copper earth conductors shall be installed in the conduits and fixed securely to all metal appliances and equipment, including switch boxes, socket-outlet boxes, draw-boxes, switchboards, luminaries, etc. The securing of earth conductors by means of self-threading screws will not be permitted.

5.7 FLEXIBLE CONDUIT

An earth conductor shall be installed in all non-metallic flexible conduit. This earth conductor shall not be installed external to the flexible conduit but within the conduit with the other conductors. The earth conductor shall be connected to the earth terminals at both ends of the circuit.

5.8 WATER PIPES

Metal cold water mains shall be bonded to the earth busbar in the Main Switchboard by solid 15 x 2mm copper strapping. All other hot and cold water pipes shall be connected by 12 x 0,8mm perforated or solid copper strapping (not conductors) to the nearest switchboard. The strapping shall be fixed to the pipe work by brass nuts and bolts and against walls be brass screws at 150mm centres. In all cases where metal water pipes, down pipes, flues, etc. are positioned within 1,6 m of switchboards, an earth connection consisting of copper strapping shall be installed between the pipe work and the board. In vertical building ducts accommodating both metal water pipes and electrical cables, all the pipes shall be earthed at each switchboard.

5.9 ROOFS

Where service connections consist of overhead conductors, all metal parts of roofs, gutters and down pipes shall be earthed. One bare 10mm² copper conductor shall be installed over the full length of the ceiling void, fixed to the top purlin and connected to the main earth conductor of each switchboard. The roof and gutters shall be connected at 15m intervals to this conductor by means of 12 x 0,8mm copper strapping (not conductors) and galvanised bolts and nuts. Self-tapping screws are not acceptable. Where service connections consist of underground supplies, the above requirements are not applicable.

SECTION B11

PROVISION FOR TELEPHONE INSTALLATION

1. CONTRACTOR'S RESPONSIBILITY

The Contractor shall only supply and install outlet points, wiring channels and/or conduits for telephones. The telephone installation will be carried out by others.

2. REGULATIONS

All provisions for telephones in buildings shall comply with the latest issue of "FACILITIES FOR TELECOMMUNICATION SERVICES IN BUILDINGS" as issued by the Department of Posts and Telecommunications.

3. SEPARATION OF SERVICES

3.1 Cables or conductors for telephone services shall be separated from all other services by:

- (a) providing separate metal channels or conduits, or
- (b) installing power cables, conductors and accessories at a minimum distance of 300mm from routes reserved for telephone cables, or
- (c) an earthed metal barrier installed in such a manner to ensure that the minimum distance through free air space between the telephone cables and other services is at least 300mm.

3.2 In cases where high voltage cable runs are parallel to telephone cable runs for more than 50m, the correct spacing shall be determined by conferring with the Department of Posts and Telecommunications.

3.3 Conduits or wiring channels provided for telephone services may not be used for any other purpose. Where non-metallic channels are used, the separation stated in par. 3.1 (b) shall be maintained throughout the installation.

4. MAIN TELEPHONE DISTRIBUTION BOARD

4.1 The size and position of the Main Telephone Distribution Board, where required, shall be in accordance with the requirements of the Detail Technical Specification.

4.2 The board shall consist of a metal tray, architrave frame and hinged doors and shall be flush mounted in the position shown on the drawing(s).

4.3 A 20mm thick soft wooden panel (fine grade pine to SANS 1359, without knots) shall be installed in the main telephone distribution board and shall cover the entire back of the board. Chipboard or similar materials are not acceptable.

4.4 All conduits and sleeves to telephone outlets or sub-distribution boards in the buildings or on the site as well as the main incoming sleeves, shall terminate at the main telephone distribution board as indicated on the drawing(s).

4.5 Where 100 x 100 x 50mm draw-boxes are specified as main or sub-distribution boards, the boxes shall be flush mounted and provided with a cover plate. A wooden panel need not be provided in these cases.

5. VERTICAL BUILDING (SERVICE) DUCTS

- 5.1 If the telephone cables are to be installed in the same duct as power cables the separation of services described in par. 3 shall be maintained.
- 5.2 Conduits and metal channels to and from building duct(s) shall be installed from the section containing the telephone cables to obviate telephone cables crossing power cables or other services in the duct.
- 5.3 Where more than one vertical building duct is provided in the structure, the ducts shall be interconnected by at least 2 x 32mm dia. conduits at each floor level unless otherwise specified or indicated on the drawings.

6. TELEPHONE OUTLETS

- 6.1 Blank cover plates shall be fitted to all telephone outlets.
- 6.2 Telephone outlets in walls shall consist of flush mounted 100 x 100 x 50mm draw-boxes.
- 6.3 Telephone outlets in floors shall be of the same type as floor outlets for power socket-outlets. These provisions also apply to underfloor ducting. If the type of floor outlet is not specified, 100 x 100 x 50mm flush mounted draw-boxes shall be provided in the floor at the positions indicated on the drawings. The cover plates for these draw-boxes shall be of the diecast type.
- 6.4 Where twin underfloor ducts are provided and where the one duct is intended for telephone cables, the separation between the ducts shall be maintained throughout the underfloor ducting installation.
- 6.5 Where power skirting is specified for telephone installations, the Contractor need only install the skirting with covers since the telephone socket will be fixed directly to the cover. Where multiple power skirting is provided containing other services, no other cables may be installed in the section intended for telephone cables and the separation between the sections shall be maintained throughout the installation.
- 6.6 Refer also to the Department's standard specification for the "INSTALLATION OF WIRING CHANNELS, UNDERFLOOR DUCTING AND POWER SKIRTING", Section B2.

7. CONNECTION OF TELEPHONE OUTLETS

- 7.1 Telephone outlets shall be inter-connected and connected to the telephone distribution boards as shown on the drawings.
- 7.2 If the inter-connecting conduits are not specified, conduit sizes shall be determined as follows:
 - Inter-connection of 10 outlets maximum - 25mm dia. conduit.
 - Inter-connection of 20 outlets maximum - 32mm dia. conduit.
- 7.3 Metal channels or power skirting installed on the same floor level on opposite walls of the same area as well as parallel runs of underfloor ducting intended for the installation of telephone cables, shall be interconnected at intervals of 6m. Conduit may be used for these inter-connections.
- 7.4 All conduits and all ducts or channels which do not have removable covers, shall be provided with galvanised steel draw-wires.
- 7.5 Conduit connections to power skirting or surface mounted metal channels, shall consist of a 100 x 100 x 50mm draw-box which is flush mounted immediately behind the duct or channel in which the telephone cables are to be installed. A hole shall be cut in the back of the duct or channel, immediately opposite the draw-box. The edges of the hole shall be grommited. The draw-box shall be accessible from the front when the cover is removed.

- 7.6 Purpose-made accessories for the connection of conduits to underfloor ducts shall be used. Where these are not available, a 100 x 100 x 50mm draw-box shall be installed below the underfloor duct opposite a floor telephone outlet. Inter-connecting conduits shall terminate at the draw-box. The edges of the hole shall be grommeted. The draw-box shall be accessible from the top via the floor outlet.
- 7.7 Exposed conduit ends intended for future extensions shall be terminated by means of a coupling and screwed brass plug. Only galvanised conduit shall be used in these instances.

SECTION B12

INSPECTIONS, TESTING, COMMISSIONING AND HANDING OVER

1. PHYSICAL INSPECTION PROCEDURE

- 1.1 Once the Contractor has completed the installation, written notice shall be given to the Department in order that a mutually acceptable date can be arranged for a joint inspection.
- 1.2 During the course of the inspection, the representative of the Department will compile a list of items (if any) requiring further attention. A copy of this list will be provided to the Contractor who will have a period of 7 days in which to rectify the offending items of the installation.
- 1.3 The Contractor shall then provide written notice that he is ready for an inspection of the remedial work to the offending items.
- 1.4 This procedure will continue until the entire installation has been correctly completed to the satisfaction of the Department.

2. TESTING AND OPERATIONAL INSPECTION PROCEDURE

- 2.1 In addition to the above the Contractor shall have the complete installation tested and approved by the local authorities where applicable.
- 2.2 Subsequent to the above testing and approval, the Contractor shall in the presence of the representative of the Department test all circuits with respect to:
 - (a) Phase balance.
 - (b) Insulation level.
 - (c) Polarity.
- 2.3 Upon completion of the installation and within 3 months of the handover date, the Contractor shall provide and make available a recording voltmeter to record the voltage at three locations in the complex over a period of 48 hours each. These locations will be nominated by the Department.

3. "AS BUILT" DRAWINGS

- 3.1 As each portion of the work is completed, the Contractor shall provide the Department with as-built drawings showing the exact location measured from fixed points of all cables, transmission lines, each outlet point, etc.
- 3.2 In addition a complete reticulation diagram showing all supply cables and switchboards shall be provided behind a plastic cover in the substation or adjacent to the Main Switchboard if not located in a substation.
- 3.3 The installation will not be regarded as complete until all of the above requirements listed in 1, 2 and 3 above have been met.



KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE
SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

ANNEXURE 13
PROJECT REFERENCE LETTER



KWAZULU-NATAL PROVINCE

PUBLIC WORKS & INFRASTRUCTURE
REPUBLIC OF SOUTH AFRICA

Directorate: Southern Region
Private Bag X9153
PIETERMARITZBURG
3200
Tel: 033 897 1430
Fax: 033 897 1404
Enquiries: Senzo Mthembu
Email:
senzo.mthembu@kznworks.gov.za

NB: Instruction: This letter to be sent by the bidder to the client or institution where the service was rendered and should be completed. The bidder must return a completed letter to claim the points for Mandatory.

Date by the client or institution where service was rendered-----

PROJECT REFERENCE

This serves to confirm that NAME OF THE SERVICE PROVIDER-----

provided service of as a contractor for NAME OF THE PROJECT AND DISCIPTION -----

Contract Value: -----

Name of the client -----

Start and end date -----

Contract Duration: -----

Rating	Description	Referee comment (Tick)
A	Excellent service provided	<input type="checkbox"/>
B	Good services provided	<input type="checkbox"/>
C	Average services provided	<input type="checkbox"/>
D	Poor services provided	<input type="checkbox"/>
E	Dismal	<input type="checkbox"/>

Yours faithfully,

NAME OF THE OFFICIAL-----

NAME OF THE INSTITUTION-----

Email Address:-----

SIGNATURE AND STAMP OF THE CLIENT MUST BE PROVIDED ON THIS PAGE



**PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS AND RENOVATIONS TO STORM DAMAGE
SCHOOLS (SOUTHERN REGION): EMGANGENI SECONDARY SCHOOL**

**ANNEXURE 14
PROJECT ORGANOGRAM**

PROJECT SPECIFIC ORGANOGRAM (ANNEXURE 14)

**PROJECT DESCRIPTION: PHASE 14: STORM DAMAGE PROGRAMME: REPAIRS
AND
RENOVATIONS TO STORM DAMAGE SCHOOLS (SOUTHERN
REGION): EMGANGENI SECONDARY SCHOOL**

