CONTRACT DOCUMENT

FOR THE

CONSTRUCTION OF ROBERTSON FIRE STATION

VOLUME 1: RETURNABLE DOCUMENT

NOTE:

- The Form of Offer and Acceptance (C1.1) is on **page 86** of this document
- Table 1: Preference Schedule (B-BBEE contribution) is on **page 83** of this document

SEPTEMBER 2022

Name of Tenderer	
Address (Physical)	
Contact Person	
Contact Number	
Email Address	
Amount (15% VAT Included)	
B-BBEE Status	
Duration (weeks)	

ISSUED BY:

LANGEBERG MUNISIPALITEIT MUNICIPALITY MASIPALA

THE MUNICIPAL MANAGER
LANGEBERG MUNICIPALITY
28 MAIN ROAD
ASHTON
6715
Tel: (023) 615 8000

COMPILED BY:

TUSK

Tusk CSS (Pty) Ltd
3 High Street
Rosenpark,
Tygervalley
7550
Tel: 021 424 4586

LANGEBERG MUNICIPALITY

TENDER NO. "43/2022"

CONSTRUCTION OF ROBERTSON FIRE STATION

General Tender Information

TENDER ADVERTISED	:	30 SEPTEMBER 2022
ESTIMATED CIDB CONTRACTOR GRADING DESIGNATION	:	6GB or higher
COMPULSORY/CLARIFICATION MEETING	:	07 October 2022 @ 10:00, Langeberg Municipality, 52 Church Street, Robertson
CLOSING DATE	:	25 November 2022
CLOSING TIME	:	12h00
TENDER BOX & ADDRESS	:	The Bid Box, at LANGEBERG Municipality, 28 Main Road, Ashton
	:	The Tender Document (which includes the Form of Offer and Acceptance) completed in all respects, plus any additional supporting documents required, must be submitted in a sealed envelope with the name and address of the tenderer, the tender No. and title and the closing date indicated on the envelope. The sealed envelope must be inserted into the appropriate official tender box before closing time. If the tender offer is too large to fit into the abovementioned box or the box is full, please enquire at the reception for alternative instructions. The onus remains with the tenderer to ensure that the tender is placed in either the original box or as alternatively instructed.

TENDERERS MUST NOTE THAT WHEREVER THIS DOCUMENT REFERS TO ANY PARTICULAR TRADEMARK, NAME, PATENT, DESIGN, TYPE, SPECIFIC ORIGIN OR PRODUCER, SUCH REFERENCE SHALL BE DEEMED TO BE ACCOMPANIED BY THE WORDS "OR EQUIVALENT"

PART A (MBD1)
INVITATION TO BID

THE FOLLOWING PARTICULARS MUST BE FURNISHED **(FAILURE TO DO SO WILL RESULT IN YOUR OFFER BEING DISQUALIFIED)**

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE LANGEBERG MUNICIPALITY					
BID NUMBER:	"T43/2022"	**CLOSING DATE**:	25 November 2022	**CLOSING TIME:**	12h00
DESCRIPTION:	CONSTRUCTION OF ROBERTSON FIRE STATION				
THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM.					

BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT:
ENTRANCE OF THE MUNICIPAL OFFICES 28 Main Road Ashton 6715

SUPPLIER INFORMATION			
NAME OF BIDDER			
POSTAL ADDRESS			
STREET ADDRESS			
TELEPHONE CODE & NUMBER			
CELL PHONE NUMBER			
FACSIMILE CODE & NUMBER			
E-MAIL ADDRESS			
VAT REGISTRATION NUMBER			
TAX PIN		TAX REFERENCE NUMBER	
CSD No			
ORIGINAL AND VALID TAX CLEARANCE CERTIFICATE / TSC PIN SUBMITTED? YES☐ NO☐			
A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BEE. NOTE A CERTIFIED COPY OR ORIGINAL IS COMPULSORY			
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE SUBMITTED? (MBD 6.1) YES☐ NO☐ IF YES, WHO WAS THE CERTIFICATE ISSUED BY? (Tick applicable box) A VERIFICATION AGENCY ACCREDITED BY SOUTH AFRICAN NATIONAL ACCREDITATION SYSTEM (SANAS) ☐ or A SWORN AFFIDAVIT FOR EME'S AND QSE'S ☐			
RECENT MUNICIPAL ACCOUNT OF COMPANY (NOT OLDER THAN 90 DAYS) **MUST** BE ATTACHED			
RECENT MUNICIPAL ACCOUNTS OF ALL THE DIRECTORS/ SHAREHOLDERS **MUST** BE ATTACHED			
IF LEASING/RENTING/LODGING – ATTACHED LATEST VALID COPY OF AGREEMENT **IF NO PROPERTY REGISTERED IN YOUR NAME SUBMIT AN AFFIDAVIT CONFIRMING THIS. COPY OF AFFIDAVIT IS AVAILABLE ON REQUEST FROM THE SCM UNIT**			

BID PRICE OFFERED **NB: NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE** **(see definition on MBD 4 attached)**	
TOTAL BID PRICE (INCL 15% VAT)	

ANY ENQUIRIES REGARDING THE BIDDING PROCEDURE MAY BE DIRECTED TO:

LANGEBERG MUNICIPALITY
Contact Person: Mr N. Albertyn
Tel: 023 626 8200
Fax: 086 569 2366
E-mail: nalbertyn@langeberg.gov.za

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

YOURS FAITHFULLY,

M MGAJO
ACTING MUNICIPAL MANAGER
MUNICIPAL OFFICES
PRIVATE BAG X2
ASHTON
6715
TEL: 023 626 8200

PART B (MBD 1)
TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:

1.1 BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2 **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED – (NOT TO BE TYPED) OR ONLINE**
1.3 THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.

2. TAX COMPLIANCE REQUIREMENTS

2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYERS PROFILE AND TAX STATUS.
2.3 APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN MAY ALSO BE MADE VIA E-FILING. IN ORDER TO USE THIS PROVISION, TAXPAYERS WILL NEED TO REGISTER WITH SARS AS E-FILERS THROUGH THE WEBSITE WWW.SARS.GOV.ZA
2.4 FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PARAGRAPH 3 BELOW
2.5 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.6 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED; EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.7 WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.

3. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

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

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

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

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

CHECK LIST

This list is to assist all bidders to submit complete proposals. Bidders are to check the following points before the submission of their proposals:		
1	All pages of the document have been read by the contractor and initialled.	☐
2	Any discrepancy and/or misunderstanding is cleared with the relevant officials.	☐
3	All pages requiring information have been **completed in black ink.**	☐
4	The Schedule of Quantities has been checked for arithmetic correctness.	☐
5	Totals from each sub section of the Schedule of Quantities have been carried forward to the summary page and done so correctly.	☐
6	The total from the summary page has been carried forward to the Form of Offer.	☐
7	Surety details where applicable have been included in the proposal.	☐
8	All sections requiring information have been completed.	☐
9	Bidder ensured that all documents is properly completed and signed	☐
10	The contractor has complied with the proposal prerequisites.	☐
11	The document is submitted before 12h00 on the due date at the designated bid box of Langeberg Municipality.	☐

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

LANGEBERG MUNICIPALITY

TENDER NO. "43/2022"

CONSTRUCTION OF ROBERSTON FIRE STATION

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LANGEBERG MUNICIPALITY

TENDER NO. "43/2022"

CONSTRUCTION OF ROBERSTON FIRE STATION

T1.1 Tender Notice and Invitation to Tender

LANGEBERG MUNICIPALITY | UMASIPALA | MUNISIPALITEIT
Private Bag X2, Ashton, 6715
☎ (023) 615 8000 🖷 (023) 615 1563 @ admin@langeberg.gov.za
🖳 www.langeberg.gov.za

TENDER NOTICE AND INVITATION TO BID			
DEPARTMENT INFRASTRUCTURE			
ADVERTISED IN	MUNICIPAL NOTICE BOARD, MUNICIPAL WEBSITE, DIE BURGER		
BID NO:	"43/2022"	**PUBLISHED DATE: 30 September 2022**	
Bids are hereby invited for (Tender Description)	CONSTRUCTION OF ROBERSTON FIRE STATION		
Closing Time and Date	No later than 12H00	On the Date: 25 November 2022	
Compulsory Site Meeting	07 October 2022 @ 10:00, 52 Church Street Robertson , 6705		**CIDB GRADING**: 6GB
Bids will be opened immediately thereafter, LANGEBERG Municipality, 28 Main Road, Ashton, 6715			
AVAILABILITY OF BID DOCUMENTS			
Tender Documents will be downloadable only form www.langeberg.gov.za			
Date Available			

BID RULES

a. Bids are to be completed in accordance with the conditions and bid rules contained in the bid document and supporting documents must be placed in a sealed envelope and externally endorsed WITH THE NAME AND ADDRESS OF THE TENDERER, THE TENDER NO. AND TITLE AND THE CLOSING DATE, and be deposited in the Bid Box, at the Supply Chain Management Unit, Langeberg Municipal office, 28 Main Street, Ashton.

b. Bids may only be submitted on the bid documentation issued by the Municipality.

c. The Langeberg Municipality does not bind itself to accept the lowest or any tender and reserves the right to accept any tender, as it may deem expedient.

d. Tenderers who are not yet registered are required to register on the Municipality's Accredited Supplier Database (CSD). Online registration to be completed on the CSD registration platform, website https://secure.csd.gov.za.

e. Pre-qualification criteria for preferential procurement is applicable to the tender.

Tenders shall be evaluated in terms of the latest Langeberg Municipality Supply Chain Management Policy.		**Bidders may claim preference points in terms of their B-BBEE status level of contribution.**	
Preferential Procurement Point System Applicable	80/20	**Local Content Requirement**	Yes
Site Meeting/Information Session	Yes	**Validity Period**	120 days

TECHNICAL ENQUIRIES: Mr N. Albertyn nalbertyn@langeberg.gov.za		**BIDDING PROCEDURE REQUIREMENTS & ENQUIRIES:** Mr S Ngcongolo Sngongolo@langeberg.gov.za	
Section	INFRASTRUCTURE SERVICES	**Section**	SUPPLY CHAIN MANAGEMENT
Contact Person	Mr. N. Albertyn	**Contact Person**	Mr S Ngcongolo -
Tel:	E-mail Enquiries Only	**Tel:**	E-mail Enquiries Only
E-mail	nalbertyn@langeberg.gov.za	**E-mail**	SNgcongolo@langeberg.gov.za

Authorised by:

M MGAJO
ACTING MUNICIPAL MANAGER
NOTICE NR: "43/2022"

Private Bag X2
ASHTON, 6715
TEL: 023 615 8000

T1.2 Tender Data

The conditions of tender are the Standard Conditions of Tender as contained in Annex C of Government Gazette No. 42622 of 8 August 2019, Construction Industry Development Board (CIDB) Standard for Uniformity in Construction Procurement. (see www.cidb.org.za) which are reproduced without amendment or alteration for the convenience of tenderers as an Annex to this Tender Data.

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the standard conditions of tender. Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.

The following variations, amendments and additions to the Standard Conditions of Tender as set out in the Tender Data below shall apply to this tender:

Clause number	**Tender Data**
C.1	**General**
C.1.1	Actions
C.1.1.1	*Add the following:* **The parties agree that this tender, its evaluation and acceptance and any resulting contract shall also be subject to the Employer's Supply Chain Management Policy ('SCM Policy') that was applicable on the date the tender was advertised, save that if the Employer adopts a new SCM Policy which contemplates that any clause therein would apply to the contract emanating from this tender, such clause shall also be applicable to that contract. Please refer to this document contained on the Employer's website.** **Abuse of the supply chain management system is not permitted and may result in the tender being rejected, cancellation of the contract, restriction of the supplier, and/or the exercise by the Employer of any other rights and remedies available to it as described in the SCM Policy.** The Employer is the LANGEBERG MUNICIPALITY.
C.1.2	Tender Documents *Add the following:* **The following documents form part of this contract:** **VOLUME 1:** The Tender Document issued by the employer (this document), in which is bound: **THE TENDER** **Part T1: Tendering Procedure** T1.1 Tender notice and invitation to tender T1.2 Tender data **Part T2: Returnable Documents** T2.1 List of returnable documents T2.2 Returnable schedules **THE CONTRACT** **Part C1: Agreement and contract data** C1.1 Form of Offer and Acceptance C1.2 Contract Data (data provided by the Contractor) – Part 1

C1.2 Contract Data (data provided by the Employer) – Part 2
C1.3 Form of Performance Guarantee
C1.4 Form of Advance Payment Guarantee
C1.5 Occupational Health and Safety Agreement
C1.6 Protection of the Environment Declaration
C1.7 Insurance Broker's Warranty

Part C2: Pricing Data
C2.1 Pricing Assumptions
C2.2 Bills of Quantities

Part C3: Scope of Work
C3.1 Description of the Works
C3.2 Engineering/Design
C3.3 Procurement
C3.4 Construction
C3.5 Management
C3.6 Annexes

Part C4: Site information
C4 Site information

Part C5: LANGEBERG Municipality Supply Chain Policy
C5 Supply Chain Policy

Part C6: Health and Safety Specifications
C6 Health and Safety Tender Specifications

Part C7: Drawings
C7 Drawings

Volume 1 is deemed the "Returnable Document" which must be returned to the Employer in terms of submitting a tender offer.

In addition to the above, the following further documents are part of the tender:

VOLUME 2: The General Conditions of Contract for Construction Works, Third Edition, 2015, prepared by the South African Institution of Civil Engineering (SAICE). This publication is available and tenderers must obtain copies at their own cost from the South African Institution of Civil Engineering (SAICE), Private Bag X200, Halfway House 1685, Tel: (011) 805 5947, Fax: (011) 805 5971, e-mail: civilinfo@saice.org.za.

VOLUME 3: The SANS Standardised Specifications for Civil Engineering Construction prepared by Standards South Africa. These publications are available, and tenderers must obtain copies at their own cost from Standards South Africa, Private Bag X191, PRETORIA, 0001.

VOLUME 4: The ASAQS Model Preamble for Trades 2008 prepared by the Association of South African Quantity surveyors.

VOLUME 5: Schedule of rates.

VOLUME 6: Geotechnical report

C.1.4 Communication and employer's agent
Delete the first sentence of the clause and replace with the following:
Verbal or any other form of communication, from the Employer, its employees, agents or advisors during site visits/clarification meetings or at any other time prior to the award of the Contract, will not be regarded as

binding on the Employer, unless communicated by the Employer in writing to suppliers by its Municipal Supply Chain Manager or his nominee.

The Employer's architect is:
Company: Tusk CSS (Pty) Ltd
Name: Adriaan Norman
Address: 3 High Street, First Floor, Rosenpark
Tygervalley, 7550
Tel: (021) 424 4586
E-mail: adriaan@tuskcss.co.za

C.1.5 Cancellation and Re-Invitation of Tenders
Delete the full stop at the end of C.1.5.1 d) and replace with, or
Add the following after C.1.5.1 d):
e) the parties are unable to negotiate market related pricing.

C.1.6.2 Competitive negotiation procedure
Add the following between C.1.6.2 and C.1.6.2.1:
A competitive negotiation procedure will **not** be followed.

C.1.6.3 Proposal procedure using the two-stage system
Add the following between C.1.6.3 and C.1.6.3.1:
A two-stage system will **not** be followed.

Add the following Clauses (C.1.6.4, C1.7) after Clause C.1.6.3 and before clause C.2.
C.1.6.4 Objections, complaints, queries and disputes/ Appeals in terms of Section 62 of the Systems Act/ Access to court

C.1.6.4.1 Disputes, objections, complaints, and queries
In terms of Regulations 49 and 50 of the Local Government: Municipal Finance Management Act, 56 of 2003 – Municipal Supply Chain Management Regulations (Board Notice 868 of 2005):
a) Persons aggrieved by decisions or actions taken by the ***Langeberg Municipality*** in the implementation of its supply chain management system, may lodge within 14 days of the decision or action, a written objection or complaint or query or dispute against the decision or action.

C.1.6.4.2 Appeals
a) In terms of Section 62 of the Local Government: Municipal Systems Act, 32 of 2000 a person whose rights are affected by a decision taken by the ***Langeberg Municipality***, may appeal against that decision by giving written notice of the appeal and reasons to the Municipal Manager within 21 days of the date of the notification of the decision.
b) An appeal must contain the following:
i) Must be in writing
ii) It must set out the reasons for the appeal
iii) It must state in which way the Appellant's rights were affected by the decision;
iv) It must state the remedy sought; and
v) It must be accompanied with a copy of the notification advising the person of the decision
c) The relevant ***Langeberg Municipality*** appeal authority must consider the appeal and **may confirm, vary or revoke** the decision that has been appealed, but no such revocation of a decision may detract from any rights that may have accrued as a result of the decision.

C.1.6.4.3 Right to approach the courts and rights in terms of Promotion of Administrative Justice Act, 3 of 2000 and Promotion of Access to Information Act, 2 of 2000
The sub-clauses above do not influence any affected person's rights to approach the High Court at any time or its rights in terms of the Promotion of Administrative Justice Act and Promotion of Access to Information Act.

C.1.6.4.4 All requests referring to sub clauses C.1.6.4.1; C.1.6.4.2 and C.1.6.4.3 must be submitted in writing to:
The Municipal Manager - Langeberg Municipal Offices
Via hand delivery at: Langeberg Municipality, 28 Main Street, Ashton
Via post at: Private Bag X2, Ashton, 6715
Via fax at: (086) 569 2366
Via email at: mm@langeberg.gov.za

C.1.7 National Treasury Web Based Central Supplier Database (CSD) Registration

Tenderers are required to be registered on the National Treasury Web Based Central Supplier Database (CSD) as a service provider. Tenderers must register as such upon being requested to do so in writing and within the period contained in such a request, failing which no orders can be raised or payments processed from the resulting contract. In the case of Joint Venture partnerships this requirement will apply individually to each party of the Joint Venture.

Tenderers who wish to register on the National Treasury Web Based Central Supplier Database (CSD) may do so via the web address **https://secure.csd.gov.za**.

It is each tenderer's responsibility to keep all the information on the National Treasury Web Based Central Supplier Database (CSD) updated.

C.2 Tenderer's obligations

C.2.1.1 *Delete the content of this clause and replace with the following:*
Tenderers must submit a tender offer that complies in all aspects to the conditions as detailed in this document. Only those tenders that comply in all aspects with the tender conditions, specifications, pricing instructions and contract conditions will be declared responsive.

Add the following clauses after C.2.1.2 and before C2.2:

C.2.1.3 Only those tender submissions from which it can be established that a clear and unambiguous offer has been made to Employer, by whom the offer has been made and what the offer constitutes, will be declared responsive.

C.2.1.4 Only those tenders that satisfy the following criteria will be declared responsive:

C.2.1.4.1 Construction Industry Development Board (CIDB) Registration
Only those tenderers who are registered with the CIDB, or 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 GB class of construction work, are eligible to have their tenders evaluated. Tenderers must obtain such active status upon being requested to do so in writing and within the period contained in such a request, failing which their tenders will be declared non-responsive.

Joint Ventures are eligible to submit tenders provided that:

a) every member of the joint venture is registered with an active status with the CIDB;
b) the lead partner has a contractor grading designation of not lower than one level below the required grading designation in the GB class of construction work; and
c) 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 GB class of construction work or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations.

For alpha-numerics associated with the contractor Grading Designations see Annex G attached.

C.2.1.4.2 Compliance with requirements of LANGEBERG MUNICIPALITY SCM Policy and procedures
Only those tenders that are compliant with the requirements below will be declared responsive:

a) A completed **Compulsory Enterprise Questionnaire** to be provided (applicable schedule to be completed);
b) A completed **Certificate of Authority for Companies/Partnerships/Joint Ventures/Consortiums** to be provided authorising the tender to be made and the signatory to sign the tender on the partnership /joint venture/consortium's behalf (applicable schedule to be completed);
c) A copy of the partnership / joint venture / consortium agreement to be provided;
d) A completed **Declaration of Interest – State Employees** to be provided and which does not indicate any non-compliance with the legal requirements relating to state employees (applicable schedule to be completed);
e) A completed **Declaration – Conflict of Interest** and **Declaration of Bidder's past Supply Chain Management Practices** to be provided and which does not indicate any conflict or past practises that renders the tender non-responsive based on the conditions contained thereon (applicable schedules to be completed);
f) A completed **Certificate of Independent Bid Determination** to be provided and which does not indicate any non-compliance with the requirements of the schedule (applicable schedule to be completed);
g) The tenderer (including any of its directors or members), has not been restricted in terms of abuse of

the Supply Chain Management Policy;

h) The tenderer's tax matters with SARS are in order, or the tenderer is a foreign supplier that is not required to be registered for tax compliance with SARS;

i) The tenderer is not an advisor or consultant contracted with the Employer whose prior or current obligations creates any conflict of interest or unfair advantage;

j) The tenderer is not a person, advisor, corporate entity or a director of such corporate entity, involved with the bid specification committee;

k) A completed Authorisation for the Deduction of Outstanding Amounts Owed to the Langeberg Municipality to be provided and which does not indicate any details that renders the tender non-responsive based on the conditions contained thereon (applicable schedules to be completed);

l) The tenderer (including any of its directors or members), has not been found guilty of contravening the Competition Act 89 of 1998, as amended from time to time;

m) The tenderer (including any of its directors or members), has not been found guilty on any other basis listed in the SCM Policy.

C.2.1.4.3 Minimum score for functionality based on a pre-qualification inspection

Please note that points scored for Quality (functionality) will not have an influence on the total tender evaluation points and will therefore not affect the ranking of the tenderers, it will only be regarded as a pre-qualification. The minimum points required to be eligible to tender is 70 out of a 100.

Criterion	Weight
1) Relevant Experience (Returnable Schedule 14)	50%
2) Construction manager Experience (Returnable Schedule 15)	50%
Total	**100%**

EVALUATION CRITERION 1

Tenderers must have successfully **completed** (please note that current projects will not be included in the evaluation) at least 5 projects of a similar scope and nature in the last 10 years to score full marks on this criterion. Refer to the table below for a measurement of how points will be awarded against this criterion.

A detailed list of successfully completed projects must be completed in/attached to **Schedule 14**.

Projects of a similar scope and nature is regarded as:
The Construction of Building Structures, Civil Engineering services, and Earthworks. Please note that no tenderer will be contacted to clarify any experience or construction equipment, or plant submitted with this bid. If insufficient information is shown, the tenderer will **not** be contacted for clarification.

1. RELEVANT EXPERIENCE	
INDICATOR	**Evaluation Criteria for Relevant Experience:** (number of similar projects completed by the contractor in the last 10 years)
0	The tenderer has completed zero projects in the last 10 years
1	The tenderer has completed only 1 project in the last 10 years
2	The tenderer has completed exactly 2 projects in the last 10 years
3	The tenderer has completed exactly 3 projects in the last 10 years
4	The tenderer has completed exactly 4 projects in the last 10 years
5	The tenderer has completed 5 or more projects in the last 10 years

EVALUATION CRITERION 2

Detailed, project specific CV's to be included in **Schedule 15** of the Returnable Documents. Failure to do so during tender phase will lead to disqualification of tenderer.

Construction managers must have successfully **completed** (please note that current projects will not be included in the evaluation) at least 5 projects of a similar scope and nature in the last 10 years to score full marks on this criterion. Refer to the table below for a measurement of how points will be awarded against this criterion.

Projects of a similar scope and nature is regarded as:

The Construction of Building Structures, Civil Engineering services, and Earthworks. Please note that no tenderer will be contacted to clarify any experience or construction equipment, or plant submitted with this bid. If insufficient information is shown, the tenderer will **not** be contacted for clarification.

If, during construction, the contractor wishes to replace the construction manager, the contractor will apply in writing to the Employer's agent as per clause 4.12 of the GCC 2015. Only similarly experienced and competent construction managers will be considered.

2. CONSTRUCTION MANAGER	
INDICATOR	**Evaluation Criteria for Construction manager:** (number of similar projects completed by the Construction manager in the last 10 years)
0	The Construction manager has completed zero projects in the last 10 years
1	The Construction manager has completed only 1 project in the last 10 years
2	The Construction manager has completed exactly 2 projects in the last 10 years
3	The Construction manager has completed exactly 3 or more projects in the last 10 years
4	The Construction manager has completed exactly 4 or more projects in the last 10 years
5	The Construction manager has completed 5 or more projects in the last 10 years

The functionality proposal will be evaluated individually on score sheets, by a representative evaluation panel according to the evaluation criteria indicated above. All service providers who scored less than 70 out of 100 points for functionality will not be considered further. At least 3 evaluators will evaluate the quality schedules separately.

NB: Points scored for Quality (functionality) will not have an influence on the total tender evaluation points.

Where the entity tendering is a Joint Venture the tender must be accompanied by a statement describing exactly what aspects of the work will be undertaken by each party to the joint venture (appended to Schedule 3, Part T2.2: Returnable Schedules).

C.2.1.4.4.3 A copy of the authorisation letter must be submitted together with the bid document at the closing date and time of the bid.

C.2.1.4.4.4 The Employer is obliged and must ensure that contracts for the **designated sector** are awarded at prices that are market related taking into account, among others, benchmark prices designated by the DTI for the sector, value for money and economies of scale. Where appropriate, prices may be negotiated with preferred bidders in accordance with provisions for Negotiation with Preferred Bidders as set out in the LANGEBERG Municipality SCM Policy.

C.2.1.4.4.5 A bid will be declared non-responsive / disqualified if the **Local Content Declaration / Annexure C** returnable schedule as well as the authorisation letter referred to above (if applicable) are not submitted as part of the bid documentation at the closing date and time of the bid.

C.2.1.4.4.6 For further information relating to the local production and content legislation, bidders may refer to website http://www.thedti.gov.za/industrial_development/ip.jsp, or the DTI Contact Centre no 0861 843384.

C.2.1.4.5 Compulsory clarification meeting
Tenderers are required to attend a compulsory clarification meeting at which they may familiarise themselves with aspects of the proposed work, services or supply and pose questions.
Details of the meeting(s) are stated in the General Tender Information.
Only those tenders submitted by tenderers whose attendance at this meeting have been recorded, will be declared responsive.

C.2.1.4.6 Good standing with Bargaining Council
Only those tenders submitted by tenderers who are in good standing with the **Building Industry Bargaining Council (BIBC)** at the time of the tender award will be declared responsive. Tenderers must attach such proof to the schedule titled **Declaration in Respect of Compliance with Labour Legislation** or obtain such upon being requested to do so in writing and within the period contained in such a request, failing which their tenders will be declared non-responsive.

C.2.1.4.7 Good standing with SARS/Tax Clearance
Bidders are required to submit their unique personal identification number (pin) issued by SARS to enable the organ of state to view the taxpayer's profile and tax status. Application for the tax compliance status (TCS) certificate or pin may also be made via e-filing. In order to use this provision, taxpayers will need to register with SARS as e-filers through the website www.SARS.gov.za. Bidders may also submit a printed TCS certificate together with the bid (valid and original). In Bids where Consortia/Joint Venture/Sub-contractors are involved each party must submit a separate and Original Valid Tax Clearance Certificate.

C.2.3 Check documents

Delete the clause content and replace with the following:

The Tenderer should check the tender documents on receipt for completeness, missing or duplicated pages, indistinct figures or writing and any obvious errors. The Tenderer must notify the Employer's agent at once of any such problems identified

C.2.7 Clarification meeting

Add the following after the second sentence:
The arrangements for the site visit/clarification meeting are as stated on the General Tender Information page and in the Responsiveness Criteria (if applicable). Failure to provide proof of attendance of this clarification meeting will result in disqualification of the tender. The applicable schedule in the returnable documents must be signed by employer **or** employer's agent as proof of attendance or the signed (signed by attending tenderers) attendance register should be attached to this schedule.

Tenderers should be represented at the clarification meeting by a person who is suitably qualified and experienced to comprehend the implications of the work involved. The employer or employer's agent cannot be held liable for any information discussed during the Clarification Meeting not correctly carried forward to the authorised person signing the tender document.

C.2.8 Seek Clarification

Add the following after the first sentence:
The tenderer warrants that it has:

a) inspected the Specifications and read and fully understood the Conditions of Contract.
b) read and fully understood the whole text of the Specifications and Price Schedule and thoroughly acquainted itself with the nature of the goods proposed and generally of all matters which may influence the Contract.
c) visited the site(s) where delivery of the proposed works will take place, carefully examined existing conditions, the means of access to the site(s), the conditions under which the delivery is to be made, and acquainted itself with any limitations or restrictions that may be imposed by the Municipal or other Authorities in regard to access and transport of materials, plant and construction equipment to and from the site(s) and made the necessary provisions for any additional costs involved thereby.
d) requested the Employer to clarify the requirements contained in the Specifications and Price Schedule, the exact meaning or interpretation of which is not clearly intelligible to the tenderer.
e) received any notices to the tender documents which have been issued in accordance with the Employer's SCM Policy.

The Employer will therefore not be liable for the payment of any extra costs resulting from any claim submitted by the tenderer arising from any alleged ambiguity or uncertainty contained in the tender document.

C.2.11 Alterations to documents

Delete the first sentence and replace with the following:
Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer in writing, or necessary to correct errors made by the tenderer.

C.2.12 Alternative tender offers

C.2.12.1 *Add the following to C.2.12.1 at the end of the first sentence:*
If a tenderer wishes to submit an alternative tender offer, he shall do so as a separate offer on a separate set of tender documents. The alternative tender offer shall be submitted in a separate sealed envelope on a separate Form of Offer, both clearly marked "Alternative Tender" in order to distinguish it from the main tender offer.

While it is not necessary to duplicate all parts of the main tender offer, the alternative tender offer shall be supported by the following documents as applicable:

a) the schedule that compares the alternative(s) offered with the requirements of the issued tender documents
b) preliminary designs, calculations, drawings and all other pertinent technical information and characteristics must be submitted with the alternative tender offer, in order to enable the Employer to evaluate the efficacy of the alternatives proposed
c) revised Bills of Quantities, or parts thereof, highlighting the changes made, together with a revised Summary, the total of which has been carried to the Form of Offer
d) details of any proposed amendments to the Pricing Assumptions

An alternative of the highest ranked acceptable main tender offer that is priced higher than the main tender offer may be recommended for award, provided that the ranking of the alternative tender -offer is higher than the ranking of the next ranked acceptable main tender offer.

The Employer's costs in confirming the acceptability of the alternative offer will be, *inter alia*, considered in considering the alternative offer.

The Employer will not be bound to consider alternative tenders and shall have sole discretion in this regard.

If the alternative is accepted, the Contractor shall accept full responsibility that the alternative offer complies in all respects with the Employer's standards and requirements.

C.2.13 Submitting a tender offer

Add the following to C.2.13.1 at the end of the first sentence:

C.2.13.1 Where the tendering entity is a joint venture it is recommended that the standard CIDB Joint Venture Agreement be used.

Delete the following word from C.2.13.2 and add the following sentence after the first sentence:

C.2.13.2 Delete "either electronically (if they were issued in electronic format) or". No electronic submissions will not be accepted unless specifically requested by the Employer in writing.

Add the following to C.2.13.3:

C.2.13.3 Parts of each tender offer communicated on paper shall be submitted as an original, plus 0 (nil) copies.

Add the following after the first sentence of C.2.13.4:

C.2.13.4 The tender shall be signed by a person duly authorised to do so. Tenders submitted by joint ventures of two or more firms shall be accompanied by the document of formation of the joint venture, authenticated by a notary public or other official deputed to witness sworn statements, in which is defined precisely the conditions under which the joint venture will function, its period of duration, the persons authorised to represent and obligate it, the participation of the several firms forming the joint venture, and any other information necessary to permit a full appraisal of its functioning.

Delete the clause and replace with the following.

C.2.13.5 The tender submission details are all described on the General Tender Information page.

The Employer's address for delivery of tender offers and identification details to be shown on each tender offer package are:

Location of tender box:	Langeberg Municipal Office
Physical address:	Langeberg Municipality, Main Street 28, Ashton
Identification details:	Tender number: "43/2022"
Title of tender:	CONSTRUCTION OF ROBERSTON FIRE STATION

Sealed tenders with the name and address of the tenderer, the tender No. and title and the closing date indicated on the envelope, must be placed in the appropriate official tender box at the abovementioned address.

Add the following to C.2.13.6:

C.2.13.6 A two-envelope procedure will **not** be followed (C.3.5).

Add the following new Clauses after C.2.13.9 and before C.2.14:

C.2.13.10 By signing the offer part of C1.1 Form of Offer and Acceptance the tenderer declares that all information provided in the tender submission is true and correct.

C.2.13.11 The Employer shall not formally issue tender documents in hardcopy and shall only issue tender documents in electronic format.

a) The Employer shall not accept tenders submitted in electronic format. Only those tenders that have been completed on the issued hard copy tender document shall be considered.
b) Where Addenda have been issued which amend the Schedule of rates/Pricing milestones, then the printed Priced document shall take these into account. The pages of the issued Schedule of rates/Pricing milestones should not be removed from the tender document.
c) Any non-compliance with these provisions, including effecting any unauthorised alterations to the tender documents as contemplated in C.2.11, shall render the tender non-responsive. The Employer

reserves the right to take any action against such tenderer allowed in law including, in circumstances where the tender had already been awarded, the right to cancel the contract.

C.2.15 Closing time

Add the following to C.2.15.1 after the first sentence:

C.2.15.1 The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.

C.2.16 Tender offer validity

Add the following to C.2.16.1 after the first sentence:

C.2.16.1 The tender offer validity period is **120 days**.

C.2.16.2 Delete the clause and replace with the following:

Notwithstanding the period stated above, bids shall remain valid for acceptance for a period of twelve (12) months after the expiry of the original validity period, unless the Municipality is notified in writing of anything to the contrary by the bidder. The validity of bids may be further extended by a period of not more than six months subject to mutual agreement and administrative processes and upon approval by the Municipal Manager.

C.2.17 Clarification of tender offer after submission

Add the following to C.2.17 at the end of the third sentence:

A tender will be rejected as non-responsive if the tenderer fails to provide any clarification or supporting documents requested by the Employer within the time for submission stated in the Employer's written request for such clarification or documents.

C.2.18 Provide other material

Delete the following word in C.2.18.1:

C.2.18.1 "notarized"

Add the following to C.2.18.1 at the end of the first paragraph:

Provide, on written request by the Employer, where the transaction value (tendered amount) inclusive of VAT **exceeds R 10 million**:

a) audited annual financial statement for the past 3 years, or for the period since establishment if established during the past 3 years, if required by law to prepare annual financial statements for auditing;
b) a certificate signed by the tenderer certifying that the tenderer has no undisputed commitments for municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days;
c) particulars of any contracts awarded to the tenderer by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract;
d) a statement indicating whether any portion of the goods or services are expected to be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality or municipal entity is expected to be transferred out of the Republic.

Each party to a Consortium/Joint Venture shall submit separate certificates/statements in the above regard.

Add the following Clauses after C.2.18.2 and before Clause C.2.19:

C.2.18.3 Tenderers shall fully cooperate with the Employer's external service provider appointed to perform a due diligence review and risk assessment upon receipt of such written instruction from the Employer.

Failure to fully cooperate could result in a tender being declared as non-responsive.

C.2.18.4 Compliance with Occupational Health and Safety Act, 85 of 1993

Tenderers are to note the requirements of the Occupational Health and Safety Act, 85 of 1993 and the Construction Regulations, 2014 issued in terms of Section 43 of the Act. The Tenderer shall be deemed to have read and fully understood the requirements of the above Act and Regulations and to have allowed for all costs in compliance therewith.

In this regard the Tenderer shall submit with his tender or upon request, appended to Schedule 21: Health and Safety Plan in T2.2: Returnable Schedules, a draft Health and Safety Plan in respect of the Works in

sufficient detail to demonstrate the necessary competencies and resources to perform the construction work all in accordance with the Act, Regulations and Health and Safety Specification in Part C6 in the Scope of Work.

Such Health and Safety Plan shall cover inter-alia the following details:

(1) Management Structure, Site Supervision and Responsible Persons including a succession plan.
(2) Contractor's induction training programme for employees, sub-contractors, and visitors to the Site.
(3) Health and safety precautions and procedures to be adhered to, to ensure compliance with the Act, Regulations and Safety Specifications.
(4) Regular monitoring procedures to be performed.
(5) Regular liaison, consultation, and review meetings with all parties.
(6) Site security, welfare facilities and first aid.
(7) Site rules and fire and emergency procedures.

Tenderers are to note that the Contractor is required to ensure that all sub-contractors or others engaged in the performance of the contract also comply with the above requirements.

The Contractor shall prepare and maintain a Health and Safety File in respect of the project, which shall always be available for inspection on Site and handed over to the Employer on Final Completion of the project.

The Contractor is required to submit to the Employer the Occupational Health and Safety Agreement (included in C1.5 of the Contract Document) and a letter of good standing from the Compensation Commissioner, or a licensed compensation insurer, within 14 days after the Commencement Date of the Contract.

C.2.23 Certificates

Add the following after the first sentence:

The tenderer is required to submit the following:

C.2.23.1 Evidence of tax compliance

Tenderers shall be registered with the South African Revenue Service (SARS) and their tax affairs must be in order and they must be tax compliant subject to the requirements of clause C.2.1.4.2.h. In this regard, it is the responsibility of the Tenderer to submit evidence in the form of a valid Tax Clearance Certificate issued by SARS to the Employer at the Supplier Management Unit located within the Supplier Management / Registration Office 28 Main Street, Ashton. (Tel 023 656 8200) or included with this tender. The tenderer must also provide its Tax Compliance Status PIN number on the **Compulsory Enterprise Questionnaire**

Each party to a Consortium/Joint Venture shall submit a separate Tax Clearance Certificate.

Before making an award the Langeberg Municipality must verify the bidder's tax compliance status. Where the recommended bidder is not tax compliant, the bidder should be notified of the non-compliant status and be requested to submit to the Langeberg Municipality, within 7 working days, written proof from SARS that they have made arrangement to meet their outstanding tax obligations. The proof of tax compliance submitted by the bidder must be verified by the Langeberg Municipality via CSD or e-Filing. The Langeberg Municipality should reject a bid submitted by the bidder if such bidder fails to provide proof of tax compliance within the timeframe stated herein.

Only foreign suppliers who have answered "NO" to all the questions contained in the Questionnaire to Bidding Foreign Suppliers section on the **Details of Tenderer** pages of the tender submission, are not required to register for a tax compliance status with SARS.

C.2.23.2 Broad-Based Black Economic Empowerment Status Level Documentation

In order to qualify for preference points, it is the responsibility of the tenderer to submit documentary proof, either as certificates, sworn affidavits or any other requirement prescribed in terms of the B-BBEE Act, of its B-BBEE status level of contribution in accordance with the applicable Codes of good practise as issued by the Department of Trade and Industry, to the LANGEBERG MUNICIPALITY at the Supplier Management Unit located within the Supplier Management / Registration Office, 28 Main Street, Ashton.(Tel: 023 626 8200) or included with the tender submission.

Consortiums/Joint Ventures will qualify for preference points, provided that the **entity** submits the relevant certificate/scorecard in accordance with the applicable codes of good practise. Note that, in the case of unincorporated entities, a verified consolidated B-BBEE scorecard must be submitted in the form of a certificate with the tender.

Tenderers are further referred to the content of the **Preference Schedule** for the full terms and conditions applicable to the awarding of preference points.

The applicable code for this tender is the **Amended Codes for Measuring Broad-Based Black Economic Empowerment in the Construction Sector.**

The tenderer shall indicate in Section 25 of the **Preference Schedule** the Level of Contribution in respect of the enterprise status or structure of the tendering entity (the supplier).

Add the follow new clause after C.2.23.2

C.2.24 Proposed Deviations and Qualifications

Where the tenderer cannot tender in all respects in accordance with the provisions contained in the tender documents, all deviations therefrom shall be clearly and separately listed in the schedule titled **Proposed Deviations and Qualifications by Tenderer** in T2.2 Returnable Schedules, or in a tenderer's covering letter expressly referenced in this schedule.

The tenderer accept that the Employer will examine such deviations in terms of clause C.3.8.2 and shall not be bound to accept any such deviations or qualifications.

It must be clearly stated by the tenderer whether the sum tendered in the Tender Offer includes for all such deviations or qualifications listed or referred to in the schedule titled **Proposed Deviations and Qualifications by Tenderer** or not.

C.3 The Employer's undertakings

C.3.2 Issue Addenda

Delete the first sentence and replace with:

If necessary, issue addenda in writing that may amend or amplify the tender documents to each tenderer during the period from the date the tender documents are available until one week before the tender closing time stated in the Tender Data. The Employer reserves its rights to issue addenda less than one week before the tender closing time in exceptional circumstances.

Add the following to C.3.2 at the end of the paragraph:

Notwithstanding any requests for confirmation of receipt of` Addenda issued, the tenderer shall be deemed to have received such addenda if the employer can show proof of transmission thereof (or a notice in respect thereof) via electronic mail, facsimile, or registered post. It is therefore of great importance that the contact details provided during the compulsory clarification meeting is legible and contactable.

C3.4 Opening of tender submissions

Add the following to C.3.4.2 at the end of the paragraph:

The location for opening of the tender offers is the Tender Submission Office at the address as stated on the General Tender Information page.

C.3.8 Test for responsiveness

C.3.8.2 *Replace the final sentence of C.3.8.2 with the following:*

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

Add the following after clause C.3.8.2

C.3.8.3 The Employer reserves the right to accept a tender offer which does not, in the Employer's opinion, materially and/or substantially deviate from the terms, conditions, and specifications of the tender documents.

C.3.9 Arithmetical errors, omissions, and discrepancies

Add the following after clause C.3.9.4

C.3.9.5 In the event of tendered rates or lump sums being declared by the Employer to be unacceptable to it because they are not priced, either excessively low or high, or not in proper balance with other rates or lump sums, the Tenderer may be required to produce evidence and advance arguments in support of the tendered rates or lump sums objected to. If, after submission of such evidence and any further evidence requested, the

Employer is still not satisfied with the tendered rates or lump sums objected to, it may request the tenderer to amend these rates and lump sums along the lines indicated by it.

The Tenderer will then have the option to alter and/or amend the rates and lump sums objected to and such other related amounts as are agreed on by the Employer, but this shall be done without altering the tender offer in accordance with this clause.

Should the Tenderer fail to amend his tender in a manner acceptable to and within the time stated by the Employer, the Employer may declare the tender as non-responsive.

C.3.10 Clarification of a tender offer

Delete the clause and replace with the following:

C3.10 The Employer may, after the closing date, request additional information or clarification from any tenderer, in writing on any matter affecting the evaluation of the tender offer or that could give rise to ambiguity in a contract arising from the tender offer, which written request and related response shall not change or affect their competitive position or the substance of the tenderer's offer.

C.3.11 Evaluation of tender offers

Add the following Clauses after clause C.3.11.1 and before Clause C.3.12

C.3.11.2 Where the scoring of functionality forms part of a bid process, each member of the Bid Evaluation Committee must individually score functionality. The individual scores must then be interrogated and calibrated if required where there are significant discrepancies. The individual scores must then be added together and averaged to determine the final score.

C.3.11.3 The tender will be evaluated in terms of the requirements of the Preferential Procurement Regulations of 2017 as follows:

C.3.11.3.1 The preference point system applicable to this tender is the 80/20 preference point system.

C.3.11.3.2 Price, preference and functionality will be scored, as relevant, to two decimal places.

C.3.11.3.3 Confirm that tenderers are eligible for the preferences claimed in accordance with the provisions of the tender data and reject all claims for preferences where tenderers are not eligible for such preferences.

Points will be awarded to tenderers who are eligible for preferences in terms of the **Preference Schedule** (where preferences are granted in respect of B-BBEE contribution) which is included in T2.2 Returnable Schedules.

The terms and conditions of the **Preference Schedule** shall apply in all respects to the tender evaluation process and any subsequent contract.

In addition, the various deemed B-BBEE Status Level of Contributor in accordance with the relevant Codes can be attained and such tenderers must be awarded the appropriate number of points.

It should be noted that such Deemed B-BBEE Status Level of Contribution can be enhanced or discounted in accordance with the relevant clauses in the applicable Codes.

C.3.11.4 Risk Analysis

Notwithstanding compliance with regard to CIDB registration or any other requirements of the tender, the employer will perform a risk analysis in respect of the following:

a) reasonableness of the financial offer
b) reasonableness of unit rates and prices
c) the tenderer's ability to fulfil its obligations in terms of the tender document, that is, that the tenderer can demonstrate that he/she/it possesses the necessary professional and technical qualifications, professional and technical competence, financial resources (Bank Ratings will be requested), equipment and other physical facilities, managerial capability, reliability, capacity, experience, reputation, personnel to perform the contract, etc.; the Employer reserves the right to consider a tenderer's existing contracts with the Employer in this regard
d) any other matter relating to the submitted bid, the tendering entity, matters of compliance, verification of submitted information and documents.

The conclusions drawn from this risk analysis will be used by the Employer in determining the acceptability of the tender offer in terms of C.3.13.

C.3.13 Acceptance of tender offer

Delete first sentence of C.3.13 and replace with the following):

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

Delete C.3.13 a) and replace with the following):

a) is not under restrictions, has any principals who are under restrictions, or is not currently a supplier to whom notice has been served for abuse of the supply chain management system, preventing participation in the employer's procurement;

Add the following below C.3.13 f)

If an award cannot be made in terms of anything contained herein, the Employer reserves the right to consider the next ranked tenderer(s). The Employer does not bind himself to accept the lowest priced tender, highest evaluation points tender or any tender offer. The Employer has the right to accept any part of a tender as he may deem expedient subject to negotiation with the successful tenderer for the whole tender.

C.3.13.1 The Employer reserves the right not to make an award, or revoke an award already made, where the implementation of the contract may result in reputational risk or harm to the Langeberg Municipality as a result of (inter alia):

a) reports of poor governance and/or unethical behaviour;
b) association with known family of notorious individuals;
c) poor performance issues, known to the Langeberg Municipality;
d) negative social media reports; and
e) adverse assurance (e.g. due diligence) report outcomes.

C.3.13.2 The Employer reserves the right to nominate an alternative bidder at the time when an award is made and in the event that a contract is terminated during the execution thereof, the LANGEBERG MUNICIPALITY may consider the award of the contract, or non-award, to the alternative bidder in terms of the procedures included its SCM Policy.

C.3.13.3 The Employer shall notify the successful tenderer in writing of the decision of the Employer's Bid Adjudication Committee to award the tender to the successful tenderer. No rights shall accrue to the successful tenderer in terms of this notice.

C.3.13.4 The Employer shall, at the same time as notifying the successful tenderer of the Bid Adjudication Committee's decision to award the tender to the successful tenderer, also give written notice to the other tenderers informing them that they have been unsuccessful.

C.3.17 Provide copies of the contract

Add the following after the first sentence:

The number of paper copies of the signed contract to be provided by the Employer is one.

Add the following Clauses after C.3.18:

C.3.19 Negotiations with preferred tenderers

The Employer may negotiate the final terms of a contract with tenderers identified through a competitive tendering process as preferred tenderers provided that such negotiation:

a) does not allow any preferred tenderer a second or unfair opportunity;
b) is not to the detriment of any other tenderer; and
c) does not lead to a higher price than the tender as submitted.

If negotiations fail to result in acceptable contract terms, the Municipal Manager (or his delegated authority) may terminate the negotiations and cancel the tender or invite the next ranked tenderer for negotiations. The original preferred tenderer should be informed of the reasons for termination of the negotiations. If the decision is to invite the next highest ranked tenderer for negotiations, the failed earlier negotiations may not be reopened by the LANGEBERG MUNICIPALITY.

Minutes of any such negotiations shall be kept for record purposes.

The provisions of this clause will be equally applicable to any invitation to negotiate with any other tenderers.

In terms of the PPPFA Regulations, 2017, tenders must be cancelled in the event that negotiations fail to achieve a market related price with any of the three highest scoring tenderers.

C.3.20 Claims arising after submission of tender

No claim for any extras arising out of any doubt or obscurity as to the true intent and meaning of anything shown on the Contract Drawings or contained in the Conditions of Contract, Scope of Work and Pricing Data, will be admitted by the Employer/Employer's Agent after the submission of any tender and the Tenderer shall be deemed to have:

a) inspected the Contract Drawings and read and fully understood the Conditions of Contract.
b) read and fully understood the whole text of the Scope of Work and Pricing Data and thoroughly acquainted himself with the nature of the works proposed and generally of all matters which may influence the Contract.
c) visited the site of the proposed works, carefully examined existing conditions, the means of access to the site, the conditions under which the work is to be done and acquainted himself with any limitations or restrictions that may be imposed by the Municipal or other Authorities in regard to access and transport of materials, plant and construction equipment to and from the site and made the necessary provisions for any additional costs involved thereby.
d) requested the Employer or his duly authorised agent to make clear the actual requirements of anything shown on the Contract Drawings or anything contained in the Scope of Work and Pricing Data, the exact meaning or interpretation of which is not clearly intelligible to the Tenderer.
   Before submission of any tender, the Tenderer should check the number of pages, and if any are found to be missing or duplicated, or the figures or writing indistinct, or if the Pricing Data contain any obvious errors, the tenderer must apply to the Employer/Employer's Agent at once to have the same rectified, as no liability will be admitted by the Employer/Employer's Agent in respect of errors in any tender due to the foregoing.
e) received any Addenda to the tender documents which have been issued in accordance with the Employer's Supply Chain Management Policy.

C.3.21 General supply chain management conditions applicable to tenders

In terms of its Supply Chain Management Policy the Employer may not consider a tender unless the provider who submitted the tender:

a) has furnished the Employer with that provider's:
   - full name;
   - identification number or company or other registration number; and
   - tax reference number and VAT registration number, if any;

b) has indicated whether:
   - the provider is in the service of the state, or has been in the service of the state in the previous twelve months;
   - the provider is not a natural person, whether any of the directors, managers, principal shareholders or stakeholders is in the service of the state, or has been in the service of the state in the previous twelve months;
   - whether a spouse, child or parent of the provider or of a director, manager, shareholder or stakeholder referred to above is in the service of the state, or has been in the service of the state in the previous twelve months; or

c) irrespective of the procurement process followed, the Employer is prohibited from making an award to:
   - a person who is in the service of the state;
   - a juristic entity of which any director, manager, principal shareholder or stakeholder is in the service of the state;
   - an advisor or consultant contracted with the Employer, or
   - a person, advisor or corporate entity involved with the bid specification committee, or a director of such corporate entity.

The Contract Price shall not be subject to any contract price adjustment, the rates and prices tendered in the bills of quantities shall. In this regard, tenderers shall complete Schedule 1, Part T2.2: Returnable Schedules: Compulsory Enterprise Questionnaire. Failure to complete this Schedule may result in the tender not being considered.

C.3.22 Combating abuse of the Supply Chain Management Policy

In terms of the Municipality's Supply Chain Management Policy, the Employer may reject the tender of any tenderer if that tenderer or any of its directors has:

a) failed to pay municipal rates and taxes or municipal service charges and such rates, taxes and charges are in arrears for more than three months
b) failed, during the last five years, to perform satisfactorily on a previous contract with the Municipality or any other organ of state after written notice was given to that tenderer that performance was unsatisfactory.
c) abused the supply chain management system of the Employer or has committed any improper conduct in relation to this system.
d) been convicted of fraud or corruption during the past five years.
e) wilfully neglected, reneged on, or failed to comply with any government, municipal or other public sector contract during the past five years; or
f) been listed with the Register of Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004) or has been listed on National Treasury's database as a person or juristic entity prohibited from doing business with the public sector.

In this regard, tenderers shall complete Part T2.2: Returnable Schedules: Declaration of Tenderer's Past Supply Chain Management Practices (in terms of the Municipal Finance Management Act). Failure to complete this Schedule may result in the tender not being considered.

C.3.23 UIF payments

The Tenderer shall submit to the Employer a letter from the Industrial Council indicating his good standing with regard to UIF payments upon being requested to do so.

C.3.24 Price variations

Tender document or part thereof. Only those tenders that have been completed on the issued hard copy tender final and binding throughout the period of the contract. However, price adjustments for variations in the costs of special materials may be applicable where the Employer/Employer's Agent specifies such materials and the relevant information in the Contract Data.

Notwithstanding the above, if, as a result of any extension of time granted, the duration of the contract period exceeds one year, the contract will automatically be subject to contract price adjustment for that period by which the extended contract period exceeds such one year.

Adjustment in rates or prices shall be subject to the provisions of Part C1.2: Contract Data.

C.3.25 Requests for contract documents, or parts thereof, in electronic format

The Employer shall not formally issue tender documents in hardcopy and shall only issue tender documents in electronic format.

a) The Employer shall not accept tenders submitted in electronic format. Only those tenders that have been completed on the issued hard copy tender document shall be considered.
b) Where Addenda have been issued which amend the Schedule of rates/Pricing milestones, then the printed Priced document shall take these into account. The pages of the issued Schedule of rates/Pricing milestones should not be removed from the tender document.
c) Any non-compliance with these provisions, including effecting any unauthorised alterations to the tender documents as contemplated in C.2.11, shall render the tender non-responsive. The Employer reserves the right to take any action against such tenderer allowed in law including, in circumstances where the tender had already been awarded, the right to cancel the contract.

C.3.26 Bidders who do not submit B-BBEE Status Level Verification Certificates or are non-compliant contributors to B-BBEE do not qualify for preference points for B-BBEE but should not be disqualified from the bidding process. They will score points out 80 for price only and zero (0) points out of 20 for B-BBEE. A trust, consortium or joint venture must submit a consolidated B-BBEE Status Level Verification Certificate for every separate bid

Annex C
(normative)
Standard Conditions of Tender

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, 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. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents and advisors of the employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate.

Note:
1) A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.
2) Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.

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

C.1.2 Tender 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 readily read, copied and recorded. Communications shall be in the English language. The employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the employer's agent are stated in the tender data.

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 require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of C.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of C.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.

C.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 documents.

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

C.2 Tenderer's obligations

C.2.1 Eligibility

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

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

C.2.2 Cost of tendering

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

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

C.2.3 Check documents
Check the tender documents on receipt for completeness and notify the employer of any discrepancy or omission.

C.2.4 Confidentiality and copyright of documents
Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

C.2.5 Reference documents
Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

C.2.6 Acknowledge addenda
Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary, apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.

C.2.7 Clarification meeting
Attend, where required, a clarification meeting at which tenderers may familiarize themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the tender data.

C.2.8 Seek clarification
Request clarification of the tender documents, if necessary, by notifying the employer at least five (5) working days before the closing time stated in the tender data.

C.2.9 Insurance
Be aware that the extent of insurance to be provided by the employer (if any) might not be for the full cover required in terms of the conditions of contract identified in the contract data. The tenderer is advised to seek qualified advice regarding insurance.

C.2.10 Pricing the tender offer

C.2.10.1 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable fourteen (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 a single tendering entity or as a member in a joint venture to provide the whole of the works 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 stated in C.2.16 lapses before the employer evaluating tender, 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 twenty-eight (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 requests from the tenderer

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

C.3.1.2 Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:
a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;
b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or
c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

C.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three (3) working 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 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 item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
(ii) the summation of the prices.

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

C.3.9.4 Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows:
a) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern, and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.
b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

C.3.10 Clarification of a tender offer
Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.

C.3.11 Evaluation of tender offers
The Standard Conditions of Tender standardize the procurement processes, methods, and procedures from the time that tenders are invited to the time that a contract is awarded. They are generic in nature and are made project specific through choices that are made in developing the Tender Data associated with a specific project.

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

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

The activities associated with evaluating tender offers are as follows:

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

C.3.11.1 General

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

C.3.12 Insurance provided by the employer

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

C.3.13 Acceptance of tender offer

Accept the 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.

Annex C

Alpha-numerics associated with the Contractor Grading Designations

In terms of Government Gazette 42561, dated 5 July 2019, the tender value range as set out in Table 8 in CIDB Regulation 17 has been amended. Table G1 below reflects the amended values that come into effect on 07 October 2019

Table: Contractor grading designations and associated parameters applicable after 7 October 2019

Contractor Grading Designation	Tender Value Range designation	Maximum value of contract that a contractor is considered capable of performing (R)
1 (class of construction works)	1	500 000
2 (class of construction works)	2	1 000 000
3 (class of construction works)	3	3 000 000
4 (class of construction works)	4	6 000 000
5 (class of construction works)	5	10 000 000
6 (class of construction works)	6	20 000 000
7 (class of construction works)	7	60 000 000
8 (class of construction works)	8	200 000 000
9 (class of construction works)	9	No Limit

Table G2: Classes of construction work

Description	Designation	Definition	Work types	Examples
Civil engineering works	**CE**	Construction works that are primarily concerned with materials such as s t e e l , concrete, earth and rock and their application in the development, extension, installation, maintenance, removal, renovation, alteration, or dismantling of building and engineering infrastructure	Water, sewerage, roads, railways, harbours and transport, urban development and municipal services	Structures such as a cooling tower, bridge, culvert, dam, grand stand, road, railway, reservoir, runway, swimming pool, silo or tunnel The results of operations such as dredging, earthworks and geotechnical processes. Township services, water treatment and supply, sewerage works, sanitation, soil conservation works, irrigation works, storm-water and drainage works, coastal works, ports, harbours, airports and pipelines.
Electrical engineering works (Infrastructure)	**EP**	Construction works that are primarily concerned with development, extension, installation, removal, renovation, alteration or dismantling of engineering infrastructure: a) relating to the generation, transmission and distribution of electricity; or b) which cannot be classified as EB.	Electrical power generation, transmission, control and distribution equipment and systems.	Power generation Street and area lighting Substations and protection systems Township Reticulations Transmission Lines Supervisory control and data acquisition systems
Electrical engineering works (buildings)	**EB**	Construction works that are primarily concerned with the installation, extension, modification or repair of electrical installations in or on any premises used for the transmission of electricity from a point of control to a point of consumption, including any article forming part of such an installation	All electrical equipment forming an integral and permanent part of buildings and/or structures, including any wiring, cable jointing and laying and electrical overhead line construction	Electrical installations in buildings Electrical reticulations within a plot of land (erf) or building site Standby plant and uninterrupted power supply Verification and certification of electrical installations on premises
General building works	**GB**	Construction works that: a) Are primarily concerned with the development, extension, installation, renewal, renovation, alteration, or b) dismantling of a permanent shelter for its occupants or contents; or cannot be categorized in terms of the definitions provided for civil engineering works, electrical engineering works, mechanical engineering works, or specialist works.	Buildings and ancillary works other than those categorised as being: a) civil engineering works; b) electrical engineering works; c) mechanical engineering works; or d) specialist works.	Buildings for domestic, industrial, institutional or commercial occupancies Car ports Fences other than classified as SS Stores Walls

Description	Designation	Definition	Work types	Examples
Mechanical engineering works	**ME**	Construction works that are primarily concerned with the development, extension, installation, removal, alteration, renewal of engineering infrastructure for gas transmission a n d distribution, solid w a s t e disposal, heating, ventilation and cooling, chemical works, metallurgical works, manufacturing, food processing and, materials handling	Machine systems including those relating to the environment of building interiors. a) gas transmission and distribution systems b) pipelines c) solid waste disposal d) materials handling, lifting machinery, heating, ventilation and cooling, pumps, e) continuous process systems f) chemical works, metallurgical works, manufacturing, food processing such as that in concentrator machinery and apparatus, oil and gas wells, smelters, cyanide plants, acid plants, metallurgical machinery, equipment and apparatus, and works necessary for the beneficiation of metals, minerals, rocks, petroleum and organic substances or other chemical	Air-conditioning and mechanical ventilation Boiler installations and steam distribution Central heating Centralised hot water generation Cranes and hoists Dust and sawdust extraction Compressed air, gas and vacuum installations Conveyor and materials handling installations Continuous process systems involving chemical works, metallurgical works, oil and gas wells, acid plants, metallurgical machinery, equipment and apparatus, and works necessary for the beneficiation of metals, minerals, rocks, petroleum and organic substances and other chemical processes Kitchen equipment Laundry equipment Lift installations and escalators Refrigeration and cold rooms Waste handling systems (including compactors)
Specialist works	**SB**	A subset of construction works identified and defined by the Board that involves specialist capabilities for its execution	The extension, installation, repair, maintenance or renewal, or removal, of asphalt	
	SC		The development, extension, installation, removal, and dismantling, as relevant, associated with building excavations, shaft sinking and lateral earth support	
	SD		The development, extension, installation, repair, renewal, removal, or alteration of corrosion protection systems (cathodic, anodic and electrolytic)	
	SE		Demolition of buildings and engineering infrastructure and blasting	
	SF		The development, extension, installation, renewal, removal, renovation, alteration or dismantling of fire prevention and protection infrastructure (drencher and sprinkler systems and fire installation)	
	SG		The development, extension, installation, renewal, removal, renovation, alteration or dismantling of glazing, curtain walls and shop fronts	
	SH		The development, extension, installation, maintenance, renewal. removal, alteration or dismantling, as relevant, of landscaping, irrigation and horticultural works	
	SI		The development, extension, installation, repair, maintenance, renewal. removal, renovation, alteration or, dismantling of lifts, escalators, travellators and hoisting machinery	

	SJ		The development, installation, removal, or dismantling, as relevant, of piles and other specialized foundations for buildings and structures	
Description	**Designation**	**Definition**	**Work types**	**Examples**
	SK	A subset of construction works identified and defined by the Board that involves specialist capabilities for its execution	The installation, renewal, removal, alteration or dismantling, as relevant, road markings and signage	
	SL		The development, extension, installation, renewal. removal, renovation, alteration or dismantling of structural steelwork and scaffolding	
	SM		Timber buildings and structures	
	SN		The extension, installation, repair, maintenance, renewal, removal, renovation or alteration, as relevant, of the waterproofing of basements, roofs and walls using specialist systems.	
	SO		The development, extension, installation, renewal, removal, alteration or dismantling or demolition of water installations and soil and waste water drainage associated with buildings (wet services, plumbing)	
	SQ		The development, extension, installation, repair, removal, alteration, dismantling or demolition of precast concrete or steel fencing	

LANGEBERG MUNICIPALITY

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CONSTRUCTION OF ROBERSTON FIRE STATION

Part T2: Returnable Documents

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LANGEBERG MUNICIPALITY

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T2.1 List of Returnable Documents

The tenderer must complete the following Returnable Documents in non-erasable **black ink**:

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T2.2 Returnable Schedules

Schedule 1: Compulsory Enterprise questionnaire

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

Section 1: Name of enterprise: …

Section 2: VAT registration number, if any: …

Section 3: CIDB registration number, if any: …

Section 4a: National Treasury Central Supplier Database registration number: … … … … … … … … … … … … …

Section 4b: SARS Tax Compliance Status PIN: …

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 3 partners

Section 6: Particulars of companies and close corporations

Company registration number**… …**

Close corporation number**… …**

Tax reference number**… …**

Section 7: MBD4 – Attached to this document

Section 8: MBD6 – Attached to this document

Section 9: MBD8 – Attached to this document

Section 10: MBD9 – Attached to this document

Section 11: Foreign Bidding Suppliers	
Is tenderer the accredited representative in South Africa for the Goods / Services / Works offered?	☐Yes ☐No If yes, enclose proof

Is tenderer a foreign based supplier for the Goods / Services / Works offered?	☐Yes ☐No If yes, answer the Questionnaire to Bidding Foreign Suppliers (below)
Questionnaire to Bidding Foreign Suppliers	
a) Is the tenderer a resident of the Republic of South Africa or an entity registered in South Africa?	☐Yes ☐No
b) Is the tenderer a resident of the Republic of South Africa or an entity registered in South Africa?	☐Yes ☐No
c) Does the tenderer have a permanent establishment in the Republic of South Africa?	☐Yes ☐No
d) Does the tenderer have any source of income in the Republic of South Africa?	☐Yes ☐No
e) Is the tenderer liable in the Republic of South Africa for any form of taxation?	☐Yes ☐No

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

i) authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my / our tax matters are in order;

ii) confirms that the neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004 or Database of Restricted Suppliers;

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

v) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

LANGEBERG MUNICIPALITY

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CONSTRUCTION OF ROBERSTON FIRE STATION

Schedule 2: Clarification meeting attendance certificate

Refer to tender conditions C.2.7 in section T1.2 Tender data

This is to certify that I/we, (the representative(s)) .....

representing (the tenderer) .....

of address .....

.....

.....

.....

Telephone and cellphone number .....

fax number .....

on (date) .....

attended the clarification meeting, have examined the Site of the Works and its surroundings for which I/we am/are submitting this Tender and have, so far as is practicable, familiarized myself/ourselves with all the information, risks, contingencies and other circumstances which may influence of affect my/our Tender.

Attendance of the above person(s) at the Clarification Meeting is confirmed by:

EMPLOYER'S AGENT / REPRESENTATIVE: . (Name) ……

SIGNED BY EMPLOYER'S AGENT / REPRESENTATIVE: ……

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

LANGEBERG MUNICIPALITY

TENDER NO. "43/2022"

CONSTRUCTION OF ROBERSTON FIRE STATION

Schedule 3: Certificate of Independent Tender determination (MBD9)

I, the undersigned, in submitting this tender for TENDER NO. "43/2022"**: CONSTRUCTION OF ROBERSTON FIRE STATION**

in response to the invitation for the tender made by the Langeberg Municipality, do hereby make the following statements that I certify to be true and complete in every respect:

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

1. I have read, and I understand the contents of this Certificate;
2. I understand that this tender will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the tenderer to sign this Certificate, and to submit this tender on behalf of the tenderer;
4. Each person whose signature appears on this tender has been authorized by the tenderer to determine the terms of, and to sign, the tender, on behalf of the tenderer;
5. For the purposes of this Certificate and this tender, I understand that the word "competitor" shall include any individual or organization, other than the tenderer, whether affiliated with the tenderer or not, who:
   (a) has been requested to submit a tender in response to this invitation to tender;
   (b) could potentially submit a tender in response to this invitation to tender, based on their qualifications, abilities, or experience; and
   (c) provides the same goods and services as the tenderer and/or is in the same line of business as the tenderer;
6. The tenderer has arrived at this tender independently from, and without consultation, communication, agreement, or arrangement with any competitor. However, communication between partners in a joint venture or consortium[1] will not be construed as collusive tendering;
7. In particular (without limiting the generality of paragraph 6 above) there has been no consultation, communication, agreement, or arrangement with any competitor regarding:
   (a) prices;
   (b) geographical area where product or service will be rendered (market allocation);
   (c) methods, factors, or formulas used to calculate prices;
   (d) the intention or decision to submit or not to submit a tender;
   (e) the submission of a tender which does not meet the specifications and conditions of the tender; or
   (f) tendering with the intention not to win the tender;
8. In addition, there have been no consultations, communications, agreements, or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this invitation to tender relates;
9. The terms of this tender have not been, and will not be, disclosed by the tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender opening or of the awarding of the contract;
10. I am aware that , in addition and without prejudice to any other remedy provided to combat any restrictive practices related to tenders and contracts, tenders 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.

[1]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.

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 4: Certificate of Authority (for Companies/Joint Ventures/etc.)

Assurance shall be given at the time of submission of the tender that the tender has been signed by someone properly authorised thereto by resolution of the Directors, Members or Partners. Tenderers shall submit with their tenders the following information:

Single Company, Close Corporation or Partnership

Signatories for companies shall confirm their authority by attaching to this form a copy of the relevant resolution of the board of directors, duly signed and dated.

By resolution of the board of directors taken on (*Date*) .....
Mr/Ms (*Print Name*) .....
has been duly authorized to sign all documents in connection with this tender / contract on behalf of .....
(*Print Company Name*).....
.....
Signed on behalf of Company .....
In his/her capacity as.....
Date.....

Joint Ventures

We, the undersigned, are submitting this tender offer in joint venture and hereby authorize;
Mr/Ms ..... , authorised signatory
of the company, close corporation, or partnership.....
acting in the capacity of lead partner, to sign all documents in connection with the tender offer and any contract resulting from it on our behalf.

Date.....

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
Lead partner		Signature, Name &Designation
		Signature, Name &Designation
		Signature, Name &Designation

Note: A copy of the Joint Venture Agreement, showing clearly the **percentage contribution of each partner** to the joint venture, shall be appended to this schedule. Lead partner need to be clearly stated.

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 5: Declaration of Tenderer's past Supply Chain Management practices (MBD8)

Where the entity tendering is a joint venture, each party to the joint venture must sign a declaration in terms of the Municipal Finance Management Act, 56 of 2003, and attach it to this schedule.

1 The tender offer of any tenderer may be rejected if that tenderer or any of its directors/members have:

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

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

Item	Question	Yes	No
2.1	Is the Tenderer or any of its directors listed on the National Treasury's Database of Restricted Suppliers as a company or person prohibited from doing business with the public sector? (Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the *audi alteram partem* rule was applied). **The Database of Restricted Suppliers now resides on the National Treasury's website www.treasury.gov.za and can be accessed by clicking on its link at the bottom of the home page.**	Yes ☐	No ☐
2.1.1	If so, furnish particulars:		
2.2	Is the Tenderer or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act, 12 of 2004? **The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.**	Yes ☐	No ☐
2.2.1	If so, furnish particulars:		
2.3	Was the Tenderer or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐
2.3.1	If so, furnish particulars:		
2.4	Does the Tenderer or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	Yes ☐	No ☐
2.4.1	If so, furnish particulars:		

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

I, _____, the undersigned,
(full name in block letters)

certify that the information furnished on this declaration form is true and correct, and accept that, in addition to cancellation of a contract, action may be taken against me should this declaration prove to be false.

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 6: Declaration of interest – State Employees (MBD 4 amended)

- No bid will be accepted from:
  - 1.1 persons in the service of the state[1], or
  - 1.2 if the person is not a natural person, of which any director, manager or principal shareholder[2] or stakeholder is in the service of the state, or
  - 1.3 from persons, or entities of which any director, manager or principal shareholder or stakeholder, has been in the service of the Langeberg Municipality during the twelve (12) months after the Langeberg Municipality employee has left the employ of the Langeberg Municipality, or
  - 1.4 from an entity who has employed a former Langeberg Municipality employee who was at a level of T14 of higher at the time of leaving the LANGEBERG Municipality's employ and involved in any of the Langeberg Municipality's bid committees for the bid submitted, if:
    - 1.4.1 the Langeberg Municipality employee left the Langeberg Municipality's employment voluntarily, during a period of twelve (12) months after the Langeberg Municipality employee has left the employ of the Langeberg Municipality;
    - 1.4.2 the Langeberg Municipality employee left the Langeberg Municipality's employment whilst facing disciplinary action by the Langeberg Municipality, during a period of twenty-four (24) months after the Langeberg Municipality employee has left the employ of the Langeberg Municipality, or any other period prescribed by applicable legislative provisions, after having left the Langeberg Municipality's employ.

- Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the tenderer or their authorised representative declare their position in relation to the evaluating/adjudicating authority.

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

3.1 Full Name of tenderer or his or her representative:……

3.2 Identity Number:……..

3.3 Position occupied in the Company (director, trustee, shareholder[2]):……

3.4 Company or Close Corporation Registration Number:……..……..…..

3.5 Tax Reference Number:……

3.6 VAT Registration Number:……

3.7 The names of all directors / trustees / shareholders members, their individual identity numbers and state employee numbers must be indicated in paragraph 4 below.

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

3.8.1 If yes, furnish particulars:

……
…
……
…
……
…

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

3.9.1 If yes, furnish particulars:

……
…
……
…
……
…

3.10 Do you have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

3.10.1 If yes, furnish particulars:

……
…
……
…
……
…
……
…

3.11 Are you, aware of any relationship (family, friend, other) between any other supplier and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

3.11.1 If yes, furnish particulars

……
…
……
…
……
…
……
…

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

3.12.1 If yes, furnish particulars:

……
…
……
…
……
…
……
…

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

3.13.1 If yes, furnish particulars:

……
…
……
…
……
…
……
…

13.4 Do you or any of the directors, trustees, managers, principle shareholders, or stakeholders of this company have any interest in any other related companies or business whether or not they are bidding for this contract? **YES / NO**

3.14.1 If yes, furnish particulars:

……
…
……
…
……
…
……
…

3.15 Have you, or any of the directors, trustees, managers, principle shareholders, or stakeholders of this company been in the service of the LANGEBERG Municipality in the past twelve months? **YES / NO**

3.15.1 If yes, furnish particulars:

……
…
……
…
……
…
……
…

3.16 Do you have any employee/s who was/were in the service of the LANGEBERG Municipality at a level of T14 or higher at the time they left the employ of the LANGEBERG Municipality, and who was involved in any of the LANGEBERG Municipality's bid committees for this bid? **YES / NO**

3.16.1 If yes, furnish particulars:

……
…
……
…
……
…

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

Full Name	Identity Number	State Employee Number

If the above table does not sufficient to provide the details of all directors / trustees / shareholders, please append full details to the tender submission.

The tenderer hereby certifies that the information set out in this schedule and/or attached thereto is true and correct, and acknowledges that failure to complete this schedule properly and truthfully may result in the tender being disqualified, and/or (in the event that the tenderer is successful) the cancellation of the contract, restriction of the tenderer or the exercise by the employer of any other remedies available to it

[1] MSCM Regulations: "in the service of the state" means to be –

(a) a member of –

(i) any municipal council;

(ii) any provincial legislature; or

(iii) the national Assembly or the national Council of provinces;

(b) a member of the board of directors of any municipal entity;

(c) an official of any municipality or municipal entity;

(d) an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);

(e) an executive member of the accounting authority of any national or provincial public entity; or

(f) an employee of Parliament or a provincial legislature.

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

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

LANGEBERG MUNICIPALITY

TENDER NO. "43/2022"

CONSTRUCTION OF ROBERSTON FIRE STATION

Schedule 7: Authorisation for the deduction of outstanding amounts owed to the Langeberg Municipality

To: **THE MUNICIPAL MANAGER, LANGEBERG MUNICIPALITY**

From: _____
(Name of tenderer)

The tenderer:

a) hereby acknowledges that according to SCM Regulation 38(1)(d)(i) the Municipal Manager may reject the tender of the tenderer if any municipal rates and taxes or municipal service charges owed by the tenderer (or any of its directors/members/partners) to the LANGEBERG MUNICIPALITY, or to any other municipality or municipal entity, are in arrears for more than 3 (three) months; and
b) therefore hereby agrees and authorises the LANGEBERG MUNICIPALITY to deduct the full amount outstanding by the Tenderer or any of its directors/members/partners from any payment due to the tenderer; and
c) confirms the information as set out in the tables below for the purpose of giving effect to b) above;
d) The tenderer hereby certifies that the information set out in this schedule and/or attached hereto is true and correct, and acknowledges that failure to properly and truthfully complete this schedule may result in steps being taken against the tenderer, the tender being disqualified, and/or (in the event that the tenderer is successful) the cancellation of the contract and/or steps in terms of abuse of the Supply Chain Management Policy.

Physical **Business** address of the Tenderer	Municipal Account number(s)

If there is not enough space for all the names, please attach the additional details to the Tender Document

Name of Director / Member / Partner	Identity Number	Physical **residential** address of Director / Member / Partner	Municipal Account number(s)

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 8: Declaration in respect of compliance with labour legislation

Tenderers must be registered with the relevant Bargaining Council as contained in the tender conditions and must append to this schedule a certificate of compliance / letter of good standing in terms of the relevant Government Gazette that indicates compliance / validity at the time of tender award.

Each party to a Consortium/Joint Venture shall append separate certificates in the above regard.

Declaration in respect of labour legislation

It is the intention that this contract should make the maximum use of local labour. To this end, the contractor shall limit the utilization on the contract of non-local employees to that of key personnel only and to endeavor to employ and train local labour to the extent necessary for the execution and completion of this contract.

All local labour is to be sourced from Ward 1 (Robertson) and Ward 2 (Nkqubela)

The contractor will furnish the Employer's agent on a monthly basis the following information:

1. Full names and contact telephone numbers of all employees on site.
2. Copy of proof of residency of all employees
3. Certified copy of Identification document of employees
4. Copy of employment agreement
5. Complete progress report with works designations

The above-mentioned reporting by the main contractor is to include all sub-contractor staff. The contractor is to allow for monthly submission of proof of employment of local skilled and unskilled labour and the use of local enterprises as specified in above to the employer's agent.

The employer/employer's agent shall be empowered to inspect the books and records of the contractor from time to time to ensure that the requirements are met. Should it become apparent that these conditions are not being complied with; the employer/employer's agent shall close down the works until the requirements are met. Any work stoppages so occasioned will be for the contractor's account. Any difficulty experienced by the contractor in the procurement of the required percentages of local labour and enterprises shall be referred to the employer's agent immediately

Community Liaison officer

It is a requirement of this Contract that a Community Liaison Officer (CLO) shall be appointed by the Contractor. The primary functions of the CLO shall be to assist the Contractor with the selection and recruitment of targeted labour, to represent the local community in matters concerning the use of targeted labour (and/or enterprises) on the works, and to assist with and facilitate communication between the Contractor, the Employer's Agent and the local communities.

The identification of suitable candidates (maximum 5; minimum 3) for the CLO position shall be resolved by the relevant Ward Councillor/s. Should suitable candidates not be identified within two weeks of the date of request, the Contractor shall be allowed to seek candidates from the relevant Sub-Council Job-Seekers Database. The final selection and appointment of the CLO in terms of the contract shall be the responsibility of the Contractor.

The period of appointment of the CLO shall be as stated in the Contract for Temporary Employment as a Community Liaison Officer. The date of commencement of temporary employment of the CLO shall be as agreed with the Employer.
It is required, therefore, that the Contractor enter into a contract of temporary employment with the selected CLO, the contracting parties being the Contractor and the CLO. This Form of Contract sets out, inter alia, the agreement between the parties, the duties and conditions of employment of the CLO (including the rate of remuneration to be paid). As said contract will be between the Contractor and the CLO, all costs involved shall be borne by the Contractor and the tender shall be deemed to include for this.

The tenderer, by signing this schedule, declares that it will comply with all labour legislation, as may be applicable.

The tenderer hereby also declares that 100% of their local unskilled labour will be from the local communities.

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 9: Declaration in respect of targeted enterprise participation

Minimum targeted enterprises contract participation goal

It is a requirement of this contract that enterprises located within the target area, as defined, be engaged by the Contractor for the provision of supplies, services or works necessary for the performance of this contract.

To this end, a minimum targeted enterprises contract participation goal is specified below, which shall be achieved by the Contractor in the performance of the contract, failing which, penalties as described will be applied.

The specified minimum targeted enterprises contract participation goal (CPG_E) is **30%**

The Contractor shall engage targeted enterprises directly or indirectly in the performance of the contract to the extent that the total monetary value of such engagements (exclusive of VAT), expressed as a percentage of the value of the contract, is sufficient to achieve the specified minimum CPG_E.

Definitions

For the purposes of the requirements in respect of the participation of targeted enterprises, the following definitions shall apply:

"Target area" means the geographical area indicated in schedule 8.

"Targeted enterprises contract participation goal (CPG_E)" means the value of supplies, services or works (exclusive of VAT), for which the Contractor contracts targeted enterprises, either directly or indirectly, in the performance of the contract, expressed as a percentage of the value of the contract.

"Targeted enterprises" means any sole trader, partnership or legal entity that acts as a supplier, manufacturer, service provider or sub-contractor, and which has its base of operations in the target area.

"Value of the contract" means the contract sum (accepted contract amount) less provisional sums, contingencies and VAT.

Achieving the contract participation goal

The contractor may achieve the specified minimum CPG_E as follows:

a) by engaging one or more targeted enterprises to perform commercially useful functions in the performance of the contract;

b) by engaging non-targeted enterprises, who in turn engage one or more targeted enterprises to perform commercially useful functions in the performance of the contract;

c) by a combination of the above.

The Contractor shall, within 5 working days of being requested by the Employer's Agent to do so, submit details of his/her plan to achieve the minimum CPG_E.

Contract participation goal credits

Credits towards achieving the minimum CPG_E shall be granted by converting the total monetary value (exclusive of VAT) of the agreements between the Contractor, or Contractor's sub-contractors, and targeted enterprises, to a percentage of the value of the contract.

No credits shall be accorded should the Contractor (or sub-contractors):

a) make direct payment to third parties in connection with the contract on behalf of targeted enterprises, when such payment is recovered by making deductions from payments due to the targeted enterprise;

b) fail to enter into written contractual agreements with the relevant targeted enterprises.

Credits claimed towards the contract participation goal shall be denied where such written contractual agreements contain any of the following:

i) conditions which are more onerous than those that exist in the prime contract (this contract);

ii) payment procedures based on a pay when paid system;

iii) authoritarian rights given to the employing contractor, with no recourse to independent adjudication in the event of a dispute arising.

No credits may be claimed in respect of targeted enterprises that that do not adhere to statutory labour practices.

No credits shall be accorded in respect of targeted enterprises engaged on work in respect of provisional sums or prime cost items.

In the event that a targeted enterprise sub-contracts to another targeted enterprise, only the value of the higher level sub-contract shall be granted as credit towards achieving the specified minimum CPG_E.

In addition to the form required for contract administration (the Targeted Enterprises Contract Participation Expenditure Report), the Contractor shall furnish the Employer's Agent, upon written request, with documentary evidence that the targeted enterprises have their base of operations in the target area, copies of the contractual agreements with the various targeted enterprises, as well as documentary proof of payments made to the various targeted enterprises.

Penalties

The financial penalty to be applied for failing to meet the specified minimum targeted enterprises contract participation goal in the performance of the contract (unless proven to be beyond the control of the Contractor), is as follows:

$$\text{Penalty} = (CPG_E{}^S - CPG_E{}^A) \times P^*$$

Where $CPG_E{}^S$ = the specified minimum targeted enterprises contract participation goal (expressed as a percentage).

$CPG_E{}^A$ = the targeted enterprises contract participation goal achieved (expressed as a percentage).

P^* = the value of the contract.

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 10:Declaration in respect of local content

REFER TO ANNEX B OF SATS 1286:2011

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

IN RESPECT OF BID NO. .....

ISSUED BY: (Procurement Authority / Name of Institution):

.....

NB

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

2 Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on http://www.thedtic.gov.za/wp-content/uploads/IP-guideline.pdf . Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

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

(a) The facts contained herein are within my own personal knowledge.

(b) I have satisfied myself that:

(i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and

(c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 15.2.2 above and the information contained in Declaration D and E which has been consolidated in Declaration C:

Bid price, excluding VAT	R
Imported content , as calculated in terms of SATS 1286:2011	R
Stipulated minimum threshold for local content (paragraph 3 above)	
Local content %, as calculated in terms of SATS 1286:2011	

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above.

The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E.

Industry/sector/subsector	**Minimum Threshold for Local Content %**	**% of local content (3-5 years) : Practice**
Electrical and telecom cables	**90%**	
Valves products and actuators	**70%**	

Plastic Pipes & Fittings	**100%**	
Steel Products and Components for Construction	**100%**	
Cement: CEM I	**100%**	
Cement: CEM II	**100%**	
Wood: Office furniture	**100%**	

(d) I accept that the Procurement Authority / Institution has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011.

(e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Institution imposing any or all of the remedies as provided for in Regulation 14 of the Preferential Procurement Regulations, 2017 promulgated under the Preferential Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

SIGNATURE: _____ **DATE:** _____

WITNESS No. 1 _____ **DATE:** _____

WITNESS No. 2 _____ **DATE:** _____

Annex C (To be filled in by Tenderer)

Local Content - Summary Schedule

Note: VAT to be excluded from all calculations

		Calculation of local content						Tender summary			
Tender item no's	List of items	Tender price per UoM (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Antici-pated Annual Tender Qty (m)	Total tender value	Total exempted imported content	Total Imported content
(C8)	*(C9)*	*(C10)*	*(C11)*	*(C12)*	*(C13)*	*(C14)*	*(C15)*	*(C16)*	*(C17)*	*(C18)*	*(C19)*
	Electrical and telecom cables										

		Calculation of local content						Tender summary			
Tender item no's	List of items	Tender price per UoM (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Antici-pated Annual Tender Qty (m)	Total tender value	Total exempted imported content	Total Imported content
(C8)	*(C9)*	*(C10)*	*(C11)*	*(C12)*	*(C13)*	*(C14)*	*(C15)*	*(C16)*	*(C17)*	*(C18)*	*(C19)*
	Valves products and actuators										

		Calculation of local content						Tender summary			
Tender item no's	**List of items**	**Tender price per UoM (excl VAT)**	**Exempted imported value**	**Tender value net of exempted imported content**	**Imported value**	**Local value**	**Local content % (per item)**	**Antici-pated Annual Tender Qty (m)**	**Total tender value**	**Total exempted imported content**	**Total Imported content**
(C8)	*(C9)*	*(C10)*	*(C11)*	*(C12)*	*(C13)*	*(C14)*	*(C15)*	*(C16)*	*(C17)*	*(C18)*	*(C19)*
	Plastic Pipes & Fittings										

		Calculation of local content						Tender summary			
Tender item no's	**List of items**	**Tender price per UoM (excl VAT)**	**Exempted imported value**	**Tender value net of exempted imported content**	**Imported value**	**Local value**	**Local content % (per item)**	**Antici-pated Annual Tender Qty (m)**	**Total tender value**	**Total exempted imported content**	**Total Imported content**
(C8)	*(C9)*	*(C10)*	*(C11)*	*(C12)*	*(C13)*	*(C14)*	*(C15)*	*(C16)*	*(C17)*	*(C18)*	*(C19)*
	Steel Products and Components for Construction										

		Calculation of local content						Tender summary			
Tender item no's	**List of items**	**Tender price per UoM (excl VAT)**	**Exempted imported value**	**Tender value net of exempted imported content**	**Imported value**	**Local value**	**Local content % (per item)**	**Antici-pated Annual Tender Qty (m)**	**Total tender value**	**Total exempted imported content**	**Total Imported content**
(C8)	*(C9)*	*(C10)*	*(C11)*	*(C12)*	*(C13)*	*(C14)*	*(C15)*	*(C16)*	*(C17)*	*(C18)*	*(C19)*
	Cement: CEM I										

		Calculation of local content						Tender summary			
Tender item no's	**List of items**	**Tender price per UoM (excl VAT)**	**Exempted imported value**	**Tender value net of exempted imported content**	**Imported value**	**Local value**	**Local content % (per item)**	**Antici-pated Annual Tender Qty (m)**	**Total tender value**	**Total exempted imported content**	**Total Imported content**
(C8)	*(C9)*	*(C10)*	*(C11)*	*(C12)*	*(C13)*	*(C14)*	*(C15)*	*(C16)*	*(C17)*	*(C18)*	*(C19)*
	Cement: CEM II										

		Calculation of local content						Tender summary			
Tender item no's	**List of items**	**Tender price per UoM (excl VAT)**	**Exempted imported value**	**Tender value net of exempted imported content**	**Imported value**	**Local value**	**Local content % (per item)**	**Antici-pated Annual Tender Qty (m)**	**Total tender value**	**Total exempted imported content**	**Total Imported content**
(C8)	*(C9)*	*(C10)*	*(C11)*	*(C12)*	*(C13)*	*(C14)*	*(C15)*	*(C16)*	*(C17)*	*(C18)*	*(C19)*
	Wood: Office furniture										
							(C20) Total tender value		***R***		
								(C21) Total Exempt imported content		***R***	
								(C22) Total Tender value net of exempt imported content		***R***	
									(C23) Total Imported content		
									(C24) Total local content		
									(C25) Average local content % of tender		

Schedule 11: Declaration for procurement above R10 million (MBD5)

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

1. Are you by law required to prepare annual financial statements for auditing?***YES / NO**

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

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

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

    2.2 If yes, provide particulars.
    ……
    …
    ……
    …

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

    3.1 If yes, furnish particulars
    ……
    …
    ……
    …

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

    4.1 If yes, furnish particulars
    ……
    …
    ……
    …

** Delete if not applicable*

CERTIFICATION:
I, THE UNDERSIGNED (NAME)……
CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT. I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 12: Confirmation of Central Supplier Database (CSD) registration

CENTRAL SUPPLIER DATABASE REGISTRATION		
COMPANY NAME	**REGISTERED YES/NO**	**REGISTRATION NUMBER IF APPLICABLE**

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 13: Tax Pin

SARS Tax Compliance Status PIN	
COMPANY NAME	**SARS Tax Compliance Status PIN**

Bidders are required to submit their unique personal identification number (pin) issued by SARS to enable the organ of state to view the taxpayers' profile and tax status.

Application for the tax compliance status (TCS) certificate or pin may also be made via e-filing. In order to use this provision, taxpayers will need to register with SARS as e-filers through the website www.sars.gov.za.

Bidders may also submit a printed TCS certificate together with the bid (valid and original). In Bids where Consortia/Joint Venture/Sub-contractors are involved each party must submit a separate and Original Valid Tax Clearance Certificate.

Failure to submit proof of good standing with SARS (Tax Clearance Certificate) will result in the invalidation of the tender/bid. **Certified copies of the Tax clearance Certificate will not be acceptable.**

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 14: Confirmation of Contractor Enterprise Registration

CIDB REGISTRATION

We hereby confirm our registration on Construction Industry Development Board (CIDB) Contractor Database:

COMPANY NAME	CIDB CONTRACTOR GRADING DESIGNATION	CRS REGISTRATION NUMBER AS APPLICABLE

I/We attach a printed copy of the Active Contractor's Listing off the CIDB website www.cidb.org.za as documentary proof of the Contractor's Registration issued by the Construction Industry Development Board (CIDB) to this schedule.

Where a tenderer satisfies CIDB Contractor grading designation requirements through joint venture formation, such tenderers must submit the Certificates of Contractor Registration in respect of each partner.

Failure to affix such documentation as proof of Contractor Enterprise registration as prescribed to this Schedule shall result in this tender not being further considered for the award of the Contract.

Number of sheets appended by the tenderer to this Schedule ..... (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 15: Tenderer's banking details

Notes to tenderer:

1. **The tenderer shall attach to this form a letter from the bank at which he declares he conducts his account. The contents of the bank's letter must state the credit rating that it, in addition to the information required below, accords to the tenderer for the business envisaged by this tender. The Employer will also do an independent Bank Rating investigation via the Employer's Agent's independent source.**
2. **The tenderer's banking details as they appear below shall be completed.**
3. **If the tenderer is a joint venture enterprise, details of all the members of the joint venture shall be similarly provided and attached to this form. The nominated bank account that will be used for this project need to be completed below. Only one bank account may be used, shown below.**

The method used to obtain a bank rating is an online service provided by ABSA bank. If the tendered contract period is three months or more, an average 3-month cash flow for each tender submitted will be calculated and used as input into the online service. This process ensure that an equivalent method is used when determining the bank ratings of each tenderer. The Employer will obtain codes from the relevant independent financial institutions. The evaluation of your offer will be based on the Bank Rating received from our own independent investigation and not the Bank Rating attached by the tenderer himself. This is to ensure a fair and equal evaluation of bids.

Bidders must provide their banking details below.

The tenderer shall provide the following:

Name of Account Holder: .....

Account Number: .....

Bank name: .....

Branch Number: .....

Bank and branch contact details .....

.....

.....

Number of sheets appended by the tenderer to this Schedule ..... (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 16: Schedule of work experience of Tenderer

The tenderer shall insert in the spaces provided below a list of completed contracts and those currently being undertaken with a scope of similar nature. This information is deemed to be material to the award of the Contract.

Projects of a similar scope and nature is regarded as: The Construction of Building Structures, Civil Engineering services, and Earthworks.

Please note that no tenderer will be contacted to clarify any experience or construction equipment, or plant submitted with this bid. If insufficient information is shown, the tenderer will not be contacted for clarification.

The information provided in this schedule will be utilized to calculate the pre-qualification functionality scores. Tenderers must have successfully completed (please note that current incomplete projects will not be included in the evaluation) at least 5 projects of a similar scope and nature in the last 10 years to score full marks on this criterion.

A detailed list of successfully completed projects **(by the main tenderer as well as the sub-contractors tendered for mechanical and electrical works)** must be completed below (or attached to this schedule).

COMPLETED SIMILAR CONTRACTS				
EMPLOYER (NAME, TEL No AND FAX No)	CONSULTING AGENT (NAME, TEL No AND FAX No)	NATURE OF WORK	VALUE OF WORK R(m)	DATE COMPLETED

CURRENT SIMILAR PROJECTS				
EMPLOYER (NAME, TEL No AND FAX No)	CONSULTING AGENT (NAME, TEL No AND FAX No)	NATURE OF WORK	VALUE OF WORK R(m)	DATE COMPLETED

Number of sheets appended by the tenderer to this Schedule ..... (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 17: Details of qualifications and experience of staff

Tenderers shall set out in the Schedule hereunder details of the Construction Manager and General Foreman's experience in work of a similar nature to that for which their Tender is submitted. Detailed, project specific CV's to be included in this Schedule. Failure to do so during tender phase will lead to disqualification of tenderer.

Construction managers must have successfully **completed** (please note that current projects will not be included in the evaluation) at least 5 projects of a similar scope and nature in the last Building Structures, Civil Engineering services, and Earthworks. Please note that no tenderer will be contacted to clarify any experience or construction equipment, or plant submitted with this bid. If insufficient information is shown, the tenderer will **not** be contacted for clarification.

CONSTRUCTION MANAGER/SITE AGENT	**NAME**:			
CLIENT/CLIENT AGENT'S NAME AND CONTACT DETAILS	**NATURE OF WORK**	**POSITION HELD**	**VALUE OF WORK**	**YEAR COMPLETED**

GENERAL FOREMAN/CONSTRUCTION SUPERVISOR	NAME: ……			
CLIENT/CLIENT AGENT'S NAME AND CONTACT DETAILS	NATURE OF WORK	POSITION HELD	VALUE OF WORK	YEAR COMPLETED

Number of sheets appended by the tenderer to this Schedule ..... (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 18: Schedule of construction equipment

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

CONSTRUCTION EQUIPMENT IMMEDIATELY AVAILABLE

DESCRIPTION, SIZE, CAPACITY	NUMBER

CONSTRUCTION EQUIPMENT ON ORDER

(State details of arrangements made, with delivery dates)

DESCRIPTION, SIZE, CAPACITY	NUMBER

CONSTRUCTION EQUIPMENT THAT WILL BE ACQUIRED OR HIRED

(State details of delivery arrangements)

DESCRIPTION, SIZE, CAPACITY	NUMBER

Number of sheets appended by the tenderer to this Schedule ..... (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 19: Preliminary programme (for information purposes only)

The tenderer shall attach a preliminary program to this schedule. The program must include all the items that make up the planned scope of works.

This program shall be in the form of a bar chart (Gantt chart) or similar acceptable time/activity form reflecting the proposed sequence and tempo of the various activities and the quantities that will be carried out every week under each of the elements, comprising the work for this contract. The programme shall also indicate the point where the tenderer intends to commence work operations and the direction in which the work will proceed. The working hours shall be indicated.

The tenderer shall also consider the additional requirements stated in the Project Specifications when drawing up the programs.

Details of the preliminary programs shall be appended to this Schedule.

Number of sheets appended by the tenderer to this Schedule ..... (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 20: Proposed work plan

The tenderer shall append their proposed work plan to this Schedule.

It should be noted that while a programme may form part of the required work plan, more than a programme is expected in response to this requirement. The work plan must indicate the approach and methodology that the tenderer intends following to reach the required outcomes. The work plan must show that the tenderer has appreciated the Scope of Work and has good insight as to what actions or activities are required to comply with the Employer's objectives.

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 21: Schedule of estimated monthly expenditure

The tenderer shall state his estimated expenditure indicating the value of work done and materials not yet built into the Permanent Works for each month of the Contract period which he estimates will arise based on his preliminary programme and pricing data, as set out in the table below. The total of the monthly amounts shall be equal to the tender sum.

MONTH	VALUE
1.	R
2.	R
3.	R
4.	R
5.	R
6.	R
7.	R
8.	R
SUBTOTAL	R
CONTINGENCIES (10%)	R
SUBTOTAL	R
VAT (15%)	R
TOTAL	R (INCLUDING VAT @ 15%)

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 22: Schedule of sub-contractors

We notify you that it is our intention to employ the following sub-contractors for work (excluding work covered by provisional sums and contingencies) in this contract.

Acceptance of this tender shall not be construed as approval of all or any of the listed sub-contractors. Should any of the sub-contractors not be approved subsequent to acceptance of the tender, this shall in no way invalidate the contract, and the tendered unit rates for the various items making up the work activities shall remain final and binding.

Local Sub-Contractors must be utilized.

SUB-CONTRACTORS		
Sub-contractor's name	Work activities to be undertaken by the Sub-contractor	Estimated value of work (Rand)

Number of sheets appended by the tenderer to this Schedule ..... (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 23: Health and Safety plan

Tenderers are referred to the requirements of Clause C.2.18.4 in Part T1.2 Tender Data and shall append the required draft Health and Safety Plan to this Schedule.

Number of sheets appended by the tenderer to this Schedule ..... (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 24: Proposed deviations and qualifications by tenderer

The Tenderer should record any **proposed** deviations or qualifications he may wish to make to the tender documents in this Returnable Schedule. Alternatively, a tenderer may state such proposed deviations and qualifications in a covering letter attached to his tender and reference such letter in this schedule. Any proposed deviations or qualifications contained in a covering letter which is not referenced in this schedule will not be considered.

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

If no deviations or qualifications are proposed, the schedule hereunder is to be marked NIL and signed by the Tenderer.

PAGE	CLAUSE OR ITEM	PROPOSED DEVIATION OR QUALIFICATION

Number of sheets appended by the tenderer to this Schedule ..... (If nil, enter NIL).

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Schedule 25: Preference Schedule: Measuring B-BBEE in the construction sector (2017)

Preference schedule to be used in terms of the amended codes for measuring Broad-Based Black Economic Empowerment in the construction sector (2017)

1 Definitions

The following definitions shall apply to this schedule:

All applicable taxes: Includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.

Applicable Code: Shall be either the Amended Codes of Good Practise (published on 11 October 2013) or Sector Specific Codes as indicated in the tender conditions

B-BBEE: Broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act.

B-BBEE status level of contributor: The B-BBEE status of an entity in terms of a code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act.

Bid (Tender): A written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services, works or goods, through price quotations, advertised competitive bidding processes or proposals.

Black Designated Groups: The meaning assigned to it in the codes of good practice issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act, 2003, (Act 53 of 2003).

Black People: The meaning assigned to it in section 1 of the Broad-Based Black Economic Empowerment Act.

Broad-Based Black Economic Empowerment Act: The Broad-Based Black Economic Empowerment Act, Act 53 of 2003.

Consortium or Joint Venture: 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.

Contract The agreement that results from the acceptance of a bid by an organ of state.

Co-operative: A co-operative registered in terms of section 7 of the Co-operatives Act, 2005 (Act no. 14 of 2005).

Designated Group: Black designated groups, black people, women, people with disabilities or small enterprises as defined in section 1 of the National Small Enterprises Act, 1996 (act no. 102 of 1996)

Designated Sector: A sector, sub-sector or industry or product that has been designated in terms of any relevant regulation of the Preferential Procurement Regulations, 2017.

Exempted Micro Enterprise (EME): An exempted micro enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act.

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

Functionality: The ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents.

Military Veteran: The meaning assigned to it in section 1 of the Military Veterans Act, 2011 (Act No. 18 of 2011).

National Treasury: The meaning assigned to it in section 1 of the Public Finance Management Act, 1999 (Act No. 18 of 1999.

Non-firm prices: All prices other than "firm" prices.

Person: Includes a juristic person.

People with disabilities: The meaning assigned to it in section 1 of the Employment Equity Act, 1998 (Act No. 55 of 1998).

Price: Includes all applicable taxes less unconditional discounts.

Proof of B-BBEE status level of contributor: The B-BBEE status level certificate issued by an authorised body or person, a sworn affidavit as prescribed by the B-BBEE Codes of good Practice or any other requirement prescribed in terms of the Broad-Based Black Economic Empowerment Act.

Qualifying Small Enterprise (QSE): A qualifying small enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act.

Rand Value: means the total estimated value of a contract in Rand, calculated at the time of bid invitations.

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

Sub-contract: The primary contractor's assigning, leasing, making out work to, or employing, another person to support such primary contractor in the execution of part of a project in terms of the contract.

The Act: The Preferential Procurement Policy Framework Act, 2000 (Act No 5 of 2000).

Total Revenue: Bears the same meaning assigned to this expression in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act and promulgated in the *Government Gazette* on 9 February 2007.

Township: An urban living area that at any time from the late 19th century until 27 April 1994, was reserved for black people, including areas developed for historically disadvantaged individuals post 27 April 1994.

Treasury: The meaning assigned to it in section 1 of the Public Finance Management Act, 1999 (Act No. 18 of 1999).

Trust: The arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person.

Trustee: Any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.

Youth: The meaning assigned to it in section 1 of the National Youth Development Agency Act, 2008 (Act No. 54 of 2008).

2 Conditions associated with the granting of preferences

A supplier that is granted a preference undertakes to:

2.1. accept that the number of preference points allocated will be based on the B-BBEE status level of contributor of the supplier as at the closing date for submission of quotation offers;

2.2. not sub-contract more than 25% of the value of the contract to sub-contractors that do not have an equal or higher B-BBEE status level of contributor than the supplier, unless the intended sub-contractors are exempted micro enterprises that have the capability and ability to execute the sub-contract works or unless otherwise declared in terms of Section 5 below;

2.3. accept that a contract may not be awarded if the price offered is not market related;

2.4. accept the sanctions set out in Section 3 below should Condition 2(2) be breached, or should the tenderer have submitted any false information regarding its B-BBEE status level of contributor, local production and content, or any other matter required in terms of this bid that will affect, or has affected the bid evaluation;

2.5. accept that, in order to qualify for preference points, it is the responsibility of the supplier to submit documentary proof of its BBBEE level of contribution in accordance with the Codes of Good Practise, 2013, to the LANGEBERG MUNICIPALITY at the Supplier Management Unit located within the Tender Distribution Office 28 Main Street. (Tel 023 656 8200);

2.6. Accept that, further to 5) above, Consortiums/Joint Ventures will qualify for preference points, provided that the entity submits the relevant certificate/scorecard in terms of the Preferential Procurement Regulations, 2017. Note that, in the case of unincorporated entities, a verified scorecard in the name of the consortium/Joint Venture must be submitted with the quotation (attached to this schedule);

2.7. accept that if it is found that, in the performance of the contract, the participation of the various partners in a Consortium/ Joint Venture differs substantially from that upon which the consolidated scorecard submitted in terms of 5) above was based, and the impact of which is that the Joint Venture would not have been awarded the contract in terms of the actual B-BBEE level of contribution achieved by the Joint Venture, then a financial penalty shall be applied (in addition to any other remedies that the LANGEBERG MUNICIPALITY may have) in accordance with Section 3 below;

2.8. accept that the LANGEBERG MUNICIPALITY will verify the B-BBEE level of contributor of the supplier as at the closing date for submission of tender offers, to determine the number of preference points to be awarded to the supplier. In the case of Consortiums/Joint Ventures which tender as unincorporated entities, a verified scorecard submitted with the tender and valid as at the closing date will be used to determine the number of preference points to be awarded to the supplier;
2.9. accept that, notwithstanding 8) above, a supplier will **not** be awarded points for B-BBEE status level of contributor if he indicates in his tender that he intends sub-contracting more than 25% of the value of the contract to sub-contractors that do not qualify for at least the points that the supplier qualifies for unless the intended sub-contractors are exempted micro enterprises that have the capability and ability to execute the sub-contract works;
2.10. accept that any subcontracting arrangements after the award of the tender may only be entered into upon the prior approval of the Langeberg Municipality; and
2.11. immediately inform the Langeberg Municipality of any change that may affect the tenderer's B-BBEE level of contribution upon which preference points will be or have been allocated.

3 Sanctions relating to breaches of preference conditions

The sanctions for breaching the conditions associated with the granting of preferences are:

3.1. disqualify the supplier from the quotation process;
3.2. recover costs, losses or damages the LANGEBERG MUNICIPALITY has incurred or suffered as a result of the supplier's or contractor's conduct;
3.3. cancel the contract in whole or in part and claim any damages which the LANGEBERG MUNICIPALITY has suffered as a result of having to make less favourable arrangements due to such cancellation;
3.4. restrict the supplier, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, from obtaining business from the LANGEBERG MUNICIPALITY for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied and inform the National Treasury accordingly;
3.5. forward the matter for criminal prosecution; and/or
3.6. financial penalties payable to the LANGEBERG MUNICIPALITY, as set out below.

Financial penalty for breach of Condition 2.2 in Section 2 above:
The penalty to be applied for sub-contracting more than 25% of the value of the contract to sub-contractors that do not qualify for at least the preference points that the supplier qualified for (unless so declared or proven to be beyond the control of the supplier, or the sub-contractors are EMEs that have the capability and ability to execute the sub-contract works) shall be as provided for in the following formula:

Penalty = 0.5 x E (%) x P*

where:
E = The value of work (excluding VAT) executed by sub-contractors that do not qualify for at least the preference points that the supplier qualified for, expressed as a percentage of P*, less 25%
P* = Value of the contract

Financial penalty for breach in terms of condition 2.6 in Section 2 above:
The penalty to be applied where, in the performance of the contract, the participation of the various partners in a Consortium/ Joint Venture differs substantially from that upon which the consolidated scorecard submitted in terms of 5) in Section 2 above was based, and the impact of which is that the Joint Venture would not have been awarded that contract in terms of the actual B-BBEE level of contribution achieved by the Joint Venture, shall be as provided for in the following formula:

Penalty = 5/100 x ($B\text{-}BBEE^{a}$ – $B\text{-}BBEE^{t}$) x P*

where:
$B\text{-}BBEE^{a}$ = The B-BBEE level of contribution that is achieved, determined in accordance with the actual participation of the Joint Venture partners in the performance of the contract
$B\text{-}BBEE^{t}$ = The B-BBEE level of contribution that was used to determine the number of preference points granted to the Joint Venture at the time of quotation evaluation
P* = Value of the contract

Financial penalty for breach in terms of condition 2.10 in Section 2 above:
The penalty to be applied where the supplier fails to disclose subcontracting arrangement after the award of the tender is up to a maximum of 10% of the value of the contract.

4 Level of Contribution in respect of enterprise status or structure of the tendering entity (the supplier)

In the interest of transparency, suppliers are required to complete Table 1: Level of Contribution below applicable to the Code they wish to be evaluated against.

Table 1: Level of Contribution: Amended Codes for Measuring Broad-Based Black Economic Empowerment in the Construction Sector.

Type of B-BBEE Contributor	Status (tick box(es) below)
Exempted Micro Enterprise (EME), 100% black-owned	☐
Exempted Micro Enterprise (EME), at least 51% but less than 100% black-owned	☐
Exempted Micro Enterprise (EME), at least 30% but less than 51% black-owned	☐
Exempted Micro Enterprise (EME), less than 30% black-owned	☐
Exempted Micro Enterprise (B-BBEE Status Level of Contributor[1]**)** ☐	☐
Qualifying Small Enterprise (B-BBEE Status Level of Contributor[1]**)** ☐	☐
Qualifying Small Enterprise (QSE), 100% black-owned	☐
Qualifying Small Enterprise (QSE), at least 51% but less than 100% black-owned	☐
Qualifying Small Enterprise (QSE), less than 51% black-owned	☐
Verified B-BBEE contributor (B-BBEE Status Level of Contributor[1]**)** ☐	☐
Non-compliant contributor	☐

[1] If it is indicated that the company/firm/entity is a verified B-BBEE contributor, then the verified status level of contributor must be inserted in the box provided (insert a number from 1 to 8 as applicable)

5 Declarations

(5.1) With reference to Condition 8 in Section 2 above, the supplier declares that:

I/we hereby forfeit my preference points because I /we DO intend sub-contracting more than 25% of the value of the contract to sub-contractors that do not qualify for at least the points that I/we as supplier qualify for or are not exempted micro enterprises that have the capability and ability to execute the sub-contract works ☐

Note: Tenderers who do not tick this box will be allocated preference points but the sanctions relating to breaches of preference conditions in Section 3 will be applicable if the tenderer contravenes the conditions in Section 2.

(5.2) The undersigned, who warrants that he/she is duly authorized to do so on behalf of the supplier, hereby certifies that the preference claimed based on the B-BBEE status level of contribution indicated in Table 1, qualifies the supplier, subject to condition 8 in Section 2 above, for such preference claimed, and acknowledges that:

(i) the information furnished is true and correct;
(ii) the preference claimed is in accordance with the conditions of this schedule;
(iii) the supplier may be required to furnish documentary proof to the satisfaction of the LANGEBERG MUNICIPALITY that the BBBEE level of contributor as at the closing date is correct; and
(iv) he/she understands the conditions under which preferences are granted, and confirms that the supplier will satisfy the conditions pertaining to the granting of preferences.

_____ _____

Signature **Date**

_____

Name (PRINT)
(For and on behalf of the Supplier (duly authorised))

For official use.		
SIGNATURE OF MUNICIPAL OFFICIALS AT TENDER OPENING		
1.	**2.**	**3.**

Schedule 26: Record of addenda to tender documents

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

	Date	Title or Details
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Attach additional pages if more space is required.

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Part C1: Agreements and Contract Data

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LANGEBERG MUNICIPALITY

TENDER NO. "43/2022"

CONSTRUCTION OF ROBERSTON FIRE STATION

C1.1 Form of Offer and Acceptance

Offer

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

TENDER NO. 43/2022: CONSTRUCTION OF ROBERSTON FIRE STATION

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

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

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

Rand……

……(in words);

R……(in figures)

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

Signature(s): …… ……

Name(s): …… ……

Capacity: …… ……

Name of organization/tenderer: ……

Address of organization/tenderer: ……

……

Name and signature of witness: ……Date: ……

[^FOR THE TENDERER^]

For official use.		
INITIALS OF MUN. OFFICIALS AT TENDER OPENING		
1.	**2.**	**3.**

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: Agreements and contract data (which includes this agreement)
Part C2: Pricing data
Part C3: Scope of work
Part C4: Site information

and drawings and documents or parts thereof, which may be incorporated by reference into 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 documents 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.

CONTRACT TO BE COMPLETED AT THE ACCEPTANCE STAGE

Notwithstanding anything contained herein, this agreement comes into effect on the date when the parties have signed the table below and confirms receipt from the employer of one fully completed original copy of this agreement, including the schedule of deviations (if any). The tenderer (now contractor**)** shall within five working days of the agreement coming into effect notify the employer in writing of any reason why he cannot accept the contents of this agreement as a complete and accurate memorandum thereof, failing which the agreement presented to the contractor shall constitute the binding contract between the parties.

The Parties	**Employer**	**Contractor**
Business Name		
Business Registration		
Tax number (VAT)		
Physical Address		
Accepted contract sum (incl. tax)		
Accepted contract duration	8 months from date of site possession	
Signed (who by signature hereto warrants authority)		
Name of signatory		
Signed: Date		
Signed: Location		
Signed: Witness		
Name 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 acceptance, the outcome of such agreement shall be recorded here.
3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the contract shall also be recorded here.
4. Any change or addition to the tender documents arising from the above agreements and recorded here, shall also be incorporated into the final draft of the Contract.

1 Subject . . . . . .

Details . . . . . .

. . . . . .

. . . . . .

. . . . . .

2 Subject . . . . . .

Details . . . . . .

. . . . . .

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. . . . . .

3 Subject . . . . . .

Details . . . . . .

. . . . . .

. . . . . .

. . . . . .

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.

C1.2 Contract Data (Part 1)

Part 1: Contract Data provided by the Employer

GENERAL CONDITIONS OF CONTRACT

The following standardised General Conditions of Contract:

General Conditions of Contract for Construction Works, Third Edition, 2015

prepared by the South African Institution of Civil Engineering (SAICE) shall apply to and from the General Conditions of Contract for this contract. Copies of these conditions of contract are obtainable from the South African Institution of Civil Engineering (SAICE), Private Bag X200, Halfway House 1685, Tel: (011) 805 5947, Fax: (011) 805 5971, e-mail: civilinfo@saice.org.za.

Copies of the General Conditions of Contract are available for inspection and scrutiny at the offices of the Employer and Employer's Agent.

The Pro-formas bound with the General Conditions of Contract 2015, on pages 96 to 113 shall not apply to this Contract and shall be replaced with the documents bound into this Contract Document.

The General Conditions of Contract make several references to the Contract Data for specific data, which together with these conditions collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the Contract. The Contract Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the general conditions of contract.

The General Conditions of Contract shall be read in conjunction with the variations, amendments and additions set out in the Contract Specific Data below. Each item of data given below is cross-referenced to the clause in the General Conditions of Contract to which it mainly applies.

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:

a) the Form of Offer and Acceptance,
b) the Contract Specific Data within the Contract Data,
c) the General Conditions of Contract for Construction Works, Third Edition, 2015,
d) the Scope of Work,
e) the Pricing Data,
f) the Drawings, and
g) the conditions of tender, the tender data, and tender schedules

If an ambiguity or discrepancy is found in the documents, the Employer's Agent shall issue any necessary clarification or instruction.

SPECIAL CONDITIONS OF CONTRACT

In this regard, the Standard Conditions of Contract – GCC 2015 is amended by the numbered clauses set out below, as follows:

(i) where the Standard Conditions of Contract – GCC 2015 contains no provision with the corresponding clause number, the clause set out herein is inserted into the Contract; and
(ii) where the Standard Conditions of Contract – GCC 2015 contains a provision with the corresponding clause number, it is amended, as set out herein.

Save as amended in terms of this document, the provisions of the Standard Conditions of Contract – GCC 2015 shall remain unchanged.

1.1 Definitions

1.1.1.1 "agreed" means agreed by the Employer and the Contractor; or the Employer's Agent and the Contractor expressly authorised in terms of the Contract, unless specifically stated otherwise.

1.1.1.5 "Commencement Date" means the date that the Contract, made in terms of the Form of Offer and Acceptance, comes into effect by signing the Acceptance part and returning one fully completed original copy of this document, the Contract Agreement.

1.1.1.7 "Contract" means the documentation of the agreement between the parties in terms of the Form of Offer and Acceptance, and such written amendments or additions to the Contract as may be agreed and signed by both parties.

1.1.1.13 "Defects Liability Period" means the period stated in the Contract Data, commencing from the issue of the Certificate of Completion or Certificates of Completion in the event of more than one Certificate of Completion having been issued for different portions of the Works, during which the Contractor has both the right and the obligation to make good defects in the materials, Plant and workmanship covered by the Contract. The Defects Liability Period is **12** months.

1.1.1.14 "Due Completion Date" means the date or dates of the expiry of the time stated in the Contract Data for achieving Practical Completion for the whole or portions of the Works, calculated from the Commencement Date and as adjusted by such extensions of time or acceleration as may be allowed or agreed in terms of Contract. The time for achieving Practical Completion is 8 months from the date of site possession, inclusive of the 14-day period referred to in Clause 5.3.2 below, and inclusive of non-working days referred to in Clause 5.8.1 below, but exclusive of special non-working days (Clause 5.8.1).

1.1.1.15 The Employer is the LANGEBERG MUNICIPALITY, represented by the Municipal Manager and/or such other person or persons duly authorised thereto by the Employer in writing.

The name of the Employer is: LANGEBERG MUNICIPALITY

and is referred to in the Contract documents by the terms "Employer", "LANGEBERG Municipality" or "Council" as the context provides.

1.1.1.16 "Employer's Agents" means the person named as the Employers' Agent in the Contract Data, or any other person appointed from time to time by the Employer, and of whom the Contractors is notified, in writing, to act as the Employers Agent for the purposes of the Contract as substitute for the Employer's Agent so named. In terms of this Contract the term "Employers Agent" will mean to be "Engineer" and vice versa.

1.1.1.20 "Form of Offer and Acceptance" means the document defined as the Contract Agreement that formalises the legal process of offer and acceptance and gives rise to the Contract.

Add the following Clauses after Clause 1.1.1.34:

1.1.1.35 **"**parties**"** means the Contractor and the Employer.

1.1.1.36 "approved programme" means the latest programme submitted by the Contractor and approved by the Employer's Agent. The latest programme approved by the Employer's Agent supersedes previous approved programmes.

1.1.1.37 "Drawings" means all drawings, calculations and technical information forming part of the Contract Documents and any modifications thereof or additions thereto from time to time approved in writing by the Employer's Agent or delivered to the Contractor by the Employer's Agent.

1.1.1.38 "Letter of Notification" means the letters of formal notification, signed by the Employer, of the decision of the Supply Chain Management Bid Adjudication Committee sent to all tenderers. The notification of the decision does not form part of the Employer's Acceptance of the successful tenderer's Offer and no rights shall accrue.

1.1.1.39 "Intellectual Property" means any and all intellectual property rights of any nature anywhere in the world whether registered, registerable or otherwise, including patents, trademarks, registered designs and domain names, applications for any of the foregoing, trade or business names, copyright and rights in the nature of copyright, design rights, rights in databases, know-how, trade secrets and any other intellectual property rights which subsist in computer software, computer programs, websites, documents, information, techniques, business methods, drawings, logos, instruction manuals, lists and procedures and particulars of customers, marketing methods and procedures and advertising literature, including the "look and feel" of any websites

1.2 Interpretations

1.2.1 Any written communication between the parties shall have been duly delivered if:
1.2.1.1 Handed to the addressee or to his duly authorise agent; or
1.2.1.2 Delivered at the address of the addressee as stated in the Contract Data, including an e-mail address; and
1.2.1.3 Any notice or claim required in accordance with this Contract shall be communicated separately from other communications, on a separate cover with specific reference to the clause in terms of which the communication was made Provided that the Employer, Employer's Agent and Contractor shall be entitled, by written notice to each other, to change their said addresses.

The address of the Employer is:

Physical address:	Municipal Offices 28 Main Street, Ashton 6715
Postal address:	Private Bag X2 Ashton 6715

1.2.6 Any act or communication, including but not limited to "accept, agree, appoint, approve, certify, decide, delegate, dispute, elect, grant, inform, instruct, issue, notice, object, order, record, refuse, request, require, state, dispute, call for" and their derivatives indicate an act to be carried out in writing.

1.3 General provisions

Delete Clause 1.3.5 in its entirety and replace with the following:

1.3.5 Intellectual Property

1.3.5.1 The Contractor acknowledges that it shall not acquire any right, title or interest in or to the Intellectual Property of the Employer.
1.3.5.2 The Contractor hereby assigns to the Employer, all Intellectual Property created, developed or otherwise brought into existence by it for the purposes of the contract, unless the Parties expressly agree otherwise in writing.
1.3.5.3 The Contractor shall be deemed to have given the Employer a non-terminable, transferable, non-exclusive, royalty-free licence to copy, use and communicate the Contractor's documents, including making and using modifications of such documents for further work required to the Works.
1.3.5.4 The Contractor shall, and warrants that it shall:
1.3.5.4.1 not be entitled to use the Employer's Intellectual Property for any purpose other than as contemplated in this contract;
1.3.5.4.2 not modify, add to, change or alter the Employer's Intellectual Property, or any information or data related thereto, nor may the Contractor produce any product as a result of, including and/or arising from any such information, data and Intellectual Property, and in the event that it does produce any such product, the product shall be, and be deemed in law to be, owned by the Employer;
1.3.5.4.3 not apply for or obtain registration of any domain name, trademark or design which is similar to any Intellectual Property of the Employer;
1.3.5.4.4 comply with all reasonable directions or instructions given to it by the Employer in relation to the form and manner of use of the Employer Intellectual Property, including without limitation, any brand guidelines which the Employer may provide to the contractor from time to time;
1.3.5.4.5 procure that its employees, directors, members and contractors comply strictly with the provisions of clauses 1.3.5.4.1 to 1.3.5.4.3 above;
unless the Employer expressly agrees thereto in writing after obtaining due internal authority.
1.3.5.5 The Contractor represents and warrants to the Employer that, in providing goods, services or both, as the case may be, for the duration of the contract, it will not infringe or make unauthorised use of the Intellectual Property rights of any third party and hereby indemnifies the Employer from any claims, liability, loss, damages, costs, and expenses arising from the infringement or unauthorised use by the contractor of any third party's Intellectual Property rights.
1.3.5.6 In the event that the contract is cancelled, terminated, ended or is declared void, any and all of the Employer's Intellectual Property, and any and all information and data related thereto, shall be immediately handed over to the Employer by the contractor and no copies thereof shall be retained by the contractor unless the Employer expressly and in writing, after obtaining due internal authority, agrees otherwise.

Add the following Clause after Clause 1.3.6:

1.3.7 The parties agree that this contract shall also be subject to the Employer's Supply Chain Management Policy ('SCM Policy') that was applicable on the date the bid was advertised**, save that if the Employer adopts a new SCM Policy which contemplates that any clause therein would apply to the contract emanating from this tender,**

such clause shall also be applicable to that contract. Please refer to this document contained on the LANGEBERG MUNICIPALITY's website.

1.3.8 Abuse of the supply chain management system is not permitted and may result in cancellation of the contract, restriction of the supplier, and/or the exercise by the Employer of any other rights and remedies available to it as described in the SCM Policy.

1.4 Non-Variation Clause

1.4.1 This Contract is the entire contract between the parties regarding the matters addressed in this Contract. No representations, terms, conditions, or warranties not contained in this Contract shall be binding on the parties. No agreement or addendum varying, adding to, deleting, or terminating this Contract including this clause shall be effective unless reduced to writing and signed by both parties.

2.4 Ambiguity or discrepancy

2.4.2 If compliance with any such instruction shall result in delay to Practical Completion and/or the incurrence of proven additional cost the Contractor shall be entitled to make a claim in accordance with Clause 10.1 as read with Clause 6.3.

2.5 Assignment

2.5.1 Neither the Contractor nor the Employer shall, without the written consent of the other, assign the Contract or any part thereof, or any obligation under the Contract, or cede any right or benefit thereunder. Such assignment or cession shall be null and void without the other parties consent.

3.1 Qualifications of the Employer's Agent

3.1.1 The natural person appointed by the Employer to administer the Contract shall be a registered professional in a built environment profession that is appropriate to the Scope of Work.

3.2 Functions of the Employer's Agent

3.2.1 The function of the Employer's Agent is to administer the Contract in accordance with the provisions of the Contract.

Add the following at the end of clause 3.2.2:

If, in exercising any discretion, the result of such decision would be to utilise the contingency allowance, increase the contract value or granting of time for practical completion, the Employer's Agent must obtain approval from the Employer that such funding or time is available and granted by the Employer to be awarded prior to finalising such a decision.

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

a) Clause 3.3.1 Nomination of Employer's Agent's Representative
b) Clause 3.3.4 Employer's Agent's authority to delegate
c) Clause 5.8.1 Non-working times
d) Clause 5.11.2 Suspension of the Works
e) Clause 5.12.4 Acceleration instead of extension of time
f) Clause 6 All actions in terms of the clause subject to 3.2.2 of Contract Data.
h) Clause 6.10.10 Advance payment, for items not listed in the Advance Payment Schedule.
i) Clause 10.1.5 All actions in terms of the clause subject to 3.2.2 of Contract Data.
j) Other requirements.

3.3 Employer's Agent's Representative

Delete the words "oral or" from the clause:

3.3.2.2.3
3.3.2.2.4

4.1 Functions of the Employer's Agent

4.1.1 The Contractor shall, save insofar as it is legally or physically impossible, design (to the extent provided in the Contract Data), execute and complete the Works and obligations remedy any defects therein in accordance with the provisions of the Contract.

4.1.2 Where the Contract Data provides that part of the Works shall be designed by the Contractor,

4.1.2.1 the relevant part of the Works shall be fit for such purposes for which it is intended as are specified in the Contract, and

4.1.2.2 the Contractor shall, notwithstanding approval by the Employer's Agent, be liable for any error or deficiency in any drawing or document supplied by him for that part of the Works, and for any loss or damage arising out of such error or deficiency.

4.1.2.3 the Contractor shall submit to the Employer's Agent the "as-built" documents and operation and maintenance manuals in accordance with the Scope of Works and in sufficient detail for the Employer to operate, maintain, dismantle, reassemble, adjust and repair this part of the Works. Such part shall not be considered to be completed for the purposes of issuing a Certificate of Practical Completion in terms of Clause 5.14.1 as read with the relevant Contract data until these documents and manuals have been submitted to the Employer's Agent.

Add the following Clause after Clause 4.1.2:

4.1.3 Where the Contract is based on an alternative tender offer submitted by the Tenderer/Contractor, he shall, notwithstanding acceptance of the offer by the Employer, be liable for any deficiency in the alternatives proposed, for any costs in ensuring that the alternatives meet the Employer's standards and requirements, and for any loss or damage arising out of such error or deficiency.

4.1.4 The Contractor indemnifies the Employer against any liability for any breach of the provisions of Clause 4.1.

4.2 Employer's Agent's instructions

Add the following Clause after Clause 4.2.2:

4.2.3 Should the Contractor fail to proceed with due diligence with any Employer's Agent's instruction, the Employer's Agent may notify the Contractor to proceed within 7 days from receipt of such notice. Without further notice, on default by the Contractor, the Employer may employ other parties or use its own resources to give effect to such instruction in addition to any other rights that the Employer may have inter alia in terms of Clause 9.2.1.3.6. The Employer may recover such costs from the Contractor resulting from same.

4.3 Legal Provisions

Add the following Clause after Clause 4.3.2:

4.3.3 The Employer and the Contractor shall enter into an agreement required for the construction of the Works in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act (Act 85 of 1993) and the latest Construction Regulations promulgated thereunder.

4.12 Contractors Superintendence

4.12.2 The Contractor, or a competent and authorized agent or representative approved in writing by the Employers Agent (which approval may at any time be withdrawn in writing), hereinafter called the Construction Manager, shall be on site at all times when work is being performed, or when the Employers Agent shall, with reason, require his presence. The Construction Manager must be in possession of the following:

a) NQF level 5 for labour intensive construction methods.
b) Completed at least 5 projects by means of labour-intensive construction.
c) Minimum ND Civil qualification.

5.3 Commencement of the Works

5.3.1 Upon the Employer's Agent's instruction the Contractor shall, save as may be otherwise provided in the Contract or be legally or physically impossible, commence executing the Works. Such instruction shall be subject to the submission by the Contractor, and approval by the Employer, of documentation required before commencement with Works execution, as set out in the Contract Data.

The documentation required before commencement with Works execution is:

a) Approved Health and Safety Plan (Refer to applicable clause in the Health and Safety Specification in Part C3.5 in the Scope Work)
b) Initial programme (Refer to Clause 5.6)
c) Security (Refer to Clause 6.2)
d) Evidence of Insurance (Refer to Clause 8.6)
e) Occupational Health and Safety Agreement (Part C1.5 in Agreements and Contract Data)
f) Letter of good standing from the Compensation Commissioner, or a licensed compensation insurer (Refer to Clause 4.3)
g) Protection of the Environment Declaration (Part C1.6 in Agreements and Contract Data)
h) Proof of Registration / Letter of Good Standing with the Building Industry Bargaining Council (BIBC)

Add the following to Clause 5.3.1:

Such instruction shall, where applicable, also be subject to the issuing, by the Provincial Director of the Department of Labour, of a construction work permit to perform the intended construction work in terms of Clause 5.3.4 below.

5.3.2.1 The time to submit the documentation required before commencement with Works execution is within **14** days.

5.3.3 If the Employer's Agent's instruction to commence executing the Works, or to resubmit documentation with reasons after having found to be unacceptable by the Employer, is not received by the Contractor within 7 days from the actual date of the submission of all the documentation referred to in Clause 5.3.1, commencement of the Works shall be taken to be on the expiry of such 7 days. However, deemed commencement of the Works shall not be construed as approval of the documentation submitted.

Add the following to Clause 5.3.3:

Notwithstanding the above, where a construction work permit from the Provincial Director of the Department of Labour is required, commencement of the Works shall not be deemed to take place until such construction work permit has been issued by the Provincial Director.

5.3.4 Application for Construction Work Permit

Where the Employer is required to apply to the Provincial Director of the Department of Labour for a construction work permit to perform the intended construction work, the employer shall do so as soon as possible after its Bid Adjudication Committee has awarded the contract, and the period that the Department of labour requires to issue the permit will run concurrently with the appeal period.

Should the issuing of a construction work permit delay the Employer's Agent's instruction to commence executing the Works and this in turn causes a delay to Practical Completion by more than 60days, then the Contractor shall be entitled to make a claim in accordance with Clause 10.1. Should, however, the issuing of a construction work permit be delayed by the submission of a unacceptable draft Health and Safety Plan, in the opinion of either the Employer's Health and Safety Agent, or the Provincial Director of the Department of Labour, no claim for an extension of time will be entertained.

5.4 Access to Site

5.4.2.1 Access to, and possession of the Site shall not be exclusive to the Contractor insofar as the provisions of Clause 4.8 apply, and where ongoing use by the general public is required.

5.4.4 The Contractor shall bear all costs and charges for special and temporary rights of way required by it in connection with access to the Site.

5.4.5 There shall be no lien or right of retention held by any contractor in respect of the works executed on site.

5.6 Programme

5.6.1.1 The Contractor shall deliver to the Employer's Agent as part the documentation required before commencement with Works execution in accordance with Clause 5.3.1, an initial programme and method statement for carrying out the Works in order to meet the Due Completion Date.

5.6.2 The initial programme and all subsequent adjusted programmes shall show and, when relevant, describe in method statements, the entire scope of the Works to be performed including but not limited to:

5.6.2.1 The Commencement Date, commencement of the Works, Due Completion Date(s) or revisions thereof, and the planned date(s) of Practical Completion for the Works as a whole or in respect of different portions of the Works.

Insert the following after "…approvals," and before "instructions,…" under clause 5.6.2.3:

…permits,

5.6.2.8 Health and safety requirements
5.6.2.9 Critical path including the links between all predecessors and successors for activities on the critical path

5.6.3 The Employer's Agent shall, within 7 days after the Contractor has submitted an initial or adjusted programme, approve such programme or rejecting same with reasons and instruct the Contractor to amend such programme. Reasons for rejecting a programme are *inter alia* that it is not in accordance with the Contract or is not reflecting the actual progress. The Employer's Agents failure to approve or reject with reasons the submitted programme,

5.6.3.1 in the event of the submitted programme being an adjusted programme, shall be considered to be the approved programme; and
5.6.3.2 in the event of the submitted programme being an initial programme, shall not be considered to be the approved programme. However, the Contractor shall have the right to suspend the Works in terms of Clause 5.11.1.3 and if the Contractor suffers delay to Practical Completion and/or incurs proven additional cost from such suspension, the Contractor shall be entitled to make a claim in accordance with Clause 10.1.

5.6.4 The programme, method statement and the cash flow forecast shall be subject to updates and review on a monthly basis. The Contractor shall deliver to the Employer's Agent an adjusted programme reflecting actual progress and updated dates in accordance with Clause 5.6.2, even though it may reflect that the planned date(s) of Practical Completion will be later than the corresponding Due Completion Date(s), every month, and in addition;

5.6.4.1 when instructed by the Employer's Agent,
5.6.4.2 when it no longer reflects the actual progress,
5.6.4.3 when a specific event, circumstance, act or omission may delay the execution of the Works, or
5.6.4.4 with each extension of time claim

5.6.5 The submission to and approval by the Employer's Agent of any programme, method statement and/or cash flow forecast or its adjustments, or the delivery of any other relevant particulars, shall not relieve the Contractor of any of his duties or responsibilities under the Contract.

5.7 Progress of the Works

5.7.3 The Employer's Agent may request the Contractor to submit, or the Contractor may submit to the Employer's Agent, a revised programme and cost determined in accordance with Clause 6.4 for accelerating the rate of progress to achieve Practical Completion before the Due Completion Date. If accepted by the Employer, the adjusted Due Completion Date and the conditions for payment of cost shall be agreed in writing and signed by the parties

5.8 Non-working times

The non-working days are Sundays.

The special non-working days are:

a) All gazetted public holidays.
b) Year-end break(s) not exceeding 15 working days in duration (commencing mid-December and ending early January as published by SAFCEC)

5.9 Instructions

5.9.3 The Contractor shall give adequate written notice to the Employer's Agent of any instructions or drawings, which the Contractor may require for the execution of the Works and the Employer's Agent shall deliver such instructions and/or drawings to the Contractor. The notice shall include details of the necessary drawing or instruction, details of by when it should be issued, and details of the nature and amount of the delay likely to be suffered if it is late.

5.11 Suspension of the Works

5.11.1 The Contractor may, after giving fourteen (14) days written notice to the Employer, with a copy to the Employer's Agent, (with specific reference to this Clause) suspend the progress of the Works where the Employer has failed in terms of Clause 6.10.4 to:

5.11.1.1 Deliver a payment certificate, or
5.11.1.2 Make full payment of the amount certified in the payment certificate without prejudice to the Contractor's other rights under this Contract or by law, or
5.11.1.3 Failed to approve an initial programme in terms of Clause 5.6.3.2

5.12 Extension of the time for Practical Completion

5.12.1 If circumstances of any kind whatsoever which occurred be such as fairly entitle the Contractor to an extension of time and will actually delay Practical Completion of the Works beyond the Due Completion Date, the Contractor shall claim in accordance with Clause 10.1 such extension of time as is appropriate. Such extension of time shall take into account any special non-working days and all relevant circumstances, including concurrent delays or savings of time which might apply in respect of such claim and the Due Completion Date will be revised accordingly.

5.12.2.2 No extension of time will be granted in respect of any delays attributed to normal climatic conditions. Normal climatic conditions shall be deemed to include normal rainfall and associated wet conditions and materials, strong winds and extremes of temperature. However, in the event that delays to critical activities exceed the number of working days listed below cumulatively for the construction period, then abnormal climatic conditions shall be deemed to exist, and an extension of time may be claimed in accordance with the provisions of Clause 5.12.

The cumulative days for normal climatic conditions must be indicated on the initial programme as a single bar item/activity and as the immediate predecessor to Practical Completion and on the critical path of the programme. The normal climatic conditions will be recorded on the specific days, as and when they occur. Should the days listed below for normal climatic conditions not be used, the days, will become float in terms of Clause 5.6.2 of the GCC 2015 (3rd Edition). The float shall belong to the project and shall only be taken up on prior approval by the Employers Agent.

The number of days quoted below shall be regarded as a fair estimate of the delays to be anticipated and allowed for under normal climatic conditions where inclement weather prevents or disrupts critical work.

January	2 days
February	3days
March	4 days
April	4 days
May	4 days
June	5 days
July	5 days
August	4 days
September	4 days
October	3 days
November	2 days
December	2 days

Claims for delays for abnormal climatic conditions shall be accompanied by substantiating facts and evidence, which shall be submitted timeously as each day or half-day delay is experienced.

It shall be further noted that where the critical path is not affected, no extension of time for abnormal climatic conditions or for any other reason will be entertained.

5.12.2.5 Any delay, impediment, or prevention caused by or attributable to the Employer, Employer's Agent, the Employer's personnel or the Employer's other contractor's on the Site.

5.12.4 Instead of granting extension of time, if feasible, the Employer's Agent may request the Contractor to accelerate the rate of progress to achieve Practical Completion without extension of time and agree the cost for payment of such acceleration in accordance with Clause 5.7.3.

5.13 Penalties for delay

Insert the following after "actual date of Practical Completion" under clause 5.13.1:

… or, in the case of termination by the Employer in terms of Clause 9.2.1, the actual date of termination,

5.14 Completion

5.14.1 Save as otherwise provided in the Contract, the Contractor shall be entitled to receive a Certificate of Practical Completion when the Works have reached Practical Completion.

When the Works are about to reach the said stage, the Contractor shall, in writing, request a Certificate of Practical Completion and the Employer's Agent shall, within 14 days after receiving such request, either where the Works;

5.14.1.1 has reached Practical Completion issue a Certificate of Practical Completion to the Contractor and to the Employer or

5.14.1.2 has not reached Practical Completion, issue a written list to the Contractor defining the incomplete work and defects to be rectified to achieve Practical Completion.

Should the Employer's Agent not issue a Certificate of Practical Completion or such a list within the 14 days, Practical Completion shall be considered to have been achieved on the expiry of the 14 days of the written request in terms of Clause 5.14.1.

5.14.2 As soon as the work referred to in the list issued in terms of Clause 5.14.1 has been duly completed and defects that manifested after the list was issued rectified, the Employer's Agent shall deliver to the Contractor and to the Employer a Certificate of Practical Completion together with a further written list setting out the work to be completed to justify the issuing of a Certificate of Completion.

5.14.6 The Employer need not occupy the Works before the Due Completion Date

5.14.7 If, in terms of the Contract Data stated for Clause 1.1.1.14, different times for achieving Practical Completion are specified in respect of different portions of the Works, the provisions for the Works as a whole shall apply with necessary adjustment in respect of such portions.

6.2 Security

6.2.1 The Contractor shall deliver to the Employer, as part of the documentation required before commencement with Works execution in accordance with Clause 5.3.1, at his cost, the type of security for the due performance of the Contract, as selected in the Contract Data.

6.2.2 If the Contractor fails to provide or maintain the security as selected in the Contract Data within the time period stated in Clause 5.3.2 or if the performance guarantee is not in accordance with the relevant pro forma performance guarantee, the Employer, in his sole discretion, may either

6.2.2.1 Hand over the Site to the Contractor and withhold payment from the Contractor until the amount withheld is equal to ten per cent (10%) of the Contract Price. Such amount shall be reduced to five per cent (5%) of the Contract Price when the Employer's Agent has issued a Certificate of Completion [5.14.4] and to zero per cent (0%) in the Final Payment Certificate [6.10.9] or

6.2.2.2 Terminate this Contract in terms of Clause 5.3.2 as read with Clause 9.2.1.3.2.

6.2.3 If the Contractor is to provide a performance guarantee as security, he shall ensure that it remains valid and enforceable until the Final Approval Certificate is issued. The performance guarantee shall specify an expiry date, and if the Contractor has not become entitled to receive the Final Approval Certificate of the Works by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the performance guarantee until such time that work have been completed and any defects have been remedied.

6.7 Measurement of the Works

6.7.3.1 The Construction Manager identified in terms of Clause 4.12.2 will attend to assist the Employer's Agent in making such measurement, or to make such measurement in the presence of the Employer's Agent. Should the Construction Manager fail to attend, Clause 6.7.4.2 will apply.

6.8 Adjustment in rates and/or prices

6.8.2 The Contract Price shall **not** be subject to any contract price adjustment and the rates and prices tendered in the bill of quantities shall be final and binding throughout the period of the Contract.

Notwithstanding the above, if special materials are specified in the Contract Data then the provisions of Clause 6.8.3 of the General Conditions of Contract shall apply to such special materials.

Furthermore if, as a result of any extension of time granted, the duration of the contract period exceeds one year, the contract will automatically be subject to contract price adjustment for that period by which the extended contract period exceeds such one year.

Where applicable, in terms of the foregoing, the value of the certificates issued shall be adjusted in accordance with the Contract Price Adjustment Schedule with the following values:

The value of "x" is 0,15.

The values of the coefficients are:
a = 0,20 b = 0,25 c = 0,50 d = 0,05

The base month is the eleventh month after the Commencement Date of the Contract.

In addition, the Contract Price Adjustment Schedule shall be amended as follows:

"L" is the "Labour Index" and shall be the Consumer Price Index (CPI per Province) for the National Province wherein the larger part of the Site is located, as published in the Statistical News Release, P0141 Table A of Statistics South Africa.

"P" is the "Plant Index" and shall be the Producer Price Index for Civil engineering plant as published in the Statistical News Release P0142.1, Table 12 of Statistics South Africa.

"M" is the "Materials Index" and shall be the Producer Price Index for materials for Building and construction – Civil engineering as published in the Statistical News Release P0142.1, Table 11 of Statistics South Africa.

"F" is the "Fuel Index" and shall be the Producer Price Index for Diesel at wholesale level – Coast as published in the Statistical News Release P0142.1, Table 12 of Statistics South Africa

6.10 Payment

6.10.1.5 The value up to the percentage limit stated in the Contract Data of Plant and materials referred to in Clause 6.9.1 not yet built into the Permanent Works. No payment will be made for any Plant and/or materials off site, except if expressly agreed otherwise;

Provided that the Contractor has produced documentary evidence of ownership of such Plant and/or materials and has delivered to the Employer an indemnity, approved in writing by the Employer, against any claim to or in respect of such Plant and/or materials by reason of the Contractor's sequestration or liquidation, or of any defect in the Contractor's title to the Plant and/or materials.

6.10.1.7 Add the following after the words "Clause 5.13":

or any other fines or penalties that become due under the Contract.

6.10.3 Add the following to Clause 6.10.3:

Notwithstanding the provision of a performance guarantee in terms of Clause 6.2.1, interim payments to the Contractor shall be subject to a retention by the Employer of an amount of **10%** of the said amounts due to the Contractor, with no limit. A guarantee in lieu of retention is not permitted, unless specifically requested in writing by the Employer.

6.10.4 The Employer's Agent shall deliver to the Employer and the Contractor the payment certificate referred to in Clause 6.10.1 within 7 days of the receipt by the Employer's Agent of the Contractor's said statement. The Employer's Agent shall not be relieved from its responsibility to issue a payment certificate whether or not the Contractor submits the said statement. Any dissatisfaction in respect of such payment certificate shall be dealt with in terms of Clause 10.2. The Employer or the Contractor, as the case may be, shall pay the amount due to the other within 28 days of receipt by the Employer and the Contractor of the payment certificate signed by the Employer's Agent. Payment shall be subject to the Contractor or the Employer, as the case may be, submitting a tax invoice, if required by law, to the other party for the amount due.

6.10.8 Within 14 days of the date of the Certificate of Completion, the Contractor shall deliver to the Employer's Agent a completion statement showing the value of work done in respect of which a Certificate of Completion has been issued and shall supply such further information as the Employer's Agent may reasonably require. The Contractor shall not be entitled to any payment in respect of any matter which has not been included in such completion statement save as provided for in Clauses 5.14, 7.7 and 7.8 in respect of work executed during the Defects Liability Period and/or Clauses 10.3 to 10.11 in respect of any dispute. The Employer's Agent shall deliver to the Employer and the Contractor the payment certificate in respect of the completion referred to above within 14 days of the receipt by the Employer's Agent of the Contractor's said statement, and the Employer or the Contractor, as the case may be, shall pay the amount due to the other party within 28 days after receipt by the Employer and the Contractor of the payment certificate signed by the Employer's Agent.

6.10.9 Within 14 days of the date of final approval as stated in the Final Approval Certificate, the Contractor shall deliver to the Employer's Agent a final statement claiming final settlement of all moneys due to him (save in respect of matters in dispute, in terms of Clauses 10.3 to 10.11, and not yet resolved). The Employer's Agent shall within 14 days issue to the Employer and the Contractor a Final Payment Certificate, the amount of which shall be paid to the Contractor or the Employer, as the case may be, within 28 days of the date of such certificate, after which no further payments shall be due to the Contractor (save in respect of matters in dispute, in terms of Clauses 10.3 to 10.11 and not yet resolved).

6.10.10 Advance payment

Subject to Clauses 6.10.1.5.2 and 6.10.1.5.3, and the Advance Payment Schedule, the Employer shall make an advance payment for Plant and materials stored at places other than the Site, or in respect of which a deposit with order is required, only once the Contractor has submitted an advance payment guarantee in accordance with this Clause, the authenticity of which has been verified by the LANGEBERG Municipality's Treasury Department.

Unless and until the Employer receives this guarantee, the following paragraphs shall not apply.

The Employer's Agent shall issue an Interim Payment Certificate for, or including, advance payment after receiving a statement under Clause 6.10.1 and after the Employer has received a guarantee in an amount equal to the advance payment requested. This guarantee shall be issued by a financial institution approved by the Employer, as listed in the Annexure in Part C1.3 of the Contract Data, and shall be in the form of and shall contain the precise wording of the document included in Part C1.4: **Form of Advance Payment Guarantee** and shall come into force, be administered and expire in terms thereof**.**

The Employer shall return the guarantee to the Contractor within 14 days after the expiry date.

The provision of the Advanced Payment Guarantee shall be at the Contractor's cost.

The term "deposit" or "deposit with order" used in the context of this Clause and elsewhere by reference to this Clause, means a sum payable by the Contractor to a manufacturer/supplier prior to the manufacture of an item of Plant or material, required at the time of placing an order, the balance of the value of the item being payable later.

8.6.1.1.1 *Add the following to the last sentence of Clause 8.6.1.1.1:*

…inclusive of VAT

8.6 Insurances

8.6.1.1.2 The value of Plant and materials supplied by the Employer to be included in the insurance sum is **R 0.00 (Nil).**

8.6.1.1.3 The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is **R0.00 (Nil).**

8.6.1.3 The limit of indemnity for liability insurance is R20 000 000.00 for any single claim – the number of claims to be unlimited during the construction and defects liability periods.

8.6.1.5 In addition to the insurances required in terms of General Conditions of Contract Clauses 8.6.1.1 to 8.6.1.4 the following insurance is also required:

a) Insurance of Construction Equipment (including tools, offices and other temporary structures and contents) and other things (except those intended for incorporation into the Works) brought onto the site for a sum sufficient to provide for their replacement.

b) Insurance in terms of the provisions of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.

c) Motor Vehicle Liability Insurance comprising (as a minimum) "Balance of Third Party" Risks including Passenger Liability Indemnity.

d) Where the contract involves manufacturing and/or fabrication of the works or part thereof at premises other than the Site, the Contractor shall satisfy the Employer that all materials and equipment for incorporation in the works are adequately insured during manufacture and/or fabrication. In the event of the Employer having an insurable

interest in such works during manufacture or fabrication then such interest shall be noted by endorsement to the Contractor's Policies of Insurance.

8.6.5 *Delete the following from Clause 8.6.5:*

"and the terms thereof shall be subject to the approval by the Employer, which approval shall not be unreasonably withheld."

8.6.6 *Replace clause 8.6.6 with the following:*

The Contractor shall provide evidence in the form stated in the contract data to the Employer's Agent that the required insurances are effected and that all premiums thereunder have been paid.

9.1 Termination of Contract

9.1.6 *In Clause 9.1.6 replace "and 9.1.3" with:*

, 9.1.3 and 9.1.7

Add the following Clauses after Clause 9.1.6:

9.1.7 Death of Sole Proprietor/Member

Upon the death of the Contractor who was a Sole Proprietor, or a sole member of a Close Corporation, the Contract will terminate forthwith. The Employer shall pay to the Contractor's estate any money which it considers due under the Contract in terms of Clause 9.1.5, in full and final settlement thereof.

9.1.8 Material Irregularity during procurement process

The Employer may terminate the contract if a material irregularity vitiates the procurement process leading to the conclusion of the contract, rendering the procurement process and the conclusion of the resulting contract unfair, inequitable, non-transparent, uncompetitive or not cost-effective, provided the Employer follows the processes as described in its SCM Policy.

9.1.9 Reputational risk or harm to the Employer

The Employer, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, may terminate the contract if the implementation of the contract may result in reputational risk or harm to the LANGEBERG Municipality as a result of (inter alia):

9.1.9.1 reports of poor governance and/or unethical behaviour;
9.1.9.2 association with known family of notorious individuals;
9.1.9.3 poor performance issues, known to the Employer;
9.1.9.4 negative social media reports; or
9.1.9.5 adverse assurance (e.g. due diligence) report outcomes.

9.2 Termination by Employer

9.2.1.3.2 Has failed, in terms of Clause 5.3.2, to submit documentation in time, or to submit acceptable documentation, or to maintain and extend the validity of the performance guarantee until the Certificate of Completion; or

9.2.1.3.6 Is not executing the Works in accordance with the Contract, or is neglecting or failing to carry out his obligations under the Contract, *inter alia* to comply with any instruction under Clause 4.2; or

Add the following Clauses after Clause 9.2.1.3.8:

9.2.1.3.9 The Contractor committed a corrupt or fraudulent act during the procurement process or the execution of the contract.

9.2.1.3.10 An official or other role player committed any corrupt or fraudulent act during the procurement process or in the execution of the contract that benefited the Contractor.

Add the following Clause after Clause 9.2.3:

9.2.4 Employer's Elections in case of Insolvency

In addition to anything else contained in this contract, the Employer may make either of the following elections to ensure its rights are protected and any negative impact on service delivery is mitigated:

9.2.4.1 accept a contractor's proposal (via the trustee / liquidator) to render delivery utilising the appropriate contractual mechanisms; or

9.2.4.2 terminate the contract, as the liquidator proposed contractor is deemed unacceptable to the employer, at any time by giving written notice to the contractor (via the trustee / liquidator).

10.1 Contractor's Claim

10.1.1 The following provisions shall apply to any claim by the Contractor for an extension of time for Practical Completion of the Works in terms of Clause 5.12, or in terms of any Clause that refers to Clause 10.1 for additional payment or compensation:

10.1.1.1 The Contractor shall within 28 days after the commencement of each circumstance, event, act or omission giving rise to such a claim, deliver to the Employer's Agent a written claim, referring to this Clause and setting out:

10.1.1.1.1 The particulars of the circumstance, event, act or omission giving rise to the claim concerned,
10.1.1.1.2 The provisions of the Contract on which he bases the claim
10.1.1.1.3 The length of the extension of time, if any, claimed and the basis of the calculation by incorporating the effects of each circumstance, event, act or omission on the critical path of an Approved Programme, indicating the delay on Practical Completion, and
10.1.1.1.4 The amount of money claimed and the basis of calculation thereof.

10.1.1.2 If, by reason of the nature and circumstances of the claim, the Contractor cannot reasonably comply with all or any of the provisions of Clause 10.1.1.1.1 to 10.1.1.1.4 to deliver a claim within the said period of 28 days, he shall:

10.1.1.2.1 within the said period of 28 days issue a further notice referring to the relevant notice in terms of Clause 10.1.2 and confirming his intention to make the claim and comply with such of the requirements of Clause 10.1.1.1.1 to 10.1.1.1.4 as he reasonably can, and
10.1.1.2.2 As soon as practicable, comply with such of the requirements of Clause 10.1.1.1.1 to 10.1.1.1.4 as have not yet been complied with.

10.1.1.3 If the circumstance, event, act or omission relating to the claim are of an ongoing nature:

10.1.1.3.1 the Contractor shall, within 14 days after the commencement of each circumstance, event, act or omission giving rise to such a claim, deliver to the Employer's Agent a written notice of his intention to submit a claim, referring to this Clause and setting out the particulars of the circumstance, event, act or omission. Provided that the additional payment or compensation or delay that occurred before 14 days prior the date on which the notice in terms of this clause was delivered, shall be deemed to be covered by the rates and/or prices set out in the Pricing Data and the time stated in the Contract Data relating to Clause 5.5.1
10.1.1.3.2 The Contractor shall, in addition to delivering the said further notice within 28 days in terms of Clause 10.1.1.2.1, each month deliver to the Employer's Agent, in writing, updated particulars required in terms of Clause 10.1.1.1.1 to 10.1.1.1.4 and, within 28 days after the end of the circumstance, event, act or omission deliver his final claim.

10.1.2 The Contractor shall issue an early warning notifying to the Employer's Agent as soon as he becomes aware of any circumstance, event, act or omission which could:

10.1.2.1 Increase the Contract Prices,
10.1.2.2 Delay Practical Completion, or
10.1.2.3 Impact on the quality or
10.1.2.4 Impair the performance of the Works in use

10.1.3.6 The Employer, the Employer's Agent and the Contractor shall not in any proceedings in accordance with Clauses 10.3 to 10.11 be entitled to give or lead evidence of or rely on any fact or circumstance not recorded in terms of this Clause.

10.1.4 If, in respect of any claim to which this Clause refers, the Contractor fails to deliver his claim within the 28 day claim period in terms of Clause 10.1.1.1 or does not deliver a further notice within the period of 28 days in terms of Clause 10.1.1.2.1 or does not deliver his final claim within 28 days after the circumstance, event, act or omission ceased in terms of Clause 10.1.1.3.2, the Due Completion Date shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged all liability in connection with the claim.

Provided that failure by the Contractor to give an early warning notice in terms of Clause 10.1.2 which an experienced Contractor could have given, the claim shall be assessed by the Employer's Agent and the ruling in terms of Clause 10.1.5 shall be taken into account the lack of mitigation measures employed due the lack of such early warning notice.

10.1.5 Unless otherwise provided in the Contract, the Employer's Agent shall within 28 days after the Contractor has delivered his claim in terms of Clause 10.1.1, give effect to Clause 3.1.2 and deliver to the Contractor and the Employer his written and adequately reasoned ruling on the claim referring specifically to this Clause. The amount thereof, if any, allowed by the Employer's Agent shall be included to the credit of the Contractor the next payment certificate. Where the Employer's Agent fails to make a ruling within such 28 days the claim shall be deemed to be refused;

Provided that:

10.1.5.1 The said period of 28 days may be extended if so agreed between the Contractor and the Employer's Agent prior to the expiry of such 28 days, and

10.1.5.2 Any amount that has been established to the satisfaction of the Employer's Agent, before his ruling on the whole claim, shall be included to the credit of the Contractor in the next payment certificate.

10.3.1 Any dispute of whatsoever nature arising out of this Contract concerning any of the rights and/or obligations of any party thereto, either during the currency of the Contract or after the completion thereof, including any dispute as to the validity of the Contract, shall be referred to adjudication in terms of Clause 10.5. The Contractor or the Employer, hereinafter referred to as "the parties", may deliver to the other a written notice, hereinafter referred to as a "Dispute Notice", of any dispute arising out of or in connection with the Contract;

10.10.1 Nothing herein contained shall deprive the Contractor or the Employer of either party's right to institute immediate court proceedings in respect of failure by the Employer or the Contractor, as the case may be, to pay the amount of a payment certificate on its due date, or to pay any amount of retention money on its due date for payment.

10.10.3 The Adjudication Board, arbitrator and the court shall have full power to open up, review and revise any ruling, decision, order, instruction, certificate or valuation of the Employer's Agent. The Arbitrator and the court shall have full power to and to reconsider any decision by the Adjudication Board relevant to the matter in dispute, and neither party shall be limited in such proceedings before such arbitrator or court to the evidence or arguments put before the Employer's Agent for the purpose of obtaining his ruling, or the Adjudication Board for the purpose of obtaining a decision.

ADDITIONAL CONDITIONS OF CONTRACT

Add the following Clause after Clause 10:

Clause 11 Details to be confidential

The Contractor shall treat the details of the Works comprised in this Contract as private and confidential (save in so far as may be necessary for the purposes hereof) and shall not publish or disclose the same or any particulars thereof in any trade or technical paper elsewhere without the prior written consent of the Employer's Agent.

SPECIAL MATERIALS SCHEDULE

Each material dealt with as a special material in terms of Clause 4.1 of the Contract Price Adjustment Schedule of the General Conditions of Contract is stated in the list below. The provisions of Clause 6.8.3 of the General Conditions of Contract shall apply to such special materials. The base prices for the special materials (current at the time of tender) shall be as stated in the schedule below, or where required, shall be furnished by the tenderer/contractor. Only those materials listed by the Employer below shall be considered as special materials.

Special Material	Unit	Base Price
None		

Conditions:

1) When called upon to do so, the contractor shall substantiate the prices to be used to determine the adjustment in respect of the special materials listed above with acceptable documentary evidence.
2) In the case of bituminous products, the Employer has provided, in the schedule above, a base rate for bitumen upon which the tendered rates will be deemed to be based, and which will be used for determining the adjustment in the price of such bituminous products.
3) Where an adjustment for the variation in the price of bituminous products is claimed, the claim must be substantiated by a declaration from the manufacturer, confirming the source of bitumen used in such bituminous products at the time in question.
4) Where the source of bitumen (the refinery) is located in the Western Cape Province, or where bitumen sourced from abroad is landed at a port in the Western Cape, the cost of transporting such bitumen within the boundaries of the Western Cape shall be included in the rate for bituminous products.
5) Where imported bitumen used in bituminous products is landed at a port beyond the borders of the Western Cape, the importers must clearly state whether or not their price is inclusive of transport to the Western Cape, which will determine whether extra-over transport costs are applicable, or not. The price of the imported bitumen itself must be expressed as a landed price in ZAR.

ADVANCE PAYMENT SCHEDULE

This Advance Payment Schedule is to be read in conjunction with Clauses 6.10.1.5.2, 6.10.1.5.3 and 6.10.10 in the Contract Specific Data. The purpose of this schedule is to itemise specific Plant and materials not yet brought on to the Site for building into the Permanent Works and for which the Employer is prepared to make advance payments to the Contractor, subject to the conditions below.

The items of Plant and materials which have been identified by the Employer as being suitable for advance payment in terms of the Contract are listed in the table below. Should an item or items be added to the list at tender stage by a tenderer, such item(s) will not be binding on the Employer.

Plant and materials which have been manufactured and are stored at places other than the Site:	**Plant and materials yet to be manufactured and for which a deposit with order is required from the Contractor by a manufacturer/supplier, and which may be stored at places other than the Site after manufacture:**

Conditions:

1) The Contractor can only rely on advance payment being permitted by the Employer in respect of the Plant and materials listed in the table above. The Employer may, however, permit advance payment for other Plant and materials in exceptional circumstances and at its sole discretion, during the course of the Contract, and upon reasonable request from the Contractor.
2) Advance payment for the purposes of deposits will only be provided up to a limit of 20% of the value of any one item being claimed.
3) The Contractor shall provide the Employer with documentary evidence of the terms and conditions for which a deposit with order is required by a manufacturer/supplier, together with the advance payment guarantee.
4) The Contractor will also be permitted to obtain advance payment for the balance of the value of the Plant and materials in respect of which he has paid a deposit, for an item which after manufacture is stored at a place other than the Site. The Contractor shall, in respect of such payment, provide an advance payment guarantee, either for such balance or, if the advance payment guarantee in respect of the deposit is to be returned by the Employer upon request, for the whole value of the item.

1.2.2 CONTRACT SPECIFIC DATA

The following contract specific data, referring to the General Conditions of Contract for Construction Works, Third Edition, 2015, are applicable to this Contract:

	CL No	
Defects liability period	1.1.1.13	12 calendar months
Time for achieving practical completion	1.1.1.14	8 months – inclusive of the 14 day period referred to in Clause 5.3.2 and inclusive of non-working days referred to in Clause 5.8.1, but exclusive of special non-working days.
Name of Employer	1.1.1.15	Langeberg Municipality
Name of Employers Agent	1.1.1.16	
Address, telephone and fax number of Employers Agent	1.2.1.2	
Address, telephone and fax number of Employer	1.2.1.2	28 Main Road, Ashton, (tel) 023 615 8000, (fax) 023 615 1563
The Pricing Strategy	1.1.1.26	
Health and Safety Plan	5.3.1	Within 14 days after Commencement Date
Initial programme	5.3.1	Within 14 days after Commencement Date
The agreement in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act (no. 85 of 1993) and the Construction Regulations Promulgated there under must be signed	5.3.1	Within 14 days after Commencement Date
Time within which Performance Guarantee (Security) must be provided	5.3.1	Within 14 days after Commencement Date
Time within which Insurance must be provided	5.3.1	Within 14 days after Commencement Date
Letter of Good Standing from the Compensation Commissioner	5.3.1	Within 14 days after Commencement Date
Time to submit documentation before commencement of the Works is	5.3.2	14 days
Non-working days	5.8.1	The special non-working days are: (1) All gazetted public holidays falling outside the year end break. (2) The year end break commencing as published by SAFCEC The following conditions apply: a) No work allowed after 18:00 on weekdays. b) Working times for Saturdays are 08:00 - 14:00. c) No work allowed on Sundays, Public Holidays and year end break as published by SAFCEC. d) Approval for work outside of normal working hours to be obtained from Employer. Penalty for the transgression of above conditions is R 5 000/transgression.

Special non-working hours/days	5.8.1	The SAFCEC published industry shutdown period in December and January. All statutory holidays.
Amount of penalty for delay	5.13.1	R 4 000 per day
The requirements for achieving Practical Completions are	5.14.1	All payment items in the bill of quantities must be incorporated into the Works or as determined by the Employer's Agent.
Latent defect period beyond the date of final Approval Certificate	5.16.3	10 Years
The Security provided by the Contractor	6.2.1	Performance guarantee of 10% of the Contract Sum plus Retention of 10% of the value of the Works
The percentage allowance on the net cost of materials actually used in the completed works is	6.5.1.2.3	5%
Percentage advance on materials not yet built into the Permanent Works is	6.10.1.5	80% of value of materials on site or value of the MOS Guarantee submitted and approved, whichever is the lesser amount. Proof of payment for material must be submitted (before the MOS will be certified) of alternative a MOS guarantee may be provided (at the Contractors cost).
Limit of retention money	6.10.3	Ten percent (10%) of the contract sum
The value of Plant and materials supplied by the Employer to be included in the insurance sum is	8.6.1.1.2	Not Required
The amount to cover professional fees for the repairing damage and loss to be included in the Insurance sum	8.6.1.1.3	15% of the Contract Sum
Limit of indemnity or liability insurance required	8.6.1.3	R 10 000 000-00 for any single claim and the number of claims to be unlimited during the construction defects liability period
Dispute resolution	10.5.1	Ad Hoc Adjudication
The number of Adjudication Board Members to be appointed is	10.5.3	One

C1.2 Contract Data (Part 2)

Data provided by the Contractor

The name of the Contractor is ……

The address of the Contractor is

Physical Address : ……..… Postal Address : ……..

……..… ……..

……..… ……..

……..… ……..

……..… ……..

Telephone : ……..… Fax: ……..

email : ……..…

CONTRACTOR'S ANNUAL HOLIDAY PERIODS DURING CONSTRUCTION PERIOD

Year 1 contractor's annual holiday period	Start date		End date

C1.3 Form of Performance Guarantee

PERFORMANCE GUARANTEE

For use with the Conditions of Contract as described in C1.2: Contract Data Part 1: Contract Data provided by the Employer

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means: .....

"Physical address: .....

"Employer" means: The Langeberg Municipality, DIRECTORATE.

"Contractor" means: .....

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

"Works" means: "43/2022": CONSTRUCTION OF ROBERSTON FIRE STATION.....

"Site" means: The site as defined in the Contract Data.

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

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

Amount in words: .....

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

Amount in words: .....

"Expiry Date" means: The date of issue by the Employer's Agent of the Certificate of Completion of the Works.

CONTRACT DETAILS

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

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 payment in full of the Guaranteed Sum, whichever occurs first. The Employer's Agent and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.

3. The Guarantor hereby acknowledges that:

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

3.2 its obligation under this Performance Guarantee is restricted to the payment of money.

4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:

4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;

4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;

4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.

5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon 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 payment 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 Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.

8. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.

9. 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.

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

11. 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.

12. 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.

13. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at .....

Date .....

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

Capacity .....

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

Capacity .....

Witness signatory (1) .....

Witness signatory (2) .....

ANNEXURE

LIST OF APPROVED FINANCIAL INSTITUTIONS

The following financial institutions are currently approved for issue of contract guarantees to the LANGEBERG Municipality:

National Banks:
ABSA Bank Ltd.
FirstRand Bank Ltd.
Investec Bank Ltd.
Nedbank Ltd.
Standard Bank of SA Ltd.

International Banks (with branches in SA):
Barclays Bank plc.
Citibank n.a.
Credit Agricole Corporate and Investment Bank
HSBC Bank plc.
JP Morgan Chase Bank
Societe Generale
Standard Chartered Bank

Insurance companies:
ABSA Insurance
Coface s.a.
Compass Insurance Co.
Constantia Insurance Co.
Credit Guarantee Insurance Co.
Guardrisk Insurance Co.
Hollard Insurance Company Ltd.
Infiniti Insurance Limited
Lombard Insurance
New National Assurance Co.
Regent Insurance Co.
Renasa Insurance Company Ltd.
Santam Limited
Zurich Insurance Co.

C1.4 Form of Advance Payment Guarantee

ADVANCE PAYMENT GUARANTEE

For use with the Conditions of Contract as described in C1.2: Contract Data Part 1: Contract Data provided by the Employer

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means: .....

"Physical address: .....

"Employer" means: The Langeberg Municipality, DIRECTORATE.

"Contractor" means: .....

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

"Works" means: TENDER NO. "43/2022" - CONSTRUCTION OF ROBERSTON FIRE STATION

"Site" means: The site as defined in the Contract Data.

"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.

"Plant and materials" means: The Plant and materials stored at places other than the Site, or in respect of which an advance payment prior to manufacture is required, which the Employer has agreed may be subject to advance payment, such Plant and materials being listed in the Schedule of Plant and materials.

"Schedule of Plant and materials" means: A list of Plant and materials which shows the value thereof to be included in the Guaranteed Advance Payment Sum.

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

Amount in words: .....

"Expiry Date" means: The date of the payment certificate wherein the Plant and materials have been certified by the Employer's Agent as having been built into the Permanent Works.

CONTRACT DETAILS

Employer's Agent issues: Interim Payment Certificates and Final Payment Certificate.

ADVANCE PAYMENT GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Advance Payment Sum.

2. The Guarantor's period of liability shall be from and including the date of issue of this Advance Payment Guarantee and up to and including the Expiry Date or the date of payment in full of the Guaranteed Advanced Payment Sum, whichever occurs first.

3. The Guarantor hereby acknowledges that:

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

3.2 its obligation under this Advance Payment Guarantee is restricted to the payment of money.

4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:

4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;

4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) calendar 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 Advance Payment 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 Advance Payment Guarantee, such demand stating that:

5.1 the Contract has been terminated due to the Contractor's default and that this Advance Payment 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 Advance Payment 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. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.

9. 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 Advance Payment Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.

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

11. This Advance Payment 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.

12. This Advance Payment 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.

13. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at .....

Date .....

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

Capacity .....

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

Capacity .....

Witness signatory (1) .....

Witness signatory (2) .....

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Schedule of Plant and materials

For use with Advance Payment Guarantees on contracts using the General Conditions of Contract for Construction Works, Third Edition, 2015.

Employer The Langeberg Municipality, DIRECTORATE

Contractor ……..

Works Contract No. and Title……

Payment Certificate No. …….

Advance payment is requested in respect of the following items of Plant and materials, which have been manufactured and are stored at places other than the Site, or in respect of which a deposit with order is required from the Contractor by a manufacturer/supplier:

Item no.	Description of Plant and materials	Deposit with order required (Y/N)	Place of storage (or manufacture, if deposit with order is required)	Unit	Quantity	Unit price R c	Total Price R c
Total Value of Plant and materials to be included in Guaranteed Advance Payment Sum						R	

Signed at …….. on the ……..day of……..20……..

…….. ……

for the Contractor As witness

……

Approved by Employer's Agent

C1.5 Occupational Health and Safety Agreement

AGREEMENT MADE AND ENTERED INTO BETWEEN THE LANGEBERG MUNICIPALITY (HEREINAFTER CALLED THE "EMPLOYER") AND

……..,
(Contractor/Mandatary/Company/CC Name)

IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 85 OF 1993 AS AMENDED.

I, ……., representing

……., as an employer in its own right, do hereby undertake to ensure, as far as is reasonably practicable, that all work will be performed, and all construction equipment, machinery or plant used in such a manner as to comply with the provisions of the Occupational Health and Safety Act (OHSA) and the Regulations promulgated thereunder.

I furthermore confirm that I am/we are registered with the Compensation Commissioner and that all registration and assessment monies due to the Compensation Commissioner have been fully paid or that I/We are insured with an approved licensed compensation insurer.

COID ACT Registration Number: …….

OR Compensation Insurer: ..... Policy No.: .....

I undertake to appoint, where required, suitable competent persons, in writing, in terms of the requirements of OHSA and the Regulations and to charge him/them with the duty of ensuring that the provisions of OHSA and Regulations as well as the Council's Special Conditions of Contract, Way Leave, Lock-Out and Work Permit Procedures are adhered to as far as reasonably practicable.

I further undertake to ensure that any subcontractors employed by me will enter into an occupational health and safety agreement separately, and that such subcontractors comply with the conditions set.

I hereby declare that I have read and understand the Occupational Health and Safety Specifications contained in this tender and undertake to comply therewith at all times.

I hereby also undertake to comply with the Occupational Health and Safety Specification and Plan submitted and approved in terms thereof.

Signed at .....on the.....day of.....20…….

_____ _____

Witness **Mandatary**

Signed at .....on the.....day of.....20…….

_____ _____

Witness for and on behalf of LANGEBERG Municipality

LANGEBERG MUNICIPALITY

TENDER NO. "43/2022"

CONSTRUCTION OF ROBERSTON FIRE STATION

C1.6 Protection of the Environment Declaration

PROTECTION OF THE ENVIRONMENT DECLARATION

The Contractor will not be given right of access to the Site until this form has been signed

CONTRACT NO.: "43/2022"

CONTRACT TITLE: CONSTRUCTION OF ROBERSTON FIRE STATION

I/ we, ...{Contractor} record as follows:

1. I/ we, the undersigned, do hereby declare that I/ we am/ are aware of the increasing requirement by society that construction activities shall be carried out with due regard to their impact on the environment.

2. In view of this requirement of society and a corresponding requirement by the Employer with regard to this Contract, I/ we will, in addition to complying with the letter of the terms of the Contract dealing with protection of the environment, also take into consideration the spirit of such requirements and will, in selecting appropriate employees, plant, construction equipment, materials and methods of construction, in-so-far as I/ we have the choice, include in the analysis not only the technical and economic (both financial and with regard to time) aspects but also the impact on the environment of the options. In this regard, I/ we recognise and accept the need to abide by the "precautionary principle" which aims to ensure the protection of the environment by the adoption of the most environmentally sensitive construction approach in the face of uncertainty with regard to the environmental implications of construction.

3. I/ we declare that I/ we have read and understood the contents of the Environmental Management Programme (which is comprised of the Environmental Management Specification and its Annexures) for this Contract, and that I/ we understand my/our responsibilities in terms of enforcing and implementing the Environmental Management Programme. I/ we also declare that I/ we have made appropriate provision in my/ our pricing of the Bills of Quantities items for the Environmental Management Programme.

4. I/ we acknowledge and accept the right of the Employer to deduct, should he so wish, from any amounts due to me/ us, such amounts (hereinafter referred to as fines) as the Employer's Agent shall certify as being warranted in view of my/ our failure to comply with the terms of the Contract dealing with protection of the environment, subject to the following:

4.1 The Employer's Agent, in determining the amount of such fine, shall take into account, *inter alia*, the nature of the offence, the seriousness of its impact on the environment, the degree of prior compliance/non-compliance, the extent of the Contractor's overall compliance with environmental protection requirements and, in particular, the extent to which he considers it necessary to impose a sanction in order to eliminate/reduce future occurrences

4.2 The Employer's Agent shall, with respect to any fine imposed, provide me/ us with a written statement giving details of the offence, the facts on which the Employer's Agent has based his assessment and the terms of the Contract (by reference to the specific clause) which has been contravened.

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

C1.7 Insurance Broker's Warranty

Pro Forma

Logo

Letterhead of Contractor's Insurance Broker

Date _____

LANGEBERG MUNICIPALITY
Municipal Manager
PRIVATE BAG X2
ASHTON
6715
TEL: 023 626 8200

Dear Sir

CONTRACT NO.: "43/2022"

CONTRACT TITLE: CONSTRUCTION OF ROBERSTON FIRE STATION

NAME OF CONTRACTOR: _____

I, the undersigned, do hereby confirm and warrant that all the insurances required in terms of the abovementioned contract have been issued and/or in the case of blanket/umbrella policies, have been endorsed to reflect the interests of the LANGEBERG MUNICIPALITY with regard to the abovementioned contract, and that all the insurances and endorsements, etc., are all in accordance with the requirements of the contract.

I furthermore confirm that all premiums in the above regard have been paid.

Yours faithfully

Signed: _____

For: _____

Part C2: Pricing Data

PART C2: PRICING DATA 122

C2.1 PRICING ASSUMPTIONS 123
C2.2 PAYMENT SCHEDULE & SCHEDULE OF RATES 124

C2.1 Pricing Assumptions

Pricing Assumptions mean the criteria as set out below, read together with all Parts of this contract document, which it will be assumed in the contract, that the tenderer has taken into account when developing his prices.

1. The method of measurement as published by the Association of South African Quantity Surveyors (ASAQS) Standard System of Measuring building Work 7th Edition and the Model Preamble for trades 2008 are applicable.

2. Should any requirements of the measurement and payment clause of the applicable Standardised Specification, or the Scope of Work, conflict with the terms of the Schedule, the requirements of clause C2.1.1 as applicable, shall prevail.

3. Further information and specifications may be found elsewhere in the contract documents. Standardised Specifications are identified by the digits which follow SANS in the SANS 1200 series of specifications, e.g. G for SANS 1200 G.

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

5. The prices and rates to be inserted in the Payment Schedules are to be the full inclusive prices for the work described under the several items and milestones. Such prices and rates shall cover all costs and expenses that may be required in and for the execution of the work described, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the documents on which the tender is based, as well as overhead charges and profit. Reasonable prices shall be inserted as these will be used as a basis for assessment of payment for additional work that may have to be carried out.

6. A price or rate should be entered against each item in the Payment schedule and schedule of rates under volume 5, whether the quantities are stated or not. **An item against which no rate is/are entered, or if anything other than a rate or a nil rate (for example, a zero, a dash or the word "included" or abbreviations thereof) is entered against an item, it will also be regarded as a nil rate having been entered against that item, i.e. that there is no charge for that item.** The Tenderer may be requested to clarify nil rates, or items regarded as having nil rates; and the Employer may also perform a risk analysis with regard to the reasonableness of such rates.

7. Except where rates only are required, insert all amounts to be included in the total tendered price in the "Amount" column and show the corresponding total tendered price.

8. Where Provisional sums or Prime Cost sums are provided for items in the Pricing Data, payment for the work done under such items will be made in accordance with the Contract Specifications. The Purchaser reserves the right, during the execution of the works, to adjust the stated amounts upwards or downwards according to the work actually done under the item, or the item may be omitted altogether, without affecting the validity of the Contract.

9. Incorrect entries shall not be erased or obliterated with correction fluid but must be crossed out neatly. The correct figures must be entered above or adjacent to the deleted entry, and the alteration must be initialled by the Tenderer.

10. Where fractions of a cent occur in calculations of prices and amounts, they shall be rounded up/down to the nearest whole cent.

11. The Tenderer is referred to C.2.24 in Part T1.2 Tender Data regarding the pricing of Deviations and/or Qualifications.

12. All descriptions or clauses where trade names or proprietary products are specified, are deemed to include the phrase "or equal approved"

13. Tenderers are referred to Clause 6.8.2 in Part C1.2 Contract Data regarding contract price adjustment.

C2.2 Payment Schedule & Schedule of Rates

Bid specifications may not make any reference to any particular trademark, name, patent, design, type, specific origin or producer, unless there is no other sufficiently precise or intelligible way of describing the characteristics of the work, in which case such reference must be accompanied by the words "or equivalent".

TENDERERS MUST NOTE THAT WHEREVER THIS DOCUMENT REFERS TO ANY PARTICULAR TRADEMARK, NAME, PATENT, DESIGN, TYPE, SPECIFIC ORIGIN OR PRODUCER, SUCH REFERENCE SHALL BE DEEMED TO BE ACCOMPANIED BY THE WORDS 'OR EQUIVALENT"

Important: This is a fixed priced quote (Not subject to CPAP adjustments) in which the tenderer is to price strictly accordance with the drawings and schedules issued with this document under Part C7. The tenderer is advised to study the scope carefully with the drawings and schedules since no claim will be entertained for works accidently excluded by the tenderer. The Payment Schedules on the next pages is not a scope document and may not necessarily reflect all items as indicated on the drawings but are considered to be included under other activities on the schedule. The Payment Schedule shall be utilized by the employer during construction for payment of works completed. In addition, the tenderer shall price a schedule of rates (Volume 5) to be utilized on an ad hoc basis by the Employer during construction. The Schedule of rates is also not a scope document and do not necessarily reflect all items as indicated on the drawings as per part C7. The schedule of rates shall thus be treated as a guide to the employer during construction for the pricing of any variations to the scope etc.

Tenderers are to ensure that Lump Sum prices offered are balanced and market related as the Langeberg Municipality reserves the right to omit certain portions of the works if so required the fit available budgets.

Note: The sequence in which the works need to be undertaken will be as follow:

1) Site clearance & installation of sewer/water networks
2) Main Building
3) Machine bays
4) Storage and washbays
5) Balance of external works

No deviation for the above sequence will be allowed, unless instructed otherwise by the Employer.

TENDER NO. "43/2022": PAYMENT SCHEDULES

A) PRELIMINARIES & GENERAL R…… VAT excluding

B) LUMP SUM: MAIN BUILDING R…… VAT excluding

Payment schedule Main Building
Only once activity is completed will the item become payable.

ACTIVITY	PERCENTAGE PAYABLE
Foundations / footings / bases	7%
Foundation walls	2%
Filling and floor	5%
External walls – Ground floor	4%
Internal walls – Ground floor	3%
Hollow Core flooring / precast stairs / beams / columns	6%
External walls – 1st Floor	4%
Internals walls – 1st Floor	1%
1st fix plumbing: Piping chased to walls etc.	5%
Roof structure, covering, side cladding, flashings, rainwater goods etc.	10%
Ceilings	4%
Windows / viewing panels	5%
2nd fix plumbing: Fittings etc.	4%
Floor finishing's – Ground floor	4%
Floor finishing's – 1st floor	2%
Fire fighting equipment	1%
Electrical - Groundfloor - 1st fix: Conduiting	3%
Electrical - Groundfloor - 2nd fix: Draw wires	3%
Electrical - Groundfloor - 3rd fix: Fittings	3%
Electrical - First floor - 1st fix: Conduiting	1%
Electrical - First floor - 2nd fix: Draw wires	1%
Electrical - First floor - 3rd fix: Fittings	1%
Electrical - CoC for Ground and first floor	1%
External wall finishes	2%
Internal wall finishes	5%
Doors	3%
Balustrading's / braai / Cupboards	5%
Final handover	5%

C) LUMPS SUM: MACHINE BAYS R…… VAT excluding

Payment schedule Machine Bay
Only once activity is completed will the item become payable.

ACTIVITY	PERCENTAGE PAYABLE
Foundations / footings / bases	6%
Foundation walls	2%
Filling and floor	10%
External walls – brickwork / beams and other	3%
Steel structure (Including roof structure)	30%
Roof covering, side cladding, flashings, rainwater goods etc.	10%
Floor finishing	1%
Doors / Windows / viewing panel	20%
Electrical - 1st fix: Conduiting	3%
Electrical - 2nd fix: Draw wires	3%
Electrical - 1st fix: Fittings	3%
Electrical - CoC	1%
External wall finishes	2%
Internal wall finishes	1%
Final handover	5%

D) LUMP SUM: STORAGE AND WASHBAY R……. VAT excluding

Payment schedule Storage and washbay
Only once activity is completed will the item become payable.

ACTIVITY	PERCENTAGE PAYABLE
Foundations / footings / bases	21%
Foundation walls	6%
Filling and floor	18%
All walls	18%
Roof structure, covering, flashings, rainwater goods etc.	4%
Floor finishing	1%
Doors & Windows	9%
Electrical - 1st fix: Conduiting	3%
Electrical - 2nd fix: Draw wires	3%
Electrical - 1st fix: Fittings	3%
Electrical - CoC	1%
External wall finishes	2%
Internal wall finishes	2%
1st fix plumbing: Piping chased to walls etc.	2%
2nd fix plumbing: Fittings etc.	2%
Final handover	5%

E) LUMP SUM: EXTERNAL WORKS R……. VAT excluding

Payment schedule External works
Only once activity is completed will the item become payable.

ACTIVITY	PERCENTAGE PAYABLE
Site clearance	5%
Relocation of existing services	7%
Removal of trees	4%
Roads and parking including kerbing	60%
Sewer reticulation	5%
Sewer manholes	2%
Water Connections	2%
Water reticulation including valves etc.	4%
Shade netting	4%
Flagpole	2%
Balance of external components and final handover	5%

F) PC Sums R……. VAT excluding

Payment schedule External works
Only once activity is completed will the item become payable.

ACTIVITY	Amount
Structural engineer appointment as selected by the employer	R67 158.06
Mark-up on above	
Electrical network / supply upgrades	R150 000.00
Mark-up on above	

LANGEBERG MUNICIPALITY

TENDER NO. "43/2022"

CONSTRUCTION OF ROBERSTON FIRE STATION

SUMMARY OF PAYMENT SCHEDULES

SECTION A: PRELIMINARY AND GENERAL	**R** ……
SECTION B: MAIN BUILDING	**R** ……
SECTION C: MACHINE BAYS	**R** ……
SECTION D: STORAGE AND WASH BAY	**R** ……
SECTION E: EXTERNAL WORKS & PC SUMS	**R** ……
SECTION F: PC SUMS	**R** ……
A: TOTAL OF SCHEDULE(S)	**R** ……
B: CONTINGENCIES (The sum provided is under the direct control of the Employer or Employer's agent And may be partially or totally excluded) (10**%** of TOTAL A above)	**R** ……
C: CONTRACT PRICE ADJUSTMENT (The sum provided is in terms of Subclause 6.8.2 of the General Conditions of Contract)	**R** ……NIL……
D: TOTAL (A+B+C)	**R** ……
E: TOTAL VALUE ADDED TAX (15%) ON (D) ABOVE	**R** ……
F: CONTRACT PRICE CARRIED FORWARD TO C1.1 FORM OF OFFER (D+E)	**R** ……

I/We, the undersigned, do hereby declare that these are the properly priced Bill / Schedules of Quantities forming part of this Contract Document containing Pages in consecutive order upon which my/our Tender for **Contract No.: "43/2022" - CONSTRUCTION OF ROBERSTON FIRE STATION** has been based.

My/our total Contract Price for these work and above items (Total P) is (in words):

……

……

……

……

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

DECLARATION (In respect of completeness of Tender)

Langeberg Municipality
28 Main Street,
Ashton

I/we, the undersigned, do hereby declare that these are the properly priced payment schedules forming Part C2.2 of this Contract Document plus schedule of rates as per volume 5 upon which my/our tender for **TENDER NO. "43/2022": CONSTRUCTION OF ROBERSTON FIRE STATION** has been based. I/we warrant that no amendments have been made to it from the original, other than amendments issued in any Addenda in terms of Clause C.3.2 in Part T1.2 Tender Data.

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

Part C3: Scope of Work

PART C3: SCOPE OF WORK 129

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C3.2 ENGINEERING / DESIGN 133
C3.3 PROCUREMENT 135
C3.4 CONSTRUCTION 137
C3.5 MANAGEMENT 188
C3.6 ANNEXES 189

Status

Should any requirement or provision in the parts of the Scope of Work conflict with any requirement of any Standardised Specification, particular specification or any drawings, the order of precedence, unless otherwise specified, is:

- Scope of Work (Parts C3.1, C3.4, C3.5 and C3.6)
- Particular Specifications
- SANS Standardised Specifications
- Drawings

C3.1 Description of the Works

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3.1.1 EMPLOYER'S OBJECTIVES
3.1.2 OVERVIEW OF THE WORKS
3.1.3 EXTENT OF THE WORKS
3.1.4 LOCATION OF THE WORKS
3.1.5 TEMPORARY WORKS
3.1.6 CONSTRUCTION TIME PERIOD
3.1.7 CONTRACTOR'S CAMP SITE, POWER SUPPLY AND SERVICES
3.1.8 CONSTRUCTION IN CONFINED AREAS
3.1.9 WATER FOR CONSTRUCTION PURPOSES
3.1.10 FEATURES REQUIRING SPECIAL ATTENTION
3.1.11 ENVIRONMENTAL REQUIREMENTS
3.1.12 MONTHLY STATEMENT AND PAYMENT CERTIFICATE

3.1.1 EMPLOYER'S OBJECTIVES

Robertson is situated approximately 157km north of Cape Town along the N1 highway in the Langeberg Municipal area.

The construction of a new fire station will enhance public safety regarding any fire emergency.

3.1.2 OVERVIEW OF THE WORKS

The Scope of works includes the general specifications issued by the South African Association of Quantity Surveyors for building contracts; "Model Preambles for Trades 2008". The works consist of the construction of a new fire station building with related civil and electrical works as per architectural and engineer drawings and specifications, on Erf 8250, Robertson, Western Cape, South Africa.

3.1.3 EXTENT OF THE WORKS

- Construction of new Admin & Accommodation building
- Construction of new machine bays building
- Construction of new storage and wash bay building
- Construction of related civil and external works

3.1.5 TEMPORARY WORKS

N/a

3.1.6 CONSTRUCTION TIME PERIOD

The time period specified for completion by the Employer's Agent, as stated in the Contract Data in terms of Clause 1.1.1.14 of the Conditions of Contract, is determined by the contractor and should be inclusive of all special non-working days and year end break (builder's holidays). The Contractor shall plan and programme his construction sequence for completion within the time period specified.

3.1.6.1 Construction work programme

The Contractor shall take note of various factors contained in these specifications, which will have a significant influence on the compilation of the construction work programme.

The contract period will be determined by the contractor. The Contractor shall take the above into consideration when drawing up his programme and no claims will be entertained in this regard.

3.1.7 CONTRACTOR'S CAMP SITE, POWER SUPPLY AND OTHER SERVICES

The Contractor will be permitted to use the area on or near the site for the establishment of a camp site and office accommodation for his construction personnel. The choice of all sites for the establishment of camps is subject to the approval of the Employer's Agent.

The Contractor shall, however, make his own arrangements concerning the provision of water, electricity and other services for the campsite and office facilities. All Municipal rates shall apply.

No direct payment will be made for the provision of electrical and other services. The cost thereof shall be deemed to be included in the rates and amounts tendered for the various items of work for which these services are required.

3.1.8 CONSTRUCTION IN CONFINED AREAS

It will be necessary for the Contractor to work within confined and restricted areas. The method of construction in these confined areas largely depends on the contractor's constructional plant. The contractor is also to take not of existing structures on the erf as indicated on the drawings attached hereto. These building may be operational during construction; thus the necessary demarcation needs to be taken into account.

Regardless, measurement and payment will be in accordance with the specified criteria under Part C2 of this document. It is deemed that the rates tendered in the Pricing Schedule / Schedule of rates include full compensation for all special equipment and construction methods and for all difficulties encountered when working in confined areas and narrow widths, and at or around obstructions. No additional payment will be made nor will any claim for payment be considered for work done in such confined areas, despite indications to the contrary in the Standard Specifications.

The environment needs to be respected during the construction stage. The footprint must be discussed before the start of construction and no construction or movement of vehicles should take place outside these allocated areas.

3.1.9 WATER FOR CONSTRUCTION PURPOSES

The Contractor must make adequate provision in his tender for all negotiations and procurement of water for construction activities and all related costs will be deemed to be included in his tendered rates.

3.1.10 FEATURES REQUIRING SPECIAL ATTENTION

3.1.10.1 Existing Services

Any work requiring the excavation of existing road pavements, sidewalks and verges will require the necessary wayleaves be obtained from the relevant service authorities (Telkom, Electrical Department / Eskom, Roads & Stormwater Department, Waterworks Department and Drainage & Sewerage Department).

Prior to commencing work, the Contractor shall confer with all Authorities and Departments concerned and obtain the necessary wayleaves for both overhead and underground services affected by the Works and shall satisfy himself that he has obtained all the relevant information required to complete the Contract. The Contractor will be liable for obtaining all the necessary wayleaves and work permits from the relevant service authorities prior to the commencement of work within the road reserve.

The Contractor shall carry out the works with the minimum interference to existing services and it shall be clearly understood that obtaining the necessary wayleaves, will be at his own cost. The cost of repairing any damage to services, due to miscalculations or negligence on the part of the Contractor or his failure to carry out the duties set out in this Clause, shall be borne by the Contractor.

The Contractor shall comply with the requirements of the Project Specifications in Part B of C3.4.

The contractor needs to walk through the erf with the owner or authorised person, take photographs of the condition before work. Upon completion, the erven need to be handed back to the owner or authorised person in a similar or better state.

3.1.10.2 Health and Safety Plan

Prior to commencing work, the Contractor shall submit a Health and Safety Plan, compiled in accordance with the Health and Safety Specifications in Part C of the Works Specifications to the Employer's Agent for approval. The Contractor may not commence construction without the Employer's Agent's approval of the Health and Safety Plan.

3.1.10.3 Standard of Materials, Workmanship, Testing and Performance

The attention of Tenderers is particularly drawn to the high standard of materials, workmanship, testing and performance applicable to his Contract as a whole and he shall convey this requirement to his proposed Sub-Contractors.

The Contractor will carry out control testing of materials and workmanship as required in terms of the specifications. Where necessary, the Employer's Agent may carry out acceptance control testing. The Employer will not pay claims or grant extension of time for delays to the works resulting from the awaiting of test results. Testing as required by the Employer's Agent will be effected as promptly as possible but it is in the Contractors own interest to submit material samples and other components of workmanship for testing in good time to assist in avoiding or minimising delays.

3.1.10.4 Weatherproof Protection for Workers

All staff required to continue working during rain shall be provided with oilskins and rubber knee boots, or other approved protective clothing and footwear.

3.1.10.5 Night Work and Work on Public Holidays

Where the Contractor requires staff to work overtime, he shall make the necessary arrangements with the Employer's Agent and obtain written approval from the Employer's Agent. The Contractor shall bear the cost of his overtime work.

3.1.11 ENVIRONMENTAL REQUIREMENTS

The Contractor shall take particular note of the environmental requirements contained in the Works Specifications.

The Contractor shall take every precaution to avoid damage to vegetation within that area which falls outside the designated work area is indicated on the drawings. Any damage caused is to be repaired at the Contractor's expense.

Storage and stockpiling of materials will not be permitted without the written consent of the Employer's Agent. Excess material from excavations and waste material shall be spoiled off site at suitable locations.

3.1.12 MONTHLY STATEMENTS AND PAYMENT CERTIFICATES

The statement to be submitted by the Contractor in terms of Clause 6.10 of the Conditions of Contract shall be prepared by the Contractor at his own cost, strictly in accordance with the standard payment certificate prescribed by the Employer's Agent, in digital electronic computer format.

For the purposes of the Employer's Agent's payment certificate, the Contractor shall subsequently be responsible, at his own cost, for making such adjustments to his statement as may be required by the Employer's Agent for the purposes of accurately reflecting the milestones reached and amounts which the Employer's Agent deems to be due and payable to the Contractor in the payment certificate.

The Contractor shall, at his own cost, make the said adjustments to the statement and return it to the Employer's Agent within three (3) normal workings days from the date on which the Employer's Agent communicated to the Contractor the adjustments required.

Any delay by the Contractor in making the said adjustments and submitting to the Employer's Agent the requisite copies of the adjusted statement for the purposes of the Employer's Agent's payment certificate will be added to the times allowed to the Employer's Agent in terms of Subclause 6.10.4 of the Conditions of Contract to submit the signed payment certificate to the Employer and the Contractor. Any such delay will also be added to the period in which the Employer is required to make payment to the Contractor.

The contractor must together with the monthly statement, submit to the Employer's Agent the reporting on the local labour used during construction. This must occur for each month. Failure by the contractor to submit the reports will lead to failure to process the payment certificate.

3.1.13 LIMITED FUNDS

Limited funds are available for this project and certain portions of the works as detailed in the scope of works may be omitted depending on the tendered rates and tender amounts received. The Employer reserves the right to amend, limit or omit certain portions / parts of the works without thereby invalidating the contract. The Contractor shall take cognisance of these additional requirements in the finalisation of his tendered rates and programme of work. No claims will be considered on account of these restrictions.

C3.2 Engineering / Design

CONTENTS

3.2.1 DESIGN SERVICES AND ACTIVITY MATRIX
3.2.2 EMPLOYER'S DESIGN
3.2.3 DESIGN BRIEF
3.2.4 DRAWINGS
3.2.5 DESIGN PROCEDURES

DESIGN SERVICES AND ACTIVITY MATRIX

Concept, feasibility, and overall process	-	Employer
Basic engineering and detail layouts to tender stage	-	Employer
Final design approved for construction stage	-	Employer
Temporary Works and Wayleaves	-	Contractor
Completion of all works	-	Contractor
Preparation of as-built data	-	Contractor

3.2.2 EMPLOYER'S DESIGN

The Employer's Agent is responsible for the design of all permanent works.

3.2.3 DESIGN BRIEF

Not applicable to this contract.

3.2.4 DRAWINGS

The Contractor will be responsible for detailed shop drawings and construction details as indicated on the permanent work drawings to be submitted to the Employer's Agent for approval before commencing with manufacturing and installation of the works.

The drawings listed below are attached to give an overview of the project. Additional construction drawings will, in terms of Clause 5.9 of the General Conditions of Contract (2015), be issued to the Contractor by the Employer's Agent / Employer on commencement date and thereafter from time to time as required.

The drawings that form part of the tender document are to be used for tender purposes only. On award of the Contract, the successful bidder will receive three (3) sets of unreduced paper prints of each drawing free of charge. Any additional prints will be for the account of the Contractor.

Any information in possession of the Contractor that the Employer's Agent requires in order to complete his as-built drawings shall be supplied to the Employer's Agent before a Certificate of Completion will be issued.

The following drawings are applicable to the contract and are issued with this tender document and will form part of the Contract Documents.

Table 3.2.4.1: List of Drawings		
CONSULTANT'S DRAWING NUMBER	**DESCRIPTION**	**REVISION**
PLEASE REFER TO PART C7 OF THIS DOCUMENT FOR A LIST OF THE DRAWINGS ATTACHED		

3.2.5 DESIGN PROCEDURES

The only design responsibility assigned to the Contractor under this contract, other that what is required in terms of shop drawings under clause 3.2.4 of this section, is for the design work related temporary works and support of excavations. There is no requirement to submit these designs to the Employer or the Employer's agent for approval. Temporary works will however be inspected by the appointed Occupation Health and Safety Client Agent to ensure compliance with recognized industry norms and standards.

It is assumed that all temporary works designed and constructed by the Contractor has been designed and supervised by a competent person with the necessary qualifications and experience. It is also assumed the Contractor has the necessary indemnity insurance in place to cover for any liability that may occur as a result of the failure of such temporary works.

C3.3 Procurement

CONTENTS

3.3.1 PREFERENTIAL PROCUREMENT
3.3.2 SUB-CONTRACTING PROCEDURES

3.3.1. PREFERENTIAL PROCUREMENT

The Works shall be executed in accordance with the conditions associated with the granting of preferences detailed in the **Preference Schedule** where preferences are granted in respect of B-BBEE contribution.

Financial penalties, as described in the **Preference Schedule**, shall be applied in the event that the Contractor is found to have breached and of the conditions contained in the **Preference Schedule** (unless proven to be beyond the control of the Contractor).

Notwithstanding the application of penalties, the Contractor's attention is drawn to other sanctions that may be applied by the Employer (listed in the **Preference Schedule**) with due consideration to the circumstances.

3.3.2. SUB-CONTRACTING PROCEDURES

3.3.2.1 Monitoring the use of sub-contractors

Notwithstanding the restriction on sub-contracting as described on the **Preference Schedule**, it is recognised that sub-contracting is an integral part of construction, which the conditions of contract make provision for.

In order, however, to comply with the requirements of the **Preference Schedule**, the Contractor shall submit to the Employer's Agent, on a monthly basis, a **B-BBEE Sub-contract Expenditure Report**. The format of this report is provided in Annex 2 attached.

The Contractor shall submit to the Employer's Agent documentary evidence in accordance with the applicable codes of good practise, of the B-BBEE status level of every sub-contractor employed by the Contractor. Until such time as documentary evidence as described above has been submitted to the Employer's Agent, a sub-contractor shall be deemed to be a non-compliant contributor.

The Contractor shall furthermore, on the written request of the Employer's Agent, provide documentary evidence showing the value of work sub-contracted to any or all of the sub-contractors employed by the Contractor.

3.3.2.2 Procedure for the selection of sub-contractors/suppliers

Where monetary allowances for provisional sums or prime costs items have been provided in the pricing data, and where the work or items to which the allowances relate are to be executed/supplied by sub-contractors/suppliers, then the following selection process shall be followed in respect of the required sub-contractors/suppliers:

Where the monetary allowance is less than or equal to R300 000, the Contractor shall invite three quotations from suitably qualified sub-contractors/suppliers for the required work or items (Unless the employer gives instruction to appoint a specific sub-contractor/supplier). The selection of the three sub-contractors/suppliers shall be in consultation with, and to the approval of the Employer's Agent. The evaluation of the quotations received must include a preference points system as described in C.3.11 of the Tender Data.

Where the monetary allowance is in excess of R300 000, an open competitive tender process shall be followed in respect of the selection of a sub-contractor/supplier for the required work or items. In such circumstances, tender documentation will be prepared by the Employer's Agent in consultation with and to the approval of the Contractor, invitations to tender will be advertised in the media by the Employer's Agent on behalf of the Contractor, and a sub-contractor/supplier will be selected from the responses received, by the Contractor and Employer's Agent in consultation. The evaluation of the offers received must include a preference points system as described in C.3.11

of the Tender Data. The Contractor must satisfy itself that the selected sub-contractor/supplier can meet the requirements of the sub-contract /supply agreement and may, on reasonable grounds, elect not to employ a particular sub-contractor/supplier.

In both instances above (less than or equal to R300 000 or in excess of R300 000), the contractual relationship between the Contractor and sub-contractor/supplier shall be as described in the conditions of contract.

C3.4 Construction

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3.4.1 TRADE NAMES OR PROPRIETARY PRODUCTS
3.4.2 APPLICABLE STANDARDISED SPECIFICATIONS
3.4.3 PARTICULAR / PROJECT SPECIFIC SPECIFICATIONS
3.4.4 PLANT AND MATERIALS
3.4.5 CONSTRUCTION EQUIPMENT
3.4.6 EXISTING SERVICES
3.4.7 SITE ESTABLISHMENT
3.4.8 SITE USAGE
3.4.9 WAYLEAVES, PERMISSIONS AND PERMITS
3.4.10 ALTERATIONS, ADDITIONS, EXTENSIONS AND MODIFICATIONS TO EXISTING WORKS
3.4.11 INSPECTION OF ADJOINING PROPERTIES
3.4.12 WATER FOR CONSTRUCTION PURPOSES
3.4.13 SURVEY CONTROL AND SETTING OUT OF THE WORKS
3.4.14 LOCAL PRODUCTION AND CONTENT
3.4.15 EMPLOYMENT OF SECURITY PERSONNEL
3.4.16 UNIVERSAL ACCESS

3.4.1. TRADE NAMES OR PROPRIETARY PRODUCTS

Bid specifications may not make any reference to any particular trademark, name, patent, design, type, specific origin or producer, unless there is no other sufficiently precise or intelligible way of describing the characteristics of the work, in which case such reference must be accompanied by the words "or equivalent".

TENDERERS MUST NOTE THAT WHEREVER THIS DOCUMENT REFERS TO ANY PARTICULAR TRADEMARK, NAME, PATENT, DESIGN, TYPE, SPECIFIC ORIGIN OR PRODUCER, SUCH REFERENCE SHALL BE DEEMED TO BE ACCOMPANIED BY THE WORDS 'OR EQUIVALENT"

CERTIFICATION BY RECOGNIZED BODIES

Not applicable to this contract.

AGRéMENT CERTIFICATES

Not applicable to this contract.

3.4.2 APPLICABLE STANDARDISED SPECIFICATIONS

SANS 1200A	1986	General
SANS 1200AB	1986	Engineer's Office
SANS 1200AD	1986	General (Small dams)
SANS 1200C	1982	Site Clearance
SANS 1200D	1990	Earthworks
SANS 1200DA	1990	Earthworks (Small works)
SANS 1200DB	1989	Earthworks (Pipe Trenches)
SANS 1200DE	1984	Small earth dams
SANS 1200DM	1981	Earthworks (Road and Subgrade)
SANS 1200DK	1996	Gabions and Pitching
SANS 1200G	1982	Concrete (structural)

SANS 1200GA	1982	Concrete (Small works)
SANS 1200 GB	1984	Concrete (ordinary buildings)
SANS 1200 H	1990	Structural Steelwork
SANS 1200 HB	1985	Cladding and Sheeting
SANS 1200L	1983	Medium Pressure Pipelines
SANS 1200LB	1983	Bedding (Pipes)
SANS 1200LC	1981	Cable Ducts
SANS 1200LD	1982	Sewers
SANS 1200LE	1982	Stormwater Drainage
SANS 1200LF	1983	Erf Connections (Water)
SANS 1200M	1996	Roads (General)
SANS 1200ME	1981	Subbase
SANS 1200MF	1981	Base
SANS 1200MK	1983	Kerbing and Channelling

All work carried out, as well as equipment supplied, must fully meet and be in compliance with the requirements of the Occupational Health and Safety Act (Act 85 of 1993) and the Construction Regulations (2014) issued in terms of Section 43 of the Act.

In addition, the latest revisions of the following statutory regulations, laws and obligations as pertaining specifically to any and all electrical work applicable to this specific project are applicable:

- The regulations of the local Supply Authority
- The regulations of the Client, being either Governmental, Municipal, Parastatal or Private
- Local fire regulations
- SANS 10400-A: 2010 – The application of the national building regulations, Part A: General principles and requirements

All references to “SABS” specifications shall be read as “SANS” in light of the recent changes by the South African Bureau of Standards. Where a SANS Standard does not exist or if not applicable, the relevant IEC or BS Standard shall be applicable. All applicable electrical instrumentation must be IP68.

a) The term project specifications appearing in any of the SANS 1200 standardised specifications must be replaced with the terms scope of work.

b) Departures from and/or additions to specifications listed above are in shown in accordance with the numbering system of the standardised or particular specification. Each clause with the prefix PS shall refer to the congruent clause in the appropriate section of the standardised or particular specification. Such clause shall either substitute, or supplement, or amend the clause with the same number. Where there is no such congruent clause in the standardised or particular specification, the PS clause shall be a new clause in the project specification. Any clause that is referred to in the standardised specification will also include the appropriate project specification and shall adhere to the following:

   (i) In the event of any discrepancy between the project specifications and a part of the standard specifications, the drawings and the project specifications shall take precedence.

   (ii) The standard specifications, which form part of this contract, may cover items not applicable to this particular contract and should be clarified with the Employer’s Agent if discrepancies are obvious.

In certain clauses the standard specifications allow a choice to be specified in the project specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a particular contract. Details of such alternatives or additional requirements applicable to this contract are contained in this part of the project specifications. It also contains some additional specifications required for this particular contract.

3.4.3 PARTICULAR / PROJECT SPECIFIC SPECIFICATIONS

In certain instances, the Standard Specifications listed in 3.4.1 above allow a choice to be specified in the Scope of Work between alternative materials or methods of construction. Allowance is also made for additional requirements to be specified to suit each particular contract. Details of such alternatives of additions are contained in this part of the Scope of Works. In addition, it contains some supplementary specifications required for this particular contract. Subclauses referred to are those in the relevant Standardised Specification.

The number of each clause and each payment item in this part of the project specifications consists of the prefix PS followed by a number corresponding to the number of the relevant clause or payment item in the standard specifications. The number of a new clause or a payment item which does not form part of a clause or a payment item in the standard specifications and which is included here, is also prefixed by PS followed by a new number. The new numbers follow on the last clause or item number used in the relevant section of the standard specifications.

PSA 2.4 Interpretations: Abbreviations

Add to subclause 2.4(b):

"The acronym 'MAMDD' referred to throughout the document stands for Modified AASHTO Maximum Dry Density."

Add after subclause 2.4(b):

"References to South African National Standards or SANS shall be interpreted as references to South African Bureau of Standards or SABS and the two terms are used interchangeably."

PSA 3.1 Materials: Quality

Substitute the second sentence of subclause 3.1 with:

"Materials shall bear the official mark of the appropriate standard"

Add to the end of the clause:

"The Contractor is responsible for the cost of all testing to ascertain that materials do comply with the specific minimum requirements of the applicable standards. No additional payment will be made for such verification tests.

The Contractor shall inform the Employer's Agent of any control testing to be done at least 48 hours prior to the commencement of the tests and must allow time in his programme for necessary testing and processing of results. "

Substitute the second paragraph with the following:

"Samples on which laboratory testing is required, shall be delivered free of charge to an approved laboratory, which is capable to carry out the necessary tests. The Contractor is responsible for the cost of all testing to ascertain that the materials do comply with the specified minimum requirements of the relative materials and no additional payment will be made for such testing.

The Contractor shall inform the Employer's Agent of any control testing to be done at least 48 hours before such tests are required and must allow in his program for the time necessary for the tests and the processing of the results thereof."

Add the following Clauses after Clause 3.2:

PSA 3.3 Storage of materials

"Rubber articles, including pipe insertion or joint rings, shall be stored in a suitable shed and kept away from sunlight, oil or grease. Living accommodation shall not be used for the storage of materials.

Large items not normally stored in a building shall be neatly stacked or laid out on suitable cleared areas on the Site. Grass or vegetation shall not be allowed to grow long in the storage areas and the material shall be kept free of dust and mud and be protected from stormwater. Pipes shall be handled and stacked in accordance with the manufacturer's recommendations, special care being taken to avoid stacking to excessive heights and placing over hard objects. PVC pipes shall be protected from direct sunlight by suitable covers.

Every precaution shall be taken to keep cement dry and prevent access of moisture to it from the time it leaves the place of manufacture until it is required for use on the Site. Bags of cement which show any degree of hydration and setting, shall be removed from the Site of the Works and replaced at the Contractor's own expense."

PSA 3.4 Handling of materials

"Materials should be handled with proper care at all times. Under no circumstances may materials be dropped from vehicles. Large pipes shall be lifted or lowered only by means of suitable hoisting equipment. The Section Steel reservoir panels shall be lowered by means of suitable hoisting equipment and neatly stacked to the Supplier's specifications.

The Employer's Agent shall have authority to forbid the transporting or handling of materials in a manner which, in his opinion, could cause damage."

PSA 5.1 Construction: Survey

Substitute the first paragraph in subclause 5.1.1 with the following:

"Setting out the works is the sole responsibility of the Contractor and shall be done from benchmarks as indicated on construction drawings. The Contractor shall, within 2 (two) weeks after the site has been handed over to him, ascertain himself of the correctness of all pegs and benchmarks. Any discrepancies must be immediately reported in writing to the Employer's Agent. Any costs or subsequent costs arising from discrepancies not reported shall be the sole responsibility of the Contractor."

PSA 5.2 Watching, barricading, lighting and traffic crossings

Add the following to A 5.2:

"The crossings of all streets with services must be done in half widths as to accommodate the traffic to the residential erven.

No staff accommodation will be allowed on Site, but the Contractor will be permitted to have one watchman in the camp during non-working hours.

From the time any portion of the Works commences, until the end of the Contract Period, the Contractor shall be responsible for protecting the property of the Employer and all persons having business on the Site from anything dangerous or likely to cause damage or injury. The Contractor shall take all practical precautions to avoid nuisance or inconvenience to the owners or occupiers of properties near to the Site and to the public generally whilst carrying out the Works and shall at all times keep the Site clean and in a safe and satisfactory condition."

PSA 5.4 Construction: Protection of Overhead and Underground Services

Add the following after the first sentence:

"Although the services are indicated on the drawings, the Contractor will be responsible for locating the services on site using a cable detection device."

PSA 5.5 Dealing with water on works

Add the following:

*"*All work must be protected against flooding and damage by water (storm water, groundwater etc) and the Contractor's prices will be held to include for such protection and for any rectification that may be required (including drying out of material or layer works or any consequential losses, slow progress, deviations, cofferdams, sumps, well point, labour and pumping of water).

Care shall be taken that a free passage for water is maintained in all gutters and waterways. Special precautions shall be taken by the Contractor not to change existing conditions by leaving spoil in waterways or by diverting water onto private property.

The Contractor shall make good any damage and shall settle all claims at his own expense in the event of flooding of private or public property occurring through waterways being obstructed by his operations or through the effect of any other of his acts or omissions.

The Contractor shall be responsible throughout the duration of the Contract, inclusive of the Defects Liability Period, for the implementation and maintenance of all soil erosion preventative measures necessary to protect any pipeline and the properties through which it passes and land utilised by the Contractor during the Contract from any adverse effects of soil erosion, settlement, scour, etc, resulting from the contract works.

Notwithstanding the types and quantities of anti-erosion measures executed by the Contractor, whether ordered by the Employer's Agent or not, and notwithstanding the maintenance work performed on these works, the Contractor shall be responsible for repairing and remedying at his own cost all settlement in the trench or elsewhere, all erosion of the trench, of the working area and adjacent to it, and on any other areas occupied or used by him during the course of the Contract, all wash-away, scour at waterways, deteriorating of anti-erosion works and any other damage. He shall, therefore, be free to carry out at his own expense, such additional compaction of the backfill and such other anti-erosion or other works as, in his opinion, will reduce his restoration and repair work during the Contract Period including the Defects Liability Period and shall provide therefore in his Tender.

Unless otherwise allowed for in the Schedule of Quantities, the Contractor shall be responsible for all costs in dealing with water and must therefore allow for such costs in his tendered rates."

PSA 6.2 Tolerances: Degree of Accuracy

Degree of Accuracy II is applicable.

PSA 7.1.1 Testing: Principles: Checking

Add the following:

"For compaction tests, the Contractor shall carry out a minimum of one compaction test for every 300m3 of subgrade material processed and for every 1500m2 of subbase and base course material placed.

The Contractor shall test compaction density on all pipe bedding and backfill in trenches at least once for every 20m of each layer placed and compacted. The tendered rates for each of the relevant items shall include the costs of all such control testing and no additional claims shall be considered in this regard. Should the control testing arranged by the Contractor not meet the requirements of the specification, the Employer's Agent shall have the right to conduct all such tests at the Contractor's expense and on his behalf. In this case, the Employer's Agent shall be given 72 hours' notice of when testing is required. No claims shall be considered in respect of delays resulting from such testing.

The Employer's Agent may from time to time carry out his own check tests on the work performed by the Contractor. Should such tests show the Contractor's control testing to be such that the quality of the Contractor's work can be called into question, the Employer's Agent may order further check tests to be carried out on work already completed. All costs associated with such subsequent checks shall be for the Contractor's account."

PSA 7.4 Statistical analysis of control tests
Substitute A 7.4 with the following:
Test results shall not be evaluated by statistical methods. All results shall comply with the specified minimum requirements of the materials concerned.

PSA 8.3.3 Scheduled Fixed Charge and Value Related Items: Other Fixed Charge Obligations
Add the following:
"The Contractor will be responsible for obtaining all relevant wayleaves from all relevant bodies before commencing works. The costs, overheads, and profits for obtaining wayleaves and liaising with relevant authorities will be deemed to be included in the rate tendered for this item. In addition, the Contractor will be solely responsible for obtaining these wayleaves and no claims for extension of time will be entertained in the event of works being stopped due to wayleaves not being obtained."

PSA 8.4 Measurement and Payment: Scheduled time related items (SANS 1200A Cl 8.4)
Add the following payment items:

PSA 8.4.6 Contractor's obligation in respect of Health and Safety .....Unit: Sum
The tendered sum shall include full compensation for compliance with the requirements of the OHS Act and Regulations for the full duration of the Contract. The sum will be paid to the Contractor in equal monthly payments subject to compliance.

PSA 8.4.7 a) Standing time costs: Plant.....Unit: Day
The item above will cater for all associated costs relating to standing time charged by the Contractor for Plant. This rate does not refer to singular items of plant, but the entire fleet of plant to be used during construction at any time.

PSA 8.4.7 b) Standing time costs: Labour.....Unit: Day
The item above will cater for all associated costs relating to standing time charged by the Contractor for Labour. This rate does not refer to single labourers, but the entire labour force to be used during construction at any time.

PSA 8.4.7 c) Standing time costs: Other resources (to be specified by the Contractor.Unit: Day
The item above will cater for all associated costs relating to standing time charged by the Contractor for any other resource not allowed for in (a) and (b). Should a rate be provided for this item the Contractor needs to specify the resource

PSA 8.5 Measurement and Payment: Sums Stated Provisionally by the Engineer (SANS 1200A Cl 8.5)
Add the following payment items:
All items stated as a provisional sum will cater for all costs associated with the provision of the relevant service. This includes but is not limited to all taxes, levies, accommodation, PPE, UIF, PAYE etc. The percentages tendered for shall cover the Contractor's overheads, charges and profits for the amounts provided for.

PSA 8.5 (c) Cellular telephones:.....Unit: Prov. Sum
Cost of calls in connection with contract administration by the Engineers' Representative.

PSA 8.5 (d) Handling costs and profit in respect of subitem (c).....Unit: Percentage

PSA 8.5 (e) Material testing by commercial laboratories if req. by Engineer: ……Unit: Prov. Sum
Laboratory testing by an independent supplier as required by Engineer. This Provisional Sum is specifically for situations where the Engineer question the results of provided by the Contractor and he requires a second independent supplier's test results to confirm the validity of the Contractor's results.

PSA 8.5 (f) Handling costs and profit in respect of subitem (e).....Unit: Percentage

PSA 8.7 Daywork
Add the following Payment Items:
Test results shall not be evaluated by statistical methods. All results shall comply with the specified minimum requirements of the materials concerned.

Labour:
PSA 8.7 a) Unskilled labour…… Unit: Hour

PSA 8.7 b) Semi-skilled labour……..…… Unit: Hour
PSA 8.7 c) Skilled labour……..……..…… Unit: Hour
The items above (8.7 (a) to (c)) will cover all costs related with the provision of labour in the mentioned categories on a dayworks basis. Only net working hours will be measured under daywork and it will be held that the Contractor has made provision in other rates for possible interruptions and standing time.

Plant:
PSA 8.7 d) Excavator……..……..… Unit: Hour
PSA 8.7 e) Graders…….…… Unit: Hour
PSA 8.7 f) Front end Loader…….…… Unit: Hour
PSA 8.7 g) Rollers……..… Unit: Hour
PSA 8.7 h) TLB…….…… Unit: Hour
PSA 8.7 i) Trucks (10m³) ……..……...…… Unit: Hour
PSA 8.7 j) Water Trucks…….……..……..……...……..…… Unit: Hour
PSA 8.7 k) Plate Compactor/Rammer Compactor…… Unit: Hour
The items above (8.7 (d) to (k)) will cover all costs related to the provision of the various plant resources on a dayworks basis. Only net working hours will be measured under daywork and it will be held that the Contractor has made provision in other rates for possible interruptions and standing time. It will be assumed that the capacity, specification and size of the plant resources for which rates are provided will be similar to those that will actually be used during the construction of the works. Where possible at tender stage, the specifications of the plant resources should be specified under this item.

PSA 8.8.4 Temporary Works: Existing Services
Add the following:
"Where the Employer or others carries out work which is the responsibility of the Contractor, all costs incurred by the Employer or the third party will be recovered by means of a deduction from the Contractor's monthly payment.

Where hand excavation around existing services does occur, it shall be measured only if it occurs within 3 m above and on both sides of cables, and within 500 mm above and on both sides of pipes, as well as all excavations underneath the services."

PSA 8.9 Additional Fixed charged items…… Unit: Month
This rate will include the total monthly Preliminary and General fixed charged items cost if the tenderer is appointed for all the "Rate Only" Items in this tender, increasing the scope of works.

PSA 8.10 Additional Fixed charged items…… Unit: Month
This rate will include the total monthly Preliminary and General Time-Related items cost if the tenderer is appointed for all the "Rate Only" Items in this tender, increasing the scope of works.

End of PSA

SANS 1200 AB – ENGINEER'S OFFICE

PSAB 3.1 Materials: Nameboard
Replace, after the words '…, decorating and detail…' in the first sentence:
"with the relevant standard project nameboard drawing as issued by the Engineer."

PSAB 3.2 Materials: Office Buildings
Add the following after the second paragraph:

Substitute sub-paragraph (j) with the following:
"j) provision of an approved 12 000 BTU air-conditioner"

Add the following to Cl3.2 after the last paragraph:
"In addition, the Contractor must supply basic survey equipment and 2 survey assistants at no charge as reasonably required by the Engineer. The Contractor must supply Site Instruction books as required by the Engineer. The Contractor shall give the Engineer's Representative access to their internet connection on Site. The meeting room shall be furnished with a table and chairs to accommodate 10 people."

PSAB 4.1 Plant: Telephone
Add the following to the last paragraph:
"The Engineer will make use of his/her own cellular phone. The cost of telephone calls and internet usage/subscription will be covered by the Contractor under payment item 8.3.2.1 (b)."

PSAB 5.1 Construction: Nameboards
Add the following to the last paragraph:
"The nameboards shall be erected within one month of acceptance and shall be placed at the position indicated by the Engineer. Any damage to these boards shall be repaired within 14 days of damage. No payment shall be made in terms of the contract prior to the erection of these boards. In addition, the Contractor shall be permitted to erect a maximum of two of his own boards, in positions approved by the Engineer. The Engineer reserves the right to order the removal of these boards if they are not maintained in good condition."

PSAB 5.6 Construction: Survey Equipment
Add the following subclause: 5.6 SURVEY EQUIPMENT
The Contractor shall provide the following tested and approved survey equipment on site for the duration of the contract and for the use of the Engineer whenever needed:
- One calibrated automatic level including staff and tripod
- One 5m and one 100m tape measure

The above equipment may, by arrangement, be shared with the Contractor and Engineer's Representative. The Contractor shall keep the equipment continuously insured and shall indemnify the Employer and Engineer and all their agents against any claims for loss, damage or breakage in this regard. The Contractor will keep the equipment in working order and will keep it clean for the duration of the contract."

PSAB 8.1 Measurement and Payment
Add the following:
"All costs, overheads and profits associated with the items listed above (including those specified in the project specifications) are deemed to be included in the rates tendered under SANS1200A (Preliminary and General)."

End of PSAB

SANS 1200 C – SITE CLEARANCE

PSC 3.1 Materials: Disposal of Material
Replace the first sentence with the following:
"All materials generated by clearing, grubbing and demolition of all types of fencing and structures in disrepair shall be disposed of at a licensed municipal dump site, and all rates shall apply"

PSC 5.1 Construction: Areas to be Cleared and Grubbed
Add the following to the last paragraph:
"The Contractor shall programme his work in such a manner that re-clearing is not required. The cost of re-clearing shall be borne by the Contractor."

PSC 5.2.3 Preservation of Trees
PS C 5.2.3.2 Individual trees
Add the following:
"Trees outside street, channel and pipeline routes must be left standing and undamaged, except where otherwise ordered, in writing, by the Engineer. A penalty of R25 000.00 per tree for trees damaged and/or removed will be charged where this has not been at the written request of the Engineer."

PSC 5.8 Demolition of Structures
Add the following to C 5.8:
The existing identified buildings, hollow brick retaining walls and concrete slabs must be demolished as specified by the Engineer. The roof trusses, gutters, windows, and doors, etc removed and in good condition must be cleaned and delivered to the Employer.

PSC 5.9 Existing Fencing
"Where fences are crossed it will be dismantled and set aside and reinstated after the work is finished. Photographs to be taken before dismantling and the process must be discussed and confirmed with a letter to the owner. All fencing must only be removed when work is to commence in that area and must be repaired immediately at the same standard or better as previously after damage to it has occurred."

PSC 8.2.1 Clear and Grub.....Unit: ha
Add the following to the item:
"The rate shall include the clearing and demolishing of all types of rubble, and any other operations to complete the works, where approved by the Engineer."

PSC 8.2.9 Transport Materials and Debris to Unspecified Sites and Dump
Add the following to the item:
"All materials and debris that is not being used by the contractor must be removed and taken to the municipal dumping site at their own cost."

PSC 8.2.11 Dismantle, stockpile / store and maintain Existing Fence material crossed by new services Unit: m
Add the following new item:
"The rate shall cover all cost for removal of existing fencing material, including all gates, neatly stacking and storing the material as well as maintain the material until such a time it is required to be reinstated in the old position. No additional payment will be made for the replacement of fencing material that has been damaged by the Contractor. The contractor must clearly mark and distinguish between the material stored on site to ensure the correct material is reinstated on the appropriate owners' property."

PSC 8.2.12 Re-erect Existing Fences to standard upon completion of works with material from stockpile……Unit: m
Add the following new item:
"The rate shall cover all the cost for the re-erection of the dismantled fences with the existing material, including additional excavation for pole foundation and material such as concrete and tie wire that may be required to properly reinstate the fence. No additional payment will be made for the replacement of fencing material that has been damaged/not maintained by the Contractor.

Material that is unsuitable for re-erection must be viewed by the Engineer before it is removed after which the Engineer must give written approval for the replacement thereof and for payment, therefore."

PSC 8.2.13 Clearing of Existing Temporary/Semi-Permanent Structures on existing erven and the reinstating of these structures after construction .....Unit: m2
Add the following new item:
"This rate to allow for photographing the condition of existing structures in the way of construction, getting approval (signed letter) from the erf owners to dismantle or relocate the structure to a new preferred location out of the way of any construction, the dismantling of temporary structures, storing the material, procuring further additional material required to reconstruct the structure at a new preferred location upon completion of the installation of the erf connections. This rate should allow all the supply of materials, installation of materials, labour and any other cost involved with relocating the temporary/semi-permanent structures."

End of PSC

PSD 2.3 Interpretations: Definitions
Add the following after the description of 'Restricted excavation':
"Where it is required that earthworks be carried out using labour intensive methods, the definition "restricted excavation" shall read "An excavation required to be carried out using only hand tools, or where so permitted in terms of the Project Specification, with restricted plant usage".

Add the following definition before 'Specified Density':
Sand (cohesionless and non-cohesive). For the purposes of the compaction requirements, a non-plastic material of which not less than 95 % by mass passes a sieve of nominal aperture size 4,75 mm, and not more than 10 % passes a sieve of nominal aperture size 0,075 mm.

PSD 3.1.2 Materials: Classification for Excavation Purposes: Classes of Excavation
Please add the following after the last paragraph:

"f) Hand Excavation
The definitions given for soft, intermediate, and hard rock excavation under Clause 3.1.2(a), (b) and (c) respectively will not apply to those aspects of the earthworks which must be undertaken by labour intensive methods in terms of the Project Specification. For hand excavation, the following classifications shall apply:

"Soft excavation" will be held to be any material which in the opinion of the Engineer can be excavated by pick and shovel, without the use of pneumatic or hydraulic breaking tools or blasting.

"Hard rock excavation" will be held to be any material which possesses characteristics of hardness and geological structure which in the opinion of the Engineer can most economically be broken up broken up by blasting before removing the material from the excavation as soft material.

The definition of boulder excavation Classes A & B given under Sub-Clauses 3.1.2(d) and (e) will apply irrespective of whether the earthworks are carried out by labour intensive methods or by any other method. "

PSD 4.5 Plant: Avoiding Quagmire Conditions
Add the following to Sub-Clause:
"In order to prevent quagmire conditions occurring in the excavations, relatively static plant such as back-actors shall be used combined with hand trimming to complete the excavation to final level. Should the Contractor allow quagmire conditions to develop, he shall, at his own expense, take such steps to rectify the conditions as the Engineer may order."

PSD 5.1.2.2 Construction: Precautions: Existing Services: Detection, Location and Exposure
Add the following to Sub-clause 5.1.2.2:
"If existing services are not shown on the drawings but the existence thereof can be reasonably expected, the Contractor shall, in conjunction with all relevant authorities, determine the exact depth and location of such services before the commencement of construction. After locating the exact position of services, whether indicated on the drawings or not, such services shall be deemed to be known services and the Contractor shall be liable for all costs and subsequent costs arising from the damage thereof as a result of the Contractor's activities. Exact details of these services will be given to the Engineer. These services must also be indicated on the "As Built" drawings."

PSD 5.1.2.3 Protection of Cables
Substitute "estimated position" in the second sentence of D 5.1.2.3 with "actual or exposed position".

PSD 5.1.2.4 Negligence
Substitute D 5.1.2.4 with the following:
Where a service is damaged because of the contractor's negligence, any costs arising from such damaged service will be payable by the contractor.

PSD 5.1.4.1 Construction: Precautions: Nuisance: Dust Nuisance
Add the following to Sub-clause 5.1.4.1
"The Contractor is responsible for dust control and is liable for any claims that may result from dust nuisance during the contract period. No payment regarding the above-mentioned will be made and all costs shall be deemed to be covered by the tendered rates."

PSD 5.1.6 Construction: Precautions: Road Traffic Control
Add, after the last paragraph, the following:
"During the construction of any works across or along public roads, the Contractor shall, in co-operation with, and in accordance with any instruction from the relevant traffic authorities, take precautions for the protection of the Works and the safety of public and private vehicles and pedestrians in accordance with the requirements of Sub-clauses 5.2 and 5.7 of SANS 1200 A, 5.1.1 and 5.1.6 of SANS 1200 D. Temporary traffic signs shall

be erected at all diversions. The number and layout of the traffic signs shall comply with the Site Manual entitled "Safety at Roadworks in Urban Areas", as published by the Department of Transport. Traffic signs shall have a yellow background with either a red / black border. All temporary signs shall be of the type and size required for urban roads, as applicable, as specified in the South African Road Traffic Signs Manual and Chapter 13, Roadworking Signage: Final Draft (June 1996), Road and Traffic Signs Sub-Committee, SCRA (January 1993)."

PSD 5.2.2.3 Construction: Methods and Procedures: Excavation: Disposal
Add the following to Sub-clause:
"Excess materials arising from the excavations shall by instruction of the Engineer be spread out on the adjacent erven and levelled and shaped in such a manner that the material so spread allows the erven to drain into the road. Material arising from excavations and not utilised in the above manner shall be disposed of at a licensed municipal dumpsite, or in depressions, dongas and erosion gullies as directed by the Engineer. All rates tendered shall be deemed to include any levies or fees payable at such dumpsite."

PSD 5.2.2.3 Construction: Methods and Procedures: Excavation: Disposal
Add the following to Sub-clause:
"Excess materials arising from the excavations shall by instruction of the Engineer be spread out on the adjacent erven and levelled and shaped in such a manner that the material so spread allows the erven to drain into the road. Material arising from excavations and not utilised in the above manner shall be disposed of at a licensed municipal dumpsite, or in depressions, dongas and erosion gullies as directed by the Engineer. All rates tendered shall be deemed to include any levies or fees payable at such dumpsite."

PSD 5.2.2.4 Construction: Methods and Procedures: Excavation
Add the following Sub-clause:
Excavation by hand around existing services. Where hand excavation is required around existing services it shall be done within 3,0 m above and on both sides of cables and within 300 mm above and on both sides of pipes, as well as underneath the services.

PSD 5.2.4.3 Construction: Methods and Procedures: Grass or other vegetation.
Add the following Sub-clause:

Planting shall be carried out at the earliest convenient stage of the construction and shall be arranged to suit the seasonal weather conditions. Undue humps and hollows shall be smoothed out before planting is commenced. The areas to be planted shall be covered with a 150 mm depth of topsoil from maintained stockpile or a source to be approved by the Engineer, scarified, harrowed, raked or otherwise worked to the designed level and slope.

Before planting in topsoil prepare soil with 300kg/Ha Calcium
During planting apply 5L/Ha C25 or AminoFix-3000 while irrigating and repeat 3 weeks after first application combined with 250kg/Ha Alzone 24-3-10.

Kikuyu seeding:
Seeding shall be done over the prepared and graded topsoil surface area evenly distributed at a rate of 70 grams per square meter (m^2). Watering of seeded area will be the responsibility of the contractor and must be done according to specialist suppliers' specifications until date of Completion Certificate. Water for irrigation purposes will be provided by the client, irrigation water will be treated effluent and contractor to adhere to all health and safety specifications when irrigating the seeded area.

Kikuyu roll-on-lawn:
Establishment of roll-on-lawn to be done in the prepared and graded topsoil surface area according to specialist suppliers' specifications. Watering of newly established roll-on-lawn area will be the responsibility of the contractor and must be done according to specialist suppliers' specifications until date of Completion Certificate. Water for irrigation purposes will be provided by the client, irrigation water will be treated effluent and contractor to adhere to all health and safety specifications when irrigating the seeded area.

Stools or runners of "Kikuyu" or other grass approved by the Engineer shall be planted by forming trenches 75 mm deep at 300 mm intervals along lines at right angles to the direction of maximum slope, laying the stools or runners at intervals not exceeding 150 mm along the trenches and closing the trenches in such a way to cover the grass entirely. After planting the surface shall be lightly rolled with a hand roller with a maximum mass of 150 kg.

PSD 5.2.5 Construction: Methods and Procedures: Transport for Earthworks
Replace sub clause 5.2.5.1 with the following:
"Freehaul – all material transported within the boundaries of the site or from a commercial source will be regarded as being hauled under freehaul. No overhaul will be paid.

Replace sub clause 5.2.5.2 with the following:

"Overhaul – Transportation of all excavated material beyond the boundaries of the site will be regarded as being hauled under freehaul. No overhaul will be paid under this contract. Hauling and transportation costs will be deemed to be included under the relevant payment items.

PSD 8.3.2 Measurement and Payment: Scheduled Items: Bulk Excavation .....Unit: m3
Add the following after the item description:
"All excavation of material classified under a) Soft excavation and b) Intermediate excavation under clause 1200D 3.1.2 will be paid for under payment item 1200D 8.3.2 a) as amended here. There will be no separate payment item scheduled for intermediate excavation and it will be assumed that the rate tendered for 1200D 8.3.2 a) will allow for both soft excavation and intermediate excavation as classified in 1200D.

PSD 8.3.4 d) Import to fill, material from commercial sources compacted to 90% MOD AASHTO..... Unit: m3
Add the following:
"The rate for importation of commercial material (minimum G9 classification or better) shall include all cost of royalties if applicable, acquiring suitable material (minimum G9 classification or better), forming of access, removal of overburden, loading, transportation, offloading at point of placing, removal of access and replacing overburden. The rate also needs to allow for spreading out of material after offloading, watering and compacting of the material in a uniform layer to 90% of MOD AASTHO.

PSD 8.3.10 Topsoiling…….. ..... Unit: m2
Add the following to Sub-clause:
"The rate shall cover the cost of importing topsoil from borrow pit within 5km radius from the site in terms of 5.2.2.2 and hauling and spreading in terms of 5.2.4.2."

Add the following to Sub-clause:
"The rate shall cover the cost of importing topsoil from commercial sources in terms of 5.2.5.1 and spreading in terms of 5.2.4.2."

PSD 8.3.11 Grassing or other Vegetation Cover…….. ..... Unit: m3

Add the following:
Payment for grassing and covering with other vegetation of designated areas will be made in stages as follows:

First payment
When the area has been prepared and planted, 60 % of the rate tendered per square metre shall be paid.

Second payment
When the area has been initially accepted by the Engineer, a further 30 % of the rate tendered per square metre shall be paid in respect of the remeasured area which is accepted.

Third payment
At the end of the maintenance period the outstanding amount will be paid in respect of the actual remeasured area of grass and other vegetation finally accepted by the Engineer for payment.
The rate tendered and paid for shall include full compensation for trimming of existing slopes, supply and spreading of compost and/or manure, preparation of the soil, watering, supply and planting of grass and other vegetation and maintenance of the covered areas, including all labour, supervision, specialist advice, materials, transport, plant, equipment and incidentals necessary to complete the work and bring the covered areas into the condition required for final acceptance, and shall include for any loss due to vegetation failing to establish a satisfactory cover of living vegetation in which gaps larger than 150 mm do not occur.

END OF PSD

SANS 1200 SECTION DB: EARTHWORKS (PIPE TRENCHES)

PSDB 3.1 Classes of Excavation

Please add the following after the last paragraph:

"Classification of excavation by mechanical means for measurement and payment shall either be soft excavation or hard rock excavation, notwithstanding the provisions of sub clause 3.1 of SANS 1200 D. Intermediate material shall be classified as soft material and will not be measured or paid for separately.

Please add the following after the last paragraph:

The definitions given for soft, intermediate and hard rock excavation under Clause 3.1.2(a), (b) and (c) of SANS 1200D respectively will not apply to those aspects of the trench excavation which must be undertaken by labour intensive methods in terms of the Project Specification, i.e. excavations for all pipelines. For hand excavation, the following classifications shall apply:

"Soft excavation" will be held to be any material which in the opinion of the Engineer can be excavated by pick and shovel, without the use of pneumatic or hydraulic breaking tools or blasting.

"Intermediate excavation" will be held to be any material which possesses characteristics of hardness and geological structure which in the opinion of the Engineer requires breaking by pneumatic or hydraulic means before removing the material from the excavation as soft material.

"Hard rock excavation" will be held to be any material which possesses characteristics of hardness and geological structure which in the opinion of the Engineer can most economically be broken up broken up by blasting before removing the material from the excavation as soft material. "

Please add the following after the last paragraph:

"All excavation of material classified under a) Soft excavation and b) Intermediate excavation above will be paid for under payment item 1200DB 8.3.2 a). There will be no separate payment item scheduled for intermediate excavation and it will be assumed that the rate tendered for 1200DB 8.3.2 a) will allow for both soft excavation and intermediate excavation as classified above.

PSDB 3.5 Backfill Material

Replace "from trenches" in Cl 3.5(a) with:

"…from trenches, channels and other excavations"

Replace Cl 3.5(b) with:

"All pipe and duct trenches across roadways shall be backfilled with selected material (G7 or higher) from commercial sources."

PSDB 3.6.1 Materials for Reinstatement of Roads and Paved Areas: Subbase and Base

Substitute Cl 3.6.1 with the following:

"Where trenches cross or run adjacent to surfaced roads and paved areas of which the surfaces are scheduled to be reinstated, the material excavated from the existing base and/or sub-base pavement layer(s) shall be set aside and used in the reconstruction of the sub-base layer. Where applicable, new material complying with the requirements of SANS 1200 MF shall be used in the reconstruction of the base layer. Any shortfall in material for the reconstruction of the sub-base layer shall be made up by the use of material complying with the requirements of SANS 1200 ME."

PSDB 3.7 Selection

Add the following:

"Notwithstanding the above, in terms of which the Contractor has a choice regarding methods of selection, the Contractor must use selective methods of excavation. The Contractor shall selectively remove and separate the suitable material from unsuitable material and place it adjacent to the trench for reuse as backfill, selected fill, selected granular material or for other use as ordered by the Engineer.

Material which, in terms of Sub-clause 6.2 of SANS 1200 D or SANS 1200 LB, is too wet for immediate use in the trench (but which is otherwise suitable) will not be regarded as "unsuitable" material and, if so ordered by the Engineer, the Contractor shall spread such material in a suitable area until it has dried sufficiently for later use.

When preparing his programme and construction methods, the Contractor shall make allowance for selective excavation and the handling and drying out of material which is too wet for immediate use. "

PSDB 4.1 Excavation Equipment

Add the following:

"All excavations exceeding the specified widths shall be backfilled with approved selected material. No payment shall be made for this and all relevant costs shall be deemed to be included in the tendered rates."

PSDB 4.2 Control of Water

Add the following:

"One set of dewatering equipment shall consist of pumps, pipes, well points and other equipment necessary for keeping the trenches sufficiently free from water for dewatering of excavations up to 4 m depth and a trench length of 45 m for both sides or 70 m on one side."

PSDB 5.1.1 Water in Trenches excavation

Water in pipe trenches may cause movement of the pipe due to flotation and backfilling must be completed as soon as possible. If there was any movement, the Contractor must remove and relay the pipes at his own cost and to the satisfaction of the Engineer.

PSDB 5.1.2 Storm water, Seepage and Dewatering of Excavations

The costs of dealing with water shall be deemed to be included in the tendered rates for excavation and no additional payment shall be made in this respect.

PSDB 5.4 Excavation

Add the following to DB 5.4:

Excavation and backfilling of pipe trenches on sidewalks in the residential area shall be done in such a way as to ensure the least possible disruption to the public and entrances to properties. No additional payment shall be made for this and all relevant costs shall be deemed to be included in the tendered rates. Electric cable trenches shall be dug in lengths as requested by the electrical contractor."

The provisions of PS D 5.2.2.4 shall apply mutatis mutandis for hand excavation.

PSDB 5.5 Trench Bottom

Substitute "90%" in the second paragraph of DB 5.5 with "93 % (100 % for sand)".

PSDB 5.5.1 Trench Bottom

Material that Engineer considers unsuitable at the bottom of the trench shall be excavated to the depths and disposed of in the manner directed. The resulting space shall be refilled, as order, with approved material and compacted as directed.

Should bedding of the pipeline in accordance with SABS 1200 LB form part of the contract, the depth of the trench shall be such that the specified depth of the cradle can be placed under the pipeline, and the trimming and grading of the trench shall be such that the barrel of each length of pipe can be uniformly supported over its full length, free at the joints, and at the correct grades and levels. Except where the trench excavation is in rock, hard objects and boulders that may adversely affect the uniformity of the foundation shall be removed to a depth of 100mm below the specified trench bottom. Where the bottom of the trench has been loosened during excavation, it shall be compacted at OMC to 90 % of the modified AASHTO maximum density prior to bedding and pipe laying.

The bottom of trenches shall be sufficiently straight (or true to alignment in the case of curved pipelines) to enable the pipes to be laid without reduction of the side allowances given in 5.2 and in conformity with the applicable tolerance specified in any standardised specification covering pipe work that forms part of the contract.

PSDB 5.6.2 Material for Backfilling

Substitute "from trench excavations" *in the first paragraph of Cl 5.6.2 with* "from trench or other excavations".

PSDB 5.6.3 Disposal of Soft Excavation

Add the following:

"All surplus and unsuitable material as described in DB 5.6.3 shall be disposed of as described in D 5.2.2.3."

PSDB 5.7.2 Areas Subject to Traffic Loads

Add the following:

"Backfill of all pipe trenches that fall under roadways shall be compacted to 95% of MAMDD density for cohesive materials and sand backfilling shall be compacted to 100 % of MAMDD density."

PSDB 5.9.4 Reinstatement of Surface: Bitumen Roads: Sub-base and Base:

Add the following:

"Any additional imported material required for the reinstatement of selected layers, sub-base or base shall comply with the requirements of the relevant standardised specifications."

PSDB 8.1.2 b) Basic Principles

Replace subclause (b) with the following:

"Separate items will be scheduled for lengths of trench of depths not exceeding certain depths as per the pricing data".

PSDB 8.1.2 c) Basic Principles

Replace the last sentence of subclause (c) with the following:

"The ground surface will be that existing after any bulk excavation has been carried out and before any embankment has been constructed, unless a portion of the embankment has to be constructed in order to achieve an acceptable cover over a pipe that is to be installed, in which case measurement will be made from the level of embankment that produces an acceptable minimum cover over the pipe. The depth of the excavation for measurement and payment purposes will be as specified in Sub-clause 8.1.2 (b)."

PSDB 8.2.4 Shoring

Add the following to DB 8.2.4:

Shoring will only be measured and paid for if written approval is given by the Engineer before it is installed.

PSDB 8.3.2 a) Excavate in all materials for trenches, backfill, compact and dispose of surplus material Unit: m

Add the following to D 8.3.2(a):

The depth of excavation in street reserves shall be measured from the final finished level.

In cases where services lay parallel to steep slopes, the depth of the excavation will be measured along the centre of the trench (on the route of the service).

The rate for excavation for subsurface drains shall cover the cost of excavation and spoil of surplus material within 1,0 km.

The rate shall also provide for the fact that the excavation width in sand will be wider than normal and that fast excavation and backfill will reduce ground water seepage.

PSDB 8.3.2. b) Payment will only be made if so added by the engineer and only if a 20 ton excavator with rock breaking teeth is incapable to complete the work and a pneumatic breaker is required.

PSDB.8.3.2 c) Excavate unsuitable material from trench bottom Unit: m

Add the following after the last paragraph under subclause (c)):

"The rates for excavation of trenches shall also cover the costs of battering trench sides or providing shoring to trenches as deemed necessary by Contractor in light of his obligations under the Occupational Health and Safety Act.

Where battering of trench side slopes is chosen in lieu of shoring, the rate shall also cover any additional protection of services, replacement of erf pegs or any other additional cost resulting from battering the side slopes.

The depth of excavation in street reserves shall be measured from the final finished level.
In cases where services lay parallel to steep slopes, the depth of the excavation will be measured along the centre of the trench (on the route of the service).

The rate for excavation for subsurface drains shall cover the cost of excavation and spoil of surplus material as described in D5.2.2.3.

The rate shall also provide for the fact that the excavation width in sand will be wider than normal and that fast excavation and backfill will reduce ground water seepage.

i) Electric cable trenches

Excavation for electric cables not laid with other services will be measured and paid for separately under the relevant depth increments. The rate shall provide for excavation, preparing trench lengths as requested by the electrical subcontractor, backfilling and compaction thereof. The rate shall also make provision for the possibility that long trenches need to be prepared for the electrical Contractor to lay full cable lengths (up to 300 m) and immediate backfilling after the installation of the cable (same day) to prevent theft.

ii) Combined trenches

The rate for excavation and backfilling of trenches with more than one service, shall allow for trench widths as set out in PS DB 5.2 and the pricing data. Extra bedding and fill blanket will be measured as in the case of normal pipe trenches.

The depth increment for combined trenches is determined by the deepest pipe in the trench."

PSDB 8.3.2 d) Hand excavation and backfill Unit: m^3

The provisions of PS DB 8.3.2(a), DB 8.3.2(b) and PS DB 8.3.2(c) shall apply mutatis mutandis for hand excavation. Payment shall only be made if so ordered by the Engineer.

PSDB 8.3.2 e) Extra-over PS DB 8.3.2(a) for temporary stockpiling of material Unit: m^3

Temporary stockpiling of material will only be measured and paid for if ordered so in writing by the Engineer and if it is not contaminated with unsuitable material.
The rate shall provide for the handling and stockpiling of the material within the free haul distance.

PSDB 8.3.3.1 Make up deficiency in backfill material (provisional) Unit: m^3

Add the following to DB 8.3.3.1:

d) Stockpile Unit: m^3

Add the following to the last paragraph of DB 8.3.3.1:
No payment will be made for the transport of material from commercial sources or sources outside the site that the Contractor has selected.

PSDB 8.3.3.3 Compaction in road reserves Unit: m^3

Add the following to DB 8.3.3.3:
This item is only applicable to the backfill above the bedding and fill blanket.

PSDB 8.3.4 b) Temporary works: Control water inflow

Substitute DB 8.3.4(b) with the following:

1) Provide equipment	Unit: Set
2) Operate and maintain	Unit: Set days
3) Remove equipment	Unit: Set
4) Remove, move and reinstall existing sets of equipment	Unit: Set

The rate for (1) above shall cover the cost of providing the necessary plant and materials, fully erected and operative on site for a set of equipment as described in PS DB 4.4.

The rate for (2) above shall cover the cost of operating and maintaining the pumps, well points sheeting, close lumbering and other equipment, as applicable, for 24 hours a day. The amount of days allowed for shall be the accumulated amount of set days of all sets. Pro rata set days will be measured where a set is not used and maintained for a full 24-hour day. The set shall be in operation 24 hours a day from installation till removal to be measured and payed for otherwise no payment shall be made.

PSDB 8.3.5 Existing Services That Intersect or Adjoin a Pipe Trench

Add the following to the end of sub clause (a):
"Existing services with a depth of cover exceeding 300 mm, measured from the bottom of excavation to the top of the existing service shall not be measured and paid for. These will be distinguished between existing trunk services and existing erf connection.

The rate shall also allow for the following costs:

i) Sufficient photos have to be taken of existing services and handed over to the Engineer before they are being crossed, if there is a possibility of a difference in opinion over the condition of those services, especially on private property.

ii) If such a service is damaged, it has to be repaired to its original condition or if possible, to a standard agreed to in writing with the relevant owner. This agreement has to be approved by the Engineer.

iii) If such a service is removed, it has to be replaced as per original."

Add the following to the end of sub clause (b):
"The unit "number" will only be used for services such as poles and trees.

No payment will be made for overhead services that do not rest directly on the ground except where allowance is made for this in the schedule of quantities.

Existing services that rest directly on the ground e.g. poles, walls and structures are handled in the same way as underground services, but the axis of the service will be determined as follows:

The vertical axis is defined as the nearest side or corner of the existing structure to the excavation, measured at the point where the structure and natural ground level intersect.

The horizontal axis will be at the point where the structure and the natural ground level intersects. In this instance, where the excavation falls above the 45° line but within 1.0 meter horizontally from the structure, the service will also be measured as adjoining.

If the structure, according to the abovementioned, does not qualify as an adjoining service but the foundation of the structure is such that if a 45° line drawn from the nearest bottom corner thereof cuts through the

excavation, the structure will be measured as an adjoining service if approved by the Engineer. These will be distinguished between existing trunk services and existing erf connection.

PSDB 8.3.6.2 Extra-over DB 8.3.6.1 for imported material Unit: m^3

The quantity will be calculated according to the actual volume of material placed in the final position according to the specified dimensions.

The rate is an “extra-over” Item DB 8.3.6.1 and includes all costs of supplying and placing of imported material in the final position with material from commercial sources.

End of PSDB

SANS 1200 SECTION DE: SMALL EARTH DAMS

PSDE 1 SCOPE

Add the following to DE 1.1:

This specification also covers the cladding of the dam with a geo-membrane.

PSDE 3.2.1 Earth fill Material

Substitute paragraph (b) of DE 3.2.1 with the following:

b) shall comply with the requirements for the various embankment zones, as shown on the drawings.

Material for the retention dam shall be obtained from borrow pits or trench excavations, as indicated by the Engineer on site.

PSDE 3.3.1 General

Replace DE 3.3.1 with the following:

Material to be used for the construction of the retention dam shall be of a homogeneous nature and only underlying clay from the site in positions as indicated by the Engineer, shall be used.

The Contractor shall in all excavations be selective in order to prevent contamination of usable material with unsuitable material. No extra payment will be made in this regard and all costs related to this shall be deemed to be covered in the rates for the relevant items. The Contractor shall remove all contaminated material, unsuitable for further use on the site of works, and replace it with material of the same quality as that of the usable in situ material, all at his own cost.

PSDE 3.3.3 Fill Materials

Add the following at the end of the first sentence of DE 3.3.3:

"and from designated borrow pits"

PSDE 3.4 GEOTEXTILE MEMBRANE

The geotextile membrane shall consist of a high-density polyethylene copolymer (Hi driline or similar approved) on rolls of at least 6,5 mm wide and a thickness of 500, 750 or 1 000 micrometres. The cladding material shall be welded together on site by using a continuous extrusion/fusion method to ensure an integrated and homogeneous joint that will withstand a shear test.

PSDE 5.2.2.3 Borrow pits

Add the following to DE 5.2.2.3:

The position of the designated borrow pit will be indicated during the site inspection.

PSDE 5.2.2.4 Disposal

Add the following to DE 5.2.2.4:

Surplus and unsuitable material shall be either backfilled into dongas, PIT toilet sumps or disposed of at the approved dumping site.

PSDE 5.2.3.1 Lines and grades

Substitute the second sentence of DE 5.2.3.1 with the following:

The Contractor shall allow for settling during construction to ensure that the final crown level is the same as that shown on the drawings. (See DE 8.2.1).

PSDE 5.2.3.2 Embankment

Add the following to DE 5.2.3.2(d):

Fill shall be compacted to a minimum density of 98 % of the Proctor density at a minimum moisture content of 2 % above the optimum moisture content.

PSDE 5.2.5.1 Free haul

Substitute DE 5.2.5.1 with the following:

The provisions of D 5.2.5.1 shall apply mutatis mutandis.

PSDE 5.2.5.2 Overhaul

Substitute DE 5.2.5.2 with the following:

The provisions of D 5.2.5.2 shall apply mutatis mutandis.

PSDE 5.2.6 Anchoring and Sealing

Anchoring and sealing of watertight membranes to pipes and concrete structures shall be done according to the manufacturer's approved prescriptions. The manufacturer shall inspect and approve the surface of the structure before the membrane is laid. The surface shall be level and firm.

PSDE 5.3.1 Application Rate

Gypsum shall be applied at a rate of 2 % of the maximum Proctor density, except where otherwise ordered by the Engineer.

PSDE 5.3.2 Preparation of Layer
The material to be modified shall be spread out on the designated line and level.

PSDE 5.3.3 Application of Gypsum
The stabilising agent shall be applied at the specified application rate to the full width of the layer.

PSDE 5.3.4 Mixing of Gypsum, Watering and Compacting
After the gypsum has been applied to the full width of the layer, it shall be mixed into the full depth of the material that has to be stabilised. Care must be taken to prevent the mixing the gypsum with the underlying compacted layers. The mixing process shall be continued as long as necessary to achieve a uniform mixture. The moisture content of the mixture shall be determined after the gypsum has been mixed in and water shall be added if necessary, to give the material a moisture content of 2 % above optimum moisture content. The layer shall then be compacted to the specified standard and the loss of moisture due to evaporation shall be supplemented with a light water spray.
Modification shall not be done in wet weather or when the wind speed is high enough to negatively affect the work.

PSDE 8.3.3 Excavation
a) Material unsuitable for embankment Unit: m3
Substitute "in the dam basin" in DE 8.3.3(a) with "or to spoil site".

PSDE 8.3.8 Overhaul
Substitute DE 8.3.8 with the following:
The provisions of D 8.3.6 shall apply mutatis mutandis.

PSDE 8.3.11 Outlet Channel on Bottom Unit: No
The rate shall include the costs of labour and material for shaping the outlet channel on the bottom of the dam, as shown on the drawings.

PSDE 8.3.12 Shaping and Finishing of Surfaces That Have to be Covered by A Watertight Membrane Unit: m2
The rate shall include the costs of labour and material necessary to shape the surfaces to be covered by a watertight membrane, in accordance with the standard set by the manufacturer.

PSDE 8.3.13 Watertight Membrane Unit: m2
The rate shall include the costs of supplying, transport and placing of the material, including the cut, wastage, joint, overlapping and securing of material where applicable. There will be differentiated between the various thicknesses.

PSDE 8.3.14 Fixing Watertight Membrane on Crest Unit: m
The rate shall include the cost of the excavation of the anchor trench on the crest of the embankment, the temporary stockpiling of the excavation material, maintenance of the trench, the placing of the watertight membrane in the trench, backfilling and re-compaction of the trench to the same density as that of the adjacent material, and any additional work required to complete the backfilled trench, as shown on the drawings.

PSDE 8.3.15 Fixing of Watertight Membrane at Inlet, Outlet and Overflow Structures Unit: No
The rate shall include the cost to fix the watertight membrane at the inlet, outlet and overflow structures as specified on the drawings. The rate shall be all inclusive for the extra labour and material needed to fix it as specified.

PSDE 8.3.16 Screen at Raw Water Storage Dam Unit: No
The rate shall cover the cost of the supply and installation of the screen at the raw water storage dam, complete as shown on the drawings.

PSDE 8.3.17 Channels at Embankment Unit: No
The rate shall cover the cost of everything as specified on the drawings and will be measured per number.

PSDE 8.3.18 Geotextile Blanket Unit: m2
The rate shall cover the cost of supplying, transport, off-loading and placing of the material, including the cut, wastage, joint, overlapping and securing of the material where applicable.

PSDE 8.3.19 Modification Agent Unit: Ton
Measurement is based on the quantity as ordered by the Engineer or the actual amount incorporated into the layer, whichever may be the least. The rate shall cover the cost of supplying the modification agent, placing, spreading and mixing thereof, regardless of the application rate, as well as any other additional costs involved in the modification process.

End of PSDE

SANS 1200 DM – EARTHWORKS (ROAD, SUBGRADE)

PSDM 5.2.2.4 Construction: Methods and Procedures: Cut and Borrow: Temporary Stockpiling of Materials

Add the following:

"The Contractor shall program the works in such a manner that suitable excavated material shall, if practically possible, be placed directly in the appropriate position to ensure that temporary stockpiling is limited to an absolute minimum"

PSDM 5.2.3.3 Construction: Methods and Procedures: Treatment of Roadbed

Add the following to subclause (a):

"The roadbed shall be scarified to a depth of 150mm, watered, shaped and compacted to 100% of MOD AASHTO."

PSDM 7.3.2 Testing: Routine Inspection and Testing

Add the following after the table:

"No density shall be less than the specified minimum density for the relevant layer. The cost of all routine testing done by the Engineer, and of which the results do not comply with the specified minimum requirement for the material, shall be borne by the Contractor."

PSDM 8.3.13 c) Supply and install Concrete Grass blocks (100x570x380) Unit: m2

Add the following payment items:

The tendered rate shall allow for the procurement, supply, transport to site, installation of concrete grass blocks, supply and installation of A4 bidim under grass blocks and backfilling of grass blocks with in-situ material which has been stabilised with 2% cement per volume of soil. The rate shall also cover trimming, shaping, watering and compaction of surface where grass blocks are to be installed.

PSDM 8.3.17 Shaping and Trimming of Road Reserves Unit: m2

Add the following payment items:

The areas between the top of cuts and the toes of fills and the erf boundaries are to be shaped and trimmed in such a manner as to present visually clean uniform slopes, lines and levels. The unit measurement shall be the square meter of surface shaped, trimmed, levelled and compacted. The tendered rate shall include for all trimming, shaping, watering and compaction to 90% of MOD AASHTO

End of PSDM

PS G 3.2.1 Applicable Specifications

Substitute G 3.2.1 with the following:

All cement types shall comply with the requirements of SANS EN 197 1.

For this contract CEM I Portland cement shall be used.

Where Malmesbury hornfels (shale) is used as aggregate in concrete, a blend (by mass) of 50 % CEM I 42,5 or CEM I 42,5R and 50 % milled granulated blast-furnace slag shall be used in the concrete mix.

PS G 3.2.3 Storage of Cement

Add the following to G 3.2.3:

Consignments of cement shall be used in the same sequence as that in which they are delivered to site. No cement shall be used which has been stored on site for a longer period than six (6) weeks. All cement so stored for a longer period than six (6) weeks, all cement damaged in any way, and all cement which does not comply with the specification, shall be removed immediately and permanently from the site.

PS G 3.5.2 Air-entraining Agents

Substitute G 3.5.2 with the following:

Air-entraining agents shall not be used in concrete.

PS G 4.5.3 Ties

Add the following to G 4.5.3:

Permanent metal ties shall have a minimum concrete cover of 40 mm after formwork has been removed.

Tie holes shall be filled with an approved expansive cementitious grout similar to "Durabed" of ABE. The product shall be prepared to a non-slump consistency, but where no cracking occurs when pressed into a firm ball. Trial mixes shall be made to arrive at the required working consistency.

PS G 5.1.3 Cover

Substitute G 5.1.3 with the following:

The cover of concrete over reinforcement, unless otherwise indicated on the drawings, shall in no case be less than 40 mm.

PS G 5.2.1 Classification of Finishes

Add the following to G 5.2.1:

The following surface conditions are required on the various portions of the finished concrete:

(a) Rough

Concealed surfaces and surfaces more than 100 mm below final ground level.

(b) Smooth

All surface finishes not classified as "rough" in paragraph (a) shall be classified as "smooth". All exposed arrises (i.e. where the angle between adjacent sides is 110° or less) unless otherwise indicated on the drawings, shall be chamfered 20 mm x 20 mm by means of triangular fillets fixed to the formwork.

PS G 5.2.5 Removal of formwork

In Table 2 of G 5.2.5.2, substitute “portland cement and portland cement 15” in columns 2, 3 and 4 with “CEM 1 portland cement, delete columns 5, 6 and 7 and substitute “portland blast-furnace cement” in columns 8, 9 and 10 with “CEM III blast-furnace cement or blends of CEM I portland cement with milled granulated blast-furnace slag”.

PS G 5.4 Pipes and Conduits

Add the following to G 5.4:

All pipes and specials which must be installed in the floors and walls of structures shall be embedded in the concrete during the casting of such concrete. No holes shall be left for the later installation of pipes and specials, without the written approval of the Engineer.

Where such holes have been approved by the Engineer, the Contractor shall be responsible for the grouting-in of such pipes or specials with an approved expansive cementitious grout as specified in PS G 4.5.3, regardless of whether or not these have been supplied by himself. The Contractor shall provide a smooth, dense and waterproof finish around the pipes or specials.

The clear space between pipes of any kind embedded in reinforced concrete and the clear space between such pipes and reinforcement shall at any point be not less than -

(a) 40 mm, or

(b) 5 mm plus the maximum size of coarse aggregate, whichever is the greater.

PS G 5.5.1.5 Durability

Substitute G 5.5.1.5 with the following:

Concrete shall be so proportioned to ensure that the water/cement ratio does not exceed 0,5 and, to ensure workability, water-reducing admixtures of approved manufacture shall be used in preference to increase the cement content.

PS G 5.5.1.7 Strength concrete

Add the following to G 5.5.1.7:

The grade of strength concrete and the maximum nominal size of coarse aggregate for each portion of the works, unless otherwise indicated on the drawings, shall be as follows:

(a) Mass concrete under floors and foundations	20 MPa/19 mm
(b) Blinding layers	15 MPa/19 mm
(c) Encasing of pipes	20 MPa/19 mm
(d) Strip foundations	20 MPa/19 mm
(e) Benching and screeds	20 MPa/10 mm
(f) All reinforced concrete	30 MPa/19 mm

PS G 5.5.7 Construction Joints

Add the following to G 5.5.7.1:

Construction joints shall be limited to the minimum and shall only be made in positions as shown on the drawings or in positions as specifically approved by the Engineer. Construction joints between tank bottoms, floors, or wall bases, and the walls standing on them shall not be made flush with the supporting surface but shall be made in the wall 150 mm above the base. The 150 mm high riser wall shall be cast as an integral part of the bottom, floor or base, i.e. the concrete in the riser shall be deposited simultaneously with the concrete in the bottom, floor or base adjacent to it. Where there is a fillet at the bottom of a wall, the construction joint shall be made 150 mm above the fillet.

A PVC waterstop without centre bulb shall be installed at all construction joints in walls of water-retaining structures. The size of the waterstops shall be 150 mm in walls thinner than 200 mm and 200 mm in walls of 200 mm thickness and more.

PS G 5.5.7.4 Expansion joints

Expansion joints shall be formed in positions and in accordance with details as shown on the drawings. All expansion joints shall be formed with an approved closed cell polyethylene fill material similar to "SPV 120" as supplied by Sondor, with a single part polyurethane sealant similar to Silkaflex – PRO 2HP as supplied by Sika. Rearguard S type PVC waterstops with centre bulbs shall be installed under floors and Hydrofoil PVC waterstops with centre bulbs in walls, as shown on the drawings.

All sealants, fill material and waterstops shall be installed strictly in accordance with the specification of the manufacturers and to the satisfaction of the Engineer. The sealant shall be installed in one operation and jointing to already hardened sealant will not be permitted.
(This clause is applicable to all water containing structures)

PS G 5.5.7.6 Bond breaker under floor

A 500-micrometre polyethylene bond breaker shall be installed between the blinding layer and the floor of the reservoir, as indicated on the drawings.

PS G 5.5.9 Adverse Weather Conditions

Add the following to G 5.5.9.1:

No material having a temperature of below 5 °C shall be used for concrete, and no concrete shall be deposited when the ground or air temperature is below 2 °C. Furthermore, if the air or ground temperature is likely to fall below 2 °C within twelve (12) hours after depositing of concrete, no concreting shall be done without the written consent of the Engineer. If such consent is given the Contractor shall heat the aggregate stockpiles and mixing water and defrost the formwork and reinforcement.

PS G 5.5.10 Concrete Surfaces

Add the following to G 5.5.10.1:

Concrete surfaces under screeds, granolithic floor finishes or benching, and surfaces of strip foundations and footings shall be brought up to a plane, uniform surface with a suitable screed board.

PS G 5.5.10.4 Wood-floated finish

Where wood floating is specified or scheduled, the surface shall first be given a finish as specified in G 5.5.10.1 and after the concrete has hardened sufficiently, it shall be floated to a uniform surface free from trowel marks. The screeded surface shall be wood-floated, either by hand or machine, only sufficiently to produce a uniform surface free from screed marks.

PS G 5.5.10.5 Steel-floated finish

Where steel floating is specified or scheduled, the surface shall be treated as specified in PS G 5.5.10.4 except that, when the moisture film has disappeared and the concrete has hardened sufficiently to prevent laitance from being worked to the surface, the screeded surface shall be steel-trowelled under firm pressure to produce a dense, smooth, uniform surface free from trowel marks.

PS G 5.5.11 Watertight Concrete

Substitute G 5.5.11 with the following:

PS G 5.5.11.1 General

All structures that are designed to retain water or to keep water out, shall be regarded as watertight structures.

PS G 5.5.11.2 Requirements and tests for watertightness of structures

The completed structure shall be watertight, and the quality and finish of the work shall be such that no after-treatment of the work such as plastering or cement wash is necessary to ensure compliance with this requirement.

The works will not be certified complete until the structures enumerated in PS G 5.5.11 has been proved by testing to be watertight.

Upon completion of construction and when so agreed by the Engineer, the structure shall be filled by the gradual admission of water until, the water level reaches the designed maximum level. The water level shall then be carefully noted and recorded by the Engineer in relation to a fixed bench mark, and the structure shall be allowed to remain filled for a period of two (2) weeks or such longer time as may be required to permit complete saturation of the concrete. During this period, readings will be taken by the Engineer and the results so obtained will be available for the information of the Contractor.

At the end of this period more water shall be added, if necessary, to bring the water level back to the designed maximum level and the water shall be left undisturbed for a period of at least four (4) days during which time the level shall again be recorded by the Engineer at regular intervals. The structure shall be considered to be watertight if the drop in water level does not exceed 6 mm in 96 (ninety six) hours in the case of a roofed structure and if no leakage is apparent.

The acceptable drop in level in the case of an unroofed structure shall be such that it allows for normal evaporation during the time of the test.

If appreciable leakage is evident at any stage of the filling or testing or if, in the opinion of the Engineer, the degree of watertightness is unsatisfactory, the Contractor shall, when so ordered by the Engineer, discontinue the test immediately and at his own expense take approved steps to rectify the work. The work of rectification shall be continued assiduously until, on repetition of the test procedure, a satisfactory test result is obtained and the degree of watertightness is acceptable.

The Engineer shall have the right to retest the structure before the expiry of the period of maintenance and the results of these tests will be made available to the Contractor. If these tests indicate to the Engineer that the degree of watertightness is unsatisfactory, the Engineer (before issuing the final certificate) will be entitled to order the Contractor to rectify the work at his own expense in such a manner as will cause least interruption to the running of the works and will ensure that the degree of watertightness of the structure is satisfactory.
Backfilling around structures shall not commence until a satisfactory test result has been obtained.

The watertightness of the dry well of the pump station shall be monitored visually until the end of the defects liability period. If any damp penetration from the outside is noticed, the Contractor shall take immediate remedial steps.

(The above paragraph is applicable where dry wells of pump stations, etc. are below ground level.)

The Engineer shall have the right to retest the structure before the expiry of the period of maintenance, and the results of these tests will be made available to the Contractor. If these tests indicate to the Engineer that the degree of watertightness is unsatisfactory, the Engineer (before issuing the final certificate) will be entitled to order the Contractor to rectify the work at his own expense in such a manner as will cause least interruption of the water supply to consumers and will ensure that the degree of watertightness of the structure is satisfactory.

PS G 5.6 Sterilisation of Structures Holding Potable Water

The structures shall be sterilised before testing, and before retesting, for watertightness.
The walls, floors and soffits of roof slabs shall be hosed down and brushed until clean and free from loose material.
The structures shall then be filled with clean water containing 150 g/m3 of calcium hypochlorite, to a water depth of 150 mm. The walls shall be thoroughly washed down after which all dirty water shall be flushed out.
Staff doing the washing down with the chlorine solution shall wear rubber boots.

PS G 5.9 Joining new Concrete to Existing

Where partial demolition is required for extension work to existing structures, the contact face shall be cut to predetermined line and level, and any loose and fragmented material shall be removed, and projecting steel cleaned and bent as directed by the Engineer. Where partial demolition is not required but extension work only, the contact surface shall be scabbled and cleaned of all dirt and loose particles.

If dowels are required, they shall be installed in holes drilled into the existing structure, in accordance with the details shown on the drawings, and secured by means of an approved type of epoxy bonding compound such as Epidermix 372 or similar.

Fresh concrete shall be bonded to the old concrete with an approved type of epoxy bonding compound, such as Epidermix 344 or similar.

PS G 5.11 Mould for Parshall Flume

A mould of glass reinforced polyester (GRP) shall be used as permanent formwork for the construction of the Parshall flume. The mould shall be manufactured by a firm specialising in such work and approved by the Engineer before manufacture.

All resins used shall be high quality isophaltic polyester resins specially formulated for use in flumes for sewage.

The rate at which resins are applied shall be adjusted for conditions during manufacture, such as temperature and humidity, in order to limit shrinkage.

The dimensions shown on the drawings are internal dimensions and the departure from these dimensions shall nowhere be more than 0,5 %.

The GRP lay-up shall consist of the following:

a) One gel-coat of resin, pre-mixed at the factory with silvery grey pigment paste, at a rate of not less than 600 g/m2 (i.e. the coat that will be in contact with the sewage).
b) One C-glass tissue layer impregnated with resin at a rate of 1:1, Resin:C-glass.
c) One layer 300 g/m2 chopped strand mat (CSM) impregnated with resin at a minimum rate of 2:1; Resin:CSM.
d) Five layers of 450 g/m2 each of CSM impregnated with resin at a minimum rate of 2:1; Resin:CSM.
e) One flow-coat at a rate of not less than 600 g/m2.

The resin for the mechanical layers and the flow-coat shall be pre-mixed with 3 % silvery grey pigment paste.

For improvement of adhesion to the concrete, sand, as specified for concrete, shall be sprinkled over the flow-coat whilst still wet.

Anchors of 50 mm x 2 mm galvanised hoop iron, with the last 50 mm of both ends split in two halves and bent back 90° in opposite directions, shall be moulded into the mould in positions as detailed on the drawings. The anchors shall enter the concrete by at least 100 mm.

If, after manufacture, cutting of the mould is required to obtain final dimensions, the cut ends shall be treated with a topcoat as specified in paragraph (a).

The struts for the mould, used during manufacture, shall be kept in place until the casting of concrete underneath and on the sides of the flume has been completed, in order to act as support during casting of the concrete.

PS G 8.1.1 Formwork

Delete the following in G 8.1.1.3(c):
"and for different prop heights for beams and slabs".

PS G 8.1.3 Concrete

Add the following to PS G 8.1.3.1(d):
Strip foundations and encasement of pipes shall be cast directly against the sides and bottoms of excavations. No payment shall be made for additional concrete in overbreak.
Delete the full stop at the end of G 8.1.3.3(a) and add the following:
"and special steps necessary before depositing concrete during cold weather, as prescribed in PS G 5.5.9".

PS G 8.2.7 Mould for Parshall Flume Unit: Sum

The rate covers the cost of the supply of all materials, including anchors and temporary struts, labour, equipment, manufacturing, process control, loading, transporting to site, off-loading, installing and of removing temporary struts after installation.

PS G 8.4.4 Unformed Surface Finishes Unit: m2

Add the following to G 8.4.4:
The concrete surface finishes under screeds, granolithic finishes or benching as prescribed in PS G 5.5.10 shall not be measured separately. The rates for the related concrete items shall also cover the cost of these surface finishes.

PS G 8.4.7 Scour Canal in Reservoir Floor Unit: Sum

The rate shall cover the cost of additional material and labour required for forming and finishing the scour canal, as well as the bell mouth, as indicated on the drawings.

PS G 8.4.8 Concrete complete with formwork and/or trowel finish Sum or m3

The rate shall cover the cost of the provision of concrete (made from ordinary Portland cement, unless otherwise scheduled), mixing, testing, placing, compacting, the forming of stop-ends and unforeseen construction joints, striking-off or levelling as applicable, trowelling and curing and repairing where necessary, together with the cost of all parts of formwork in contact with the concrete and the necessary bearers, struts, and other supports, plus the layout and plant necessary to erect and strike such formwork.

PS G 8.5 Joints Unit: m

Add the following to G 8.5:
Only construction joints with PVC waterstops shall be measured separately. The cost of all other construction joints shall be deemed to be included in the rates for the relevant concrete items.

PS G 8.9 Testing Structures for Watertightness Unit: Sum

The rate shall cover the cost of all equipment and labour necessary to test the structure for watertightness as described in PS G 5.5.11.1, including the supply of water and filling such structure.
No additional payment will be made for re-testing the structure for watertightness after the repair of leaks.

PS G 8.10 Sterilisation Unit: Sum

The rate shall cover the cost of all equipment, water, chemicals and labour necessary to sterilise the structure.
No additional payment will be made for re-sterilising the structure before re-testing for watertightness.

PS G 8.14 Join New Concrete to Existing

a) Partial demolition (describe) Unit: Sum
b) Scabbling of existing surface Unit: m2
c) Steel dowels Unit: No

The rate for (a) shall cover the cost of partial demolition as described, and of exposing, cleaning, cutting and bending the existing reinforcement, as well as repairing the concrete surface that is to be retained and disposing of waste material.

End of PSG

SANS 1200 GA – CONCRETE (SMALL WORKS)

PS GA 5.2.1 Classification of Finishes

Add the following to GA 5.2.1:

The following surface conditions are required on the finished concrete:

a) Rough
   Concealed surfaces and surfaces lower than 100 mm below finished ground level.

b) Smooth
   All surface finishes not classified as rough in paragraph a) shall be classified as smooth. All exposed arrises unless otherwise indicated on the drawings, shall be chamfered 20 mm x 20 mm by means of triangular fillets fixed to the formwork.

PS GA 8.1.2 Reinforcement

Substitute GA 8.1.2 with the following:

Reinforcement shall be measured and payed for by mass. Valuation of variations shall not be applicable.

No allowance shall be made for individual reinforcement bar sizes.

PS GA 8.2.3 Narrow Widths Unit: m

Substitute GA 8.2.3 with the following:

No payment shall be made for narrow widths.

PS GA 8.3.2 High-tensile Welded Mesh Unit: kg

Substitute GA 8.3.2 with the following:

Welded mesh shall be measured and payed for by mass.

PS GA 8.4.1 Prescribed Mix Concrete Unit: m3

Add the following to GA 8.4.1:

The rate for installation of concrete slabs shall include for the compaction of the in situ material to 90 % of MAASHTO density.

PS GA 8.9 Weep-Holes Unit: No

The rate for installation of weep-holes as shown on the drawings shall include all material, plant and labour.

PS GA 8.10 Handrails Unit: m

The rate shall cover the cost for supplying of all material, plant and labour for the installation of the handrails as shown on the drawings.

PS GA 8.11 Pre-Cast Concrete Beams Unit: No

The rate shall cover the cost for the supply, delivery and installation of grade 25 MPa/19 mm concrete beams complete with reinforcement, formwork concrete and finishing as shown on the drawings.

End of PSGA

PS HA 5.2.6 Handrails

Substitute the first sentence of HA 5.2.6 with the following:
Handrails shall be of the tube and sphere type and shall be manufactured by an approved firm specialising in such works.

Handrails shall be 900 mm high and shall consist of a handrail and a knee-rail, both manufactured of steel tubing of nominal thickness 2,6 mm and of nominal outside diameter of at least 34 mm.

Stanchions shall be manufactured preformed in one piece and shall be of steel tubing of nominal thickness of 2,6 mm and of nominal outside diameter of at least 42 mm. The bases of the stanchions shall be manufactured of 150 mm x 75 mm x 12,5 mm flat bars and shall be preformed to suit the situation in which they are to be installed (i.e. for platform- or side-mounting, and for horizontal- or sloped-mounting on concrete or steel), and the stanchion spheres shall be preformed to suit right angled or other angled intersections), all as shown on the drawings.

Stanchions shall be spaced at intervals not exceeding 1,5 m and shall be fixed with two M16 galvanised bolts, washers and nuts each. All joints shall be welded.

Handrails shall be hot-dip galvanised after manufacture.

PS HA 5.2.11 Ladders

Add the following to HA 5.2.11:
Ladders shall be hot-dipped galvanised after manufacturing.

PS HA 5.2.12 Prefabricated Open Grid Floors

Substitute the second sentence of HA 5.2.8.1 with the following:
This shall be similar to the "U"-grid type grid floors manufactured by Armco Superlite and hot-dipped galvanised.

PS HA 5.2.13 Floor plate Floors

Substitute HA 5.2.13 with the following:
Floor plate floors shall consist of 8 mm thick raised pattern plates as shown on the drawings. Floor plate floors shall be hot-dipped galvanised after manufacturing.

PS HA 8.3.6 Corrosion Protection

Substitute HA 8.3.6 with the following:
Corrosion protection shall not be measured separately. The cost thereof shall be included in the rate for the related item.

PS HA 8.3.7 Stantions Unit : No

The rates shall cover the cost for the supply of all material, manufacturing, galvanising, handle, deliver to site, offloading, erection and grouting. The rate shall also cover the cost for all bolts and nuts, washers, cutting to size, etc.

PS HA 8.3.8 Steel Basket Unit : No

The rate shall cover the cost of manufacturing, supply of all materials (stainless steel) delivery on site and installation. The rate shall cover the cost of all bolts and nuts, washers, cutting to size, etc.

End of PSHA

PS L.3.7.1 Materials: Other Types of Pipe: uPVC pipes
Replace the clause with the following:
"All uPVC pipes and fittings shall be fitted with spigot and socket rubber ring joints and shall comply with the relevant requirements of SANS 966, of the class and size as specified on drawings and schedule.

Bends shall be socketed uPVC, class 16. Standard specials such as tees, flange adaptors, reducers, etc shall be fabricated from cast iron and shall be rated at not less than the pressure rating of the pipeline."

PS L 3.8.4 Loose Flanges
Substitute the first sentence of the last paragraph of L 3.8.4 with the following:
Bolts and nuts shall comply with the requirements of SABS 135.

PS L.3.9.1 Materials: Corrosion Protection: CI Pipes
Replace the clause with the following:
"All internal cast iron surfaces valves and specials shall be thoroughly cleaned by grit blasting to SA 2,5 finish in compliance with the requirements of SIS 05 09 00 before applying Copon EP 2300 epoxy paint, applied in three coats to give a dry film thickness of not less than 250 microns. All external cast iron surfaces valves and specials shall be cleaned and coated in accordance with B4772. After it has set, coating shall be such that it will not flow when heated to temperature of 75°C."

PS L.3.9.5 Materials: Corrosion Protection: Joints, Bolts, Nuts and Washers
Replace the clause with the following:
"All bolts, nuts and washers shall be stainless steel."

PS L 3.10.1 Gate Valves
All gate valves shall comply with the requirements of SABS 664 and shall be suitable for a working pressure of 1,6 MPa. All gate valves must be supplied with a square spindle nut, suitable to be used with a valve key.

Gate valves shall have spigot ends unless shown differently on the drawings and shall open clockwise. The direction for opening and closing shall be permanently displayed on the valves. Valves shall have non-rising spindles.

Compression shut-off valves with rubber protected gate and smooth finish without recess inside, may be used.

All flanged gate valves shall be drilled according to SABS 1123 Table 1600/3. Pipes shall not be tested against a closed valve. Thrust blocks for test sections shall be approved by the Engineer prior to testing of pipes.

PS L 3.10.2 Butterfly Valves
Butterfly valves shall be of the wafer pattern to be installed between two flanges in the water main with either short collar repair couplings or Viking Johnson couplings.

The valves shall be fitted with a gearbox with a stainless steel shaft. The body shall be clad with rubber.

Valves shall be similar to the "Compact" type with a working pressure of 1,6 MPa. Pipes shall not be tested against closed butterfly valves.

PS L 3.10.3 Fire Hydrants
Fire hydrants shall be of the screw-down underground type and shall be suitable for a working pressure of 1,6 MPa with a 65 mm inlet. The outlet shall be 63 mm dia gun-metal with London Vee screw thread with cap top and chain. It shall open clockwise with a square spindle nut of the same size that is specified for the gate valves.

The fire hydrant shall be bolted to the flanged branch of a cast iron hydrant tee.

PS L 3.10.4 Air Valves
Air valves for potable water shall be suitable for a working pressure of 1,6 MPa. All air valves shall be double action air valves of Vent-o-mat series RB. On a 500 mm dia or smaller main a 50 mm air valve shall be fitted and a 80 mm air valve on diameters larger than 500 mm.

The branch of the tee on the main pipe shall be minimum 0,67 (2/3) of the diameter of the main pipe.

All air valve installations shall be supplied with an isolating valve and distance piece between the air valve and the branch of the tee, and other fittings shown on the drawings.

Double-acting air valves shall have large as well as small orifices. The large orifice shall have a rubber bed, and the small orifice a brass bed on which the balls can shut. Double-acting air valves shall be flanged and supplied with flanged isolating valves. Air valves shall be designed to remain open until all the air has escaped and shall not close due to the speed of the escaping air.

T-pieces for air valves shall be as follows:

Main pipe mm dia	Branch mm dia
250	200
300	200
350	250
400	300
450	300
500	350
600	400
700	500
800	600
900	600
1 000	700

Air valves for sewers shall be RSC figure valves of stainless steel as supplied by Premier Valves. These valves shall be flanged and supplied with a separate flanged gate valve.

PS L 3.10.5 Scour valves

Scour valves shall be suitable for a working pressure of 1,6 MPa.

Scour valves shall consist of a flanged gate valve of 100 mm dia coupled horizontally to a flanged cast iron scour valve tee. The outlet pipe shall be a 100 mm nominal diameter galvanised steel pipe with 4 mm wall thickness. The outlet shall discharge above ground level in the direction of the fall of the natural ground surface, perpendicular to the main pipe. The outlet end of the pipe shall be cut diagonally and supplied with a cover that is hinged and that will remain closed unless it is forced open by the water. The hinge shall be non-removable.

Scour valves on 75 mm dia pipes shall be the same as above except that a 75 x 75 mm dia fire hydrant tee shall be used and that the gate valve and outlet pipe shall both be 75 mm diameter.

PS L 3.10.6 Non-Return Valves

Non-return valves shall be of the flanged, single door swing type check valve, rated at 16 Bar minimum or to suit pump shut off head. All valves shall be equipped with a lever and counter weight.

PS L 3.10.7 Bulk Water Meter

New bulk water meters shall be installed as shown on the drawings.

Functional Requirement Of Bulk Water Meters

DESCRIPTION	METER 1	METER 2	METER 3
1. Detail op pipeline	250 FC Class 30	300 FC Class D	250 FC Class D
2. End connections	Flanged, SABS 1123 class 1600/3	Flanged, SABS 1123 class 1600/3	Flanged, SABS 1123 class 1600/3
3. Maximum working pressure	130 m	20 m	20 m
4. Maximum flow rate	75 ℓ/s	65 ℓ/s	45 ℓ/s

Technical requirements for the meters

The bulk water meters shall be of the free-flow type manufactured from corrosion resistant material in a cast iron casing. A distance of 10 times the diameter of the pipe before and 5 times the diameter after the water meter must be kept free of any obstructions such as bends, valves, reducers, etc.

The flow reading shall be given on a dial face and totalising shall occur by means of a roller counter and shall be accurate within ± 2 %.

The meter shall be manufactured in such a way that all moving parts can be removed and replaced from the top without removing the whole meter. Replacement parts should be freely available. Each water meter installation shall be supplied with a gate valve on the upstream side of the water meter at a distance of 10 times the diameter of the pipe. This gate valve shall be provided for under the relevant item in the schedule of quantities.

The meter shall have a connection point to send flow data by signal to a computer, similar to that of a Meinecke meter.

Installation of meter
The meter shall be installed by a person approved by the supplier in order to validate the guarantee.

All accessories for the complete installation shall be supplied by the Contractor.

All metal work shall be painted according to specifications after the testing and completion of the installation.

PS L 3.10.7.1 Specifications for electrical powered Mag Flow meter:

Supply and Commissioning of DN50 -DN250 Mag Flow Meter.

- 220v AC Supply (optional standby power)
- Readout unit must be remote (6m) and must be able to show flow rate & totalizer readings
- Current output: 4 - 20 mA output signal for flow rate
- Pulse / Frequency output: active / passive output for flow totalizer
- Pulse / Frequency output: output for alarm conditions
- Forward, reverse and total flow counters
- Low flow cut off function
- Empty pipe detection function
- Polyurethane coating or similar for potable water conditions as per SANS 241 (Water quality will be provided on request)
- Unit must comply to at least IP 67 or higher.
- Accuracy of 0,5% or better is required (A certified Calibration certificate is required)
- Modbus RTU communication module
- Full specifications of meters must be included

PS L 3.10.7.2 Specifications if battery powered Mag Flow is required:

Supply of DN50-DN250 Battery Mag Flow Meter.

- Internal battery pack,
- Readout unit must show flow rate & totalize readings
- Current output: 4 - 20 mA output signal for flow rate
- Pulse / Frequency output: active / passive output for flow totalizer
- Forward, reverse and total flow counters
- Low flow cut off function
- Empty pipe detection function
- Polyurethane coating or similar for potable water conditions as per SANS 241 (Water quality will be provided on request)
- Unit must comply to full IP 67 rating
- Accuracy of 0,5% or better is required (A certified Calibration certificate is required)
- Modbus communications can be advantageous.
- Full specifications of meters must be included

Technical Requirements for The Meters

The bulk water meters shall be of the free-flow type manufactured from corrosion resistant material in a cast-iron casing. A distance of 5 times the diameter of the pipe before and 3 times the diameter after the water meter must be kept free of any obstructions such as bends, valves, reducers, etc.

The meter shall be manufactured in such a way that all moving parts can be removed and replaced from the top without removing the whole meter. Replacement parts should be freely available. Each water meter installation shall be supplied with a gate valve on the upstream side of the water meter at a distance of 5 times the diameter of the pipe. This gate valve shall be provided for under the relevant item in the schedule of quantities.

See below for typical flow meter sizes to be used. The product use in the table below is Siemens Mag Flow meters, but similar flow meter may also be used upon Engineer's approval.

DESCRIPTION	**METER 1**
DETAIL OF METER	**200mm DIAM.**
HOUSING OF FLANGES	Carbon steel ASTM A 105, with corrosion-resistant epoxy coating
OPERATING PRESURE	Max. 16 bar
ACCURACY	0.2 % ±2.5 mm/s
WORK FLOW RATE	40l/s

PS L 3.10.8 Control Valves

The casing of the control valves shall be manufactured from close-grained cast iron and the flanges shall be drilled according to SABS 1123 Table 1600/3.

The valves shall be of the diaphragm single bed ball-type controlled hydraulically by a pilot valve. The main valves shall be fixed on three sides with single removable bronze beds and synthetic rubber disks with a rectangular cross-section, with disk clamps. No packing material will be allowed and repairs must be done without removing the valve from the pipeline.

The design must be such that no water can come from the main valve into the pilot valve system. Bermad type 700 with a V-port throttling plug, or a similar product, must be used. If the pressure in the main pipe is not sufficient to control the valve, a connection shall be made with the pump line.

PS L 3.10.9 Pipework and Fittings

All pipework, fittings and specials above ground shall be priced for supply and delivery as indicated on the plans.

Piping shall be manufactured from Hot Dipped Galvanised Steel. Flange drilling shall comply with SANS 1123 Table 1600/3, rated to a minimum of 16 bar or higher.

Piping shall be designed to facilitate dismantling, inspection and future maintenance of ancillary equipment and valves installed. This shall include Viking Johnson type flanged adaptors and restraining flanges with tie rods as required.

All connecting pipework shall include a gasket/packing which shall be of the full-face type or better and shall be a minimum of 3mm thick when uncompressed.

Piping shall be Hot Dipped Galvanised after manufacture in accordance with industry norms.

Piping joints underground (Covered in Soil) shall be wrapped on a Denso type tape and paste and allowed to set adequately before backfilling.

Note: Any expected water forces and/or thrusts at bends or connection points must be taken into consideration and mitigated by means of pipe braces/supports and/or sufficient mass concrete.

PS L 3.11.4 Step Irons

Substitute L 3.11.4 with the following:
Step irons shall consist of polypropylene coated 12 mm high tensile steel such as Calcamite or similar. The installation of the step irons shall be in accordance with the specification of the manufacturer.

PS L 3.11.6 Surface Boxes
Add the following to L 3.11.6:
The type of cast iron boxes shall be as specified on the drawings.

PS L 4.3 Testing
Add the following to L 4.3
The Contractor must ensure that the test equipment is in good order and that it is calibrated.

PS L 5.1.1 General
Add the following to L 5.1.1:
Where asbestos cement pipes are built into structures as indicated on the drawings, the length of pipe that is built in, must not exceed 600 mm.

In order to facilitate for movement between structures, a length of asbestos cement pipe of a minimum of 600 mm must be connected to the section that is built into the structure or to the pipe, as indicated on the drawings.

PSL 5.1.4 Laying: Depths and Cover
Add the following after the first sentence:
”Unless otherwise shown on the drawings, All pipes smaller and equal to 110mm diameter shall be laid to provide a minimum cover of 1,0m from finished ground or roadway level within road reserve and 0,8m elsewhere. Pipes larger than 110mm diameter shall be laid to provide a minimum cover of 1,2m.”

PS L 5.1.4.2 Deflection
Substitute "1,5° per joint in the case of AC pipes" in L 5.1.4.2 with "3° per joint in the case of AC pipes with AC couplings and 4° in the case of AC pipes with cast iron short collar repair couplings".

PS L 5.6.1 Construction: Valve and Hydrant Chambers: General
Replace the clause with the following:
“All chambers and surfaces boxes shall be constructed in accordance with the details shown on the drawings.”

The drawings of valve and hydrant chambers which are bound into the document shall super-sede the corresponding drawings in the standard specification.

PS L 5.9 Lifting and Relaying of Existing Pipes
Add the following to L 5.9:
Existing water pipes at certain points shall be lifted and relayed deeper in the same position. The Contractor must make timeous arrangements with the local authority.

PS L 5.11 Stand Pipes
Stand pipes shall comprise a CI saddle, of size suitable for the water main, drilled and tapped 28 mm; length of 28 mm copper pipe ending 750 mm above ground level; 25 mm brass hose bip-tap; all bends, fasteners and other fittings necessary; standpipe fixed to wall of building or fixed to and including 100 mm diameter wooden pole 1 400 mm long firmly installed in the ground.

PS L 7.3.1 Testing: Standard Hydraulic Pipe Test: Test Pressure and Time of Test
Add the following to Cl 7.3.1.1:
“Pipes shall not be tested against isolating valves. Special blank flanges or end caps, fully anchored, shall be provided for testing.”

Substitute Cl 7.3.1.2 with the following:
“The test pressure for field testing shall be 1,5 times the rated maximum working pressure of the pipe.”

Substitute CL 7.3.1.3 with the following:
“The test pressure applied according to Cl 7.3.1.2, must, with allowance for any level differences along the pipeline, be such that the pressure at any point in the pipeline will be at least 1,25 times and not more than 1,5 times the rated working pressure of the pipe.”

PS L 8.2.3 Extra-over 8.2.1 For The Supplying, Fixing And Bedding Of Valves Unit : No

Add the following to L 8.2.3:
Valves are measured and paid for per item, complete with the inclusion of the cutting of pipes, couplings, extra excavation and all extra material and labour that is required, including tees, fittings, isolating valves (e.g. under air valves), complete as shown on the drawings. Flanged distance pieces shall be included in the rate for fire hydrants.

PS L 8.3 Water Meters Unit : No

The rate for water meters shall cover the cost of the supply of a flanged water meter, with the necessary couplings to be connected to the appropriate pipes, the installation, testing and putting into operation of the complete meter.

PS L 8.4 CONTROL VALVES Unit : No

The rate for control valves shall cover the cost of the provision of a flanged control valve with a flanged gate valve of the same diameter, with the required fittings, couplings, piping, etc. to be connected to the appropriate pipes, as well as for the pilot valve, copper pipe, etc. and for the complete installation, testing and putting into operation of the valve.

PS L 8.2.8 Recover Old Pipe Line Unit : m

Add the following to L 8.2.8:
The tendered rate for the lifting and relaying of pipelines at a deeper position in the same trench shall be all inclusive to expose the existing pipeline which lies at a depth of up to 1,5 m, to disconnect it, remove it, deepen the trench to 2 m, prepare the bedding and relay the pipes, and backfill and compact the trenches. The rate shall also cover the cost of timeous liaison with the authority concerned and homeowners, and the programming for the disconnection of that service at a time arrange with the authority so that the minimum disruption occurs.

There will be distinguished between the various pipe diameters, and all the requirements of L 8.2.8 and L 8.2.9 are applicable as well.

PS L 8.2.10 Temporary Valves, Etc. Unit : Sum or No

Substitute L 8.2.10 with the following:
Temporary valves, end caps or blank flanges testing shall be included in the rate for the laying of pipes except where separate items are included in the schedule of quantities.

PS L 8.2.11 Anchor/Thrust Blocks and Pedestals Unit: m^3

Under item (b) delete the following item:
Reinforcement Unit: t

Replace the first sentence under “Reinforcement” with the following:
“Anchor and thrust blocks shall be measured per cubic metre concrete and the tendered rate shall include for all reinforcement for the required dimensions”

PS L 8.2.13 Valve And Hydrant Chambers, Etc Unit : No

Add the following to L 8.2.13:
The rate for scour-valve chambers must also cover the cost of the supply and installation of the scour outlet as described in PS L 3.10.4 and indicated on the drawings.

PS L 8.2.14 Manholes Unit : No

Add the following to L 8.2.14:
Overflow boxes and pipe outlets shall, as in the case of manholes, be measured and paid for per number and shall be all inclusive as shown on the drawings.

PS L 8.2.16 Cut Into And Connect To Existing Mains Unit : No

The cutting into existing mains shall be measured by the number of each type and diameter of pipe cut into.

The tendered rate shall include full compensation for all arrangements with the relevant authorities, isolating the main, cutting into the main to accommodate the connecting fitting, dewatering, excavating, removing of excess material, taking steps to prevent the ingress of soil, stones and other material into the main as well as all material and labour to connect the pipe.

PS L 8.2.17 Stand Pipes Unit : No

Separate items will be scheduled for each diameter and type of water main.

The tendered unit rate shall cover the cost of the all material described in PS L 5.11, and of the plant and labour necessary for the complete construction of a stand pipe.

PS L 8.2.18 Extra-over L 8.2.1 For Laying Of Control Cable Unit : m

The control cable shall be supplied by the electrical contractor and it must be laid in the pipe trench under this contract according to the specifications of the electrical contractor. The tendered rate shall cover the cost of receiving, storing, handling, laying, bedding, making of joints, etc. and shall provide for all delays that may be caused by this.

End of PSL

SANS 1200 SECTION LB: BEDDING (PIPES)

PS LB 1.1 SCOPE

Add, after the first sentence, the following:

"This specification also covers the bedding required for electric cables and cable ducts."

PS LB 3.1 Selected Granular Material (SANS 1200LB Cl3.1)

Replace the clause with the following:

*"*Selected granular material shall be an aggregate, sand or granular material, all of a non-cohesive nature and free from any organic material, of which the grading analysis shows 100 % passing a 13,2 mm sieve and not more than 5 % passing a 0,075 mm sieve.

The Contractor shall, at least 14 days before commencing bedding operations, submit a sample of the material he intends to use as selected granular material to the Engineer for approval.

Where selected granular material from excavations on site the Contractor shall ensure it conforms to the above requirements.

In very wet conditions and if so ordered by the Engineer, a non-plastic crushed material with the specification as stated below should be used for bedding cradle.

a) Grading

Sieve size (mm)	% Passing
19,0	100
13,2	84 -100
9,5	70 - 84
4,75	45 - 65
2,36	29 - 47
1,18	19 - 33
0,60	13 - 25
0,30	10 - 18
0,15	6 - 13
0,075	4 - 10

b) Crusher value

The aggregate crushing value, calculated at minus 13,2 mm plus 0,5 mm fraction, may not exceed 29.

PS LB 3.2 Selected Fill Material

Replace the clause with the following:

"Selected fill material will comply with the provisions of SANS 1200LB Cl 3.1 as amended"

PS LB 3.3 Bedding

Replace the first sentence with the following:

"For rigid pipes, Class B bedding will be used throughout."

PS LB 5.1.4 Compaction (SANS 1200LB Cl 5.1.4)

Replace "…90% MAMDD" *with* "93% MAMDD (100% for sand)".

PS LB 8.1.1 Supply Of Bedding Materials Measured Separately

Add the following to LB 8.1.1:

Except for electric cables payment for bedding material and selected fill material is only made if the selected trench-excavation material cannot be used in the same position as bedding material but has to be obtained from another part of the site of works or designated borrow pits, or from commercial sources.

PS LB 8.1.3 Volume of Bedding Materials

Add the following:

"The volume of bedding material shall be measured net and shall exclude the volume occupied by the pipe."

PS LB 8.1.4 Separate Items for Cradle and Blanket

Replace the clause with the following:

"No distinction shall be made as regards material for the bedding cradle and selected fill blanket, and the material shall comply with the requirements for material for bedding cradle."

PS LB 8.1.5 Disposal of Displaced Material

Add the following:

"All surplus and unsuitable material as described in Cl 8.1.5 shall be disposed of as described in SANS 1200D Cl 5.2.2.3."

PS LB 8.2.2.3 From commercial sources

Add the following to LB 8.2.2.3:

c) Bedding for wet conditions Unit : m^3

The requirements of PS LB 3.1 for bedding in wet conditions must be noted. Payment will only be applicable if ordered by the Engineer.

PS LB 8.2.2.4 From stockpile (provisional)

a) Selected granular material Unit : m^3

b) Selected fill material Unit : m^3

The rate shall cover the cost of obtaining, handling and transport regardless the distance, of the required bedding material from the stockpile, the delivery thereof at positions that are spaced along the trench in such a way as suits the working method of the Contractor, as well as the removal of material displaced by this importation within a free-haul distance of 0,5 km.

End of PSLB

SANS 1200 SECTION LC: CABLE DUCTS

PSLC 3.1 Materials: Ducts
Add the following:
"Class 6 uPVC pipes (dia 110 mm or 160 mm) shall be used as ducts for electric and telecommunication cables under streets."

PSLC 3.2 Bedding
Substitute LC 3.2 with the following:
"The provisions of SANS 1200 LB: Bedding (Pipes) and the relevant project specifications shall apply mutatis mutandis. Payment shall be made under the appropriate payment clauses of SANS 1200 LB or related project specifications."

PSLC 3.3 Backfill
Substitute Cl 3.3 with the following:
"The provisions of SANS 1200 DB: Earthworks (Pipe Trenches) and the relevant project specification shall apply mutatis mutandis. Payment shall be made under the appropriate payment clauses of SANS 1200 DB or related project specifications."

PSLC 3.4 Cable Duct Markers
Add the following to Cl 3.4:
'Cable duct markers shall be provided as specified in PSLC 5.8".

PSLC 5.1.1 Construction: Excavation of Trenches: Trench Widths and Depths
Add the following:
"5.1.1.5 Trench widths shall be in accordance with the provisions of SANS 1200 DB: Earthworks (Pipe Trenches). The minimum depth of cover over ducts shall be 800mm from the final road level. The minimum depth of cover over ducts shall be 600 mm where construction traffic is liable to cross them. Road crossings shall therefore be constructed after the construction of the roadworks has reached the stage where the required cover is available."

PSLC 5.2 Construction: Bedding and Compaction of Bedding
Replace Cl 5.2.1 and Cl 5.2.2 with the following:
"All ducts shall be laid in flexible pipe bedding according to the provisions of SANS 1200 LB: Bedding (Pipes). Backfilling shall be according to the provisions of SANS 1200 DB: Earthworks (Pipe Trenches)."

PSLC 5.8 Construction: Road Crossings
Substitute "0,5 m" in the last sentence of Cl 5.8 with "1,0 m" and add the following:
"Ducts for road crossings shall be sealed by means of end caps."

PSLC 5.10 Construction: Position to be Marked
Replace the subclause with the following:
The positions of ducts shall be marked by means of incisions on top of the kerb. The mark shall be 5mm thick with 75mm high lettering. The recess shall be painted with poly acrylic roof paint. Precast recessed kerbs are preferred. Identification marks to be as follows:

The draw wire, as specified in Cl 5.3.3, shall be secured to a 150 x 150 x 150 mm grade 20 MPa/19 mm concrete marker, which shall be installed with a depth of cover of 50-100 mm below the final level. The Contractor shall keep accurate records of the exact position of each duct.

PSLC 7.2 Testing: Compaction Testing
Substitute the subclause with the following:
"The Contractor shall, for at least one out of every five road crossings, submit density tests to the Engineer at his own expense. The decision as to which road crossing densities shall be tested, rests with the Engineer. The Contractor shall, if such densities fail to meet the minimum requirements, prove at his expense that all the other densities do comply with the specified minimum requirements."

PSLC 8.2.5 Measurement and Payment: Scheduled Items: Supply, Lay and Prove Duct Unit: m
Substitute "GPO" in Cl 8.2.5(a) with "Telkom".

PSLC 8.2.8 Measurement and Payment: Scheduled Items: Cable Markers Unit: No
Add the following:

"The rate shall also cover the cost of the end cap and the incisions, concrete marker and draw wire, as specified in PSLC 5.10. Cable markers as per applicable drawing"

End of PSLC

PS LD 3.1.5 uPVC Pipes

Replace with the following:

"Sewer pipes and fittings shall be Heavy Duty (Class 34) uPVC pipes. No alternative pipe types will be considered."

PS LD 3.5.2 Precast Concrete Sections

Add the following to LD 3.5.2:

"Precast concrete sections with an inside diameter of at least 1 000 mm shall be used for manholes with sewer lines smaller or equal to 200 mm diameter. Sectional spun concrete cylinders shall have been manufactured from dolomitic aggregate. For all manholes the invert level of the outlet shall be 30 mm lower than the lowest inlet invert level. The joint between the manhole and the concrete roof slab shall be sealed effectively with a sealant, to the prescriptions of the manufacturers and approval of the Engineer, to prevent the infiltration of subsurface water or stormwater. Lifting holes shall be sealed off effectively, with an epoxy, after installation and before backfilling. The soffits of all inlet pipes in a manhole shall be on the same level. If the outlet pipe is bigger than all the inlet pipes, it shall have the same soffit level as the inlet pipes. All manholes complete with bottom, shall be able to accommodate a water pressure of the full manhole depth, as specified on the drawings, with an additional 50 % safety factor."

PS LD 3.5.7 Step Irons

Replace the subclause with the following:

"Step irons shall be installed in all manholes deeper than 1,2 m. Step irons shall consist of polypropylene coated 12 mm high tensile steel, such as Calcamite or similar. The installation of the step irons shall be in accordance with the specification of the manufacturer."

PS LD 3.5.8 Manhole Covers and Frames

Add the following to the subclause:

"All manhole covers and frames shall be in accordance with the details on drawings."

PS LD 3.6 Marker Posts

Add the following:

"The positions of erf connections shall be marked by means of incisions on the face of the kerb. The mark shall be 5mm thick with 75mm high lettering. The marking shall be painted with red acrylic paint. Position of markers shall be in accordance with the details on drawings."

PS LD 5.4 CONNECTIONS TO MANHOLES

Add the following to LD 5.4:

If the gradient of a pipe is more than 1:10, a vertical bend shall be used to connect up to the manhole. The Contractor shall take care that no low point is formed in the pipe as a result of the bend. If a pipe lies at a gradient of 1:10 (5,71°), a 11,25° bend cannot be used since a bend with an angle larger than the grade of the pipe will result in a low point. It is the responsibility of the Contractor to shorten the bend in order to create the required angle.

For pipes with a gradient of up to 1:10, the angle can be taken up by a joint in the manhole and if required, also by the joint between the short-length and first full pipe.

PS LD 5.6.1 General

Substitute LD 5.6.1(a) with the following:

"Manholes shall be of precast concrete sections and shall be constructed as shown on drawings.

1. Final cover levels of manholes in streets and paved areas shall be to the same level as the street or paved area.
2. On side walks, lawns and garden areas the cover level shall be 20 mm above the final ground level.
3. In midblock sewers it shall be 50 mm above ground level.
4. Outside the road reserve or erf boundaries, it shall be 100 mm above natural ground level.

If a manhole is positioned at a low point or in a hollow where stormwater infiltration may occur, the manhole cover level must be raised to a level to avoid the danger of infiltration, or to a level as agreed with the Engineer."

PS LD 5.6.2 Benching

Add the following to LD 5.6.2.3:

Benching for all manholes.

PS LD 5.6.3 Step Irons

Add the following to LD 5.6.3:

Step irons shall only be installed in manholes deeper than 1,2 m.

In the case of sand traps the lowest step iron will be installed 300 mm above the floor of the manhole. An additional step iron shall be installed on the opposite side of the sand trap at the same level as the lowest step iron, as shown on the drawings.

PS LD 5.6.4 Brick Manholes

Add the following to LD 5.6.4.3:

Walls of brick manholes, as well as the extension of AC manholes above the concrete roof slab, shall be plastered internally as shown on drawing LD-3. External plaster work shall extend to at least 150 mm below ground level. Manholes shall not be extended above the concrete roof slab by more than 300 mm with brickwork.

If manhole covers are raised with bricks, a half-brick recess, as a foothold, shall be left directly above the concrete slab above the step irons.

PS LD 5.9.1 Location and Details

Add the following to Cl 5.9.1:

"Erf connections shall be installed on the exact positions as indicated on the drawings. All connecting sewers shall be laid at a gradient of 1:60, except where otherwise ordered by the Engineer. Erf connections for foul sewers shall be in accordance with the relevant construction drawings."

PS LD 7.1.5 General

Add the following:

"All tests shall be repeated after the completion of backfilling of pipe trenches."

PS LD 7.1.6 General (SANS 1200: LD Cl 7.1.6)

Add the following:

"d) A water test will be conducted on all sewer lines after installation."

PS LD 8.2.3 Manholes

Add the following:

"Manholes shall be measured complete as indicated on the drawings and the rate shall be all inclusive for benching, step irons, cover and frame, and it shall make provision for all additional excavation and backfilling.

Manholes deeper than 1,5 m shall be provided with an additional concrete base, if specified by the Engineer. All costs involved in additional excavation, backfilling, material and labour shall be included in the rate for the additional base.

The depth of manholes as mentioned in the schedule of quantities, shall be measured from the final cover level to the outlet invert level (flow level).

PS LD 8.2.4 Extra-Over Item 8.2.3 for Backdrops, ect.

Add the following:

The tenderer rate shall include full compensation for construction of a backdrop as per detail drawing.

PS LD 8.2.6 Erf Connections Unit: No

Substitute LD 8.2.6 with the following:

The rate shall be all inclusive and shall cover the cost of excavation, backfilling, bedding, pipes, and fittings. An extra-over item for variation in pipe lengths is provided for connections, shorter or longer than specified and shall include the necessary excavation, bedding, backfilling, all material, etc. and will be also be measured under depth increments in the schedule of quantities.

The depth increment for the extra pipe lengths shall be determined by the depth of the end caps. If the deviations are negative, payment shall be reduced accordingly.

The rate for new erf connections on existing sewers shall also cover the cost of additional excavation and backfilling around the mains, cutting of pipes, handling of sewage flow, etc.

Imported material for bedding, fill blanket and main fill shall be measured and paid for under the relevant items for mains.

PS LD 8.2.8 Anchor Blocks Unit: m3

Add the following to LD 8.2.8:

Payment for anchor blocks shall be made for pipes with gradients steeper than 1:10 and shall be measured in m3.

PS LD 8.2.11 Connection to Existing Sewer at….

Add the following:

"Separate items will be scheduled for each diameter of connecting pipe.

The tendered rate shall include full compensation for constructing erf connections to existing sewer lines and will include any additional channelling and benching associated with the connection, cutting the pipe to suit the connection, supplying and building in the short junction pipe, extra couplings, dealing with existing flow, preventing foreign material from entering the sewer and making the connection. Where a direct connection is made to an existing pipe, the rate covers all labour involved in opening the existing pipe, the removal of the existing end cap and disconnection at the pipe."

End of PSLD

SANS 1200 SECTION LE: STORMWATER DRAINAGE

PS LE 3.1(d) Materials: Culvert Units and Pipes: Skewed Ends
Replace the subclause with the following:
"Where pipe culverts are to be constructed with a skew angle of more than 20°, the skew ends shall be cut on site."

PS LE 5.2.2 Construction: Bedding and Laying: Pipe Culverts
Add the following:
"All pipes shall be laid on Class B bedding, as specified in SANS 1200 LB. Spigot and socket pipes with rubber ring joints must be used exclusively"

PS LE 8.2.8 Supply and Install Manholes, Catchpits
Substitute LE 8.2.8 with the following:
"The unit of measurement shall be the number of each, in the depth increments as scheduled, fully installed in accordance with the details shown on the drawings. The rate shall cover the cost of excavating and backfilling with approved selected material from site borrow pits, stockpile or commercial sources, compacted to 93 % of MAASHTO density (100 % for sand), supplying and installing of all material and accessories, the inlet kerbs and the channel adjacent thereto as well as for the removal and spoil of all surplus material. The rate shall also include the connection of pipes to manholes, catchpits, etc. and of building pipes into the walls of such structures, but not for the cutting of skewed ends."

Add the following to LE 8.2.8
d) Headwalls:
"The unit of measurement shall be the number of each, in the depth increments as scheduled, fully installed in accordance with the details shown on the drawings. The rate shall cover the cost of excavating and backfilling with approved selected material from site borrow pits, stockpile or commercial sources, compacted to 93 % of MAASHTO density (100 % for sand), supplying and installing of all material and accessories, the inlet kerbs and the channel adjacent thereto as well as for the removal and spoil of all surplus material. The rate shall also include the connection of pipes to the headwall, building pipes into the walls of such structures and for the cutting of skewed ends."

PS LE 8.2 Measurement and Payment: Scheduled Items
Add the following payment items:

PS LE 8.2.14 Excavation for subsoil drains.....m^3
The unit of measurement shall be cubic meter of material excavated for subsoil drains. Measurement shall be made to the neat dimensions as shown on the relevant drawings. The rate tendered shall include full compensation for setting out, excavation, shoring (if applicable), dealing with groundwater and preparation of the trench for installation of the subsoil drain.

PS LE 8.2.15 Supply and Install Subsurface Drains According To Drawings…….…… m
The length shall be measured on the centre line of the completed subsurface drain. The rate shall cover the cost of supplying, transporting, off-loading and installing all materials as well as for backfilling with suitable granular material, compaction, cutting, wasting, overlapping and installing of the materials where applicable.

PS LE 8.2.16 Connecting Subsurface Drains to Manholes, Kerb Inlets, Etc…… No
The unit is the number of subsurface drain pipes built in at manholes or kerb inlets. The rate shall cover the cost of all labour, plant and materials necessary to connect the subsurface drain to manholes and/or kerb inlets, and making the structure watertight, all as shown on the drawings.

PS LE 8.2.17 Construct detention pond outlet structure as per detail……..…….…….. No
The rate tendered shall include full compensation for all works associated with constructing the stormwater outlet for the detention pond as shown on the relevant detail. The tendered rate shall include all formwork and concrete, pipe work, excavation, temporary works and all backfill associated with the construction of the outlet. Provision should also be made in this item for approximately 0.25 tons of reinforcing steel per outlet structure.

End of PSLE

SANS 1200 SECTION LF: ERF CONNECTIONS (WATER)

PSLF 1.1 Scope
Substitute LF 1.1 with the following:
"This specification covers the construction of connections from a watermain to extent as indicated on drawings. It includes excavation, backfill, supply, pipework, fittings and the making of connections."

PSLF 3.1.4 Materials: Pipes, Fittings and Couplings: Polyethylene Pipes
Add the following:
"All polyethylene pipes shall conform to SANS 4427 and have a nominal pressure rating of 16. The diameters of the pipes are as shown on the drawings (typical specification is PE 100 PN 16).

PSLF 3.4 Materials: Bedding
Replace the subclause with the following:
"The bedding shall be specified as per PSLB 3.1 and PSLB 3.3 supra."

PSLF 3.6 Materials: Markings and Marker Posts
Replace the subclause with the following:
"The positions of erf connections shall be marked by means of incisions on the face of the kerb. The mark shall be 5mm thick with 75mm high lettering. The marking shall be painted with blue acrylic paint. Position of markers shall be in accordance with the details on drawings."

PSLF 5.2.2 Construction: Laying from Main to Erf: Pipe Laying
Add the following:
"Erf connection pipes shall be laid to a depth so that the top of the pipe is not less than 450 mm nor more than 600 mm below the final road surface or sidewalk level, with the provision that where construction traffic is liable to cross the connections the pipes shall have a cover of at least 450 mm.

Erf connections shall be bedded as for flexible pipes except that the selected fill blanket will not be required. The bedding thickness above and below the pipe shall be 100 mm. Where the erf connections cross areas subject to traffic loads the trench shall be backfilled in accordance with the requirements of PSDB 3.6.1 and PSDB 5.9.4

PSLF 5.2.3.1 Construction: Laying from Main to Erf: Service Connections: General
Add the following:
"The working pressure in the mains for determining the test pressure at which tests for erf connections shall be done will be as specified in PSL 7.3.1."

PSLF 8.2.1 Measurement and Payment: Scheduled Items: Provide erf connections complete
Add the following after the last sentence:
"The rate will exclude the supply and installation of water meters. The rate shall be deemed to include all works as described in PSDB 5.7.2 (Compaction in Road Reserve) and shall cover all excavation in all materials irrespective of whether this is conducted using machinery or by hand (as described in PSDB 3.1)."

"Where water erf connections off existing pipes are specified, the rate also needs to allow for arrangements to close off the water supply to the affected area of the network and arranging for inspection and supervision by the relevant line department."

End of PSLF

SANS 1200 SECTION M: ROADS (GENERAL)

PSM 5 Construction:
Add the following:
“The relevant widths and road details are shown in the cross sections contained in the relevant drawings.

PSM 7.3.3 Testing: Routine Inspection and Testing
Replace the subclause with the following:
“Statistical evaluation of test results shall not be applicable to this contract”

PSM 7.3.4 Testing: Routine Inspection and Testing
Add the following subclauses:
“The Contractor shall bear the costs of process control tests carried out by the Engineer at the request of the Contractor or as specified for process control.

PSM 7.3.5 Testing: Routine Inspection and Testing
Add the following subclauses:
"The cost of refilling and compacting the density test holes shall be included in the rate tendered for the construction of that layer.”

End of PSM

SANS 1200 SECTION ME: SUBBASE

PSME 3.2.1(d) Materials: Physical Properties: Regional Factor
Replace the last sentence with the following:
"The regional factor for his area is 0,60 and the regional minimum CBR value for sub-base material is thus 45%."

PSME 7.2.2 Testing: Process Control and Routine Inspection and Testing: Routine Inspection and Testing
Add the following:
"Notwithstanding subclause 7.2.2 and Table 3, no single test result which is below the specified density will be accepted."

End of PSME

SANS 1200 SECTION MF: BASE

PSMF 3.3.2 Materials: Physical and Chemical Properties: Graded Crushed Stone
Replace subclause (a) with the following:
“The maximum size of the crushed stone shall be 37.5mm”

Add the following subclause:
“d) The CBR at specified density shall be at least 80%”

PSMF 7.3.2 Testing: Routine Inspection and Testing
Add the following:
“Notwithstanding subclause 7.3.2 and Table 4, no single test result which is below the specified density will be accepted.”

End of PSMF

SANS 1200 SECTION MK: KERBING AND CHANNELLING

PSMK 3.2.3 Materials: Precast Kerbing and Channelling: Strength
Replace subclause with the following:
"Precast kerbs, edging and channels shall be of grade 25 MC PA/19 mm concrete."

PSMK 3.9 Materials: Bedding Materials
Replace subclause with the following:
"The material on which concrete kerbs, channels and edging are bedded, shall be in accordance with the drawings"

PSMK 5.2 Construction: Precast Concrete Kerbing and Channelling
Replace the first sentence of the subclause with the following:
"The material on which concrete kerbs, channels and edging are bedded, shall be in accordance with the drawings"

End of PSMK

3.4.4 PLANT AND MATERIALS

3.4.4.1 PLANT, CONSTRUCTION EQUIPMENT AND MATERIALS SUPPLIED BY THE EMPLOYER

No “free issue” plant, construction equipment and materials will be incorporated in this contract.

3.4.4.2 MATERIALS, SAMPLES AND SHOP DRAWINGS

It is a requirement of this contract that all commercial/imported materials to be built into the Works be inspected and approved by representatives of the Employer and the Employer’s Agent to ensure adherence to the specifications. Samples of all materials will be required to be presented to the Employer’s Agent’s for approval. Materials built into the permanent works without prior approval of the Employer’s Agent may be ordered to be removed and replaced with approved materials. Such inspections and approvals may include but are not limited to the following:

- Road and layer works materials
- Imported earthworks materials
- All pipe materials and related pipe fittings and pipe specials
- Manhole rings and covers

3.4.5 CONSTRUCTION EQUIPMENT

3.4.5.1 REQUIREMENTS FOR EQUIPMENT

There are no minimum requirements for any of the construction equipment other than those stated elsewhere in these specifications.

3.4.5.2 EQUIPMENT PROVIDED BY THE EMPLOYER

No construction equipment will be provided by the Employer.

3.4.6 EXISTING SERVICES

3.4.6.1 KNOWN SERVICES

Prior to commencing work, the Contractor shall confirm with all Authorities and Departments concerned and obtain the necessary wayleaves for both overhead and underground services affected by the Works and shall satisfy himself that he has obtained all the relevant information required to complete the Contract. The Contractor will be liable for obtaining all the necessary wayleaves and work permits from the relevant service authorities prior to the commencement of work within the road reserve.

The Employer will make available all information relating to known services within the site boundaries and the immediate vicinity prior to the start of the construction of the works. The Contractor will be expected to expose and detect the location of such known services in all locations where they may interfere with the construction of the Works. Where such known services are located, the Contractor will be expected to mark and keep accurate records of the location and depth of services. The Contractor must provide the complete set of records to the Employer’s Agent and highlight deviations from the Employer’s as-built records. The Employer’s Agent will then determine if any amendments are required to the design.

3.4.6.2 TREATMENT OF EXISTING SERVICES

The Contractor will be required as part of this contract to connect all piped services to the existing surrounding infrastructure. Where outages to sections of the water and sewer networks are required, the Contractor is expected to apply to the Employer for such outages in a timeous manner. Connection to any of the existing services will be done strictly according to the requirements of the municipality.

3.4.6.3 USE OF DETECTION EQUIPMENT FOR THE LOCATION OF UNDERGROUND SERVICES

Where exposure of existing services by hand excavation is not feasible it is expected that the Contractor will aquire and make use of appropriate detection equipment. Costs for the purchase and/or hire of basic cable route and pipe flow detection equipment is assumed to be included in the contract rates. No additional payment will be certified should the use of such equipment be required.

3.4.6.4 DAMAGE TO SERVICES

The Contractor will be held liable for damage to all known services and services where the location can be

reasonably predicted. If an underground service is located within 2m (in all directions) of the position shown on as-built records, it will be deemed to be a known service. Damage to unknown services will be the responsibility of the Employer.

3.4.6.5 REINSTATEMENT OF SERVICES AND STRUCTURES DAMAGED DURING CONSTRUCTION

The reinstatement of services and structures damaged by the Contractor during Construction will be the responsibility of the Contractor unless the service or structure to be reinstated is of a specialised nature. Reinstatement of specialised services and structures will be done by the Employer for the Contractor's account. Approval from the Employer's agent to be sought before commencing with any reinstatement or repair of services and structures.

3.4.7 SITE ESTABLISHMENT

3.4.7.1 SERVICES AND FACILITIES PROVIDED BY THE EMPLOYER

The employer does not warrant that any electricity supply that may exist is adequate for the proper execution of the works. Where such supply is inadequate, the contractor shall provide an adequate supply at his own expense. The Contractor will be responsible for the application to the municipality for an electrical site connection. Any costs related to such application and connection will be deemed to be included in the Contractor's site establishment contract rates.

The employer does not warrant that any water supply that may exist is adequate for the proper execution of the works. Where such supply is inadequate, the contractor shall provide an adequate supply at his own expense. Water required for mixing of concrete must be of potable standard and the Employer's Agent will not allow the use of treated effluent for these purposes. The Contractor will be required to arrange water trucks for water delivery to site for concrete items of work.

3.4.7.2 FACILITIES PROVIDED BY THE CONTRACTOR

The Contractor will be expected to provide the following services and facilities on site:

- Water including necessary temporary plumbing
- Electricity including necessary temporary installation work
- Telecommunication services for use by Contractor and the Employer's Agent's Representative -Internet, data and cell phone/airtime.
- Ablution facilities who shall maintain such facilities in a thoroughly clean and tidy condition
- First aid
- Office, workshop and construction camp facilities
- All security staff employed by the contractor on behalf of the Employer or at any Municipal property must be registered with Private Security Industry Regulatory Authority (PSiRA). Proof of such registration must be made available to the employer's agent upon request.

3.4.7.3 STORAGE AND LABORATORY FACILITIES

The contractor shall be responsible for his own storage facilities and security thereof. At this stage no laboratories would be required on site as all quality control testing must be done by an accredited testing facility.

3.4.7.4 OTHER FACILITIES AND SERVICES

Other temporary facilities necessary for providing the works which are not provided by the Employer are as follows:

- Telecommunications for all site staff including the Employer/Employer's agent
- Security services as described elsewhere in this document
- Medical and first aid facilities for all persons visiting or working on the construction site.
- Fire protection services for all activities related to the construction of the works.
- Waste disposal of all construction waste generated by the Contractor
- Temporary sanitation/toilet facilities on site as required by applicable legislation. Separate facilities required for males and females where required.

3.4.7.5 VEHICLES AND EQUIPMENT

The following facilities and equipment will be provided by the Contractor for the exclusive use by the Employer/Employer's agent:

- A desk/workspace designated to the Employer/Employer's agent Representative in the Contractor's office
- The Employer/Employer's agen Representative must have access to the Contractor's internet connection on site
- Basic survey equipment and 2 survey assistants at no charge as reasonably required by the Employer/Employer's agent.
- The Employer/Employer's agent will make use of his/her own cellular phone. The cost of telephone calls and internet usage/subscription will be claimed by the Contractor under the relevant payment item and reimbursed directly to the Employer/Employer's agent.

3.4.7.6 ADVERTISING RIGHTS

Should the Contractor wish to erect any signage or display any advertisements within the site other than the approved contract nameboard, it may only be done with the prior written approval of the Employer.

3.4.7.7 NOTICE BOARDS

The Employer or the Employer's Agent will provide the Contractor with a design for the manufacture of the contract nameboard/s. Payment for such nameboard/s will be claimed by the Contractor under the relevant payment item. The nameboard/s will have to be erected at the commencement of the works on site and will need to be maintained in good condition for the duration of the contract period. The exact position for the installation of the nameboard/s will be pointed out to the Contractor by the Employer.

The nameboard/s will be removed and disposed of by the Contractor at the conclusion of the defect's liability period. The cost for such removal and disposal needs to be included in the tenderer's pricing.

3.4.8 SITE USAGE

The contractor will be allowed to work within the site boundaries. The areas where special precautions must be taken and/or working permission to be obtained, will be pointed out on site by the Employer's agent on site or the Client Representative / Project manager. Any work done outside the allowable area prior written permission can lead to penalties.

The Contractor will have full access to the project site for the duration of the contract period. However, it should be noted that once phase one of the project has been completed, possession of this portion of the site will revert back to the Employer. The aim is then to hand over this portion of the site to a newly appointed Contractor for the construction of houses. The Contractor will be afforded access to the phase one site for the purposes of work related to the defects liability period.

3.4.9 WAYLEAVES, PERMISSIONS AND PERMITS

The Contractor shall be responsible for obtaining all of the necessary wayleaves, permissions or permits applicable to working near any existing services or other infrastructure on Site, and shall ensure that any wayleaves, permissions or permits obtained by the Employer's Agent prior to the award of the contract are transferred into the Contractor's name.

The Contractor shall abide by any conditions imposed by such wayleaves, permissions or permits.

The Contractor shall ensure that all wayleaves, permissions and permits are kept on site and are available for inspection by the relevant service authorities on demand.

The Contractor shall also ensure that any wayleaves in respect of electricity services are renewed timeously every three months.

3.4.10 ALTERATIONS, ADDITIONS, EXTENSIONS AND MODIFICATIONS TO EXISTING WORKS

The Contractor will be required to confirm the position and levels of all existing services and connection points to the surrounding pipe and road reticulation networks. Where materials differences in levels and/or position of services are discovered the Contractor needs to inform the Employer's Agent immediately so that the necessary changes can be made to the layouts and design levels.

3.4.11 INSPECTION OF ADJOINING PROPERTIES

The contractor will be required to inspect, with the owners, the various properties bordering on the construction site

and record any pre-existing damage or defects to buildings, structures, roads or pipes. Accurate records need to be kept by the Contractor in the event that claims are received from neighbouring property owners for damages to their property.

3.4.12 WATER FOR CONSTRUCTION PURPOSES

The Contractor should allow for testing of effluent water quality prior to use in the works, unless regular testing of effluent water is being done by the Employer at the source of collection. Such results to be provided to the Employer's agent for approval prior to such water being used in construction of the works.

Water required for mixing of concrete must be of potable standard and the Employer's Agent will not allow the use of treated effluent for these purposes. The Contractor will be required to arrange water trucks for water delivery to site for concrete items of work.

3.4.13 SURVEY CONTROL AND SETTING OUT OF THE WORKS

The Employer's Agent will provide the Contractor with survey benchmarks upon the contract commencement date. The Contractor will be expected to use these benchmarks as the basis for all survey control and the setting out of the works. The Contractor will assume full responsibility for the accuracy of their setting out of the works. The Employer's agent will do regular inspections on site to confirm the accuracy of the setting out of the works. The Contractor will be expected to make the necessary staff and equipment available to the Employer's agent for such inspections. Any portions of the work found to be outside of the relevant tolerances as specified will have to be redone at the Contractor's cost.

3.4.14 LOCAL PRODUCTION AND CONTENT

The Contractor will be required to comply with all requirements as stated in this document.

3.4.15 EMPLOYMENT OF SECURITY PERSONNEL

All security staff employed by the contractor on behalf of the Employer or at any Municipal property must be registered with Private Security Industry Regulatory Authority (PSiRA). Proof of such registration must be made available to the employer's agent upon request.

3.4.16 UNIVERSAL ACCESS

In pursuit of becoming a fully accessible city, the Municipality expects all Consultants and Service Providers to design and construct to SANS Standards for accessible Design, and any relevant Municipal documents as may be relevant, and to exhibit a commitment to employing Universal Design Principles in their design, construction, service and product delivery of construction projects. This applies to all projects whether new, temporary, upgrades or rehabilitation works.

The contractor will engage with project representatives and the Municipality's Universal Accessibility Department on how Universal Design Principles will enhance accessibility, within this project, that meets a variety of needs and creates a city that is accessible to everyone.

C3.5 Management

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3.5.1. FORMS FOR CONTRACT ADMINISTRATION
3.5.2. HEALTH AND SAFETY

3.5.1. FORMS FOR CONTRACT ADMINISTRATION

The Contractor shall complete, sign and submit with each monthly statement for payment, the following updated returns (the format of which are attached in C3.6 Annexes as amended from time to time):

a) Monthly Project Labour Report (Annex 1)
b) B-BBEE Sub-contract Expenditure Report (Annex 2)
c) Joint Venture Expenditure Report (Annex 3)

The Monthly Project Labour Report must include details of all labour (including that of sub-contractors) that are South African citizens earning less than **R350.00** per day, as adjusted from time to time (excluding any benefits), who are employed on a temporary or contract basis on this contract in the month in question.

In addition to the Monthly Project Labour Report the Contractor shall simultaneously furnish the Employer's Agent with copies of the signed employment contracts entered into with such labour, together with certified copies of identification documents, proof of attendance in the form of attendance register or timesheets as well as evidence of payments to such labour in the form of copies of payslips or payroll runs. 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 and proof of such acknowledgement shall be furnished to the Employer's Agent.

The Monthly Project Labour Reports shall be completed and submitted in accordance with the instructions therein and copies of all submitted documents must be kept on site be made available to the employer's agent upon request.

The **B-BBEE Sub-contract Expenditure Report** is required for monitoring the prime contactor's compliance with the sub-contracting conditions of the **Preference Schedule**.

The Joint Venture Expenditure Report is required for monitoring the joint venture's compliance with the percentage contributions of the JV partners as tendered, where the joint venture has been awarded preference points in respect of its consolidated B-BBEE scorecard.

The Expenditure Reports shall be verified by the Employer's Agent/Employer's Agent's Representative.

In respect of Annexes 2 and 3, the Employer shall, in addition to any other sanctions available to it, apply the financial penalties applicable to breach of preferencing conditions in the **Preference Schedule** Preference Schedule in Part T2.2 Returnable Schedules. In the case of joint ventures (Annex 3), the contractor shall prove his compliance with item 6 in Section 2 of the Preference Schedule by providing a consolidated scorecard at his own cost on instruction from the Employer's Agent.

3.5.2. HEALTH AND SAFETY

Particular Specification C6: Health and Safety Specification is attached hereto.

C3.6 Annexes

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Annex 1: Monthly Project Labour Report

Annex 2: B-BBEE Sub-contract Expenditure Report

Annex 3: Joint Venture Expenditure Report

ANNEX 1 - LANGEBERG MUNICIPALITY

Will be Provided to Contractor upon appointment

ANNEX 2 - LANGEBERG MUNICIPALITY

CONTRACT NO. AND NAME: .....

CONTRACTOR: .....

B-BBEE SUB-CONTRACT EXPENDITURE REPORT BASED ON PAYMENT CERTIFICATE NO. .....

Value of the contract (as defined in the **Preference Schedule**) (**P***)	R	B-BBEE Status Level of Prime Contractor	

Name of Sub-contractor (list all)	**B-BBEE Status Level of Sub-contractor[1]**	**Total value of Sub-contract (excl. VAT)[1]**	**Value of Sub-contract work to date (excl. VAT)[1]**	**Value of Sub-contract work to Sub-contractors with a lower B-BBEE Status Level than Prime Contractor**
Sub-contractor A		R	R	R
Sub-contractor B		R	R	R
Sub-contractor C		R	R	R
			Total:	R
			Expressed as a percentage of **P***	%

[1]Documentary evidence to be provided

Signatures

Declared by Contractor to be true and correct: ..... **Date:** .....

Verified by Employer's Agent/ Employer's Agent's Representative: ..... **Date:** .....

ANNEX 3 - LANGEBERG MUNICIPALITY

CONTRACT NO. AND NAME: .....

CONTRACTOR: .....

JOINT VENTURE EXPENDITURE REPORT BASED ON PAYMENT CERTIFICATE NO. .....

Value of the contract (as defined in the **Preference Schedule**) (**P***)	R	B-BBEE Status Level of Joint Venture	

Name of Joint Venture partner (list all)	**B-BBEE Status Level of each JV partner as at contract award**	**Percentage contribution of JV partner per JV Agreement[1] A**	**Total value of JV partner's contribution (excl. VAT)[1] B = A% x P***	**Value of JV partner's contribution to date (excl. VAT)[1] C**	**Value of JV partner's contribution as a percentage of the work executed to date D = C/P*x100**
JV Partner A		%	R	R	%
JV Partner B		%	R	R	%
JV Partner C		%	R	R	%

[1]Documentary evidence to be provided

Signatures

Declared by Contractor to be true and correct: ..... **Date:** .....

Verified by Employer's Agent/ Employer's Agent's Representative: ..... **Date:** .....

LANGEBERG MUNICIPALITY

TENDER NO. "43/2022"

CONSTRUCTION OF ROBERSTON FIRE STATION

Part C4: Site Information

PART C4: SITE INFORMATION 193

LANGEBERG MUNICIPALITY

CONSTRUCTION OF ROBERSTON FIRE STATION

TENDER NO. "43/2022"



LANGEBERG MUNICIPALITY

TENDER NO. "43/2022"

CONSTRUCTION OF ROBERSTON FIRE STATION

Part C5: LANGEBERG Municipality Supply Chain Policy

PART C5: LANGEBERG MUNICIPALITY SUPPLY CHAIN POLICY 195

(This document will be made available electronically by the Employer to all tenderers present at the compulsory Site Clarification Meeting)

LANGEBERG MUNICIPALITY

TENDER NO. "43/2022"

CONSTRUCTION OF ROBERSTON FIRE STATION

Part C6: Health and Safety Specifications

PART C6: HEALTH AND SAFETY SPECIFICATIONS 196

Note: Health and Safety Specifications are page numbered 1 – 67 for this section

LANGEBERG MUNISIPALITEIT MUNICIPALITY MASIPALA	**DOCUMENT NAME**	**SITE SAFETY HEALTH AND SAFETY SPECIFICATION (SSHSS)**		
	CLIENT	**Langeberg Municipality**	DOC NO	**533**
	PROJECT NAME	**New Fire Station, Robertson**	COMMENCEMENT DATE OF PROJECT	24 May 2022
	ADRESS	Langeberg Municipality 28 Main Street, Ashton		

REVISION STATUS		
REVISION DATE	DESCRIPTION OF REVISION	DETAIL:
2022/05/24	REVISED AND CUSTOMIZED FOR THE PROJECT TAKING PLACE AT:	Erf 8250, Kerk Street, Robertson, 6705

AUTHOR OF THIS DOCUMENT (SSHSS)	
CLIENT	
NAME OF CLIENT	Langeberg Municipality
RESPONSIBLE DEPARTMENT	Legal Department
APPROVAL DATE	Tuesday, 24 May 2022
PAGES INCLUDED IN THIS DOCUMENT	**67**
SIGNATURE OF APPROVAL	

RECEIPT BY CONTRACTOR	
CONTRACTOR	
NAME OF CONTRACTOR	
DOCUMENT REFERENCE	**Legal / Compliance**
ACCEPTANCE DATE	Tuesday, 24 May 2022
PAGES INCLUDED IN THIS DOCUMENT	**67**
SIGNATURE OF APPROVAL	

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OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

Introduction

A responsible Occupational Health and Safety management is **essential** to protect the client, consultants, contractors, employees, visitors and the public to provide a work environment that encourages a health and safety culture.

Purpose

The purpose and objectives of this Specification is to ensure that all Contractors (herein referred to as the “*Contractor*” (including Principal Contractor, Contractors, Subcontractors, Service Providers, consultants or similar) shall enter into a **contractual agreement** / relationship with Langeberg Municipality (herein referred to as the “*Client*”). Such Contractor shall achieve and maintain an acceptable level of Occupational Health and Safety performance whilst conducting work for or on behalf of the Client.

These health and safety specifications ("*specifications*") have been prepared in terms of the Occupational Health & Safety Act, Act 85 of 1993 (hereinafter referred to as the "*OHS Act*") and the regulations promulgated there under and as amended, in particular the Construction Regulations 2014 and guidelines published there under and **must be complied with**.

It is a **requirement** that Contractor's shall **provide a safe and healthy working environment** and to direct his activities in such a manner that his employees and any other persons, who may be affected by his activities, are not exposed to hazards to their health and safety, maintain OHS Act legislative compliance and minimize the risks of incidents, injuries, contracting diseases and damage to the employees' health, environment, assets or property of the Client.

Scope

This **document is part of** the tender requirement, all contracts, principal agreements, applicable service level **agreements** and legal **appointments** entered into with Langeberg Municipality and a Contractor or service provider.

The Contractor is required to use and apply it when **developing** Health and Safety documentation for implementation on sites. This document will carry equal weight to the contracts, principal agreements, service level agreements and legal appointments as far as enforcement, compliance and breach is concerned.

These **specifications form an audit guideline** and management tool for the use of the Contractor to **ensure compliance with the OHS Act and Regulations, Directions, Directives, Notices and Guidelines** promulgated there under and updated from time to time. CoVid-19 compliance requirements is included in the OHS Direction as published.

Any **contradiction** between these specifications and the OHS Act, the OHS Act take preference except where explicitly stated. When these specifications do not cover specific health and safety requirement, the **OHS Act must be used as the standard requirement**.

Adherence

The specifications are **mandatory before the commencement** and for the duration of any contract works to be conducted on any Langeberg Municipality premises (owned or leased). These specifications shall be implemented and be subject to audits, without prior announcement from time to time.

It is the responsibility of the contractor to familiarise himself with the **contents of this specification** and any subsequent updates hereto. The latest version should always be kept in the contractors file on site.

Failure to adhere to this specification may result in disciplinary action, penalties and a breach being raised in the event of continuous non-conformances.

Reputational impact

Any action or inaction taken relevant to this Specification which may have potential to incur reputation risk for Langeberg Municipality, i.e. likely to result in material criticism and / or censure of Langeberg Municipality by key stakeholders or opinion formers (including clients,

market counterparties, regulators, government officials, law enforcement agencies, media or NGOs) should be escalated to the appropriate committee.

Penalties

Penalties may be implemented for continuous non-compliance to sample provisions set out later in this specification.

Interpretation

The SSHSS contains clauses that are generally applicable to building / construction / civil work and to impose pro-active controls associated with activities that impact on human Health and Safety as it relates to plant and machinery.

Compliance to the requirements of the OHS ACT is in addition to the requirements of the SSHSS and is part of the Contractor's responsibility. The CLIENT will monitor that the Contractors comply with the requirements of the OHS ACT and will not prescribe to the Contractor how such compliance is achieved.

Definitions

For the purpose of this SSHSS some of the definitions / acronyms given hereunder have been extracted (but not limited) from the Construction Regulation shall apply:

"*Construction Work*" (as defined in the Construction Regulations, 2014) means any work in connection with –

a) The construction, erection, alteration, renovation, repair, demolition or dismantling of or an 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.

"*Hazard Identification, Risk Assessment and Risk Control*" means a documented plan, which identifies hazards, assesses the risks and detailing controls.

"*Site*" means the area in the possession of the Principal Contractor after site hand-over for the construction of the works. Where there is no demarcated boundary it will include all adjacent areas, which are reasonably required for the activities for the Principal Contractor, and approved for such use by the Client's representatives / Engineer.

"*The Act*" means, unless the context indicates otherwise, the Occupational Health and Safety Act, 1993 (ACT NO. 85 of 1993) and Regulations promulgated there under.

"*Client*" means Langeberg Municipality.

"*Hazard*" means a source of or exposure to danger (source which may cause injury or damage to persons or property)

"*Risk*" means the probability or likelihood that a hazard can result in injury or damage

"*Principal Contractor's Responsible Person*" means any person appointed in writing by the Principal Contractor to supervise construction or building work. The appointment shall be as required by the OHS ACT which shall stipulate Health and Safety responsibilities, area of responsibility and the proposed duration of the project.

"*Employer's Personnel*" means any Employee of the Principal Contractor , Contractor or Sub Contractors.

"*SSHSS*" means Site Specific Health and Safety Specifications / Occupational Health and Safety Specification.

Health and Safety Plan

The Contractor shall be required to develop and provide for review and approval by the client's representative, a comprehensive site and project specific Health and safety plan, prior to work commencement.

Such plan shall be specific to the scope of work of the contractor including his sub-contractor scope of work, addressing the requirements set out in this specification.

Such plan must follow this specifications layout and shall detail the Contractor's planned methods of management on site for the duration project. The detail required shall provide the client with a clear indication of how the Contractor (as well as his sub-contractors) intends to address, implement and manage the requirements of this specification in terms of his own scope of works.

The contractor's health and safety plan must include a **Table of Content (INDEX)**.

The CIDB has gazette a best practice Standard for Health and Safety Plans and auditing requirements (Grade 2 to 9), Vol 641 9 November 2018 No 42021. The potential principal contractor should adopt such **standard for the layout of the Principal Contractor's Health and Safety Plan**.

Such health and safety plan audit standard gazetted by the CIDB ensure that every contractor's health and safety plan is evaluated fairly.

1. Project information

This health, safety and environmental specifications have been prepared for the preparation of construction work. Thereafter the enforcement of these specifications will be applicable during the construction phases. The appointed contractor's health and safety plan cannot override the client's specifications.

A general description of the type of work activities involved in the project.

This description of the works is not necessarily complete and shall not limit the work to be carried out by the principal contractor and contractor under this contract.

The Scope of Work consists of:

OVERVIEW OF THE WORKS

The Construction of a new Fire station on Erf 8250, Kerk Street, Robertson, 6705.

The Scope of works includes the general specifications issued by the South African Association of Quantity Surveyors for building contracts: “Model Preambles for Trades2008”.

The works consist of the construction of a new fire station building with related civil and electrical works as per architectural and engineer drawings and specifications, located on Erf 8250, Kerk Street, Robertson, Western Cape, South Africa.

SUBSOIL INVESTIGATIONS AND TEST RESULTS

An Engineering Geological Report: TG21-030/1 was conducted in October 2021 that form part of the contract documents. Tenderers / Contractors should acquaint themselves with conditions on site.

LOCATION OF WORKS

Erf 8250, Kerk Street, Robertson, Western Cape, South Africa

EXISTING SERVICES

Known services

INFORMATION ABOUT SERVICES BELOW THE SURFACE OF THE SITE

No record drawings of existing services, except those which are shown on construction drawings, are available. The successful tenderer will have to consult with the relevant authorities to point out existing services prior to commencement construction activities.

The Contractor shall take whatever precautions are required to protect these services from damage during the period of the contract. The Contractor must take every effort to locate such services which may be damaged as a result of construction.

TREATMENT OF EXISTING SERVICES

The treatment of existing services, i.e. their termination, diversion of continued use, either temporarily or permanently, is shown on the relevant drawings. Any services encountered on site which are not on the drawings, must be pointed out to the Engineer. The Engineer will issue further instructions with regard to the treatment of these services.

Construction activities may also include, but are not limited to:

a. Public safety and security;
b. Protection of environment;
c. Site Organization, Establishment and Barricading / Hoarding;
d. Site handover meeting and progress meetings;
e. Deliveries and other Construction Vehicles;
f. Manual Handling of Material and Equipment;
g. Earthworks (Excavation);
h. Backfilling;
i. Compacting and Filling;
j. Construction of Access Roads;
k. Road Signs and - markings;

l. Demolition works;
m. Installation of Services;
n. Electrical Reticulation;
o. Steel reinforcing;
p. Concrete Works;
q. Bricklaying & Plastering;
r. Plumbing;
s. Roof Erection;
t. Scaffolding & Working on ladders;
u. Working in elevated positions;
v. Welding and gas cutting;
w. Fire prevention;
x. Hoisting and lifting Operations;
y. Landscaping; and
z. Subcontractors and Visitors on site.

Throughout the construction process it is required that the contractors are compliant to the require regulations.

Health and Safety is everyone's responsibility, report Unsafe Acts and Unsafe Conditions to your superior immediately.

Project program or schedule details, including start and finish dates, showing principal activities and intermediate stages.

i. Project Program / schedule details

A project program with schedule detail need to be prepared by the appointed contractor once the tender has been assigned. Such program must be updated and recorded in the meetings and site-specific health and safety file of the contractor.

ii. Start and finish dates

Once an appointment has been made the official starting date will be confirmed with the contractor and site handover arrange once all documentation work, including the approval of the health and safety plan and the site-specific health and safety file, has been approved.

iii. Principal Activities

Within the Scope of Works section, a general list of activities was described. These activities form part of the Hazard identification process

iv. Intermediate stages

This SSHSS was prepared for incorporation during stage 4 to form part of the Tender documentation to ensure that the potential contractor make provision for these requirements during Stage 5 and 6. Stage 5 is the construction phase and stage 6 the close-out stage. Within the construction period different progress stages may also be defined by the professional team.

2. Client's requirements for health and safety management on project.

2.1 Health and Safety Responsibilities

The principal contractor's health and safety responsibility are delegated following an organizational structure whereby the involvement of management, contractor's and employees are coordinated through both their skills, training and experiences to be acceptable **competent persons** to perform their delegated duties.

A diagrammed **Organogram** (See annexure below as sample) must be included in the Contractor's health and safety plan and kept up to date in the health and safety file on site. When a **change of management** occurs, the client must be notifying and supplied with the required CV, which shall include the qualification and health and safety training for such person, for approval. Legal appointments must be updated when a change of management occur.

Each appointment letter shall indicate:

a. Legal reference to the appointment requirement;
b. The name of the person appointing and his / her designation;
c. The name of the company who this person represents;
d. The name of the appointee and the appointment;
e. The detail of the site / address
f. Period of validity of such appointment (not longer than 3 year);
g. Signature of the Company's representative making the appointment & date of signature;
h. Duties or reference to requirements in regulations (to include Checklists & Registers);
i. Acceptance of appointment;
j. Signature of acceptor and date; and
k. Designation.
l. Training certificate (where applicable)

All contractors including the professional team members has to ensure that an arrangement is in place to ensure all their employees have valid medical certificates of fitness.

2.2. H&S goals

The project team and contractor's management must commit to the implementation of Health, Safety & Environmental standards from management down.

During the following goals need to be adhered:

- Site supervisor must be on Site at all times;
- Employees and client employees required to comply by wearing minimum required PPE – Personal Protective Equipment;
- Construction Supervisors to ensure all employees were supplied PPE as Job Category register to ensure employees work safe;
- Work safely;
- Report all Near-Hits to the Client;
- Comply with SHE Management System;
- Comply with site-specific Work Rules;

- Prevent and/or correct unsafe behaviours;
- Prevent and/or correct unsafe work conditions;
- Implement Specifications;
- Security required at site entrance;
- Will be managed through Monthly site audits and Weekly inspections, PTO's, SWP, DSTI's.
- Site Manager and Safety Managers to supervise this on a daily base.

To achieve such goals the contractor must **monitor and review** these goals, targets, key performances indicators, etc.

2.3. Hazard identification and risk assessments

Baseline Risk Assessment

The client prepared a baseline risk assessment to cover all the possible identified risks on the project as required by Construction Regulation 5.(1)(a). The Principal Contractor shall take cognisance and incorporate this baseline risk assessment into their construction risk assessment.

The Contractor shall submit their "construction" **risk assessment** (can also be referred to as a project "**method statement**" with reference to a project schedule / plan) for the project, which shall form part / addendum when submitting the Health and Safety plan and place in the health and safety file. The above incorporate "RAMS" (Risk Assessment and Methodology Statement) methodology.

The Risk Methodology applied should follow the hierarchy of controls mitigation and must form part of the Risk Assessment, and be included in the Health and Safety File. Within such documentation the Principal Contractor shall address the risk rating strategy (Matrix) used.

Should the Principal Contractor commence work without approval of the risk assessment, or should the risk assessment not reflect the activities being undertaken, the CLIENT may instruct the work to be immediately halted, and the Principal Contractor will have no claim against the CLIENT in such a case for lost time or costs, irrespective of whether it can be demonstrated that the work was being safely undertaken

The risk assessment should include the following:
(a) The identification of the risks and hazards to the Health and Safety to which persons may be exposed;
(b) The analysis and evaluation of the hazards identified;
(c) A documented plan and safe working procedures to mitigate reduce or control the risks identified;
(d) The monitoring and review plan of the risks and hazards; and
(e) The relevant personal protective equipment or clothing.

The Principal Contractor shall ensure that all persons entering the site are informed of all hazards on site; record of this is to be kept on the Health and Safety File (Inductions).

The risk assessment should take into consideration the following key processes for this project, but are not limited (nor exhausted) to:
- Site Establishment inclusive of long-lasting hoarding separating construction area with the operations of the other contractors

- Identification of existing services, exposure and protection thereof
- Access Control of Public, including Students, to site
- Backfilling of trenches
- Bricklaying
- Brush / Bush Cutting
- Chainsaw use
- Compacting and Filling
- Compacter Operations
- Cutting of Concrete, Road Surfaces or Kerbs
- Cutting of Steel
- Demolition
- Electrical Tools and Electrical Installations
- Electrical works and connection/disconnection of electricity to municipal supply or other
- Excavating of trenches / foundations (hand and mechanical)
- Fire
- Flammable Liquids / Gas
- Fragile materials
- Goods - / Material - / Passenger Hoist Operations
- Hand Tools
- Hazardous Bio-waste
- Hazardous Chemicals
- Hygiene requirements
- Hot Works
- Kerb Laying
- Lifting Operations
- Manhole Rings and Pipes Storage
- Manual Handing of General Items
- Members of Public, including Students
- Movement (transport) of Construction Vehicles (Inclusive of light vehicles)
- Noise and dust
- Overhead Services
- Painting
- Paving
- Plant / Vehicle and Equipment operations
- Plastering
- Plumbing
- Precast slabs
- Road Construction / - Marking
- Road Working
- Rope Access Work
- Scaffolding (Erection / Inspection and Dismantling)
- Site Strip
- Skipping of concrete with hoist / crane
- Temporary Works (Shoring / Scaffolding or False Works)
- Tower Cranes
- Traffic Management
- Underground Services
- Working at Heights
- Working during inclement weather

- Working near sewage water
- Working near water environments
- Work near underground services

All health hazards that can be present during any of the above activities should include individual, dusts, gases, fumes, vapours, noise, extreme temperatures, illumination, vibration and ergonomic hazards.

Preventative measures must first address the elimination of the hazard or risk. Should PPE be required to reduce risk then appropriate equipment or clothing must be used and be SABS approved.

Issue Based Risk Assessment

As circumstances and needs arise, separate risk assessment studies will need to be conducted. These will be associated with a system for the management of change. An additional risk assessment will need to be conducted and submitted to the CLIENT for verification when for example:

(a) A new machine is introduced onto site;
(b) A system for work is changed or operations altered;
(c) After an accident or a 'near miss' has occurred
(d) New knowledge comes to light and information is received which may influence the level of risk to employees on site.

Continuous Risk Assessment

This is the most important form of risk assessment which should take place continually, as an integral part of day-to-day management.

This should be conducted by Construction Manager on site and it is essential that formal training be provided to enable this process to be efficient.

The Principal Contractor shall be responsible for making sure that all employees under his / her control are conversant with the content of the Risk Assessment and what appropriate measures have been put in place to either eliminate or reduce the identified risks. The Principal Contractor shall outline to employees what role they are expected to play in the Risk Assessment and control measure process. Records are to be kept of this communication. Such information can also be communicated through Safe Work Procedure (SWP), Safe Operation Procedure (SOP), Toolbox talks, Job Base Analysis (JBA) or Task Bases Assessment (TBA).

Continuous Risk Assessment is also commonly known as a Daily Safe Task Instruction (DSTI's).

2.4. Design Information

In terms of Construction Regulation (2014), regulation 6.(1)(c&d), the designer must -

- Make available in a report all relevant health and safety information about the design, the geotechnical-science aspects and loading that the structure is designed to withstand; and

- Inform the client in writing of any known or anticipated dangers or hazards relating to the construction work, and make available all relevant information required for the safe execution of the work upon being designed or when the design is subsequently altered.

An alteration in the design requires the principle contractor to review the *management of change* procedure to anticipate if any hazards may arise due to such alterations.

a. Relevant existing records available on services would either be obtained through the Project Implementing Agent or from the Municipality's building Inspectorate.
b. Surveys, site-investigations and Geotechnical reports conducted on behalf of the client can be requested through the Project Implementing Agent should it be available.
c. "As-built" drawings could be sourced from the appointed Architect.
d. The municipality has traffic flow statistics should density and traffic flow information be of relevance to a project.
e. Should any change of design occur the contractor must address how this will be received on site, recorded and distributed. Liaison with the PIA on design changes must be recorded. The latest version of any new design must always be available on the site.
f. The line of communication is discussed under a later section, but the principle contractor should note this in his plan at this point as well.
g. An arrangement how on-site changes, potential health and safety implication of variation orders (VO's), Request for Information (RFI's and site Instructions to be explained.
h. Due to the institution's continuous use of facilities all areas need to be available most of the time. Should areas be demarcated permission must be sought and approved through the PIA.
i. Should new work "packages" be handed over during the project the incorporation of such work package be into the existing programs to be indicated.
j. An arrangement for continuous interaction with the client representatives must be indicated where the design is on-going.

2.5. Communication and Consultation

2.5.1 Communication: Client

The Contractor must provide the client with their client communication procedure that shall include:

a. Reporting prior to work commencement on any client site with:
   i. an approved health and safety plan;
   ii. an in-dated letter of good standing;
   iii. stamped Notification of Construction work (each contractor); and
   iv. Certificate of Compliance (COC) to commence after the implemented health and safety file has been audited.
b. Reporting site mobilisation and site establishment for a site inspection;
c. Reporting of review and approvals of appointed sub-contractors to perform work on the client site (in line with a.i-iv above);
d. Notifying the client if there is any change to the site management;
e. Ensure all employees has previously been approved with security clearance;
f. Notify the client of any incidents, accidents or served notices by any regulatory authority while on site and during the project;
g. Reporting to the client site inspection and audit findings;

h. Report corrective and preventative actions (non-conformance close-out) within 48 hours;
i. Advise the client in writing of any emergencies including actions taken.

2.5.2 Communication: Workforce

The Contractor must provide the client with their workforce consultation and communication procedure that shall include, but not limited to:

a. CoVid-19 hygiene, sanitising, awareness and PPE;
b. Medical conditions, restrictions or recommendations;
c. Health and Safety Rules;
d. Incident and near miss reporting;
e. Report findings and corrective actions in incident investigations;
f. Lessons from non-conformances and audits;
g. Communicating of Risk Assessments for the work to be performed;
h. Awareness (posters) & Toolbox Talks;
i. DSTI communication
j. OHS meetings to initiate, promote, maintain and review measures of ensuring the health and safety of persons on site. Note that this may be included in the progress or site meetings as an agenda item.

2.6. Co-operation between contractors

The contractor must coordinate and make arrangements:

a. Identifying where works by one contractor and their assessment and control of risks may affect the works of another contractor;
b. Between all contractors such as where the type and frequency of health and safety meetings are described;
c. For preventative and control measures where more than one contractor may be exposed to the same risk; and
d. for Health and safety surveillance and/or assistance between various contractors.

2.7. H&S Monitoring

A contractor must document:

a. How the Health and Safety performance on site is going to be monitored?
b. How the Health and Safety performance of others especially contractors is going to be measured and monitored?

2.8. H&S Inspections

<u>General Inspection, Monitoring and Reporting</u>

A table of intended inspections (with the stipulated frequency) are to be included in the Health and Safety plan and placed on a Site Calendar for ease of reference. Inspection registers and checklists must be kept in the Health and Safety File.

<u>Internal Audits</u>

The Principal Contractor shall conduct monthly Health and Safety audits of the project Health and Safety Management System, including the sub-contractor records, to ensure compliance with the OHS Act and OHSS. Records of audits must be kept and non-conformance reported, investigated and corrective action must be taken and reported to

prevent re-occurrence to the client. Proof hereof recorded as a non-conformance close-out must be submitted to the client's agent within 24 hours after the non-conformance was reported on an internal audit report.

External Audits

The CLIENT, or its relevant Representative, shall conduct monthly Audits on site. All documentation held by the Principal Contractor shall be available for inspection. The Principal Contractor shall provide any additional information required. The Principal Contractor is required to (must) participate in the Audit and adheres to the section of these specifications.

A copy of the Close-out report must be submitted to the client's representative within 48 hours of audit report placed in Principal Contractors Health and Safety File. The Principal Contractor has 3 (three) workings days after hard copy of audit was placed in contractors file to rectify any non-conformances.

As information the full process of health and safety documentation approval is stipulated as follow:

a. Invited contractor's health and safety file be electronically submitted and approved;
b. Evaluation of health and safety plan of potential contractor during tender evaluation;
c. Discuss, negotiate and approve health and safety plan after appointment of contractor;
d. Evaluate the implementation of the health and safety file on site with site establishment;
e. Conduct monthly audits and where required bi-weekly site visits. Reports on such must be documented and provided by auditor in hard copy to the site within 7 days after the audit was conducted signed by auditor and a site supervisor who were present during the visit;
f. Audit close-out report on findings documented and distributed to client's representative within 3 days after the documented hard copy of audits / visit was placed in contractors file;
g. Final project close-out, when zero working hours are reached, submitted to the client to include:
    i. Withdraw, close, retract and cancel all legal appointments;
    ii. Consolidated list of contractors (Name, Area of work, Contact number & email)
    iii. Final month's Health and Safety audit report and Certificate of Compliance
    iv. Minutes of the Health and Safety Committee meetings (when applicable)
    v. Summary of Incidents & IOD report (Incidents on Duty)
    vi. Summary of WCA /COIDA Claims
    vii. Total project Man-hours and DIFR (Disable Injury Frequency Rate / 200,000 hours)
    viii. Environmental rehabilitation status
    ix. Current or outstanding Health and Safety Non-conformances.
    x. Ensure that all registers and checklist are closed with the last sentence being on the document marked as "CLOSED" with the applicable date and "closed" marked across the full page.

2.9. Health and Safety Review

Contractors must ensure that health and safety documentation included in the health and safety file be reviewed **annually** or when any change of management occur. The responsibility of review lies with the contractor's management and the responsibility must be designated.

The results of such review must be submitted for approval by the client.

2.10. Training

Health and Safety Training

The Construction Regulation requires that "***A Client must ... ensure that potential principal contractors submitting tenders have made adequate provision for the cost of health and safety measures***".

The Principal Contractor shall at project start-up conduct a training needs analysis (**training / skill matrix**) to ascertain what Health and Safety training is required and what already exist. The training needs should specifically be based on the scope of work in relation to supervision with daily risk assessment qualification / experience, first aider, incident investigation, ladder inspection and tool inspection competencies.

The single page in tabular format as intended plan of action should be drafted and included in the Health and Safety file and **submitted with the tender**.

Once the identified people have attended training, the Principal Contractor must ensure copies of the certificates are kept in the Health and Safety File.

Where a Part-time OHS Practitioner is appointed the Construction Managers and / or - supervisors are required to have, as minimum, **legal liability training** with SAQA US certificates. SAQA US for CIVIL is 120344.

Excavation supervisors and construction manager must have a SAQA US 365183 competency certificates.

The following skills training to be considered:

a. Legal Liability;
b. Excavation Supervisors;
c. Fall Protection;
d. Fire Equipment Inspector;
e. Fire Marshal;
f. First Aider;
g. Formwork & Support;
h. Hand Tool Inspector;
i. Health and Safety Representatives;
j. Legal Liability Training for Management;
k. Machine Operator;
l. Scaffolding Erectors;
m. Scaffolding Inspectors;
n. Stacking & Storage Supervisor;
o. Welder, grinding / cutting machine operator;
p. Working at heights;

Induction

The Principal Contractor shall conduct Site Specific Inductions to all new employees and visitors on site. Proof of inductions in a form of attendance registers must be kept in the Health and Safety File.

Should any new equipment or plant be brought to site employees should be inducted on such ensuring the understanding, **blind spots, risks** and coordination when these units are being used.

Within the Contractor's Health and Safety Plan a layout of such induction to be performed should be indicated that will include Safety Rules. An attendance register must be kept and signed by all attendees.

Awareness

The Principal Contractor shall conduct, on site, periodic toolbox talks, preferably weekly or before any hazardous work takes place. The talks shall cover the relevant activity and an attendance register must be kept and signed by all attendees.

A record of who attended and the content of the topic will be kept in the site Health and Safety file as evidence of training.

Competency

After the Principal Contractor has identified the training to be conducted, based on the Hazard Identification & Risk Assessment (HIRA); he/she shall send the relevant persons on appropriate courses and keep the accredited certificates of training for reference in the site health and safety file. A maximum grace period of 30 days from the start of the project are provided for this training to be conducted and proof must be submitted to the client's representative.

2.11. Purchasing

The contractor has to ensure that the purchasing procedure include the evaluation of competencies and adequate resources of the contractors, suppliers and manufacturers. No Principal Contractor may appoint a specialist contractor who then appoints a subcontractor for such services.

2.12. Site rules

The Contractor shall ensure that all persons working under his control observe the health and safety rules of the client at all times and shall not permit any person who is not directly associated with the work from entering the site.
These specifications express various rules and other restrictions on contractors, suppliers and manufacturers such as permit-to-work procedures and arrangements for compliance by others with the rules herein and those of the contractor's health and safety plan.

2.13. Permits

The Contractor must implement a permit system for high risk activities, but not only limited to:

a. Concrete pouring;
b. Confined spaces;
c. Electricity and other energy sources;
d. Excavations;
e. Explosive, corrosive or toxic gases or atmospheres;
f. Extreme temperatures;

g. Hazardous substances or Radioactive material;
h. Hot work or Steam;
i. Isolation of the fire alarm or fire suppression;
j. Lifting operations;
k. Night work;
l. Operations requiring lockout
m. Possibility of drowning in bulk material / tanks;
n. Restricted access, exit and movement
o. Welding, grinding or any other operation that could result in sparks;
p. Working at heights, - isolation;
q. Working in close proximity to water environment
r. Working on live/pressurized equipment
s. Working on public holidays, weekends and during a shutdown period;

The permit shall include the arrangements for competence and authority for issuing, acceptance, renewal (validity) and clearance of permits to work.

The Contractor shall ensure that work for which a permit is required by legislation, this specification or own permit to work procedure, is not performed by his employees prior to obtaining such permit. The Contractor shall additionally also ensure that Langeberg Municipality or the Municipalities permit for specific work procedure (way leave) is prior obtained and complied with on site, for the duration of the project.

2.14. Site security, access and transport arrangement

Security

The Principal Contractor shall ensure that each person working on or visiting a site, and the surrounding community, shall be made aware of the dangers likely to arise from on-site activities and the precautions to be observed to avoid or minimise those dangers.

The construction area should be permanently hoarded-off to prevent access of non-construction staff into the construction area. This should further be able to prevent excessive dust. Appropriate Health and Safety signage shall be posted at all times.

The Principal Contractor have a duty in terms of the OHS ACT to do all that is reasonably practicable to prevent members of the public and others being affected by the construction processes to be aware and put preventative measures in place.

The visitors to site shall go through a visitor's 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. A proof of such induction must be kept on the safety file for audit purposes.

Each of the Contractor's employees must be issued with a company identification card which must be displayed on his/her person at all times whilst on site (card only when required). Such identification **cards** shall include as a minimum:

a. Company Logo;
b. Employee name and surname;
c. Employee photo; and
d. Identity number.

A list of employees with their next of kin must always be available on site (COID requirement as well).

The Contractor acknowledges that its employees, vehicles as well as that of its agents, subcontractors and service providers may be subject to security searches at any time, and the Contractor shall ensure the aforementioned parties co-operate fully with such searches.

Access

The Contractor is required at all times to be aware of all subcontractors on site and ensure that they have means of identification and proof to verify their authorization to be on site. It is important to note that failure to produce such means of authorization for site work will result in the immediate eviction of the subcontractor from the site.

The road surface of all public and private roadways and pavements/pedestrian walkways must remain in a reasonably clean state, free of excessive sand, stone, water or other construction related materials – daily inspections to be conducted by the Contractor with action to be taken without delay.

The Contractor must upon site establishment identify and **demarcate** designated walkways. Signage should be displayed indicating it as a designated and safe to use walkway. Walkways should be safe to use in terms of distances from hot works, works with electrical tools, overhead work, and trenches and should be of such that persons using the walkway do not disturb any work activities taking place in the area.

Transport of Workers

The Principal Contractor shall refer and comply with the requirements set in the National Road Transport Regulations, 2000. The Principal Contractor shall, and not be limited to:

- Not transporting persons together with goods or tools unless there is an appropriate area or section to store them;
- Not transport persons in a non-enclosed (top) vehicle, e.g. truck, there must be a proper canopy (properly covering the back and top) with suitable sitting area. Workers shall not be permitted to stand or sit at the edge of the transporting vehicle;
- Not transporting workers on the back of open light motor vehicles;
- Provision of a serviced portable fire extinguisher in vehicles at all times;
- Driver must have a valid PDP license transporting people; and
- Adequate seating arrangement specifically in respect of social distances.

2.15. Deliveries

The contractor must make arrangement and get approval from the client for deliveries, any restriction such as delivery times, demarcation, reserved storage areas, loading and unloading areas, and working area for prefabrication to be put in place. Banksmen / direct supervision from contractor's side must be present receiving, offloading and departure of delivery vehicles.

2.16. Construction employees' facilities

The Principal Contractor shall provide facilities for

a. Safekeeping, e.g. lockers etc.;
b. Temporary shaded structure to serve as a mess room or eating area;
c. Sufficient toilets for each gender (1 toilet per 30 workers);
d. Hand washing facilities;

e. Soap and toilet paper;
f. Disposable paper hand drying material;
g. Where there is a risk of exposure to HCS separate lockers shall be provided for clean and soiled/ contaminated clothing for each employee;
h. COVID-19 requirement;
i. Waste bins must be strategically placed around the site and emptied regularly but no less than weekly;
j. Workers must not be exposed to HCS while eating and must be provided with adequate, sheltered eating areas complete with benches and tables separated from the work areas; and
k. Stores may not double up as change rooms, mess areas or eating areas.

The weather conditions might be unsuitable for workers to be exposed to, e.g. in rainy season.

2.17. Waste

The responsibility to ensure that all Contractors enforce, in terms of their waste management, environment sustainable methods, the disposal, keep sufficient waste containers for different waste types as described below and record such in a waste management plan.
Contractor to reduce the amount of waste that is generated and where waste is generated ensures that useable waste is re-used / recycled or recovered in an environmentally sound manner before being safely treated and disposed of.
Any waste of material value the client needs to be informed and when and where possible handed over to the client.
Waste will be classified in the following categories and these requirements incorporated into the contractor's waste management plan:
LIQUID WASTE:

a. When mobile toilets are used it must be serviced on a weekly basis and waste dispose by the service provider in an acceptable manner;
b. Service records must be documented;
c. Cleaning of the inside of the toilets are part of the hygiene requirement and recording must be daily conducted;
d. The contractor must provide sufficient toilet paper for such toilets as required by the facilities regulation;
e. Cleaning of paint buckets / brushes and disposal of paint may not be through the storm water system;
f. Run-off from wash bays must be intercepted
g. Chemical spills must be contained and cleaned

SOLID WASTE:

a. Any littering is prohibited;
b. Bins must be provided and cleaned on regular basis, preferably by end of each week or whenever possible;
c. Disposal must be to a legal dumpsite;
d. Sites must be swept of material that could cause injury or damage to persons or vehicles;
e. Hand mixing of cement is only permitted inside a batch mixing bucket (brimmed area) or on the footprint of a construction area.
f. Contaminated ground / soil must be treated or be removed and the area rehabilitated immediately.

HAZARDOUS WASTE:

a. Hazardous materials may only be disposed of at an appropriately permitted landfill or disposal sites for hazardous material;
b. Dedicated containers clearly marked for Hazardous waste must be used and only be used for designated purpose as designed; and
c. Hazardous waste registers to be maintained.

GENERAL WASTE REQUIREMENTS

a. Disposing of waste must be conducted as soon as possible at a legal dumpsite, skip or on permitted municipal landfill site;
b. Contractor must monitor the presence of litter on the work sites;
c. Waste must not be allowed to stand on site to decay resulting in bad odours;
d. Poisonous or material capable of fermentation, putrefaction or constituting a nuisance shall be treated or disposed of by methods approved by the local authorities.

2.18. Personal Protective Equipment

Personal Protective Equipment (PPE)

A PPE needs analysis is to be conducted in accordance with the HIRA. PPE is to be issued free of charge. The Principal Contractor is to indicate procedure for Lost or Stolen and Worn Out or Damaged PPE.

At the beginning of the project each employee to receive two three ply cloth masks. Such cloth masks need be washed regularly and damaged masks be replaced immediately.

The following PPE shall be used on site as minimum required for everyone on site:

- Steel-Toe Safety Shoes/Boots;
- Hard-hat;
- Two Piece Overalls;
- Protective gloves where required; and
- Hi-Viz Vest **in cases where visibility is impaired.**
- Employees working at access points need to wear cloth masks and **face shield** when recording employees and visitors entering the site.

2.19. Working hours

The regional sectorial requirement in terms of the BCEA should be complied with. Contractor must document their working hours and breaks. Total working hours per week not to be exceed legislative requirement.
An arrangement for working at night, after hours, over weekends and during holidays with supervision must be documented in health and safety plan.
All works will be supervised on site.
Where accelerate work programs are implemented adherence to undisturbed weekly or two weekly rest period (BCEA 15.(1) & 15.(2)) should be adhered to (weekly is 36 consecutive hours and fortnight basis is 60 hours).

Night Work

The Principal Contractor shall not undertake any night work without prior arrangement and a written authorization from the CLIENT. The Principal Contractor shall ensure that adequate lighting is provided for all night work and failure to do so shall result in work being stopped.

All works must be supervised directly by management on site.

NB: risk assessment to be revised should night works be approved.

2.20. Notice boards

Different notice board may be required depicting the following information on a site:
The professional team involve in the project (external Organogram); and
Displaying health and safety pictographs, access control, PPE requirement and contact details to the site management (Internal Organogram).
A layout for the professional team will be provided by the Consulting engineer / Program Implementing Agent. Only approved erecting locations may be used. The requirement and provision for the implementation of Notice Boards will be indicated within the Bill of Quantity.

2.21. Emergency and first aid

Emergency Procedures

The Principal Contractor shall submit a detailed Emergency Procedure for approval by in the Health and Safety File.

The procedure shall detail the response plan including the following key personnel:

- List of key personnel,
- Details of emergency services,
- Actions or steps to be taken in the event of the emergency; and
- Information on hazardous material / situation, including each material's / hazardous potential impact or risk on the environment or human and measures to be taken in the event of an accident.

Emergency procedure(s) shall include, but not be limited to, fire, spills, accidents to employees and use of hazardous substances.

A contact list of all service providers (Fire department, Ambulance, Police, Medical and Clinic, etc) must be maintained and available to site personnel.

First Aid Box and First Aid Equipment

General Safety Regulations 3.(2) Where more than 5 employees are employed .. provide a first aid box … at or near the workplace. (4) Where more than 10 employees are employed, … at least one person is readily available.

The Principal Contractors shall provide an on-site First Aid Box, adequately stocked (19 items as prescribed) at all times, and ensure that the First Aid Box is accessible and fully controlled by a qualified First Aider.

2.22. Medical certificates

The contractor has to ensure that an arrangement is in place to ensure all the management and employees have valid medical certificates of fitness specific to the construction work to be performed.

2.23. Medical surveillance

OCCUPATIONAL HYGIENE

a. Proper health and hygiene measures must be put in place to prevent exposure to hygiene hazards.
b. Prevention should include the prevention of accidental inhalation, ingestion, and absorption of any hazardous substance or high noise level exposure.

MEDICAL SURVEILLANCE

The Contractor shall provide in the OHS Plan for the management of employee medical surveillance and ensure that:

a. All employees on site to undergo routine medical examinations specific to the work to be performed taking into account the hazard and risk exposures;
b. This should address pre-employment examination, periodic monitoring and exit examinations;
c. Exit examination will be compulsory for employees working with hazardous chemicals;
d. A declaration should be noted in the close-out report declaring all employees fit on completion of the project;
e. All employees performing work on site must be declared medically fit for the work they are to perform (especially for working at heights);
f. Employees will be notified the results of their medical examinations and any concerns made available that may become evident from medical examinations;
g. Copies of valid medical certificate of fitness must be available on site as a duty of care towards employees to ensure employees are made aware of any health conditions or health restrictions which may have resulted from or may be aggravated by work activities on site.
h. The consultation, notification and communication with the employee should, with the employees' written consent, be made available upon request for verification by the client, regulatory authority or their representatives.

CONTACT TRACING

a. Records kept on site of employees and visitors entering the site for contract tracing purposes.

2.24. Reporting fatality, permanent injury and occupational diseases

The Contractor shall provide in the OHS Plan a summarized section providing information pertaining to his incident management procedure which should include at least the framework of the procedure and noting the requirements set out below.

Incident management procedure

In addition to the above the Contractor shall be required to prepare a comprehensive incident management procedure to be implemented on the client's sites. The procedure should address at least, but not limited to:

a. Incident classifications
b. Incident and near miss reporting process
c. Incident reporting timeframes
d. Investigation teams
e. Investigation techniques/methods to be used
f. Investigation timeframes
g. Investigation reporting

h. Corrective action implementation

Without derogating from the generality of the above, the Contractor shall ensure incidents are investigated by, where appropriate, a competent multidisciplinary team within 7 days. The Contractor shall ensure all incident and investigation records shall be available in the OHS File.

The Contractor shall notify the client of any incidents, accidents and notices served by any regulatory authority while on site. The client shall further be provided with copies of any written documentation relating to any incident. The Contractor will be responsible to inform the relevant authorities of any Reportable Incidents which may occur in terms of the applicable legislation.

All correspondence with the relevant authorities regarding these incidents must be copied and kept in the OHS File.

Incident management documentation

The Contractor shall note in the OHS Plan the incident management supporting documentation which should provide for and include, at least:

a. Legislative reporting and recording documents
b. Contractor's own reporting and recording forms (near miss to be provided for)
c. First aid kit contents list
d. First aid kit inspection checklist
e. First aid dressing register / treatment register

Medical procedure – CoVid-19
The following documentation should be submitted to the Compensation Commissioner
• Employer Report of an Occupational Disease (W.CL.1)
• Notice of an Occupational Disease & Claim for Compensation (W.CL.14)
• Exposure and Medical Questionnaire
• First Medical Report in respect of an Occupational Disease (W.CL.22) (Should list the diagnosis as U 07.1 ICD-10 code for COVID-19)
• Exposure history (W.CL.110) and/or any other employment history
• A medical report from Dr and/or Specialist
• Progress medical reports (W.CL.26)
• Final medical report (W.CL.26) once MMI reached

2.25. Method statements

Method statements, Safe Work Procedures (SWP), Safe Operating Procedures (SOP), Daily Safe Task Instructions (DSTI's)

Certain changes have been made in the Construction Regulation of 2014 in these regards and are extracted below to indicate current requirements.

Extractions from the Construction Regulations where reference to "**method(s) or method statements**" appear:

QUOTE

Construction Regulation 2003

"method statement" means a written **document detailing the key activities** to be performed in order **to reduce** as reasonably as practicable the **hazards identified in any risk assessment**;

Construction Regulation 2014

"Method statement" The description of a Method Statement was removed from definition section. **…**

Risk Assessment for construction work 9.(1) ... (b) ... documented **method**;

Fall protection Plan 10.(1) ... (2) ... procedures and **methods** used to address all the risks ...

Temporary works 12.(1) ... (3) A contractor must ensure that - ... (n) a temporary works drawing or any other relevant document includes construction sequences and **methods statements**; ...

Excavation 13 (2) A contractor who performs excavation work – ... (k) must, where the excavation work involves the use of explosives, appoint a competent person in the use of explosives for excavation, and must ensure that a **method statement** is developed by that person in accordance with the applicable explosives legislation; and ...

Demolition work 14. ... (2) A Contractor must ensure that before any demolition work is carried out, and in order to ascertain the method of demolition to be used, a detailed structural engineering survey of the structure to be demolished is carried out by a competent person and that a **method statement** on the procedure to be followed in demolishing the structure is developed by that person. ...

(11) Where the demolition work involves the use of explosives, a **method statement** must be developed in accordance with the applicable explosive legislation, by an appointed person who is competent in the use of explosives for demolition work …

Cranes 22. A contractor must, in addition to compliance with the driven Machine Regulations, 1988 ensure that where tower cranes are used – ... (b) a relevant risk assessment and **method statement** are developed and applied; ...

UNQUOTE

It is therefore a legal requirement that method statements be prepared for:

a. Temporary Works;
b. Excavation;
c. Demolition Work; and
d. Cranes.

Anywhere else, but not exhausted, where method(s) is used the contractor must prepare at least the applicable SWP / SOP or DSTI for such method statement.

2.26. Health and Safety File

Based on the scope of work the health and safety file shall include and address, but not limited to, the items set out in the relevant specifications as stipulated by Langeberg Municipality.

2.27 Hand tools

The purpose of this procedure is to ensure employees understand and practice the general safety requirements when using hand tools.

There is a big variety of hand tools in the market. The objective of this is to cover the basic safety principles of a hand tool. The responsibility lies with the Contractor to ensure employees are aware of the safety requirements on any given specific hand tool

Hazards / Risks

- Hand injury from broken or homemade tools.
- Hand injury from incorrect storage of hack saw / “Stanley” knife.
- Eye injury from using a hammer and chisel.
- Hand/body injury from forcing tools beyond their stress capability.

Control Measures to Minimize Risks

- Fitter/leather Gloves to prevent cuts from sharp edges.
- Safety glasses to prevent eye injuries when using tools that can projectile foreign objects (Chisel, Copper hammer, etc.)
- Routine inspections to ensure tools are in safe working order.

× Never throw a tool to another person.
× Never leave your tools lying around.
× Never use a hammer with a loose head.
× Never use none insolated tools for live electrical work.
× Never use tools which have been declared unfit/unsafe.
× Never use another spanner as leverage on a spanner.
× Never leave tools lying on ladders.
 Always keep your work area clean and neat.
 Always wear safety glasses and gloves if you are going to work with a hammer, metal file, hand saw and any tool that might produce flying objects and sharp edges.
 Always report damaged or worn tools by end of shift.
 Always grind off mushroom heads on chisels and copper hammers.

Pre-Start Procedure

1. Check the condition of the tool before use.
2. Make sure the tool is the correct tool for the job. (Example: correct size and fitment)

Job Steps

1. Inspect tool for wear and damages.
2. Put your gloves, safety glasses and long sleeve overalls on if necessary.
3. Store the toolbox or tool bag out of walkways.
4. Select a tool that is appropriate for the job.
5. Do the job safely
6. Place tool in a carry container until the tool is going to be used again.

2.28 Registers & Checklists

A tabular layout should be included in the contractor’s Health and Safety Plan. It is important that the legal required frequencies are adhered to and must therefore be stipulated. (Sample included in Annexure below)

2.29 Legal Appointments

A tabular layout should be included in the contractor’s Health and Safety Plan to correspond with the contractor’s organogram depicting a list of legal appointments. (Sample included in Annexure below.) Section 2.1 above depict the layout of such appointments.

2.30 Health and Safety Budgets

Construction Regulation 5.(1)(g) requires that the client must ensure that a potential contractor has made adequate provision for the cost of health and safety measures. This

includes the following, but not only limited to: Medicals, PPE, Fire-fighting, First Aid, Health and safety personnel, Facilities, Fall Protection, Vehicle and equipment upgrade for use on site, Lifting machinery and equipment, Insurance, First Aid, Training, Signage, Electrical & Plant and Scaffolding.
A contractor should prepare and submit, in tabular form as an annexure, their health and safety budget.
Should a contractor exclude various items as noted above or indicate a no costs, in his own discretion, to an item it will be understood that such costs are included in the contractor's tender costs.

Re-useable items (equipment) costed and claimed in such Budget and approved by the client, e.g. road cones, testing equipment, fire extinguishers, etc., become the ownership of the client after the project has been completed.

3. Environmental restrictions and existing on-site risks arrangements

3.1 Fall protection

Where a fall protection plan is required a competent fall protection planner with SAQA US 229994 certificate must be made available with such plan.
Where employees then work at heights / elevated positions those employees must be trained with a SAQA US 120362.
The person(s) erecting scaffolding must proof competencies with a SAQA US 263205 and for a scaffolding inspector SAQA US 263205.
Where fall arrest systems are implemented SAQA US 229995 and SAQA US 229998 be required.

a. An additional pre-emptive Risk Assessment will be required for any work to be carried out where there is a fall risk and will be classified as "Working at Heights".
b. As far as is practicable, any person working in an elevated position will work from a platform, ladder or other device that is at least as safe as if he/she is working at ground level and whilst working in this position, as required by the risk assessment contemplated above, shall wear and use a full body harness that will prevent the person falling from the platform or other device utilised. This safety harness will be, as far as is possible, secured to a point away from the edge over which the person might fall and the double lanyard must be of such length that the person will not be able to move over the edge.
c. Any platform, slab, deck or surface forming an edge over which a person may fall must be fitted with suitable guard rails at two different heights as prescribed in SABS 10085-1 Code of Practice for the Design, Erection, Use and Inspection of Access Scaffolding.
d. Where the requirement above is not practicable, the person will be provided with a full body harness that will be worn at all times and shall be attached above the wearer's head at all times. The lanyard must be fitted with a shock-absorbing device or the person must be attached to a fall arrest system (anchorage connector; body wear; and connecting device).
e. Where the requirements above are not practicable, a suitable catch net must be erected. Employees working at heights must be trained to work without risk to their health and safety or that of others and be declared medically and psychologically fit

to perform work at elevated positions. Proof of medical fitness and working at heights training must be maintained in the Contractor's OHS File.

f. Where work on roofs is carried out, a risk assessment must be performed and take into account the possibility of persons falling through fragile material, i.e. skylights and openings in the roof. The Risk Assessment shall place specific emphasis on the placing and handling of roofing materials such as IBR Sheeting or similar materials, (including contingency safety measures), which when exposed to windy conditions represents a serious safety hazard.
g. The Contractor shall ensure a comprehensive fall protection plan and rescue procedure is drafted by an appointed competent person who is trained and knowledgeable in the development of such plans.
h. All employees required to perform work in elevated positions shall be trained and conversant with the requirements of the fall protection plan and the rescue procedure.

Fall Arrest Equipment:

a. Each employee required to perform work at elevated positions shall be issued with a body harness for his/her exclusive use. No harnesses should be shared
b. Fall arrest equipment shall be inspected prior to use by a competent person
c. Fall arrest equipment must be stored in such manner as to not compromise the integrity of the equipment
d. Employees required to use fall arrest equipment shall be sufficiently trained in the correct use thereof
e. Records of training and inspections shall be maintained in the OHS File.

3.2 Fall prevention

Elevated positions including roof work

The Principal Contractor shall ensure that a detailed fall protection plan, rescue plan and HIRA has been undertaken and submitted for approval to the CLIENT before commencement of such activity on site. Such plan shall include (but not limited or exhausted) to: Introduction, Scope, Goals, Definitions, Worksite Information, Fall Protection Risk Assessment, Designations and Responsibilities, Training Management, Employee Health Management, Equipment Management, Operating Procedures, Rescue Procedures, Document Review and Amendments, Records – Training, Records – Medical Certificate of Fitness, Records – Inspection Registers &Records – Staff Register and Personal Details.

Where working on roofs take place the slope of the roof may cause edge protection to be implemented.

Working at heights –height of +1.5m

The Principal Contractor shall ensure that a detailed fall protection plan, rescue plan and HIRA has been undertaken and submitted for approval to the CLIENT before commencement of such activity on site.

All work at height must be:

- Appropriately supervised;
- Properly planned; and
- Carried out in a manner which is safe.

A detailed risk assessment and a fall protection plan that is site and task specific must be approved before working at height may be done. Please ensure that supervision is conducted as per Construction Regulation section 10, a competent person qualified for fall protection development.

Suitable and sufficient means must be provided to prevent workers falling from height. This must include the following measures supplied by the contractor appointed on the project:

a. Scaffolding to allow safe access, both externally and internally;
b. Scaffolding to be signed of weekly and after inclement weather;
c. Internal Scaffolding to be erected for roof work acting as a working platform;
d. Suitable working platforms to ensure safe access to all elevated areas;
e. Suitable fall protection for worker working at height (harness); and
f. Lifelines.

Ladders must only be allowed when it is not possible to use other more suitable access equipment (Scaffolding or platform / podium steps) for access or work of short durations (less than 10 minutes) and where 3 points of contact can be maintained at all times by the person working on the ladder. Suitable platforms must be used where both hands are required to be free and only in cases where it is not possible to use other more suitable access equipment e.g. scaffolding.

Where a slab is being prepared solid edge protection should also be put in place at a height of 1m above floor level.

Ladders and Ladder work

The Principal Contractor shall ensure that all ladders are numbered and inspected regularly keeping record of inspections. It should be noted that Aluminium ladders are preferred to wooden ladders. Ladders must be selected as suitable for the work to be performed.

3.3 Roof work

When working at heights during the roof erection work scaffolding will be erected in the inside of the structure to prevent the employees from falling to the ground.

Again, the employees working at height are required to make use of safety harnesses and fall prevention techniques to be put in place like safety cables / attachment slings.

Where work on roofs is carried out the Risk Assessment must take into account the possibility of persons falling through fragile material, skylights, soffits and openings in the roof, steel support work trusses and purloins so designed to support the roof structure.

The Risk Assessments shall place specific emphasis on the placing and handling of roofing materials which when exposed to windy conditions represent a serious safety hazard or overload factor.

Where working on roofs take place the slope of the roof may cause edge protection to be implemented.

All life lines and secure/anchor points must be designed and signed off by a competent appointed person or Design Engineer.

Life lines, fall arrest equipment and fall prevention equipment must be inspected prior to use and have a SWL displayed and the SWL certificate must be kept on site.

All fall arrest and fall prevention equipment shall be subject to inspections and tests as required by the Regulations and SANS standards and records of such inspections and tests kept in the site health and safety file.

3.4 Falling objects

Erect a catch platform or net above an entrance or passageway or above a place where persons work or pass under, or fence off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe where there is a danger or possibility of persons being struck by **falling objects**.

3.5 Structures

Existing structures

Contractor will always have in place an emergency plan. The prevention of fire damage, fragility and stability of existing structures is of utmost importance to complete this project in time.

Existing structures with recognized hazard will be reported to the client and Contractor will assist the client to improve the quality of compliance to structural integrity of such structure.

New Structures

During construction Contractor will adhere to the design specifications of the appointed engineering consultant. Pre-cast inspections of steel lay down are implemented in the registers and engineers have to approve pre-cast registers on site. Contractor will adhere to the removal of supports in accordance to the requirements to prevent any uncontrolled collapse of such structure.

When environmental conditions create bad conditions employees will not be allowed to use such uncompleted structure as a hiding place during inclined weather.

3.6 Temporary works

Contractor will adhere to the erection and removal of temporary structures for the casting of slab supports in accordance to the requirements to prevent any uncontrolled collapse of such structure. The engineering design or competent person will stipulate safe removing of such support and document such in the register.

3.7 Excavations and Ground Conditions

Excavation

Survey must be done to determine soil conditions, compaction and location of underground services. Where the uncertainty pertaining to the stability of the soil exists, the decision (documented) from a professional engineer or a professional technologist competent in excavation shall be decisive and such a decision shall be in writing and signed by both the excavation supervisor and the professional engineer or technologist as the case may be.

Excavation supervisors and / or construction manager must have a SAQA US 365183 competency certificates (or obtain one within the first month after appointment).

The following conditions should also be complied with for excavation:

a. Excavation should be sloped to prevent collapse;
b. Excavation should be shored / braced to prevent caving / falling in;
c. Soil dumped at least 1m away from edge of excavation
d. On sloping ground soil should be dumped on lower side of excavation;
e. Use of stop blocks and signs for dumpers and place a banksman;
f. If more than 2-meter-deep shoring must be used and safe access be provided and must be seen as a confined space entry;
g. Protect vehicles from falling into excavation;
h. Provide barriers and signage and lights at night;
i. Beware of undermining adjacent structures integrity;
j. Appoint only a competent person as excavation supervisor;
k. Ensure that no load or plant is placed near excavated areas; and

Work strictly according to the plans provided by the client when searching for current and existing services. Stop work when the current or existing services have not been found within a radius of 1 meter and consult the client's representative before commencing. Preliminary safety talks will be noted and the potential hazards explained to all employees prior to works. Digging will commence with hand tools at all times when looking for existing services.

Caution should be taken and emergency measure put in place when digging in areas where flooding may occur

The Excavation Supervisor to inspect:

I. Daily, prior to each shift;
II. After an unexpected fall of ground;
III. After any damaged to supports, bracing or shoring;
IV. After Rain

3.8 Demolition works

The Contractor must ensure that before any demolition work is carried out, and in order to ascertain the method of demolition to be used, a detailed structural engineering survey of the structure to be demolished is carried out by a competent person and that a method statement on the procedure to be followed in demolishing the structure is developed by that person.
The Contractor is required to appoint a competent person to supervise and control all demolition work on site. During demolition, the competent person must inspect the structural integrity of the structure at intervals determined in the method statement, in order to avoid any premature collapses.
Contractors who perform demolition work must ensure that:

a. no floor, roof or other part of the structure is overloaded with debris or material in a manner with regard to a structure being demolished;
b. Sufficient steps to ensure that all reasonably practicable precautions are taken to avoid the danger of the structure collapsing would render it unsafe;

c. When any part of the framing of a framed or partly framed building is removed or when reinforced concrete is cut would render it safe; and
d. Precautions are taken in the form of adequate shoring or other means that may be necessary to prevent the accidental collapse of any part of the structure or adjoining structure.

Further:

a. Ensure that no person works under overhanging material or a structure which has not been adequately supported, shored or braced;
b. Ensure that any support, shoring or bracing contemplated above, is designed and constructed so that it is strong enough to support the overhanging material.
c. Where the stability of an adjoining building, structure or road is likely to be affected by the demolition work on a structure, take steps to ensure the stability of such structure or road and the safety of persons;
d. Ascertain as far as is reasonably practicable the location and nature of electricity, water, gas or other similar services which may in any way be affected by the work to be performed, and must before the commencement of demolition work, take the steps necessary to render circumstances safe for all persons involved.
e. Cause every stairwell used and every floor where work is being performed in a building being demolished, to be adequately illuminated by either natural or artificial means.
f. Cause convenient and safe means of access to be provided to every part of the demolition site in which persons are required to work.
g. Erect a catch platform or net above an entrance or passageway or above a place where persons work or pass under, or fence off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe where there is a danger or possibility of persons being struck by falling objects.
h. Ensure that no material is dropped to any point, which falls outside the exterior walls of the structure, unless the area is effectively protected.
i. Ensure that every chute used to dispose of rubble is designed and managed in accordance with the relevant section for waste management of this specification.

3.9 Tunneling

Where tunnelling work encounter the Contractor will appoint a competent tunnelling supervisor and have the required documentation / registers in place. No work will be conducted in tunnels with a height dimension smaller than 800mm.

3.10 Scaffolding

Scaffolding

The Principal Contractor shall ensure that a detailed fall protection plan and HIRA has been undertaken and submitted for approval to the CLIENT before commencement of such activity on site. The Principal Contractor shall appoint and train scaffolding inspectors and erectors to ensure all scaffolding is erected according to SANS 10085.

Form and Support Work for Structures

Should the design require this type of work, the Principal Contractor shall ensure that formwork and support work structures are examined and checked for suitability by a

competent Person, Structural Engineer, before use, during and after placement of concrete. Records of such examinations are to be kept on the Health and Safety file.

3.11 Suspended platforms

If suspended platforms are used a competent person will be appointed to design such requirement that will provide a designer's health and safety report and certificate for the design. A competent person will be appointed to erect such platform following an operational compliance plan developed by a competent person.

Copies of the design and competent certificates for the suspended platform will be delivered to the regional Chief-Inspector for recognition.

3.12 Rope access work

Where rope access is used the contractor must ensure compliance to section 18 of the Construction Regulation and ensure that a competent person is appointed in writing as a rope access supervisor with the duty of supervising all rope access work on the site, including ensuring health and safety compliance in respect of rope access work.

In addition to the required of section 10 of the Construction Regulation, fall protection, the contractor shall provide a site, work and environment specific fall protection plan for rope access work developed by a competent person prior to the commencement of the work.

The fall protection plan contemplated above shall include:

a. Risk assessment;
b. Procedure to evaluate employee's medic al fitness;
c. Training for the work to be conducted;
d. Procedure addressing the inspections, testing and maintenance of equipment; and
e. Rescue plan.

3.13 Material hoists

The Principal Contractor shall ensure that lifting machinery and tackle is inspected before use and/or on a monthly basis. The Principal Contractor shall have lifting machinery and tackle inspector who will inspect the equipment daily or before use, taking into account that:

- All lifting machinery and tackle have a safe working load clearly indicated;
- Records of inspections and load testing certificates are kept on site.
- There is proper supervision in terms of guiding the loads which includes a trained banks man to direct and check lifting tackle if it is safe for use.

3.14 Bulk mixing plant

Where bulk mixing plants is used the contractor shall ensure compliance to Construction Regulation 20 for the construction, maintenance and operation of a bulk mixing plant on site.

Only competent and trained supervisors and operators shall be appointed in writing as bulk mixing plant operators. No person may be authorised to operate a bulk mixing plant that is not declared competent.

Safety devices provided to prevent the accidental starting of the bulk mixing plant are to be maintained and operational at all times. All machinery and dangerous moving parts of the mixer shall be adequately guarded or fenced and no such guard or fence shall be removed or modified.

Compliance to General Safety Regulation section 5 for confined spaces entry shall be adhered t when as a precautionary measure when entering any silo.

3.15 Explosive actuated fastening device

Where explosive actuated fastening devices are used the Contractor shall ensure that all the requirements and provisions of Construction Regulation 21 are implemented and maintained for explosive actuated fastening devices.

Controllers, inspectors and operators of explosive actuated fastening devices are to be competent persons appointed in writing and specifically trained and proof of training held on record.

Operators shall be issued with suitable protective equipment and the use thereof enforced. A cartridge issue and return register shall be maintained by the appointed person and cartridges shall be kept in a lockable facility and under the control of the appointed person at all times.

Warning signage to be prominently displayed in areas where explosive actuated fastening devices are used on site and such area shall be demarcated to prevent access of unauthorised persons.

3.16 Cranes

Projects classified as a CIDB Category C project may require the use of mobile cranes or truck mounted cranes.
Referencing Construction Regulation 22, Construction Regulation 27, Driven Machinery Regulation 18 and SANS 12480- 1, cranes and lifting equipment must be designed and constructed in accordance with generally accepted technical standards and operated, used, inspected and maintained in accordance with the requirements of the Driven Machinery Regulation.
The requirements of Construction Regulation 22 and Driven Machinery Regulation 18 are to be stringently applied and maintained in respect of all tower cranes, mobile cranes, lifting tackle and lifting operations. SANS 12480 shall further be applicable for the installation and use of tower cranes.
Prior to the establishment of the base area of a tower crane, the soil conditions for the base area must be signed off by a registered professional engineer. Prior to use, a full inspection by an independent LMI shall be conducted after erection of a tower crane and documented proof of such inspection kept in the site safety file.
In addition to the required legal appointment of operators, supervisors and inspectors in respect of cranes and lifting machines, appointments shall also be made for Slingers and Banksmen/Signallers, with the required proof of competency and experience.
All persons so appointed and trained must be registered with an LMI. Furthermore, all training providers in respect of operators of lifting machines and cranes are required to be accredited by the Transport Seta as contained in notice R.910 of 2015 (G.G. 39252 of 02/10/2015). Proof of such accreditation by the Transport Seta is to be attached to any certification issued by such training provider.

Evacuation procedures, risk assessments, safe working procedures and lifting plans are to be developed in respect of tower cranes and communicated to all relevant persons involved in the operation of tower cranes. Documented proof of such communication is to be kept in the site safety file. Documented proof of tower crane services and maintenance are required. The last major service record is to be present in the safety file, and services should be conducted every 1,000 hours.
The tower crane operating log book and all other legal documentation is to be available for inspection and audit. The Principal Contractor shall be responsible for ensuring that the necessary inspections and performance tests by a competent registered LMI as outlined in the Driven Machinery Regulations for tower cranes and lifting equipment are conducted, and documented proof of such inspections and performance tests retained in the health and safety file.
DMR 18(5): Annual inspection and performance test of the whole installation and all working parts;
DMR 18(6): Ropes, chains, hooks or other attaching devices, sheaves, brakes and safety devices at intervals not exceeding six (6) months;
DMR 18(10)(e): Lifting tackle at intervals not exceeding three (3) months.
All lifting operations are to have a clearly defined and demarcated safe operating area below the lifting area, with warning signage strategically placed and a watcher/spotter shall be deployed to prevent unauthorised access to the lifting operations area.
Where the lifting arc shall cause loads to be moved above public roadways and pedestrian walkways and thoroughfares, such areas shall have barricading erected to prevent persons from passing below suspended loads. Where barricading is not practicable, the Principal Contractor shall provide dedicated enclosed safe walkways, constructed in such a way and utilising material able to adequately protect pedestrians from any potential falling load.
As per the requirements of SANS 12480-1, guide ropes or steady lines shall be fitted to the slings of tower cranes and lifting equipment to eliminate manual handling of suspended loads. Worn and damaged steel wire ropes, slings and lifting tackle must be discarded (not used any further for lifting purposes, regardless of the load) when excessive wear and corrosion is evident. Furthermore, under normal operating conditions the ropes must be examined by a competent person every three months for this purpose and the results recorded.
If required, the Contractor shall notify the Civil Aviation Authority of the erection of a tower crane or use of a mobile crane that exceeds the allowable limits.

3.17 Construction vehicles and plant

Construction Plant

“Construction Plant” encompasses all types of plant including but not limiting to, cranes, cherry pickers, piling frames, boring machines, and excavators, draglines, dewatering equipment and road vehicles with or without lifting equipment.

It is envisaged that such plant will be used on this project and where the need arise the Principal Contractor shall ensure that all such plant complies with the requirements of the OHS Act. The Principal Contractor shall inspect and keep records of inspections of the tools and equipment used on site. Only authorised persons are to use machinery under proper supervision. All operational manuals requirements should be complied with and checklists duly completed. Appropriate PPE and clothing and as specified by the HIRA, shall be provided and maintained in good condition at all times.

Where construction plant (hired included) operates with a joystick a "joystick protection bar" should be installed to protect the operational mechanisms from objects falling on or persons falling on the operational mechanism in case of a slip. Should a contractor not comply with this requirement the principal contractor will be fined in terms of section 1.9 as a severe non-conformance.

Hired Plant and Machinery

The Principal Contractor shall ensure that any hired plant and machinery brought to site is safe for use. The necessary requirements as stipulated by the OHS ACT as well as those that are stipulated by this OHS Specification, shall apply (see also 1.6.1).

The Principal Contractor shall ensure that operators hired with machinery (seen as a contractor) have proof of competency to operate the machinery, proof of medical certificate of fitness and undergo a Health and Safety induction, appropriate tool box talks and be issued with the necessary PPE.

3.18 Electrical installations and machinery

High Voltage Electrical Equipment and any electrical works

The Principal Contractor shall ensure that, where the work is under, on or near high-voltage electrical equipment that a SWP is drafted and approved by a competent person and the client's representative and that such approval document to be kept in the Health and Safety File.

Such SWP shall include relevant risk management procedures (e.g. **Lock-out Procedure**). The Principal Contractor shall communicate with and receive approval from the relevant representatives prior to commencement of any **live** or tie-in electrical works.

Portable Electrical Tools / Explosive Power Tools

The Principal Contractor shall ensure that use and storage of all explosive powered tools and portable electrical tools are in compliance with relevant legislation. The Principal Contractor shall consider that:

- A competent person undertakes routine inspections;
- Only authorised persons use the tools;
- There are safe working procedures applied;
- Awareness training is carried out and compliance is enforced at all times; and
- PPE and clothing is provided and maintained.

Telescopic Link sticks or Hot sticks

- Telescopic Link sticks or Hot sticks are used by linesman to open and close solid links (open/close circuits) on overhead lines. Linesman use telescopic link sticks to carry out maintenance operations on links, fuses, live line surge arrestors and rocker isolators. These are used to provide restoration of power to sectionalised sections of overhead networks without having to climb poles.
- The cylindrical shaft provides mechanical strength to the unit. Fiberglas units are foam filled at the end section for the first meter. The remaining sections are fibreglass with the telescopic buttons.

- It is important to observe the minimum working distances between the operator and the live conductor. Although the telescopic link stick is tested to standards all instruments are manufactured from the highest grade electrical rated fibreglass to meet or exceed all applicable industry performance criteria including ASTM F711, ASTM F1826, and OSHA 1926.951(d). Eskom approved link sticks are manufactured to **SAP 021 2806 number D-DT-12600 standards.**

- Valid Test certificates should accompany this equipment and be available in Safety files.

3.19 Flammable and hazardous materials

Hazardous Chemical Substances (HCS)

In addition to the requirements in the HCS Regulations, the Principal Contractor must provide proof in the Health and Safety Plan that:

- Safety Data Sheets (SDS's) of the relevant materials/hazardous chemical substances are available prior to use by the Principal Contractor. Mention should be made how the Principal Contractor is going to act according to special/unique requirements made in the relevant SDS's. All SDS's shall be available for inspection by the agent at all times.
- Risk assessments are to be done when new HCS are introduced on site.
- How the relevant HCS's are being/going to be controlled by referring to:
  a) Limiting the amount of HCS
  b) Limiting the number of employees
  c) Limiting the period of exposure
  d) Substituting the HCS
  e) Using engineering controls
  f) Using appropriate written work procedures

- The correct PPE is being used.
- HCS are stored and transported according to SABS 072 and 0228.
- Training with regards to these regulations is conducted.

The Health and Safety plan should make reference to the disposal of hazardous waste on classified sites and the location thereof (where applicable).

The First Aider must be made aware of the SDS and how to treat HCS incidents appropriately.

Asbestos (Not to be used on new construction site)

The Principal Contractor/Contractor shall comply with the Provisions of Asbestos Regulations should they have to work with asbestos related materials.

No new asbestos contained material should be use on this project.

3.20 Water environments

Unless water is accumulated within excavations the Contractor need to ensure that any water entrapment where public could gain access be barricaded and access restricted to such environment.

However, should such areas exist on the site the Contractor will have a trained first aider on site to assist with medical conditions as, when and where possible.

3.21 Housekeeping and general safeguarding

Contractor will provide proper storage of materials for housekeeping. In the waste management plan the disposal procedures for waste is described. No materials be place where it would interference with other operations.

Where chutes are required when waste is removed from higher levels (3 levels 9m) Contractor will install the required mechanisms.

When internal waste storage area is provided it will be fenced off and will have access control via a lock. No waste bins or other collection articles will be place at entrances or passageways, but rather on an outside wall or under an overhead screen.

The construction manager and all other employees must ensure and maintain at all time during work that;

a. A housekeeping supervisor will be appointed
b. Housekeeping will be managed on a **daily basis**

The appointed person will make use of daily/weekly and Monthly checklists.

- Housekeeping is continuously implemented and maintained;
- Materials and equipment are properly stored;
- Scrap, waste and debris is removed;
- Materials placed for use are placed safely and not allowed to accumulate or cause obstruction to the free-flow of pedestrians and or other employees;
- An unimpeded work space is maintained for every employee;
- Every workplace is kept clean, orderly and free of tools, materials and the like that are not required for the work being done;
- As far as is practicable, every floor, walkway, stair, passage and gangway is kept in good state of repair, skid-free and free of obstruction, waste and materials

3.22 Stacking and storage

Stacking of Materials

The Principal Contractor shall ensure that there is an appointed stacking and storage supervisor for all materials, scaffolding and all equipment that are stacked and stored in accordance with legislation.

All materials shall be neatly stacked in a designated lay down area within the confines of the Principal Contractor’s allocated construction area.

3.23 Fire precautions

The importance of fire protection and precautionary measures is recognised and arrangements shall be implemented to ensure that adequate procedures are adopted to **prevent risk** of injury or damage from fire.

Non-Smoking signs will be places in close proximity of the stores and where any flammable materials are stored.

Good maintained fire-equipment will be place at appropriate intervals.

Sufficient number of employees will be trained with fire equipment.

Contractor will be reliant on the existing Escape plan of the institute or otherwise put in place its own Escape and evacuation plan.

Competent **Fire Fighter must be appointed** for this project and will manage all Hot works and any other task that may result in possible fire. Such competent person should carry the correct SAQA qualification. Additionally, to a Fire Fighter a **Fire Equipment Inspector** must also be appointed with at least a similar qualification as the Fire Fighter.

Fire prevention procedures require HOT work Permits to be in place with the required Fire Equipment available on site, Site require trained employees when any Hot work is required.

Once Hot Work Permit is signed and in place work may commence.

Smoking will be limited to smoking area.

No open flames are allowed in or near ABSA site.

All electrical equipment will be checked for lose wires.

All flammable substances are removed from hot works area.

<u>Fire Extinguishers and Fire Fighting Equipment</u>

The Principal Contractor shall provide adequate regularly serviced fire extinguishers located at strategic points on site. The Principal Contractor shall keep spare serviced portable fire extinguishers. Safety signage shall be posted up in all areas where fire extinguishers are located.

Employees should be trained on using the correct type extinguisher for the correct application (electrical, wood, chemicals, etc).

The Principal Contractor shall have adequate persons trained or competent to use the Fire Fighting Equipment.

3.24 Construction employees' facilities

Where the client does not authorize the use of existing facilities the Contractor will provide at least 1 shower for each 15 employees on site. Contractor will provide at least one sanitary facility for each sex and for every 30 employees. There will be changing facility for each sex. A temporary shelter eating area will be erected and made available to employees.

3.25 Contaminated land

Any contaminated land will be handled through the environmental management plan.

3.26 Client activities (risks)

The client may have ongoing lectures or students occupying residential facilities there for the Contractor will accommodate such activity. Where major work is required adjacent to such lecture rooms Contractor will pre-warn the facility of such activities and mutually agree upon action to be taken.

3.27 Manual handling of materials

Manual material handling will occur and Contractor will find the most **ergonomic** manner to work with such requirement ensuring that no employees stand chance for injuries.

3.28 Noise and vibration

Noise Induced Hearing Loss (NIHL)

Where noise is identified as a hazard, the requirements of the NIHL regulations must be complied with and means of compliance is to be stipulated in the Health and Safety Plan.

The Contractor is to ensure that noise is minimised to acceptable levels and try to conduct noisy activities at times where it would not make any nuisance to the institution. Proper planning and finding means of reducing noise levels with regards to these activities is highly encouraged. (See also section 3.31)

Vibration:
Any excessive vibration can cause Hand-arm vibration syndrome (Raynaud's phenomenon).

Employees working on vibrating equipment must take regular breaks.

When working on vibrating equipment a kidney belt is to be worn where applicable.

3.29 Working near fragile materials

Cautionary manners will be implemented when working in close proximity of fragile materials. A no-smoking - and use of mobile phone policy must be in place.

3.30 Traffic planning

The contractor must ensure that all the necessary traffic/vehicle and pedestrian accommodation safety measures are taken into account to ensure the safety of personnel and members of the public (including site visitors) both on site and adjacent to site.

Such measures must be in accordance with recognized practices and be pre- approved by the Client and if required by the local municipality and traffic authority.

The contractor must place the necessary emphasis on safe pedestrian walkways and routings throughout the construction stage. The site is located in a densely populated area with pedestrian walkways on two sides of the site.

Roadways are situated directly behind these walkways. Traffic and pedestrian accommodation drawings must be available on site as a source of reference and to assist with daily inspections and enforcement.

During construction the contractor must ensure that dust suppression through watering is utilized. When mud damage to the adjacent roads is due to the construction on site the contractor will remove these obstacles from the adjacent roads.

3.31 Monitoring of noise, silica and dust levels

Contractor need to implement sufficient precaution to ensure that the construction activities reduce their noise to the lowest possible level.

Silica and dust levels are kept to an acceptable level and that it do not pose a threat to the Health and Safety of employees, adjacent residents or the public on the premises.

3.32 Confined spaces

Areas identified as confined spaces as defined in General Safety Regulation GNR 1031 of May 1986 are (but not limited to):

- All tank manholes;
- Dispenser Sumps;
- Trenched less than 1m wide and deeper than 1.5m;
- Ceiling crawl space;
- Canopy crawl space;
- Chambers;
- Sewer Pipes;
- Pipes;
- Pit;
- Container;
- Calve;
- Pump Sump or Construction equipment, machinery, dangerous liquids or dangerous concentration of gas; and
- Any object where a dangerous vapour, dust fumes may be present.

Entering and working in a confined - or enclosed space requires a Confined Space Permit. The Principal Contractor shall provide his supervisor / contractor with the permit authorized through the Client's representatives with the work procedure for authorized persons prior to work commencement.

The responsibility for safe work procedures, both at the time of entry and during the entire operation of entering and working in confined spaces, rests with the Contractor.

3.32.1 The Contractor shall ensure that:

a. All persons working in a confined space or managing entry to a confined space are appropriately trained;

b. Adequate steps are taken to eliminate or control hazards. Before working in an area that contains dust, the area is to be ventilated and hosed down to settle and dampen the dust; and
c. All necessary equipment to manage confined spaces, including all necessary monitoring and rescue equipment (such as tripods, breathing equipment and the like) made available.

3.32.2 Records to be maintained by the Contractor:

a. Confined space entry permits;
b. Confined space entry registers;
c. Safety harness registers; and
d. Atmospheric monitoring results.

3.32.3 Compulsory requirements during work in and entry to a confined space:

a. Continuous supervision and monitoring;
b. Adequate ventilation;
c. Communication (radio) and
d. Trained emergency rescue teams

3.32.4 Safety equipment where applicable, but not limited to:

a. Employees issued with gas monitoring equipment, safety harnesses and self-rescuers;
b. Trained with the safe use of the proper safety equipment;
c. Upon entering an excavation, the requirements of work in confined spaces, must be observed;
d. Any confined space may only be entered after the air quality has been tested to ensure that it is safe to breathe and does not contain any flammable or noxious air mixture;
e. The confined space must be purged and ventilated of any hazardous or flammable gas, vapour, dust or fumes if and when such hazardous or flammable gas, vapour, dust or fumes have been identified;
f. The safe atmosphere must be maintained and, where necessary;
g. Employees are to be provided with breathing apparatus and must wear a safety harness with a rope with the free end of the rope being continuously attended to by a person outside the confined space;
h. An additional person, trained in resuscitation, to be in full-time attendance immediately outside the confined space;
i. Additional serviceable breathing and rescue apparatus is kept immediately outside the confined space for rescue purposes;
j. All pipes, ducts etc. that may leak into the confined space to be blanked off sufficiently to prevent any leakage or seepage;
k. The contractor must ensure that all employees have left the confined space after the completion of work; and
l. Where flammable gas is present in a confined space no work may be performed in close proximity to the flammable atmosphere.

4. H&S File requirements

4.1 H&S Practitioner preparing the file

Contractor must provide detail of the Practitioner who prepared the health and safety plan in this section that includes skills, experience and if any base is use in preparing such document.

4.2 Contact detail to H&S Practitioner

Contractor must provide contact detail of the Practitioner who prepared the health and safety plan in this section.

4.3 Copy of CWP / NC

Where a Construction Work Permit (CWP) is required the client will prepare and submit such application. CWP must be conspicuously display at all entrances to the construction site.

Each Contractor must submit a Notification of Construction work, where the conditions specified under regulation 4. (1)(a-d) is triggered, 7 days prior to commencing on site to the department of employment and labour's provincial office. As recommendation the Somerset-west and Paarl offices may also assist with the stamping of such document. Take 2 copies of the document and ask for a stamp at the reception.

An appendix added to the specifications give a sample layout of the required notification also found in the Construction Regulation. An electronic copy of this document may also be available from the project manager.

4.4 Complete Contact details for parties

The contractor shall place a tabular sheet in their health and safety plan that depict the detail of the Client, Professional team and Contractors management involve on the project (Annexure 1).

4.5 Physical Address for construction site and site office

This information will be depicted in the tender document and must be noted in Annexure 1 of the contractor.

4.6 Nature of the work describe

The full scope of work for the project are described in the tender documents and need to be recorded in the contractor's health and safety plan.

4.7 Commencement and completion date

Once a contractor has been appointed this information will discussed and made available.

The appointed contractor is required to provide a work schedule for the project and submit for approval before work may commence on site.

4.8 List of Contractors appointed by PC

Principal Contractor must have a list of the entire appointed contractor in the H&S file on site where it also indicates the status of each contractor in respect of man-days / month, LOG, H&S Plan approval, Notification date, Audits Conducted, etc.

4.9 Procedures to ensure PC maintain H&S file

Client's representatives will perform CR 5.1.o-p requirement audit and documentation verification on all contractors, as specified in the definition above.

4.10 Updated record of "as-built" drawings and plans

Any changes in design will be communicated to client and as build drawings for the responsible area communicated.

4.11 Criteria for design loadings for structural elements

The Client normally contract a consulting engineer for the design to handles such responsibility. Should this not be the case the principal contractor should inform the client immediately of any loading requirements to ensure all structures has the capacity to withhold the increased load capacity.

4.12 Detail of potential hazard included in structure eg. Pre- or Post –tension beams or slabs

The Client normally contract a Civil Engineer for the design to handles such responsibility. Should this not be the case the principal contractor should inform the client immediately of any encountered potential hazards.

4.13 General details of construction methods and materials

Matter expert contractors are contracted for specific scope of works. No contractor may appoint a 3rd party as matter expert to perform their contracted scope of works. Where a conflict to the contracted **contractor's competencies and resources** occur, the detail must be declared to the Client's representatives before approval may be granted.

4.14 Equipment and maintenance of facilities within the Structure

Contractor depends on the client's available equipment and maintenance of facilities in the structure. When a contractor completed his scope of works any residual risk must be convened to the client's representative in writing and communicated with the relevant facility maintenance management.

4.15 Maintenance procedures and requirements provided for the Structure

Contractor depends on the client's maintenance procedures of facilities in the structure. Should it be found that additional requirements be implemented the contractor must inform the client in writing through the client's representative (facility managers).

4.16 List and proof of appointments of each contractor

Contractor will include in the H&S file a list of appointed contractors. Refer to 4.8 & 4.13 above as well.

4.17 Procedures to approve, monitor and review all Contractors H&S files on site for the project

The Principal Contractor shall implement a Contractor Management System to ensure compliance to the OHS Act and OHS Specifications. The Contractor Safety Management System procedures are to be stipulated in the Health and Safety Plan.

Contractor will implement the following process for contractor evaluation:

a. Provide the Contractor with the Client's Health and Safety Specifications (this specifications);
b. Provide the Contractor with the Principal Contractors Health and Safety Plan;
c. Negotiate and approve the contractors Health and Safety plan;
d. Approve Contractors competencies, resources & budget;
e. Approve Contractors implementation of Health and Safety file to site by issuing a Certificate to Commence ("CCC");
f. Monthly compliance documentation verification and site audit ("Periodic Site Audit");
g. Submit a **hard copy** to the contractor within 7 days (CR 5.(1)(p))
h. Issue PSA certificate on audit;
i. Site visit reports and closure of audit findings; and
j. Close-out report and indicate man-days of project per contractor.

4.18 Manuals for operating and maintenance procedures and schedule for plant and equipment

Contractor will keep Risk Assessment; operational manuals & Checklist accompanied any plant or equipment.
When a contractor completed his scope of works any residual risk must be convened to the client's representative in writing and communicated with the relevant facility maintenance management.

4.19 Details of location and nature of utilities and services (emergency and fire-fighting systems)

The Client will ensure that the contractor be inducted on site indicating access to all the arrangements, utilities and services on the site.

Should this not be the situation then the Contractor will prepare an induction and provide this to its employees and appointed contractors.

4.20 Responsible for “as-build” drawings

Any changes in design will be communicated to the client and as build drawings for the responsible area communicated and handed over to the client after the project is completed.

4.21 Procedures for marking–up drawings to as-build

The Client contracted a Civil Engineer for the design and handles such responsibility.

4.22 Procedures to pass on residual risk information to those who need such

In accordance to section 6.(1)(d) of the Construction Regulation the designer are responsible to document in a report to the client the residual risk of the design before the project goes out on tender.

Any changes in design need to be communicated to the client and as build drawings for the responsible area communicated.

4.23 General Record Keeping

The Contractor shall keep and maintain Health and Safety records to demonstrate compliance with the OHSS and the OHS Act in the frequency describe in the contractor’s health and safety plan. The contractor shall ensure that all records of incidents, spot fines, training etc. are kept on site.

All documents shall be available for inspection by the CLIENT, his nominated representative or the Department of Employments and Labour’s Inspectors.

4.24 Unanticipated Hazards (Inclusive of adverse weather such as strong winds)

Any contractor shall immediately notify the CLIENT of any hazardous or potentially hazardous situations arising during the performance of activities.

A record must be minute in the monthly progress meetings regarding **rainfall and working days lost.**

4.25 Occupational Health and Safety Signage

The Contractor shall ascertain and provide adequate on-site Warning, Prohibition, Mandatory and General Signage and adhere to those instated by the Client.

The Contractor shall be responsible to maintain the quality and replacement of signage.

4.26 Occupational Safety

4.26.1 Site Access, Speed Restrictions and Protection

The Contractor shall ensure that a separate entrance/exit to the construction site is opened and erected for the sole use of construction activities.

The exact opening shall be discussed and agreed upon with the client representatives. The Contractor shall ensure that all persons in their employ and all those that are visiting the site are aware and comply with the site speed restriction(s).

The speed limit is set to not exceed 20km/h when entering grounds/site.

4.26.2 Pressure Equipment or Gas Bottles Including Operations

Should such equipment be used, the Principal Contractor shall comply with Pressure Equipment Regulations, including:

- Providing competency and awareness training to the operators;
- Providing PPE or clothing;
- Providing and maintain appropriate signage in areas where Pressure equipment are used;
- Inspect equipment regularly and keep records of inspections;
- Providing appropriate firefighting equipment (Fire Extinguishers).

4.27 General Machinery

The Principal Contractor shall comply with the Driven Machinery Regulations, which include inspecting machinery regularly, appointing a competent person to inspect and ensure maintenance, issuing PPE or clothing and training those that use machinery and enforce compliance.

As a precautionary matter it is a requirement that a **protective bar** be placed over the joystick / control of movement of machinery to prevent any uncontrolled operation of the machinery if a person or material falls on top of the controls.

The Principal Contractor shall report in the minutes of the progress meeting the type of machinery on site.

4.28 CIDB Health and Safety Plan Audit

The CIDB has gazette a best practice Standard for Health and Safety Plans and auditing requirements (Grade 2 to 9), Vol 641 9 November 2018 No 42021 and the principal contractor should adopt such layout as **standard for the layout of the Principal Contractor's Health and Safety Plan to ensure a fair evaluation**.

4.29 HIV/Aids Programme (when applicable)

CLIENT commits itself to providing guidance and leadership in the implementation of HIV and AIDS, TB and Sexually Transmitted Infections (STI) programmes by all stakeholder organisations. It is a requirement that Principal Contractors shall provide HIV/Aids awareness training and roll out an HIV/Aids Programme for all employees.

The HIV/Aids Awareness Programme Requirements:

- HIV Programme Coordinator appointed (part-time)
- Appoint and train Peer Educator/s (Part-time)
- Male condom dispensers, sufficient male condom available and is it placed in high trafficked areas.
- Female condom dispenser, sufficient female condoms available and is it in high trafficked area

- All types of HIV/Aids related posters displayed in a high trafficked area and in a good condition.
- HIV/Aids Awareness workshops/tool box talk
- HIV/Aids Prevention Measures
- HIV/Aids Care and Support
- Free voluntary HIV testing

Duties of the HIV/AIDS Coordinator:
- Ensure on-site programme implementation
- Ensure Peer Educators are elected, trained and active and supported
- Ensure Voluntary Counselling and Testing takes place
- Ensure awareness talks and education initiatives take place
- Posters, awareness materials and condoms are freely available on site
- Ensure that evidence of programme implementation is readily available
- Facilitate Site Management commitment

No Principal Contractor shall require an employee, or an applicant for employment, to undertake an HIV test in order to ascertain that employee's HIV status. As provided for in the Employment Equity Act, employers may approach the Labour Court to obtain authorisation for testing.

All Personnel must be encouraged to undertake voluntary testing. Voluntary Testing and Counselling (VCT) must be encouraged by all Principal Contractors.

4.30 Non-Compliance to set requirements

Should it be found that the principal contractor is in non-compliance with the specifications or their approved Health and Safety Plan, the Occupational Health and Safety Practitioner has the responsibility and authorization to stop any activity or all construction until compliance has been reached. The cost of stoppage on site due to non-compliance will be borne by the principal contractor / contractor

In the event of extra audits being done by the OHS Practitioner due to ongoing non-compliance, non-availability of Safety File or an audit score less than 80%, the **cost of that additional audit will be borne by the principal contractor** / contractor and will be equal to the amount as stipulated in the agreement with the client.

The appointed Safety Officer for the principal contractor will be required to draft a **close-out report** after each audit. The close-out report must address all non-conformities identified during the audit and highlight the measures taken to rectify the non-conformity. This report must be forwarded to the OHS practitioner **within 24-72 hours of receiving** date of the audit.

Should the construction work run longer than the anticipated project period the Principal Contractor / Contractor will be liable for the cost of the additional health and safety audits.

4.31 Handling conflict of interest

The following is accepted during the course of the contract:

The potential Principal Contractor may appoint only one construction manager for the project and various construction supervisors on each area of responsibility should work be active on more than one area.

The client's health and safety practitioner can assist the Principal Contractors management to ensure the health and safety requirements, as set out by these specifications and the Health and Safety Plan of the Principal Contractor, are complied with at a cost to the Principal Contractor.

Should the Principal Contractor appoint a contractor these contractors can request the client's health and safety practitioner to prepare their required documentation for health and safety compliances on this project without any conflict of interest.

4.32 Penalties

Should, at any time, the works, or part of the works, be stopped due to unsafe acts or non-compliance with the Clients or PCs OHS Plan; neither the PC nor any other Principal Contractor or Contractor shall have a claim for extension of time or any other compensation.

In cases of any **repetitive** non-**conformances**, the non-conforming party shall be penalised as per the table below:

The following constitute examples of the types of non-conformances that will attract penalties:

Minor: **Fine: R50/count**	**Medium:** **Fine: R500/count and a non-conformance**	**Severe:** **Fine: R5, 000/count, a non-conformance and/or activity stoppage**
Non-use of basic PPE supplied (e.g. Overalls, Safety Shoes, Hardhats) per person	Toilets not supplied or regularly serviced; lack of drinking water	Principal Contractors working without OHS Plan approval
Non completion of registers for plant and equipment on site	Principal Contractors not audited	Workers transported in contravention of the OHS Plan or legal requirements
Lack of OHS signage at work areas	Working without training or the appropriate OHS SWP / HIRA	Invalid/expired Letters of Good Standing with licensed Compensation Insurer
Tools and equipment identified in poor condition during inspections	Non-conformances identified during the previous audit and not addressed within the agreed time frame	Allow people to work at heights without proper training and PPE

	No internal monthly Audit Report on file.	Fall Arrest Harness not tied off / worn when a risk of falling exists
	No Medical Certificates of Fitness for relevant workers	Threat to the OHS of persons
	Unsafe work at heights	3rd Offence on Unsafe Work at Heights
	Poor Housekeeping	Failure to submit consolidated Health and Safety report and relevant document.

All penalties shall be communicated to the Principal Contractor on a monthly basis.

The Principal Contractor will be expected to confirm receipt of such penalties. The total deductible amount as per penalties issued shall be tabled in the Monthly Progress Meeting for noting purposes. All monthly penalties shall be deducted from the Certified Certificates submitted by the Principal Contractor.

4.33 Project Close - Out Requirements

Upon completion of the project, the Principal Contractor shall submit a well-documented consolidated Health and Safety file (to be in electronic form) confirming the H & S history of the project.

The following **summary** of information is required in the file, but not limited to:

- Final closure of all registers and checklists;
- Monthly Health and Safety audit reports;
- Minutes of the Health and Safety Committee meetings (Min every 3 months);
- Summary of Incidents & IOD report;
- WCA /COIDA Claims;
- Total Man-hours and DIFR (0:200,000);
- Environmental rehabilitation status;
- Copies of Pre and Post Employment Medical Certificates of all employees that worked on the project (Medical surveillance and final declaration) where applicable;
- Health and Safety Non-conformances (current / outstanding); and
- Copies of all Hazardous Waste Disposal Certificates (where applicable)

Handover of the consolidated Health and Safety file can only commence once all personnel has been demobilized and **nil man-hours** are recorded. Electronic submission must be provided to the CLIENT, or its Health and Safety Advisor, who are required to store this information for 3 subsequent years.

The Health and Safety Advisor or - Agent will evaluate the Health and Safety performance of the Principal Contractor i.e. compliance, performance, quality and refer in a cover letter which will be added to the Principal Contractors consolidated file with the contractor's close-out report.

Acknowledgement:

I, _____ representing _____ as Contractor have satisfied myself with the content of the Occupational Health and Safety Specification (OHSS) and shall ensure compliance and that the personnel and other people visiting the site comply with all relevant obligations in respect thereof.

_____ _____

Signature of Principal Contractor Date

_____ _____

Signature of Principal Agent Date

_____ _____

Signature of Client Date

Comments:

Annexure 1 – Professional team and information on this project
Annexure 2 - Notification of Construction work
Annexure 3 - Organogram
Annexure 4 - Legal Appointments
Annexure 5 - Registers & checklists
Annexure 6 - Returnable Documents
BASELINE Risk Assessment

Annexure 1 – Professional team and information on this project

CLIENT:	Name	Person	Email
Name of Client	Langeberg Municipality		
Address	Langeberg Municipality, 28 Main Street, Ashton		
Project Name	**New Fire Station, Robertson**		
Client's Representative			
Principal Agent	Tusk Construction Support Services (Pty) Ltd	Adriaan Norman	072-246.37.22, adriaan@tuskcss.co.za
Address	3 High Street, 1st Floor Rosenpark, Tygervalley, Bellville		
DESIGN TEAM:			
Consulting Engineer			
Electrical Engineer			
Fire Consultant			
CHS Consultant	Phayona SHE Consulting (Pty) Ltd	Fadley Valley	082-405.71.21, fadley.valley@gmail.com
PRINCIPAL CONTRACTOR	**Tender**		
Name of PC:			
16.1			
16.2			
8.1			
8.7			
CONTRACTORS	To be announced	List of contractors will be in H&S file	
Plumbing			
Electrical			
MAJOR SUPPLIERS	To be announced	List of contractors will be in H&S file	
EXTENT AND LOCATION OF:			
Relevant existing records		To receive from client	
Surveys		To be conducted with appointment	
Site investigation & Geotechnical reports		To be conducted with appointment	
Records of "as-built" drawings		To receive from client	
H&S File			In site office
Maps			

ANNEXURE A- NOTIFICATION OF CONSTRUCTION WORK
Regulation 4 of the Construction Regulations, 2014

1 (a)	Name and postal address of principal contractor:	
(b)	Name and telephone number of principal contractor's contact person:	
2	Principal contractor's compensation registration number:	
3 (a)	Name and postal address of client:	Langeberg Municipality, 28 Main Street, Ashton
(b)	Name and telephone number of client's contact person or agent:	Fadley Valley, 082-405.71.21, fadley.valley@gmail.com
4 (a)	Name and postal address of designer(s) for the project:	Tusk Construction Support Services, PO BOX 53741, Wierda Park, 0149
(b)	Name and telephone number of designer's contact person:	Adriaan Norman, 072-246.37.22, adriaan@tuskcss.co.za
5	Name and telephone number of principal contractor's construction manager on site appointed in terms of regulation 8(1):	
6	Name/s of principal contractor's sub-ordinate managers on site appointed in terms of regulation 8(2):	
7	Exact physical address of the construction site or site office:	Erf 8250, Kerk Street, Robertson, 6705
8	Nature of the construction work:	Construction of new building
9	Expected commencement date:	
10	Expected completion date:	
11	Estimated maximum number of persons on the construction site:	Total: …..… Male: …..… Female: ……
12	Planned number of contractors on the construction site accountable to principle contractor:	
13	Name(s) of contractors already selected:	

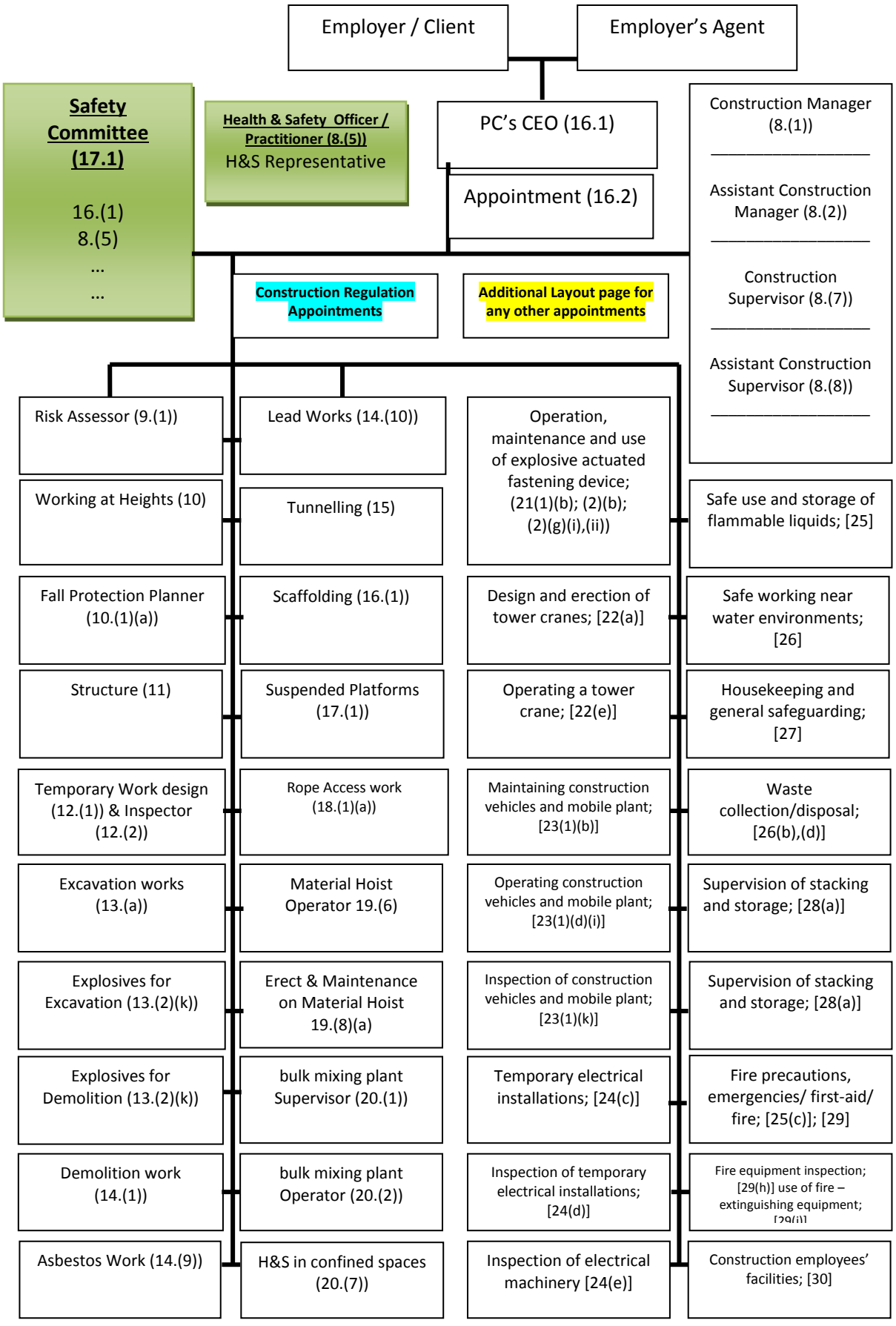
_____ _____
Principal contractor Date

_____ _____
Client's Agent (where applicable) Date

_____ _____
Client Date

THIS DOCUMENT TO BE FORWARDED TO THE OFFICE OF THE DEPARTMENT OF LABOUR **PRIOR TO COMMENCEMENT** OF WORK ON SITE

Annexure 3 - Organogram



Annexure 4 – Legal appointments

Each appointment letter shall indicate:

a. Legal reference to the appointment requirement;
b. The name of the person appointing and his / her designation;
c. The name of the company who this person represents;
d. The name of the appointee and the appointment;
e. The detail of the site / address
f. Period of validity of such appointment (not longer than 3 year);
g. Signature of the Company's representative making the appointment & date of signature;
h. Duties or reference to requirements in regulations (to include Checklists & Registers);
i. Acceptance of appointment;
j. Signature of acceptor and date; and
k. Designation.

All contractors including the professional team members has to ensure that an arrangement is in place to ensure all their employees have valid medical certificates of fitness.

Sample of tabular list to be included in health and safety plan (not limited or exhausted to only these

Appointment description (Safety File)	**Appointment required in terms of**	**Appointed of the project YES/NO**
Assistant to Chief Executive Officer	OHSACT Section 16(2)	**Yes**
Principal contractor for each phase or project	Construction Regulation 5(1)(k)	**Yes**
Construction Manager	Construction Regulation 8(1)	**Yes**
Construction Supervisor	Construction Regulation 8(7)	**Yes**
Assistant Construction Supervisor	Construction Regulations 8(8)	**Yes**
CHS Officer registered with SACPCMP	Construction Regulation 8(5)	**Yes**
Construction vehicle and mobile plant operator	Construction Regulation	**Yes**
Construction vehicle inspector	Construction Regulations	**Yes**
CoVid-19 Compliance Officer	Dept Labour and Employ. Guidelines	**Yes**
CoVid-19 Manager	Disaster Management Act	**Yes**
Demolition Supervisor	Construction Regulation	**Yes**
Electrical installation and appliances inspector	Construction Regulation 24	**Yes**
Emergency evacuation controller	Construction Regulation	**Yes**
Excavation supervisor	Construction Regulation 13 (1)	**Yes**
Explosive powered tool supervisor	Construction Regulation 21(2)	**Yes**
Fall Protection Developer	Construction Regulation 8	**Yes**
Fire Fighter	Construction Regulation	**Yes**
Fire Fighting Equipment Inspector	Construction Regulation 27	**Yes**
First-Aiders	General Safety Regulation 3	**Yes**
Hand Tool Inspector	General Safety Regulations	**Yes**
Hazardous chemical substances supervisor	Hazardous Chemicals Substances Regulations	**Yes**
Housekeeping supervisor	Construction Regulation	**Yes**

Incident Investigator	General Administrative Regulation 9(2)	**Yes**
Ladder Inspector	General Safety Regulation 13(a)	**Yes**
Occupational Health and Safety Committee	OHSACT Section 19	**Yes**
Occupational Health and Safety Representatives	OHSACT Section 17	**Yes**
Personal Protective Equipment Inspector	Construction Regulation	**Yes**
Portable Electrical Equipment	Construction Regulation	**Yes**
Risk Assessor	Construction Regulation 9(1)	**Yes**
Safety Harness inspector	General Safety Regulations	**Yes**
Scaffolding supervisor	Construction Regulation 14	**Yes**
Stacking and storage supervisor	Construction Regulation 28	**Yes**
Structures supervisor	Construction Regulation	**Yes**
Supervisor demolition work	Construction Regulation	**Yes**
Suspended platform supervisor	Construction Regulation 15	**Yes**
Temporary electrical installations inspector	Construction Regulation	**Yes**
Traffic management supervisor	OHSACT Section	**Yes**
Vessels under pressure supervisor (Fire)	Vessels under Pressure Regulations	**Yes**
Welding supervisor	General Safety Regulation	**Yes**
Working on or next to water supervisor	Construction Regulation	**Yes**

(Sample)**FIRST AIDER**

OCCUPATIONAL HEALTH AND SAFETY ACT, Act 85 of 1993
General Safety Regulations 3.(4)

… (legal reference)

I, _____ (Employer Responsible Person), for _____ (Company) do hereby appoint _____ (Employee) as First Aider and to ensure that all first aid boxes are maintained in accordance with General Safety Regulation 3 at _____ (Site/Address).

This appointment is valid from __ / ___ / 20__ to the completion of the stipulated construction work. (Not more than 3 years)

Signature: _____ Date: _____

Your duties are to:

- Ensure that the first aid box or boxes under your control remain properly stocked to meet all foreseeable incidents which may occur in your designated area of responsibility;
- Perform kit inspection by documenting the content on the provided checklist;
- Attend to and report incidents / accidents to the supervisor immediately;

…

Acceptance

I, _____, the undersigned do hereby acknowledge receipt of, understand the duties in this appointment, are competent to perform this appointment with regards to First Aid.

Signature: ___, Date: ___ & Designation ___

Annexure 5 – Registers & Checklists
Sample of tabular list to be included in health and safety plan (not limited or exhausted to only these registers & checklists)

Statutory Registers (Safety File)	Register Intervals	Required in terms of the project YES/NO
	Daily Before work commence	
Approval to Cast Concrete	Before Casting	Yes
Concrete and Mixer	Daily	Yes
Confined space entry		
Construction Vehicle inspection register	Daily	Yes
Daily Safe Task Instructions	Daily	Yes
Electrical installations Register	Daily before work commence	Yes
Electrical Tools Register	Monthly	Yes
Excavation Register	Daily, before each shift, etc	Yes
Explosive fastening device	Daily	Yes
Fall Protection Inspections Register	Daily before work commence	Yes
Fire Equipment Inspection Register	Monthly	Yes
First-Aid Box Content Register (vehicle)	Weekly	Yes
First-Aid Treatment Register	After each treatment	Yes
First-Aid Dressing Register	After each treatment	Yes
Formwork and support	Weekly	Yes
Hand Tool Inspection Register	Monthly	Yes
Hazardous Chemical Substances Register	After use of Substance	Yes
Health and Safety Rep Inspection Register	Monthly	Yes
Hygiene Inspection: Toilets	Daily	Yes
Induction training	Project Start	Yes
Ladder Inspection Register & Checklist	Monthly	Yes
Personnel Protective Equipment Issue Register	At start of project and at every issue	Yes
Personnel Protective Inspection Register	Weekly – Part of DSTI	Yes
Powered Tools Register	Daily before work commence	Yes
Safety Harness Inspection Register	At Start of project and then every month	Yes
Scaffold Inspection Register	Daily before work commence	Yes
Stacking and Storage Register	Weekly Per site	Yes
Structures Inspection Register	Weekly	Yes
toolbox talks	Weekly –	Yes

Annexure 6 - Returnable Documents

Health and Safety documents to be submitted with tender:

2. Health and Safety Plan
3. Health and Safety Budget (Construction Regulation 5.(1)(g))
4. Skills training / existing qualification matrix (Construction Regulation 5.(1)(h)) e.g.
    a. Competencies for:
        - Legal liability training (Min Construction Manager & Supervisor);
        - Excavation Supervisor;
        - First Aider on site;
        - H&S Representative (CHSO/M qualification registration);
        - Fire Fighter & Equipment Inspector,
        - Risk Assessor;
        - Incident Investigator;
        - Fall Protection Planner / Developer; and
        - Working on Heights

    b. Resources evaluation:

        - Scaffolding
        - Mobile plant & construction vehicles
        - Artisans registration (Plumbing / Electrical, etc)

HIRA – Hazard Identification and Risk Assessment

TASK / ACTIVITY	HAZARD	RISK TO SAFETY, HEALTH &ENVIRONMENT	TYPE			RISK ANALYSIS			RESPONSIBLE ENTITY / PERSON
			H	S	E	L	E	C	
1. Project initiation and briefing session	▪ Appoint CHS Practitioner ▪ Develop a health and safety brief for project ▪ Determine the required competency for the matter expert consultants ▪ Record scope of construction work project	▪ Non-compliance to construction regulation in later stages of project ▪ Bad health and safety project profile	x	x	x	1	1	1	CLIENT / AGENT
2. Concept and feasibility study	▪ Attend to design and consultant meetings ▪ Documenting project risk profile and health and safety policies that will affect cost estimation and budgeting for health and safety for project	▪ No records of decision making for health and safety implementation ▪ Over / under calculation for health and safety budget requirements	x	x	x	2	2	4	CLIENT / AGENT
3. Design Development	▪ Prepare this Baseline Risk Assessment for intended construction work project. (CR 5.(1)(a)) ▪ Prepare health and safety specification base on the this Baseline Risk Assessment (CR 5.(1)(b)) ▪ Provide Designer with health and safety specifications as mentioned above. (CR 5.(1)(c)) ▪ Receive the designers hazard report for use in tender process ▪ Layout format of site health and safety file ▪ Prepare health and safety plans for early works ▪ Initial projects health and safety estimation / budgets	▪ To minimize design risk ▪ Restrict legal liability exposure through constructability, maintainability and operability of structure ▪ Non-compliance to construction regulation in later stages of project	x	x	x	2	2	4	CLIENT / AGENT
4. Tender documentation and procurement	▪ Define procurement process for health and safety ▪ Assemble records in preparation for the construction work permit. ▪ Ensure that the health and safety specifications, including hazard report from	▪ Non-compliance to construction regulation in later stages of project ▪ Site Establishment delays due to	x	x	x	2	2	4	CLIENT / AGENT

TASK / ACTIVITY	HAZARD	RISK TO SAFETY, HEALTH &ENVIRONMENT	TYPE			RISK ANALYSIS			RESPONSIBLE ENTITY / PERSON
			H	S	E	L	E	C	
	designer, are issued to potential contractors tendering for the intended construction work project ▪ Ensure that principal contractor to be appointed has the necessary competencies and resources to carry out the construction work safely ▪ Prepare appointment documents for signature	construction permit issue ▪ Non-clarifications on discrepancy in tender process ▪ Appointment of non-compliant contractors ▪ Delay in start of project							
5. Construction documentation and management	▪ Assess, discuss, negotiate and approve the implementation of plan ▪ Apply for construction work permit ▪ Ensuring Principal Contractors compliance to Construction Regulation and clients health and safety specifications ▪ Ensure periodic audits are conducted ▪ Design risk management	▪ Noncompliance to construction regulation in later stages of project ▪ Liability exposure risk ▪ Incidents / Accidents ▪ Work stoppage ▪ Financial lost due to delays	x	x	x	2	2	4	CLIENT / AGENT
6. Project close-out	▪ Recording of defects ▪ Hand over Health and safety file to client ▪ Close-out report	▪ Noncompliance to construction regulation in later stages of project	x	x	x	2	2	4	CLIENT / AGENT
7. Site organization and establishment	▪ Insufficient infrastructure ▪ Environmental impact assessment ▪ Not sufficient or unknown location of services ▪ Not enough hoarding ▪ Access and traffic control ▪ Creation of site office in containers ▪ Erroneous off-loading ▪ Inadequate facilities for staff ▪ Stores - Unsecured storage of tools and materials ▪ Excessive dust generated during site establishment	▪ unlawful persons entering site, grievance to people ▪ Traffic disruption ▪ Fatalities or injury to employees ▪ Damage to property ▪ Loss of time in maintenance	x	x	x	4	3	12	PRINCIPAL CONTRACTOR
8. Deliveries and other construction vehicles	▪ Vehicles movement entering / leaving site ▪ Inadequate traffic plan ▪ Inadequate signals in place when reversing and offloading ▪ impact with equipment ▪ Spillages from trucks & materials	▪ Injury to employees ▪ Traffic disruption, ▪ Injury to visitors ▪ Damage to property ▪ Environmental damage, Waste generation	x	x	x	4	3	12	PRINCIPAL CONTRACTOR

TASK / ACTIVITY	HAZARD	RISK TO SAFETY, HEALTH &ENVIRONMENT	TYPE			RISK ANALYSIS			RESPONSIBLE ENTITY / PERSON
			H	S	E	L	E	C	
9. Manual handling of materials & equipment	▪ Carrying, lifting & positioning heavy & unmanageable pieces of material & equipment	▪ Injury to employees ▪ Damage to property	x	x	x	4	4	16	PRINCIPAL CONTRACTOR
10. Excavations	▪ Unstable soil ▪ Unsuitable access to working area Suitable access in and out of excavations not provided ▪ Incompetent operators ▪ Restricted view of driver ▪ Employees assisting using hand tools when carrying out excavation work ▪ Overcrowding of employees in trenches ▪ Excavation conducted without supervision of competent person ▪ Excavations not barricaded ▪ Unidentified services ▪ Unauthorised access ▪ Extensive noise, Sparks operation in rocky soils	▪ Collapse of excavation and falling material ▪ Machine getting stuck in wet soil condition ▪ Properly planned escape routes not available ▪ Collapsing of shoring ▪ Employees injuries ▪ Visitors or vehicles falling into excavations ▪ Harm to property ▪ Disruption of service supply to surrounding community ▪ Damage to equipment	x	x	x	4	3	12	PRINCIPAL CONTRACTOR
11. Steel reinforcing	▪ Delivery vehicles on site ▪ wrong off-loading by untrained personnel ▪ Unsafe stacking and storage of reinforcing ▪ Overcrowding walkways and access ways ▪ Manual handling of heavy reinforcing ▪ Incorrect PPE required	▪ Disruption of road traffic ▪ Damage to property ▪ Injury to employees ▪ Injury to visitors	x	x		4	3	12	PRINCIPAL CONTRACTOR
12. Concrete works	▪ Delivery vehicles movement onto site ▪ Incorrect handling of concrete pump and chute during discharge ▪ Manual moving of concrete to remote location by wheel barrow or dumpster. ▪ Concrete spills during activities ▪ Environmental spillage due to washing out of ready mix delivery truck. ▪ Incorrect PPE required	▪ Disruption of road traffic ▪ Damage to property ▪ Injury to employees ▪ Injury to visitors ▪ Unauthorised / untrained operator ▪ Environmental damage, Waste generation	x	x	x	4	3	12	PRINCIPAL CONTRACTOR
13. Electrical Work	▪ Use of damaged hand tools when mixing plaster ▪ Cement powder emissions from mixing plaster ▪ Removal of rubble from area ▪ Climbing onto working scaffolding	▪ Electrocuting or Injuries to employees ▪ Inhalation of excessive cement powder	x	x	x	4	3	12	CONTRACTOR

TASK / ACTIVITY	HAZARD	RISK TO SAFETY, HEALTH &ENVIRONMENT	TYPE			RISK ANALYSIS			RESPONSIBLE ENTITY / PERSON
			H	S	E	L	E	C	
	▪ Spillages from cement and other materials	▪ Environmental damage through Waste generation							
14. Welding & gas cutting	▪ Operating of equipment by unskilled personnel ▪ Poorly maintained equipment ▪ Welder not in constant control over equipment ▪ Incorrect earth on welding equipment ▪ No welding screens between operations and other employees ▪ No ventilation in welding areas ▪ Not sufficient welding PPE ▪ Argon / Oxygen pressure vessels free standing ▪ Welding spats & sparks not captured	▪ Injury to employees ▪ Inhalation of excessive gasses and fumes ▪ Electrocution, fire, burns, Shocks ▪ Arc eyes due to wrong PPE ▪ Explosions, deaths, injury to employees ▪ Damage to property	x	x	x	4	4	16	PRINCIPAL CONTRACTOR
15. Fire prevention	▪ Untrained and emergency drills not done on regular basis ▪ Equipment in store rooms and not distributed on site ▪ Poorly maintained firefighting equipment ▪ Safety signs not adequate or put up ▪ Emergency exists obstructed ▪ Emergency plan not communicated	▪ Damage to property as a result of fire ▪ Death and/or injury to employees	x	x	x	4	5	20	PRINCIPAL CONTRACTOR
16. Hoisting and Lifting equipment	▪ Untrained riggers ▪ Failure lifting equipment due to poor rigging methods ▪ Movement of employees under suspended materials during crane operations ▪ Unattended loads without supervision ▪ Swaying of lifted materials without guide rope	▪ Damage to material. ▪ Damage to property ▪ Loss of load ▪ Falling material ▪ Injury to employees	x	x	x	4	4	16	PRINCIPAL CONTRACTOR
17. Sub contractors on site	▪ No safety file for site ▪ Unstructured employee force ▪ Unskilled supervision ▪ In experience employees ▪ Not registered for COID ▪ Foreign employees, language barrier ▪ Poorly maintained equipment ▪ Environmental disrespect	▪ Risk other employees ▪ Delays due to non-compliance ▪ Contravention notices ▪ Delays in completion ▪ Environmental risk due to uncontrolled dumping on sites	x	x	x	4	4	16	PRINCIPAL CONTRACTOR

Severity (Consequences)	Risk Rating Matrix	Likelihood				
		<Low (1) Not credible i.e. the team have never heard of event occurring in industry	**Low (2)** Conceivable but would require multiple failures of systems and controls	**Medium (3)** Less than average i.e. easy to postulate a scenario for accident but considered unlikely	**>Medium (4)** More than average i.e. the team do not have direct knowledge but suspect that event may have occurred and represents a credible scenario	**High (5)** Likely to occur and the team have knowledge of a similar event
	High (5) Multiple deaths, lung diseases, permanent debility or fatality. Major pollution with long-term implication and very high restitution costs	5	10	15	20	25
	>Medium (4) Involving a single death or severe injury, poisoning, sensitization or dangerous infection. Damage to equipment resulting in production shutdown and significant production loss. Severe pollution with short-term localized implications incurring significant restitution costs	4	8	12	16	20
	Medium (3) Event leading to a Lost Time Incident or persistent dermatitis, acne or asthma. Localized damage to equipment requiring extensive repair, significant loss of function or production or moderate pollution incurring some restitution costs	3	6	9	12	15
	Low (2) Minor injury requiring first-aid treatment or headache, nausea, dizziness, mild rashes. Damage to equipment requiring minor remedial repair, loss of production or impact to the environment	2	4	6	8	10
	<Low (1) Negligible injury or health implications, no absence from work. Negligible loss of function or production with no damage to equipment or the environment	1	2	3	4	5

1 - 6	**MAY BE ACCEPTABLE: however, review task to see if risk can be reduced further**
8 - 12	**TASK SHOULD ONLY PROCEED after consultation with personnel and assessment team. Where possible, the task should be redefined to take account of hazards involved or the risk should be reduced further prior to task commencement.**
15 – 25	**TASK MUST NOT PROCEED. Almost inevitable that an incident would result. It should be redefined or further control measures put in place to reduce risk. The controls should be re-assessed for adequacy prior to task commencement.**

Construction Manager's responsibility is to review, implementation and monitoring the site assessment.

This risk assessment was prepared on known construction work, but must be re-assessed by the Principal Contractor's Construction Manager by walking the site to confirm that all hazards have been correctly identified and appropriate control measures specified are in place.

Employees are required to wear relevant PPE for tasks being performed.

All work to be carried out under a PERMIT TO WORK system is applicable to the specifications of that permit.

WHEN ACTIVITIES, HAZARDS OR RISKS CHANGES THE CONSTRUCTION MANAGER MUST –

- **A. STOP THE JOB;**
- **B. REVISE THIS RISK ASSESSMENT; AND**
- **C. DISCUSS WILL RELEVANT EMPLOYEES.**

Team involved in the preparing of the risk assessment			
1. De Munck MENDEROI	**2. Fadley Valley**	**3.**	**4.**
5	**6.**	**7.**	**8.**
PREPARED BY: De Munck Menderoi	**POSITION: OHS PRACTITIONER**	**SIGNATURE:** 	**DATE: Tuesday, 24 May 2022**
CHECKED BY: Fadley Valley	**POSITION: CHS Agent to Client**	**SIGNATURE:** 	**DATE: Tuesday, 24 May 2022**
APPROVED BY:	**POSITION: Construction Manager**	**SIGNATURE:**	**DATE:**

LANGEBERG MUNICIPALITY

TENDER NO. "43/2022"

CONSTRUCTION OF ROBERSTON FIRE STATION

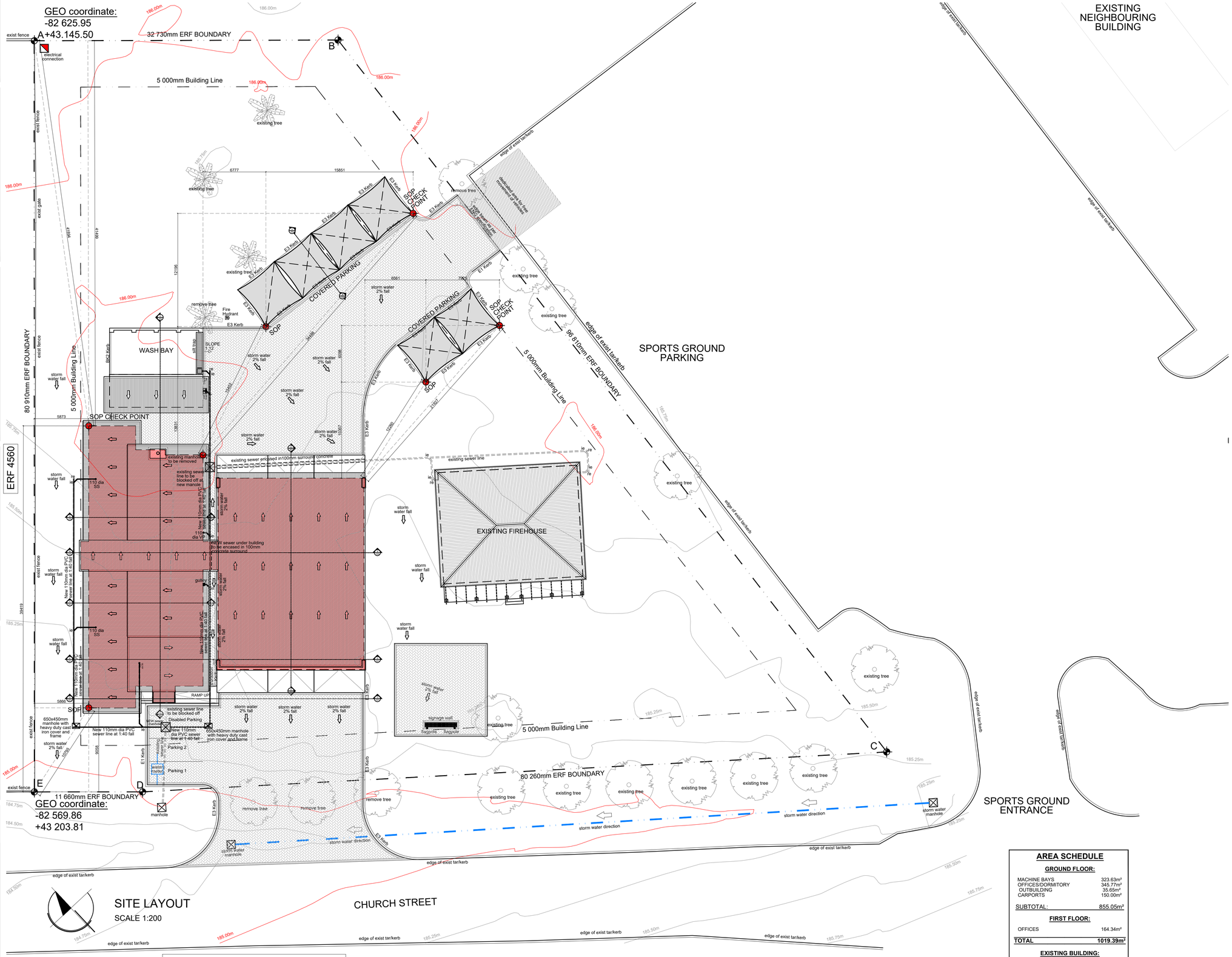
Part C7: Drawings

PART C7: DRAWINGS 197

The Works shall be carried out in accordance with the following drawings which are included in Part C7: Drawings and form part of the contract documents:

Table 3.2.1: List of Drawings		
CONSULTANT'S DRAWING NUMBER	**DESCRIPTION**	**REVISION**
	Architectural	
RFS/21-100	Site Layout	TEN
RFS/21-200	Ground Floor Layout Plan	TEN
RFS/21-201	First Floor Layout Plan	TEN
RFS/21-300	Sections AA, BB, CC, DD	TEN
RFS/21-301	Sections EE, FF,GG, HH	TEN
RFS/21-400	Elevations	TEN
RFS/21- 40	Sectional Elevations & Details	TEN
RFS/21-500	Data Sheet: Disabled WC & Passage 1	TEN
RFS/21-501	Data Sheet: Bathroom 1 Females	TEN
RFS/21-502	Data Sheet: Bathroom 2 Males & Passage 3	TEN
RFS/21-503	Data Sheet: Bathroom 3 Males & Passage 5	TEN
RFS/21-504	Data Sheet: Bathroom 4 Officer	TEN
RFS/21-505	Data Sheet: Ducts	TEN
RFS/21-506	Data Sheet: Bedroom 1 Females	TEN
RFS/21-507	Data Sheet: Bedroom 2 Males	TEN
RFS/21-508	Data Sheet: Bedroom 3 Males	TEN
RFS/21-509	Data Sheet: Bedroom 4 Males	TEN
RFS/21-510	Data Sheet: Bedroom 5 Officer	TEN
RFS/21-511	Data Sheet: Watch Room Reception	TEN
RFS/21-512	Data Sheet: Reception Lobby	TEN
RFS/21-513	Data Sheet: Station Commander	TEN
RFS/21-514	Data Sheet: Boardroom	TEN
RFS/21-515	Data Sheet: Shift commander office	TEN
RFS/21-516	Data Sheet: Shift commander store	TEN
RFS/21-517	Data Sheet: Service Passage	TEN
RFS/21-518	Data Sheet: Kitchen Ground Floor	TEN
RFS/21-519	Data Sheet: Passage 2 & 4	TEN
RFS/21-520	Data Sheet: Generator, Equipment & Oxygen store Room	TEN
RFS/21-521	Data Sheet: Toilet First floor	TEN
RFS/21-522	Data Sheet: Gymnasium lounge	TEN
RFS/21-523	Data Sheet: Kitchen First Floor	TEN

CONSULTANT'S DRAWING NUMBER	DESCRIPTION	REVISION
RFS/21-524	Data Sheet: Store First Floor	TEN
RFS/21-525	Data Sheet: Lecture Room	TEN
RFS/21-600	Window Schedule	TEN
RFS/21-601	Door Schedule	TEN
RFS/21-602	Finishing & Sanitary Schedule + Construction Notes	TEN
RFS/21-603	Balustrade Schedule	TEN
RFS/21-604	Ironmongery Schedule	TEN
RFS/21-700	Electrical: Lights & Switches Ground Floor Level	TEN
RFS/21-701	Electrical: Lights & Switches First Floor Level	TEN
RFS/21-702	Electrical: Plugs & Points Ground Floor Level	TEN
RFS/21-703	Electrical: Plugs & Points First Floor Level	TEN
RFS/21-704	Fire Evacuation: Ground Floor	TEN
RFS/21-705	Fire Evacuation: First Floor	TEN
RFS/21-706	Schematic Water Reticulation Ground Floor	TEN
RFS/21-707	Schematic Water Reticulation First Floor	TEN
	Structural	
PS2006_21-S-000	General Notes and Specifications	C
PS2006_21-S-000	Foundation layout&Details	C
PS2006_21-S-101	Suface bed layout	C
PS2006_21-S-102	First Floor Layout and Details	C
PS2006_21-S-103	Eaves_Roof Layout and Details	C
PS2006_21-S-200	Sections and General Details	C
PS2006_21-S-201	Surface Bed details	C



EXCAVATION NOTE:

- Builders waste is to be delivered to the ASHTON waste facility at the cost of the contractor.
- Clean excavated material from foundation and roadway excavations will be spoiled on site to create earth berms of 3 m base and approximately 1.8 m high and are to be compacted in layers of 250mm to 90% MOD ASHTON and neatly trimmed.

AREA SCHEDULE

GROUND FLOOR:

MACHINE BAYS	323.63m²
OFFICES/DORMITORY	345.77m²
OUTBUILDING	35.65m²
CARPORTS	150.00m²
SUBTOTAL:	855.05m²

FIRST FLOOR:

OFFICES	164.34m²
TOTAL	**1019.39m²**

EXISTING BUILDING:

OFFICES	180.00m²
GRAND TOTAL:	**1199.39m²**
STAND AREA	**4996.00m²**
COVERAGE:	**20.71%**
FLOOR FACTOR:	**0.2**

COMPLIANCE WITH SANS 10400XA & SANS 204 REQUIREMENTS:

ORIENTATION:
The SLEEPING QUATERS & ENTERTAINMENT areas are north west orientated, with the MACHINE BAYS to the south and east.

FLOORS:
No under-slab heating is to be installed, thus building is compliant with SANS 10400XA, Clause 4.2.2.

WALLS:
Double skin masonry walls with cavity & no cavity, plastered internally and externally are deemed to be compliant in terms of SANS 10400XA, Clause 4.4.3.2.a.

EXCLUSIONS:
3x Tandem MACHINE BAYS and STORAGE OUTBUILDING are non-habitable rooms.

FENESTRATION CALCULATIONS:

CONDUCTANCE

Internal Net Floor Area	= Ground + First floors = 289.71sqm + 132.37sqm = 421.98sqm
Permissible Conductance	= 421.98 x 1.4 = 590.772

WINDOWS:

W01 x 1	- 0.511 x 2.085	= 1.065sqm	= 1.065sqm
W02 x 2	- 0.900 x 1.800	= 1.620sqm x 2	= 3.240sqm
W03 x 4	- 1.200 x 1.800	= 2.160sqm x 4	= 8.640sqm
W04 x 14	- 0.600 x 0.900	= 0.540sqm x 14	= 7.560sqm
W05 x 2	- 0.600 x 0.600	= 0.360sqm x 2	= 0.720sqm
W06 x 2	- 1.860 x 1.200	= 2.232sqm x 2	= 4.464sqm
W07 x 1	- 1.924 x 2.085	= 4.012sqm x 1	= 4.012sqm
W08 x 2	- 0.400 x 4.805	= 1.922sqm x 2	= 3.844sqm
W10 x 1	- 1.860 x 1.200	= 2.232sqm x 1	= 2.232sqm
W11 x 4	- 1.800 x 0.600	= 1.080sqm x4	= 4.320sqm
W12 x 2	- 0.950 x 2.220	= 2.109sqm x 2	= 4.218sqm
W13 x 2	- 0.400 x 2.220	= 0.888sqm x 2	= 1.776sqm
W14 x 2		= 4.710sqm x 2	= 9.420sqm
W16 x 4	- 1.800 x 0.600	= 1.080sqm x 2	= 4.320sqm
W17 x 7	- 0.900 x 1.200	= 1.080sqm x7	= 7.560sqm

DOORS:

D04 x 2	- 1.219 x 2.085	= 2.542sqm x 2	= 5.084sqm
D11 x 2	- 1.613 x 2.085	= 3.363sqm x 2	= 6.726sqm
D12 x 1	- 0.871 x 2.085	= 1.816sqm x 1	= 1.816sqm

Actual Conductance = sum of glazed areas
= 81.017sqm
= **COMPLIANT (81.017 < 590.772)**

SOLAR HEAT GAIN

Permissible SHG = 421.98 x 0.12
= 50.638

NORTH WEST:

W03 x 4	P=845,	H=2329,	G=544,	P/H=0.361
W11 x 4	P=845,	H=1059,	G=459,	P/H=0.798
W12 x 1	P=240,	H=2220,	G=0,	P/H=0.108
W13 x 1	P=240,	H=2220,	G=0,	P/H=0.108

NORTH EAST:

W02 x 1	P=845,	H=3021,	G=1226,	P/H=0.280
D04 x 1	P=3808,	H=2460,	G=555,	P/H=1.442
W05 x 2	P=3808,	H=1155,	G=555,	P/H=3.297
D12 x 1	P=2635,	H=2640,	G=555,	P/H=0.998
W07 x 1	P=2635,	H=2640,	G=555,	P/H=0.998
W12 x 1	P=240,	H=2220,	G=0,	P/H=0.108
W04 x 1	P=240,	H=1070,	G=170,	P/H=0.224
D11 x 2	P=3808,	H=2986,	G=901,	P/H=1.275
W08 x 1	P=240,	H=4975,	G=150,	P/H=0.048
W14 x1	P=3808,	H=674,	G=0,	P/H=5.650

SOUTH EAST:

W17 x 7	P=845,	H=6185,	G=4985,	P/H=0.137
W04 x 2	P=845,	H=5885,	G=4985,	P/H=0.143
W06 x 1	P=845,	H=2084,	G=884,	P/H=0.405
W04 x 2	P=845,	H=2825,	G=1925,	P/H=0.299
W16 x 4	P=845,	H=1424,	G=819,	P/H=0.593

SOUTH WEST:

W02 x 1	P=845,	H=2868,	G=1073,	P/H=0.295
W01 x 1	P=845,	H=4043,	G=1958,	P/H=0.209
D04 x 1	P=2005,	H=2400,	G=315,	P/H=0.835
W06 x 1	P=845,	H=2337,	G=1137,	P/H=0.362
W08 x 1	P=240,	H=4975,	G=150,	P/H=0.048
W13 x 1	P=240,	H=2220,	G=0,	P/H=0.108
W10 x 1	P=845,	H=2837,	G=1637,	P/H=0.298
W14 x1	P=845,	H=674,	G=0,	P/H=1.254

ACTUAL SHG NORTH WEST:
= A1 x S1 x E1
= 4(0.540x0.63x0.67)+4(1.080x0.63x0.44)+(2.109x0.63x0.94)+(0.888x0.63x0.94)
= 0.912 + 1.198 + 1.249 + 0.526
= 3.885

ACTUAL SHG NORTH EAST:
= A1 x S1 x E1
= (1.620x0.63x0.72)+(2.542x0.63x0.23)+2(0.360x0.63x0.17)+(1.816x0.63x0.34)+(4.012x0.63x0.34)+(2.109x0.63x0.88)+(0.540x0.63x0.76)+2(3.363x063x0.26)+(1.922x0.63x1.09)+(4.71x063x1.09)
= 0.735+0.368+0.077+0.389+0.859+1.169+0.259+1.102+1.320+0.504
= 6.782

ACTUAL SHG SOUTH EAST:
= A1 x S1 x E1
= 7(1.08x0.63x0.79)+2(0.540x0.63x0.79)+(2.232x0.63x0.57)+2(0.540x0.63x0.67)+4(1.08x0.63x0.52)
= 3.763 + 0.538 + 0.802 + 0.456 + 1.415
= 6.974

ACTUAL SHG SOUTH WEST
= (1.620x0.63x0.72)+(1.065x0.63x0.76)+(2.542x0.63x0.43)+(2.232x0.63x0.65)+(1.922x0.63x1.04)+(0.888x0.63x0.86)+(2.232x0.63x0.72)+(4.71x0.63x0.33)
= 0.735+0.510+0.689+0.914+1.259+0.481+1.012+0.979
= 6.579

TOTAL ACTUAL SHG:
= North West + North East + South East + South West
= 3.885 + 6.782 + 6.974 + 6.579
= 24.22
= **COMPLIANT (24.22 < 50.638)**

ROOF:

Climatic Zone = 2
Min Roof assembly R-Value = 3.7sqm.K/W

ROOF COMPONENTS:

Outdoor Air Film	= 0.03sqm.K/W
Corrugated Roof Sheeting	= 0.00sqm.K/W
Roof Air Space	= 0.18sqm.K/W
Aerolite 135mm Insulation	= 3.38sqm.K/W
Rhinoboard 6.4mm	= 0.03sqm.K/W
Indoor Air Film	= 0.11sqm.K/W
TOTAL	**= 3.73sqm.K/W 3.7sqm.K/W**

Thus, the roof assembly is compliant in terms of SANS 10400XA, Clause 4.4.5.1, Table 7 and SANS 204, Table F3

ENERGY DEMAND:
Maximum Energy Demand for building classification G1 = 17W/sqm

Where total area = Ground floor + First floor
= 855.05sqm + 164.34sqm
= 1019.39sqm

And a = 1 year

Permissible Energy Demand = 17W/sqm x 1019.39sqm
= 17,329.63W

Ground Floor = 855.05sqm
Total Light Wattage = 1766.5W

First Floor = 164.34sqm
Total Lamp Wattage = 2205W

Total Energy Demand = 1766.5W + 2205W
= 3971.5W
= **COMPLIANT (3971.5W < 17 329.63W)**

ENERGY CONSUMPTION:
Maximum Energy Demand for building classification G1 = 42.5W/sqm

Where total area = Ground floor + First floor
= 855.05sqm + 164.34sqm
= 1019.39sqm

And a = 1 year

Permissible Consumption = 42.5Wh/sqm.a x 1019.39sqm
= 43,324.08Wh.a

Assume lights are on 8hours a day/year
(06:00 - 08.00 & 17.00 - 23:00)
52 weeks x 7 days x 8 hours = 2912hrs.a

Total lamp wattage = 3971.5/1000
= 3.972kW

Total Energy Consumption = 3.972kW x 2912hrs.a
= 11 565.01kWh.a
= **COMPLIANT**
(11 565.01kWh.a < 43 324.08kWh.a)

Thus Compliant with SANS 204:2011, Clause 4.5.1.1 & Table 12

General Notes

A1

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TEN	Issued for TENDER	TG	2022.05.31
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A	Issued for INFORMATION	TG	2021.09.23

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no:
ERF 8250
ROBERTSON

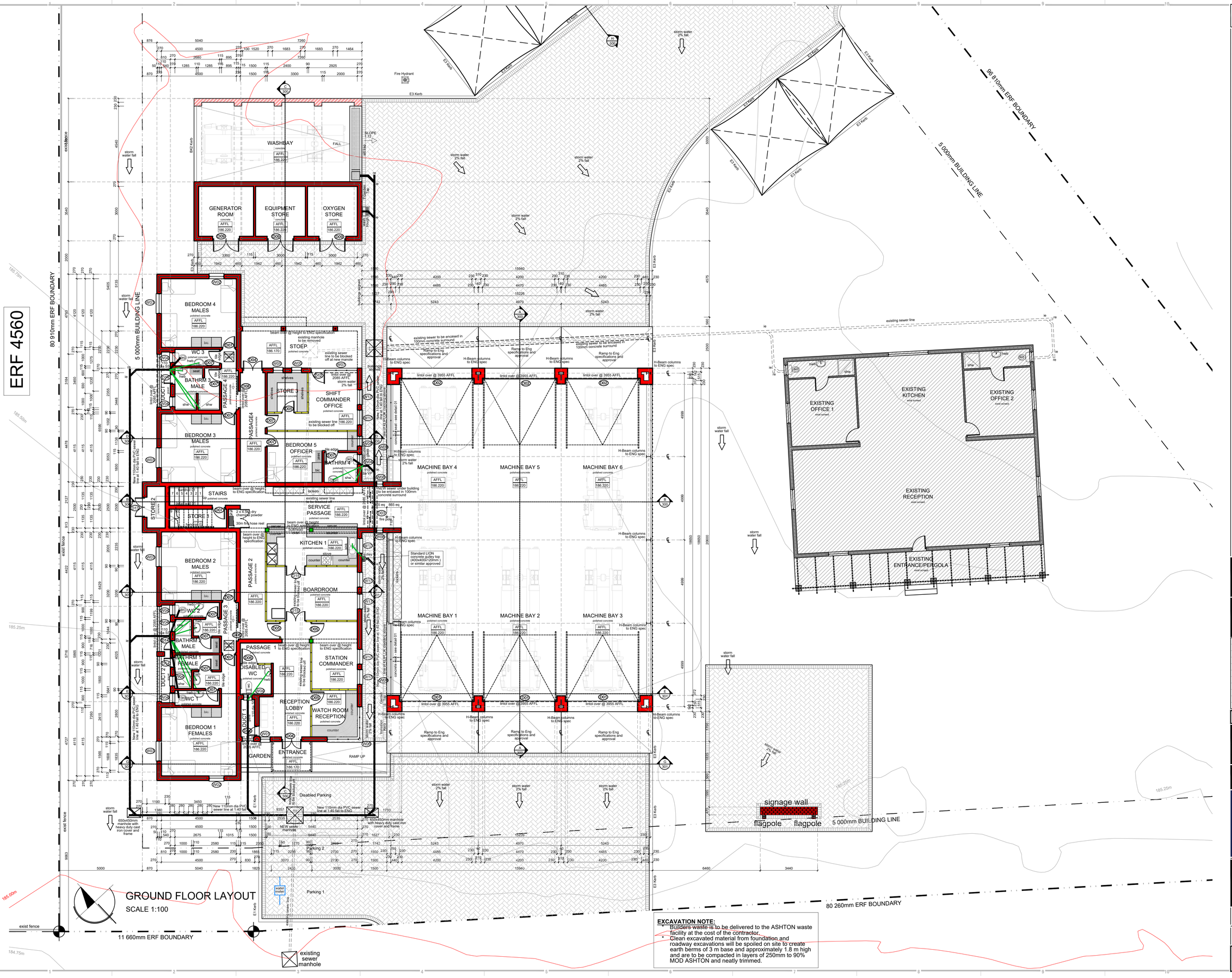
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drawing title:
SITE LAYOUT
SANS CALCULATIONS

discipline:	scale:	date:
Arch	1:200	2021.06.23

design:	drawn:	checked:
AN	TG	AN

project:	dwg no:	rev:
RFS/21	100	TEN



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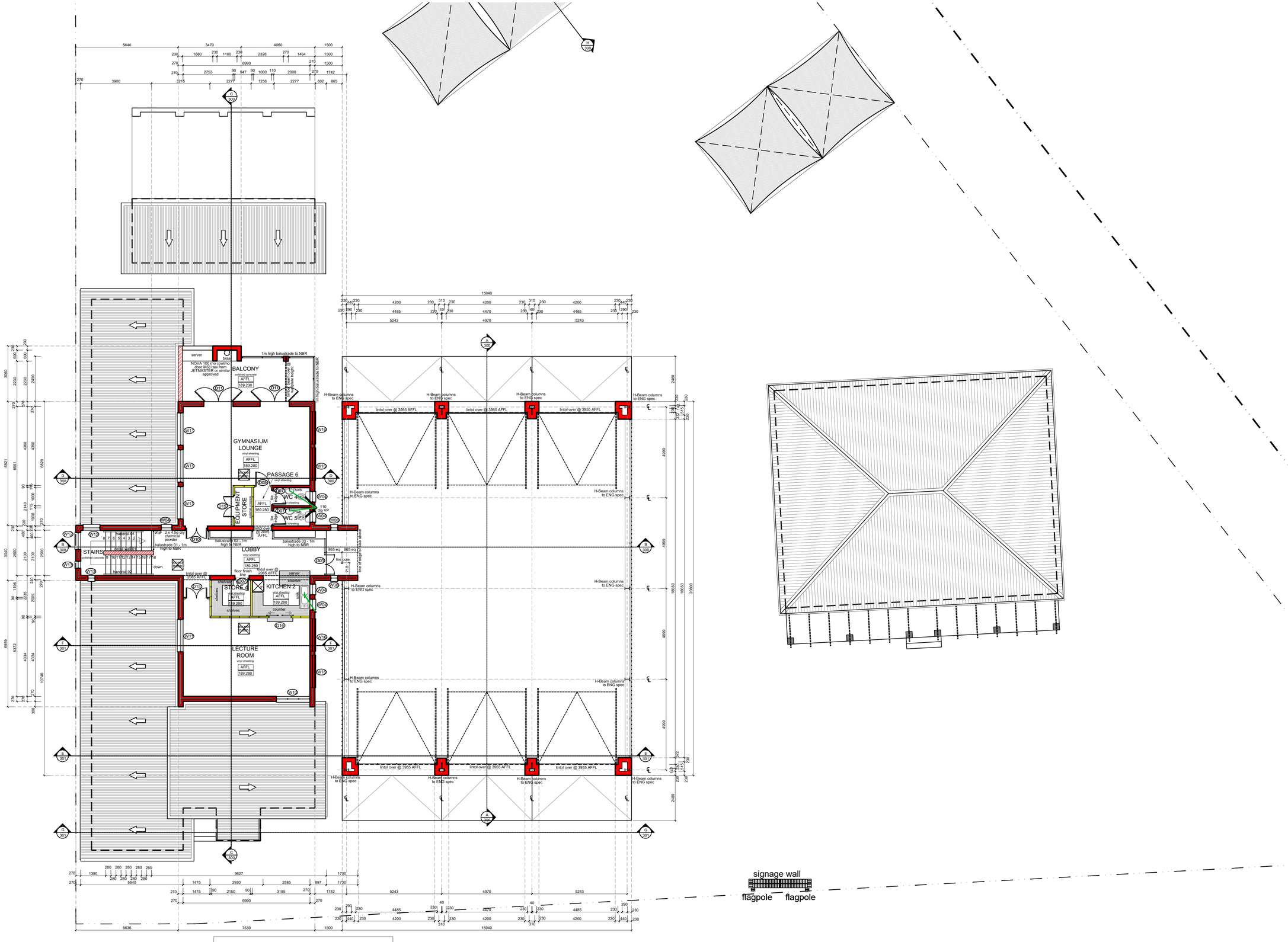
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ARCHITECTURE

drawing title:
GROUND FLOOR LAYOUT PLAN

discipline:	scale:	date:
Arch	1:100	2021.06.23

design:	drawn:	checked:
AN	TG	AN

project:	dwg no:	rev:
RFS/21	200	TEN



FIRST FLOOR LAYOUT

SCALE 1:100

EXCAVATION NOTE:

- Builders waste is to be delivered to the ASHTON waste facility at the cost of the contractor.
- Clean excavated material from foundation and roadway excavations will be spoiled on site to create earth berms of 3 m base and approximately 1.8 m high and are to be compacted in layers of 250mm to 90% MOD ASHTON and neatly trimmed.

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sign off engineer:

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TEN	Issued for TENDER	TG	2022.05.31
B	Issued for SUBMISSION	TG	2021.11.02
A	Issued for INFORMATION	TG	2021.09.23

TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no: ERF 8250 ROBERTSON

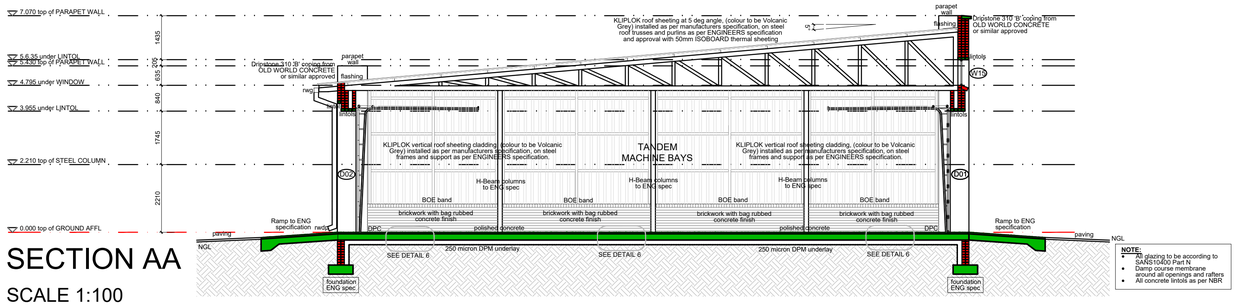
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ARCHITECTURE

drawing title: **FIRST FLOOR LAYOUT PLAN**

discipline:	scale:	date:
Arch	1:100	2021.06.23

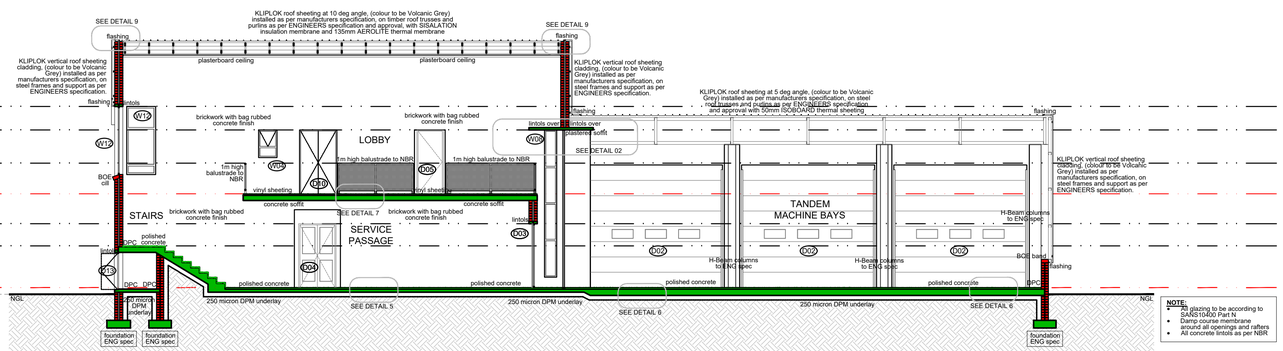
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project:	dwg no:	rev:
RFS/21	201	TEN



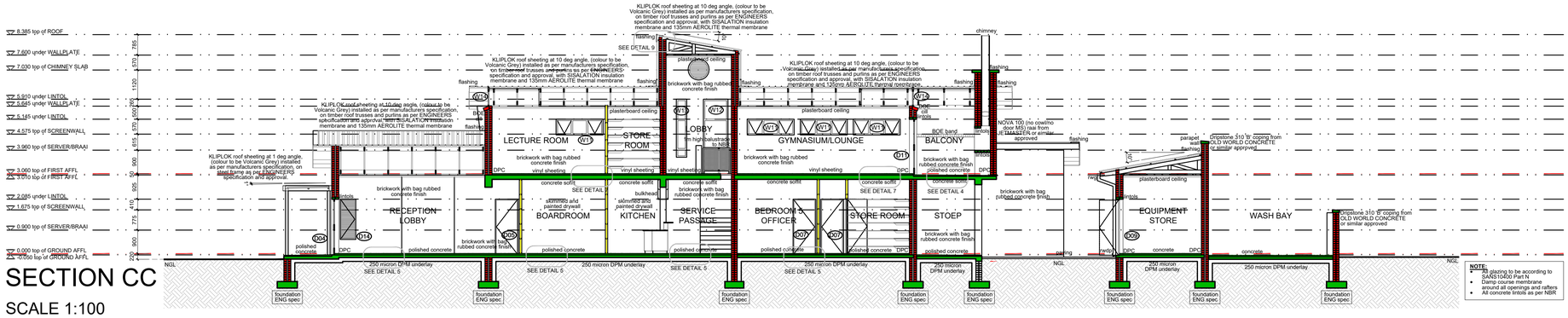
SECTION AA

SCALE 1:100



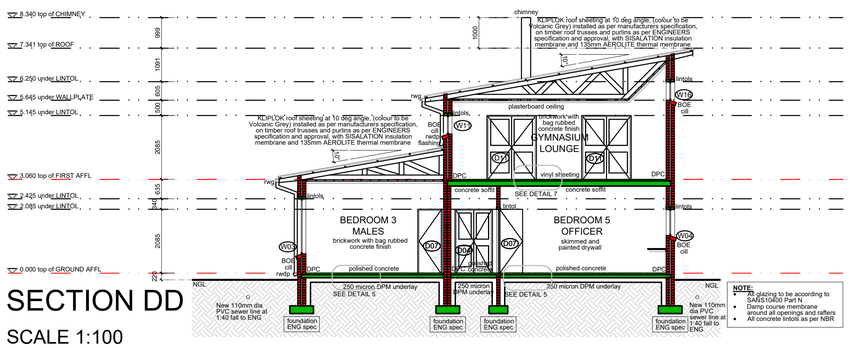
SECTION BB

SCALE 1:100



SECTION CC

SCALE 1:100



SECTION DD

SCALE 1:100

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sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	TG	2022.05.31
B	Issued for SUBMISSION	TG	2021.11.02
A	Issued for INFORMATION	TG	2021.09.23

TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no: **ERF 8250 ROBERTSON**

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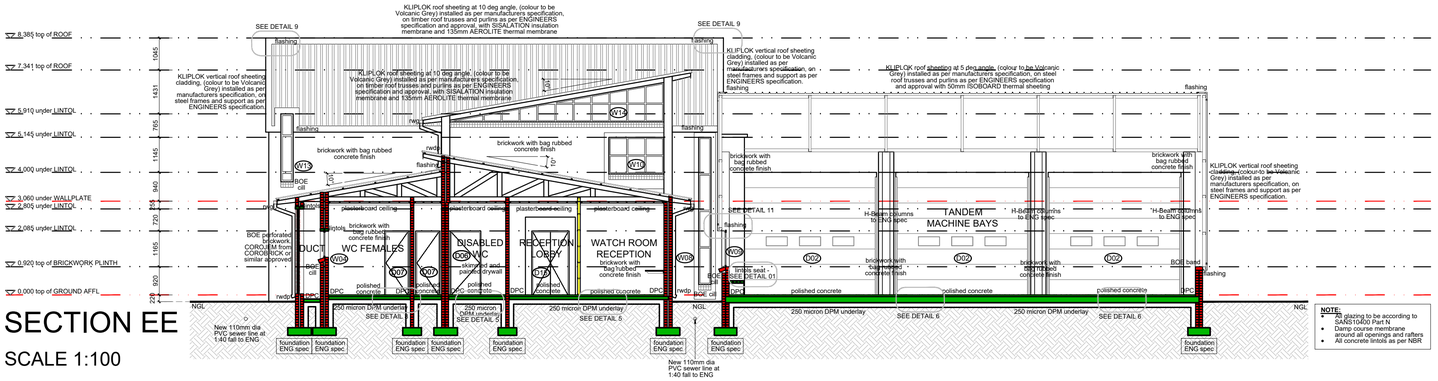
TUSK ARCHITECTURE

drawing title: **SECTION AA, SECTION BB, SECTION CC, SECTION DD**

discipline:	scale:	date:
Arch	1:100	2021.06.23

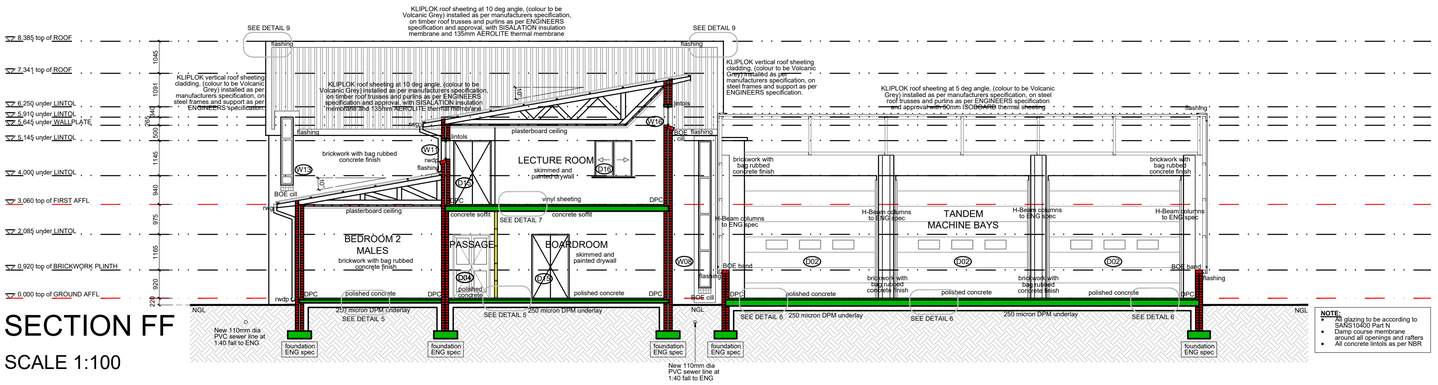
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project:	dwg no:	rev:
RFS/21	300	TEN



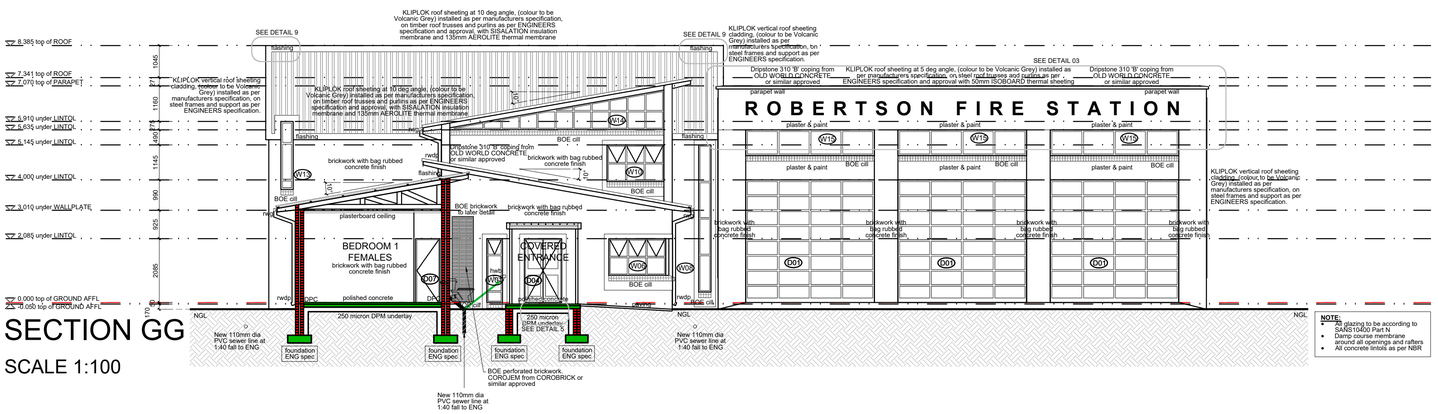
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SCALE 1:100



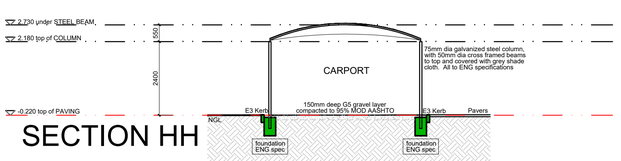
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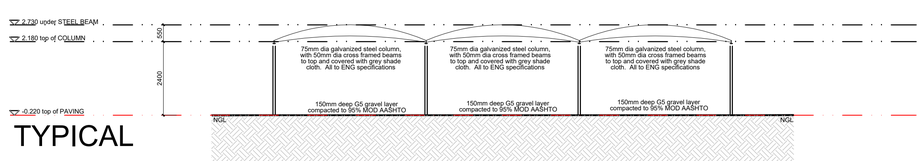
SECTION GG

SCALE 1:100



SECTION HH

SCALE 1:100



TYPICAL CARPORT ELEVATION

SCALE 1:100

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NOTE:
- All glazing to be according to SANS10400 Part N
- Damp course membrane around all openings and rafters
- All concrete lintols as per NBR

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	TG	2022.05.31
C	Issued for SUBMISSION/ add notes	TG	2021.12.10
B	Issued for SUBMISSION	TG	2021.11.02
A	Issued for INFORMATION	TG	2021.09.23

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no.:
ERF 8250
ROBERTSON

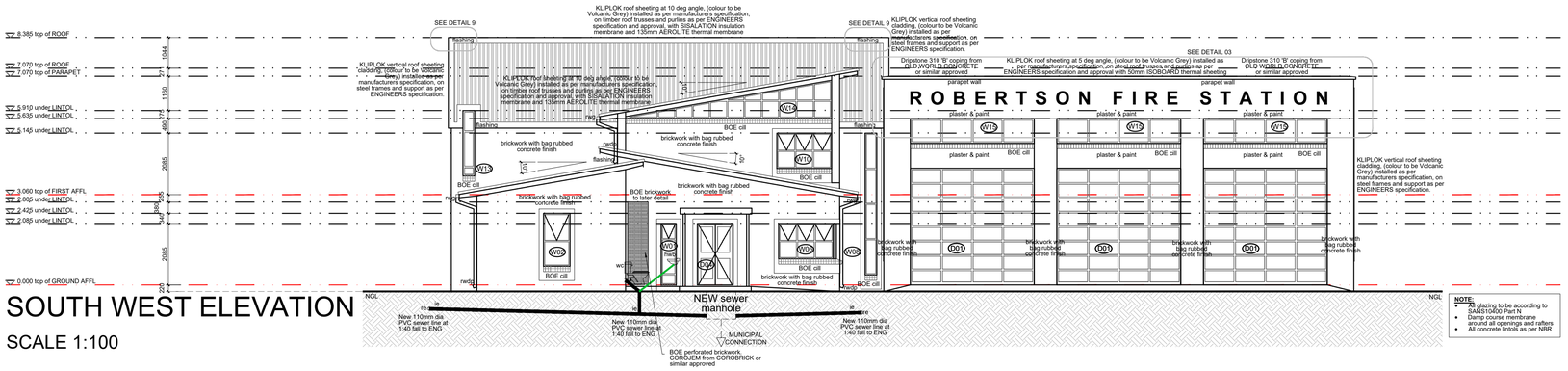
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drawing title:
SECTION EE
SECTION FF
SECTION GG
SECTION HH

discipline:	scale:	date:
Arch	1:100	2021.06.23

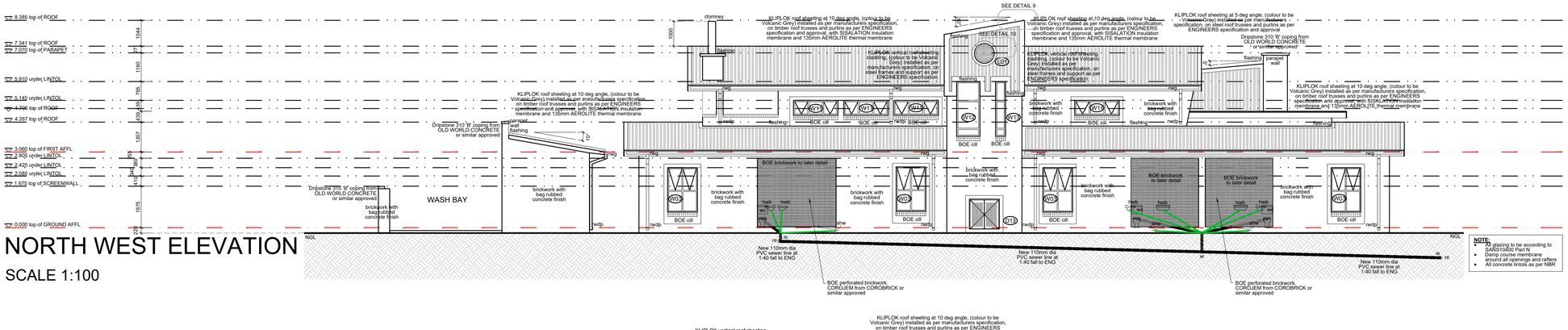
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project:	dwg no:	rev:
RFS/21	301	TEN



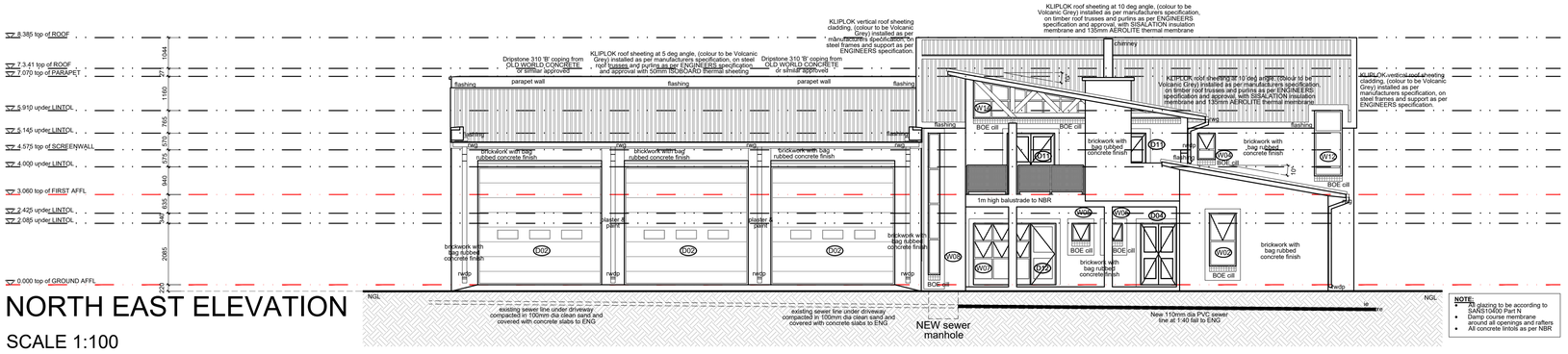
SOUTH WEST ELEVATION

SCALE 1:100



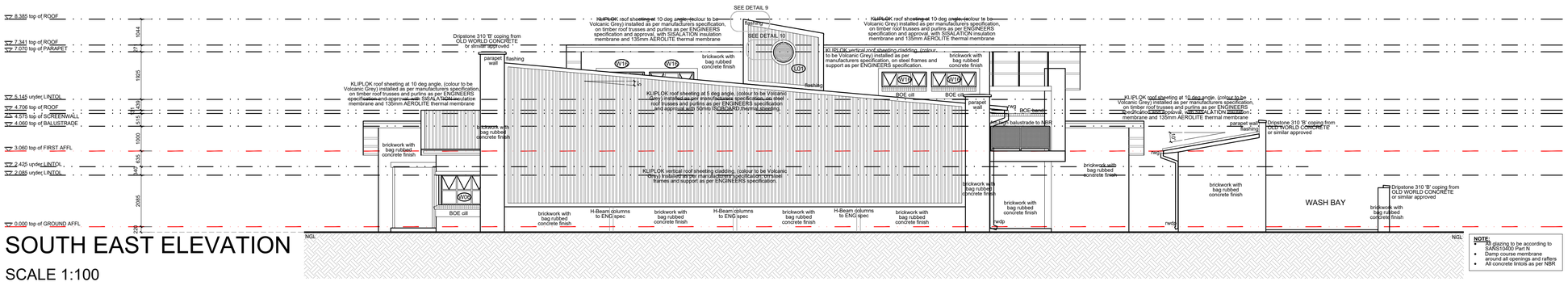
NORTH WEST ELEVATION

SCALE 1:100



NORTH EAST ELEVATION

SCALE 1:100



SOUTH EAST ELEVATION

SCALE 1:100

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sign off client:

sign off architect:

sign off engineer:

rev:	description:	by:	date:
TEN	Issued for TENDER	TG	2022.05.31
C	Issued for SUBMISSION/ add notes	TG	2021.12.10
B	Issued for SUBMISSION	TG	2021.11.02
A	Issued for INFORMATION	TG	2021.09.23

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no.:
ERF 8250
ROBERTSON

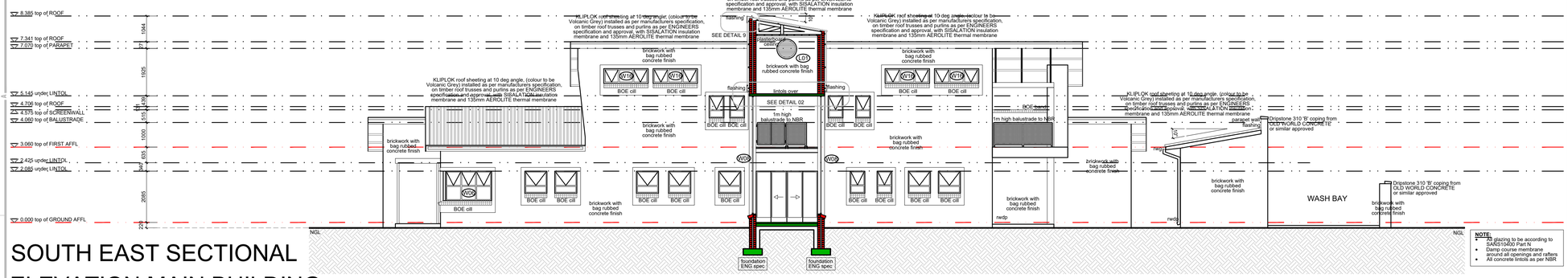
Tusk Construction Support Services
3 High Street
1st Floor
Rosenpark
Tygervalley
Bellville
Cape Town
Tel: +27 (0) 21 424 4558/23
www.tuskcss.co.za
TUSK ARCHITECTURE

drawing title:
SOUTH WEST ELEVATION
NORTH WEST ELEVATION
NORTH EAST ELEVATION
SOUTH EAST ELEVATION

discipline:	scale:	date:
Arch	1:100	2021.06.23

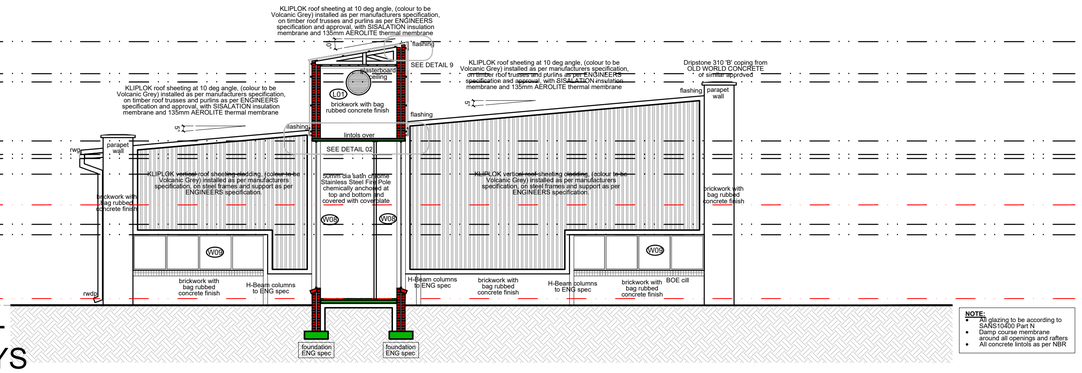
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AN	TG	AN

project:	dwg no:	rev:
RFS/21	400	TEN



SOUTH EAST SECTIONAL ELEVATION MAIN BUILDING

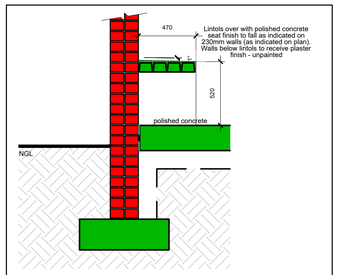
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NORTH WEST SECTIONAL ELEVATION MACHINE BAYS

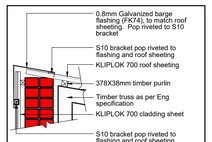
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NOTE:
- All glazing to be according to SANS10400 Part N
- Damp course membrane around all openings and rafters
- All concrete lintols as per NBR



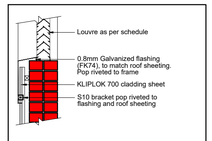
DETAIL 01 - SEAT SECTION KK

SCALE 1:25



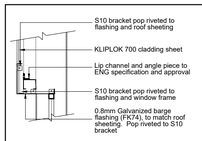
DETAIL 9 ROOF FLASHING

SCALE 1:25



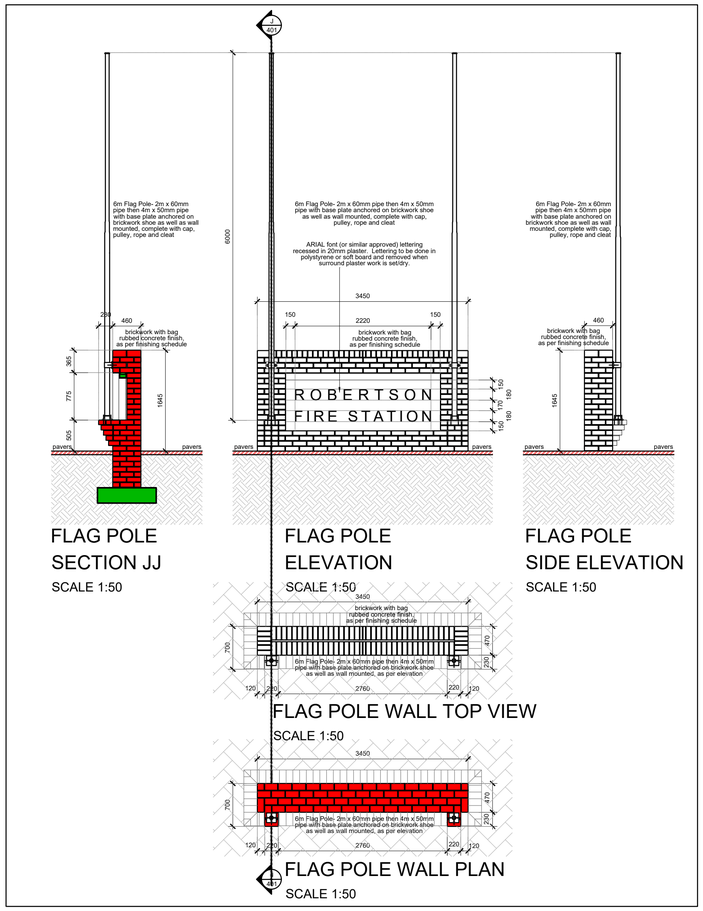
DETAIL 10 LOUVRE FLASHING

SCALE 1:25



DETAIL 11 VERTICAL FLASHING

SCALE 1:25



FLAG POLE SECTION JJ

SCALE 1:50

FLAG POLE ELEVATION

SCALE 1:50

FLAG POLE SIDE ELEVATION

SCALE 1:50

FLAG POLE WALL TOP VIEW

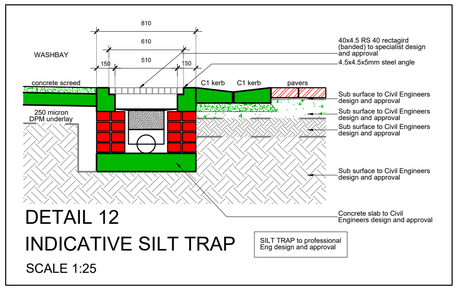
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FLAG POLE WALL PLAN

SCALE 1:50

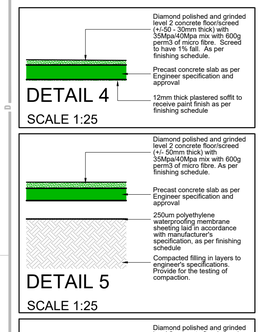
DETAIL 03 MAIN SIGNAGE OVER MACHINE BAYS

SCALE 1:50



DETAIL 12 INDICATIVE SILT TRAP

SCALE 1:25

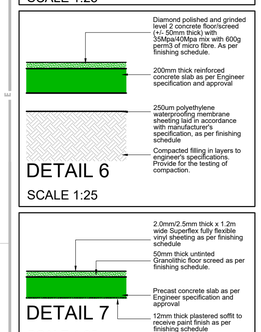


DETAIL 4

SCALE 1:25

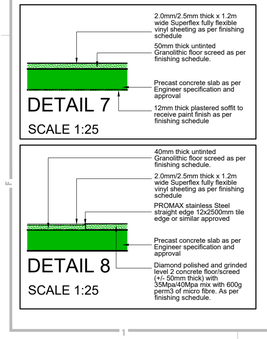
DETAIL 5

SCALE 1:25



DETAIL 6

SCALE 1:25

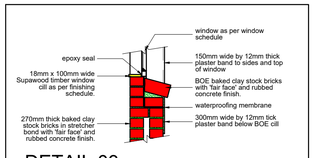


DETAIL 7

SCALE 1:25

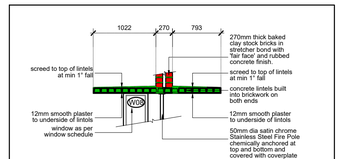
DETAIL 8

SCALE 1:25



DETAIL 03 BOE CILL

SCALE 1:25



DETAIL 02 LINTEL SLAB OVER FLAG POLE

SCALE 1:50

SEAT PLAN MACHINE BAYS

SCALE 1:50

General Notes A1

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TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no: **ERF 8250 ROBERTSON**

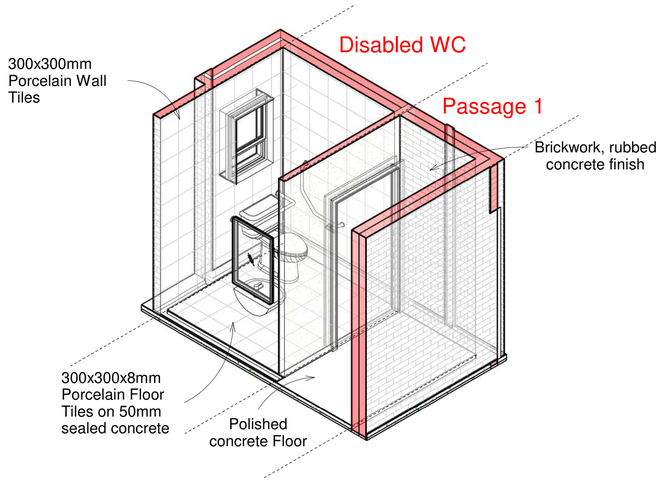
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Tel: +27 (0) 21 424 4586/23
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drawing title: **SECTIONAL ELEVATIONS FLAG POLE, SEAT, LINTEL DETAILS**

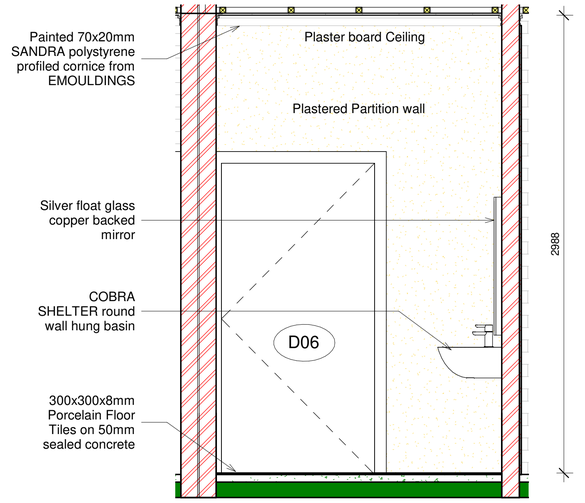
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project:	dwg no:	rev:
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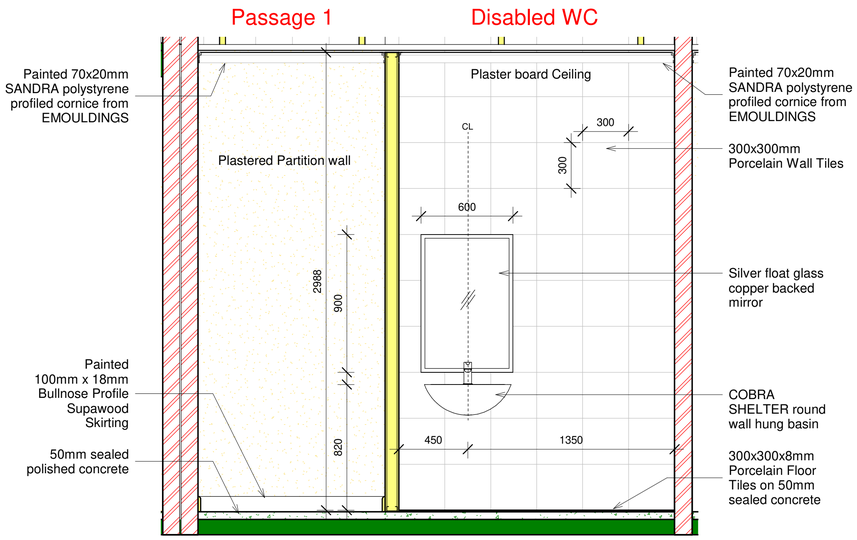


6 Bathroom 0 Disabled WC Isometric



2 Bathroom 0 Disabled WC Elevation A

1 : 20



5 Bathroom 0 Disabled WC Elevation D

1 : 20

1 Bathroom 0 Disabled WC Ground Floor Plan

1 : 20

3 Bathroom 0 Disabled WC Elevation B

1 : 20

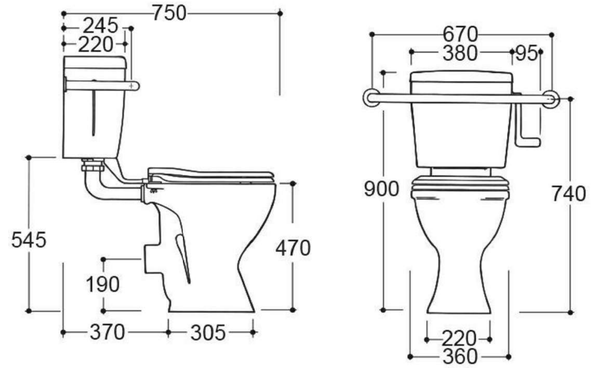
4 Bathroom 0 Disabled WC Elevation C

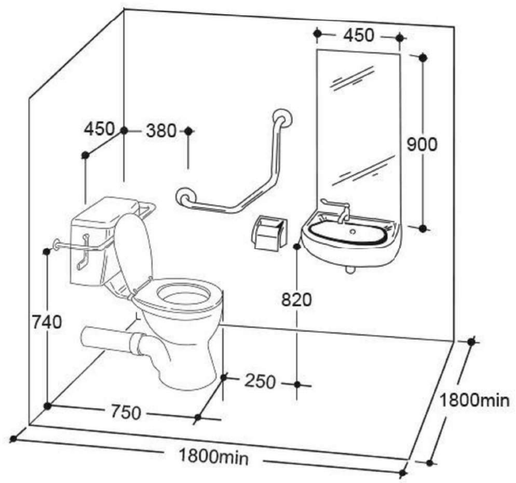
1 : 20

Typical Toilet Suites

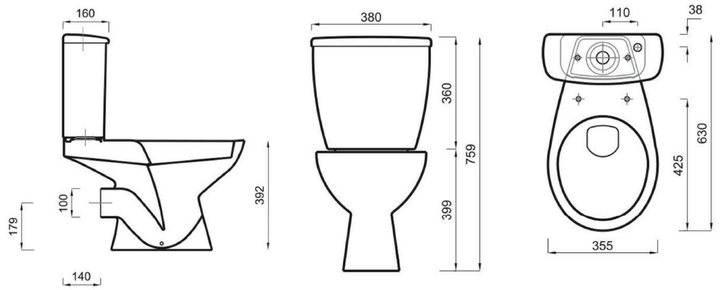
As per Manufacturer website, See Sanitary Schedule for more information

PEARL PARAPLEGIC Semi-closed Coupled Suite





TUSCANY Semi-closed Coupled Suite



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project Notes:

Refer to below sheets for extended details and specifications

Finishing Schedules:

RFS/21 600 - Window Schedule

RFS/21 601 - Door Schedule

RFS/21 602 - Window Schedule
- Construction Notes
- Sanitary Schedule

RFS/21 603 - Balustrade Detail

Electrical Layouts:

RFS/21 700-701 - Lights and Switches

RFS/21 702-703 - Plugs and Points

PLUGS, POINTS & SWICHES	
SYMBOL	DESCRIPTION
	TV AERIAL CONNECTED TO SATELITE CABLE
	DOUBLE 15 AMP PLUG AT CEILING FOR GARAGE DOOR MOTOR
	DOUBLE 15 AMP PLUG AT 300 ABOVE FFL TO CENTRE OF PLUG
	DOUBLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+/- 900mm AFFL) - By TV
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	3 (as included) 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	LIGHT SWITCH colour: black
2	2 WAY SWITCH colour: black
	32A Stove Isolator

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no:
ERF 8250 ROBERTSON

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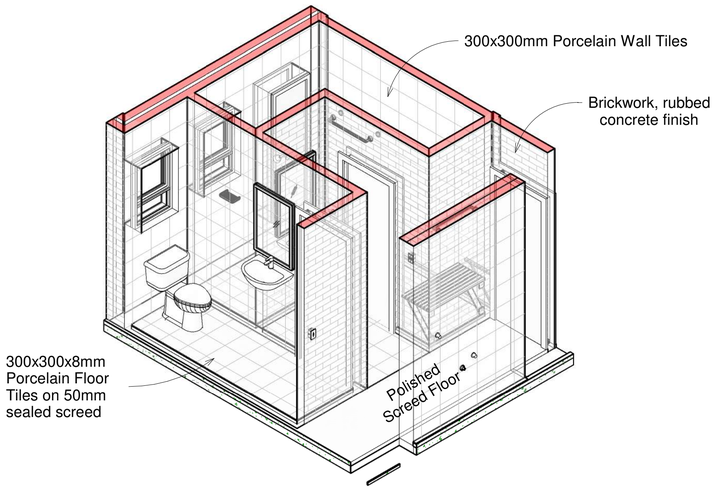
TUSK ARCHITECTURE

drawing title:
Room Detail Layout - Bathroom 0 Disabled WC & Passage 1

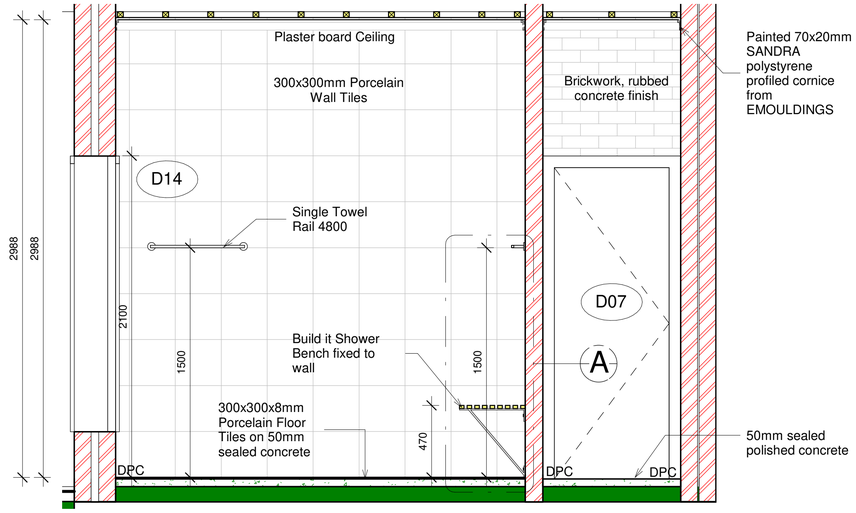
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Arch	As indicated	2022.06.27

design:	drawn:	checked:
AN	RN	TG

project:	dwg no:	rev:
RFS/21	500	TEN

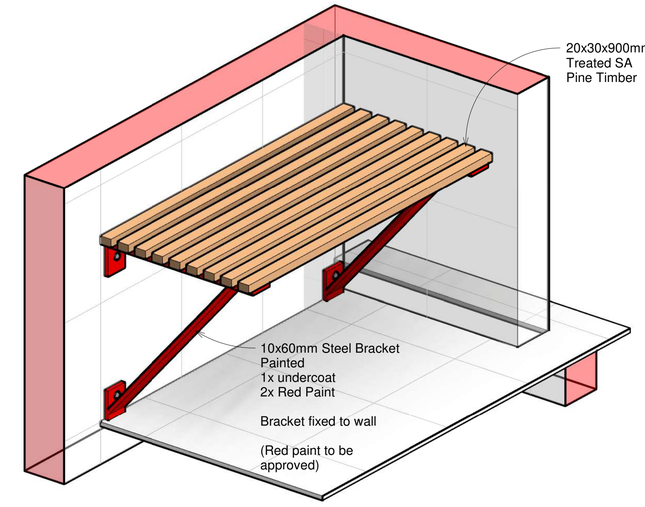


6 Bathroom 1 Female Isometric

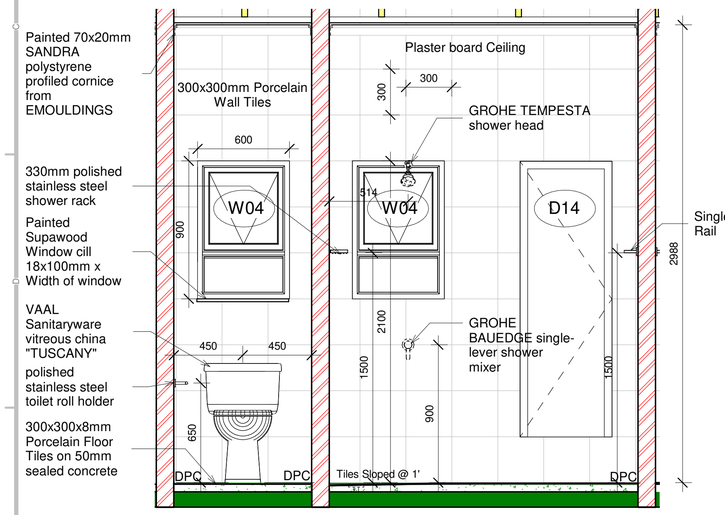


3 Bathroom 1 Female Elevation A

1 : 20

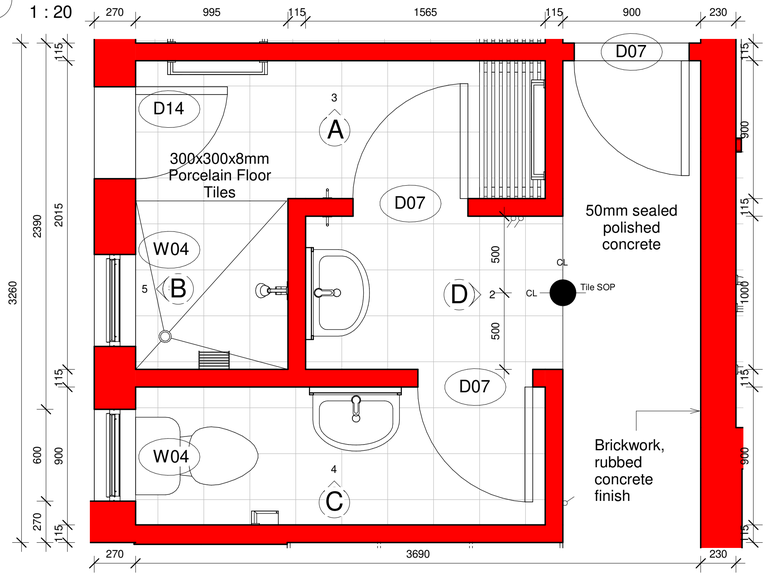


8 Built in Bench 1 Isometric



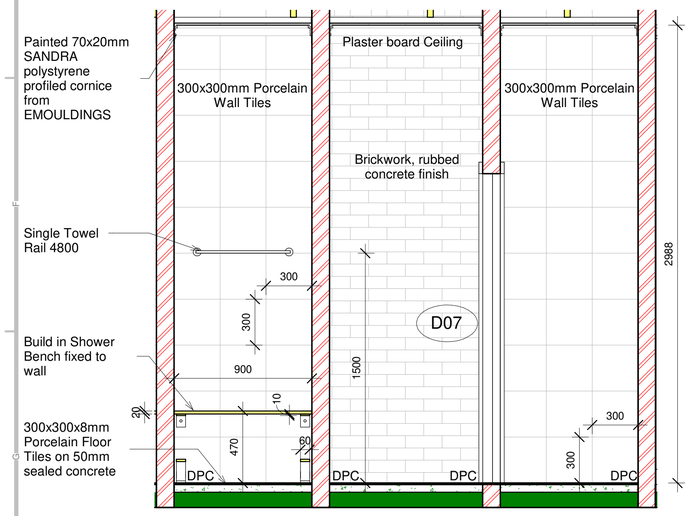
5 Bathroom 1 Female Elevation B

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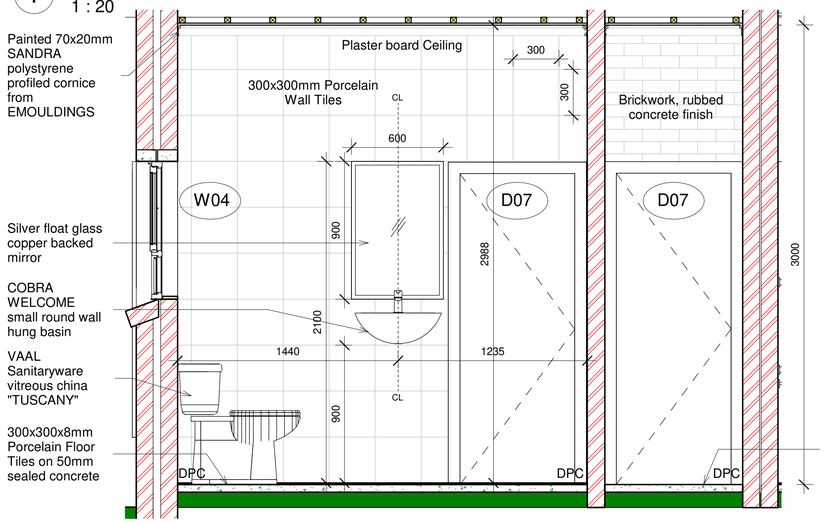
1 Bathroom 1 Female Ground Floor Plan

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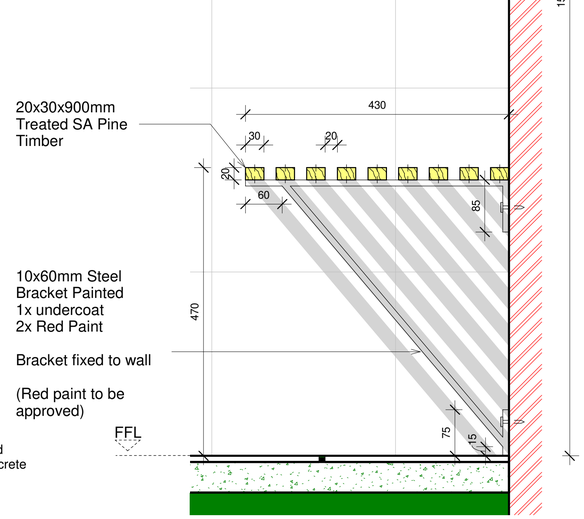
2 Bathroom 1 Female Elevation D

1 : 20



4 Bathroom 1 Female Elevation C

1 : 20



7 Built in Bench 1 Detail A

1 : 5

General Notes

A1

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project Notes:

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RFS/21 600 - Window Schedule

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RFS/21 702-703 - Plugs and Points

PLUGS, POINTS & SWICHES

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	SINGLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+- 1500mm AFFL) - for TV
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
	17ltr litre INTEGRATED HEAT PUMP
	DOOR BELL
	1 cm Infrared 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	LIGHT SWITCH colour: black
2	2 WAY SWITCH colour: black
ISO	32A Stove Isolator

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no:
ERF 8250 ROBERTSON

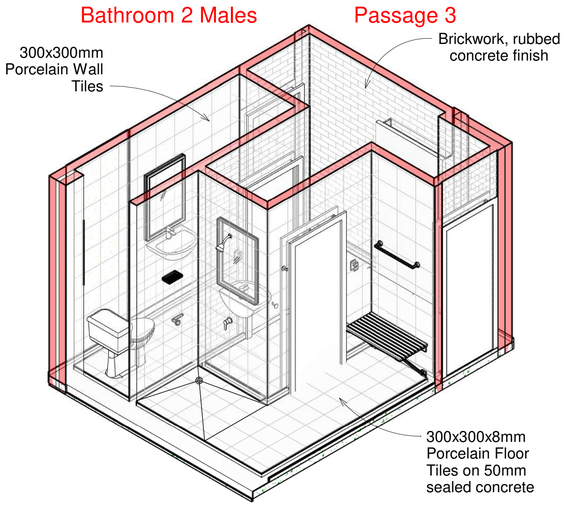
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TUSK ARCHITECTURE

drawing title:
Room Detail Layout - Bathroom 1 Females

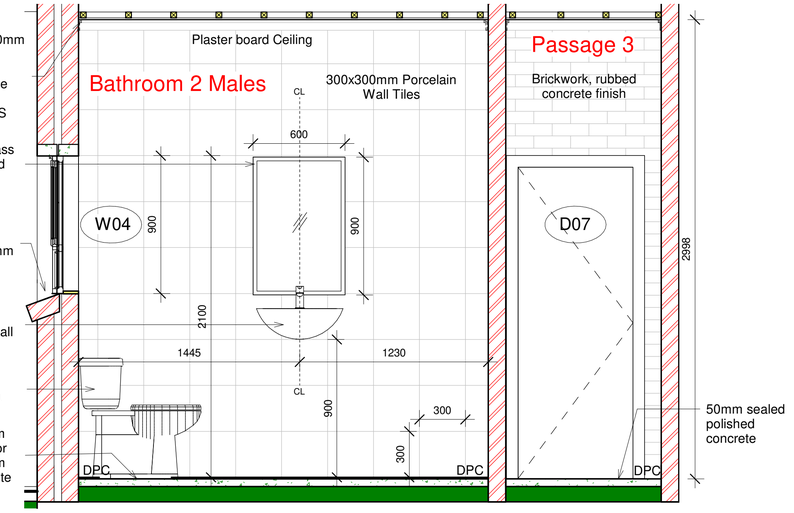
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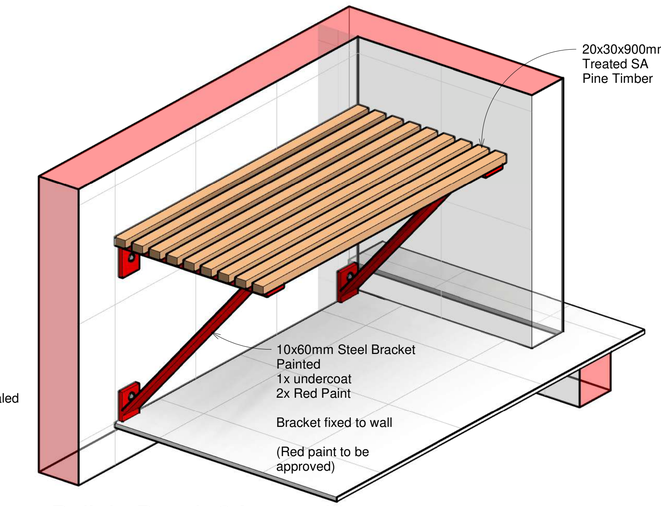


2 Bathroom 2 Males Isometric

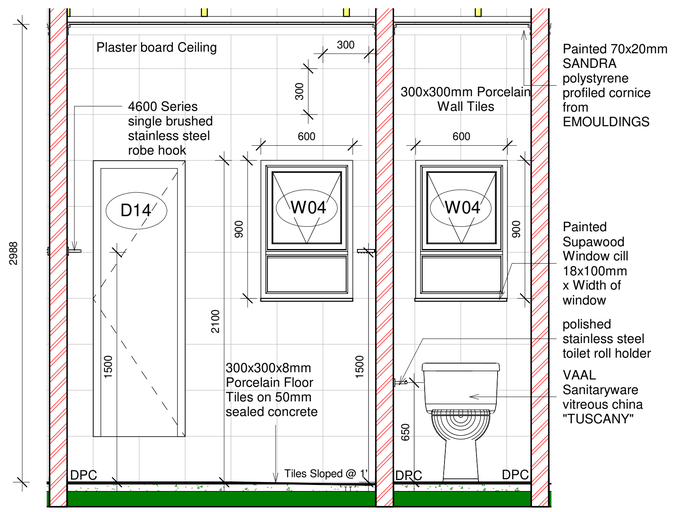


3 Bathroom 2 Males Elevation A

1 : 20

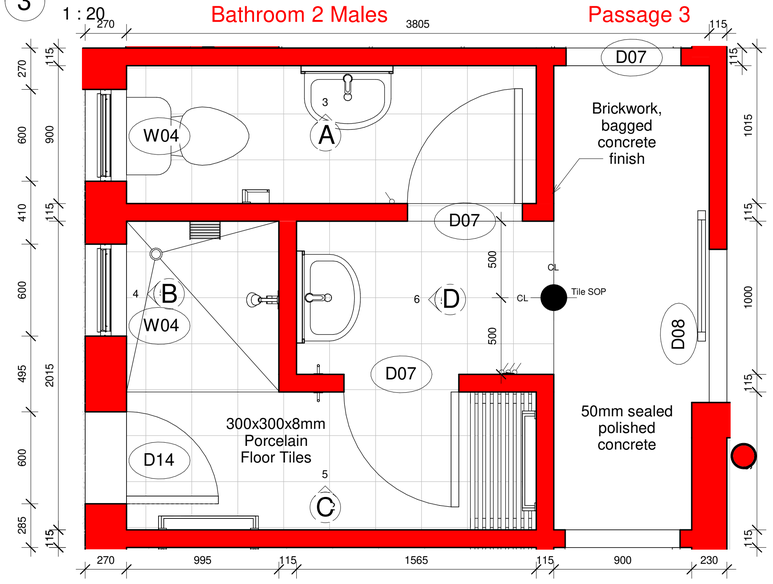


8 Built in Bench 2 Isometric



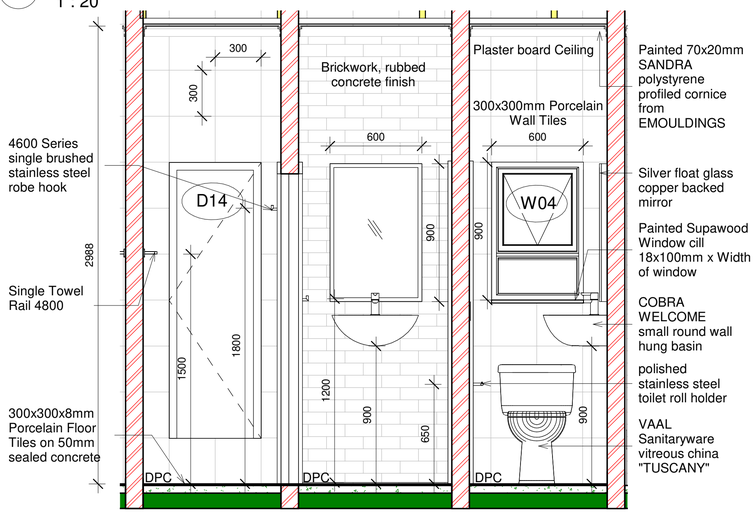
4 Bathroom 2 Males Elevation B

1 : 20



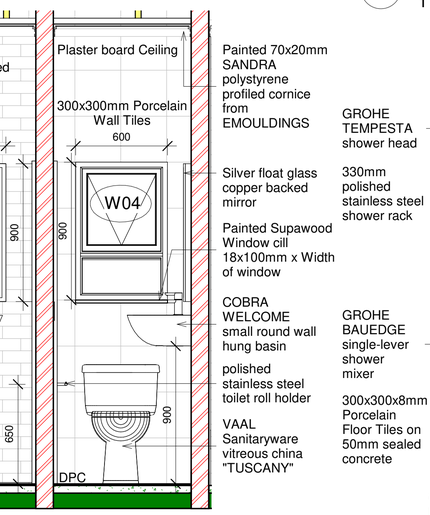
1 Bathroom 2 Males Ground Floor Plan

1 : 20



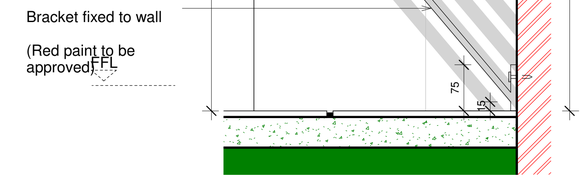
6 Bathroom 2 Males Elevation D

1 : 20



5 Bathroom 2 Males Elevation C

1 : 20



7 Built in Bench 2 Detail A

1 : 5

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RFS/21 603 - Balustrade Detail

Electrical Layouts:

RFS/21 700-701 - Lights and Switches

RFS/21 702-703 - Plugs and Points

PLUGS, POINTS & SWICHES	
SYMBOL	DESCRIPTION
	TV AERIAL CONNECTED TO SATELITE CABLE
	DOUBLE 15 AMP PLUG AT CEILING FOR GARAGE DOOR MOTOR
	DOUBLE 15 AMP PLUG AT 300 ABOVE FFL TO CENTRE OF PLUG
	DOUBLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+/-1500mm AFFL) - for TV
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	5 pic indicated; 32mm dia CONDUIT IN BROCKORK TO TOP OF CEILING
	LIGHT SWITCH: 1/2Way/ 1Dark
	2 WAY SWITCH: 1/2Way/ 1Dark
ISO	32A Stove Isolator

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project:

PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no:

ERF 8250
ROBERTSON

Tusk Construction Support Services
3 High Street
1st Floor
Rosenpark
Tygervalley
Bellville
Cape Town
Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za

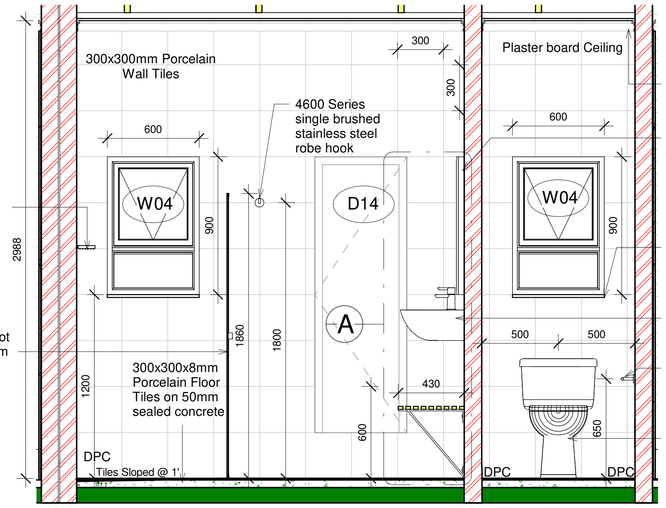
TUSK ARCHITECTURE

drawing title:

Room Detail Layout - Bathroom 2 Males & Passage 3

discipline:	scale:	date:
Arch	As indicated	2022.06.27
design:	**drawn:**	**checked:**
AN	RN	TG

project:	dwg no:	rev:
RFS/21	502	TEN

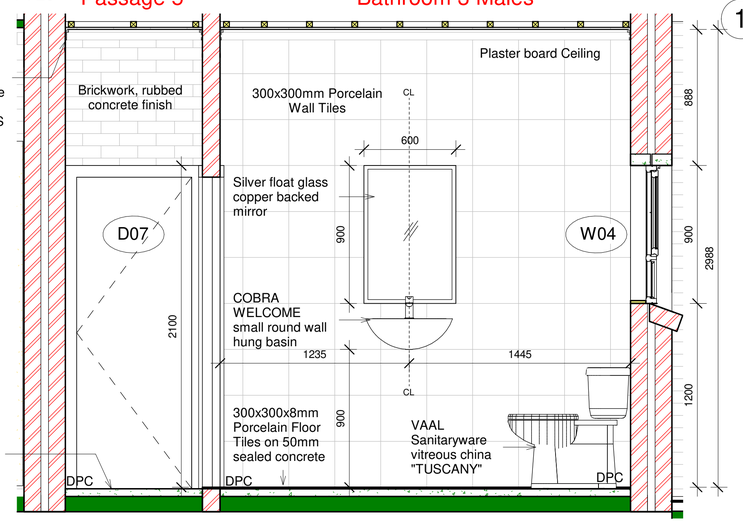


5 Bathroom 3 Males Elevation B

1 : 20

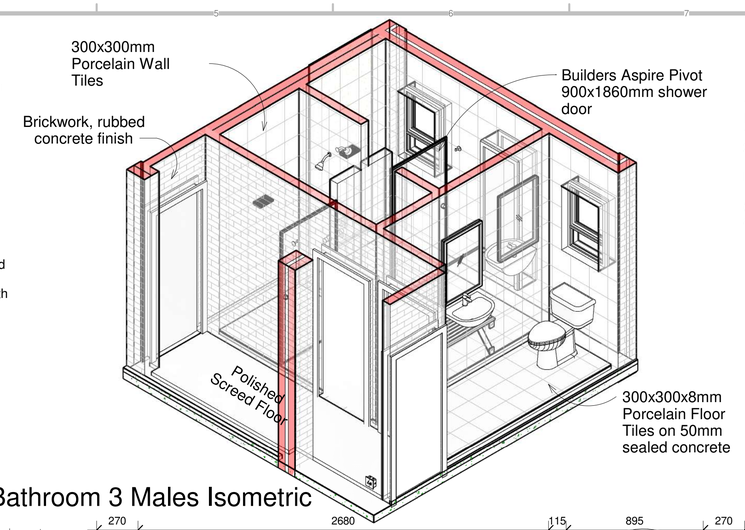
2 Bathroom 3 Males Elevation D

1 : 20

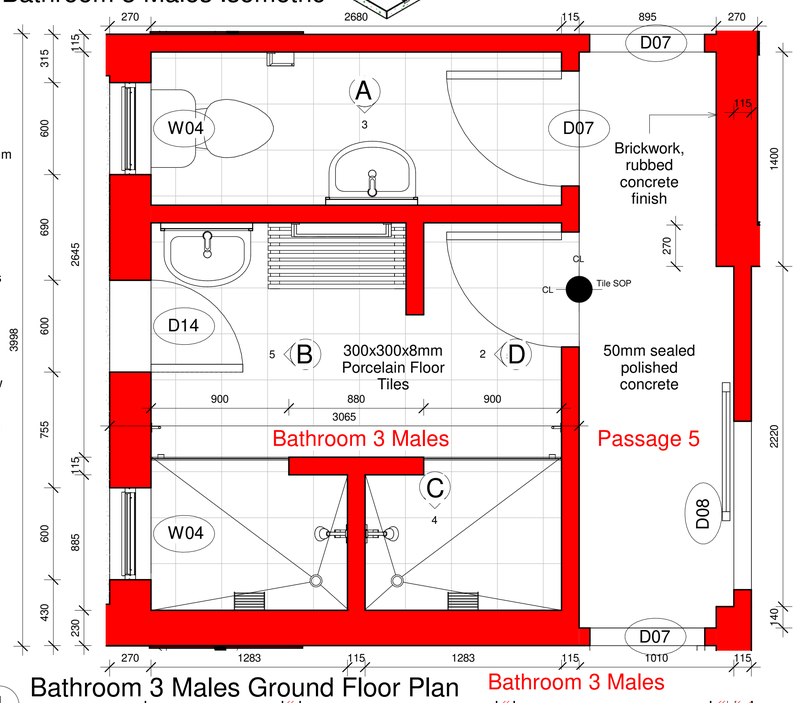


3 Bathroom 3 Males Elevation A

1 : 20

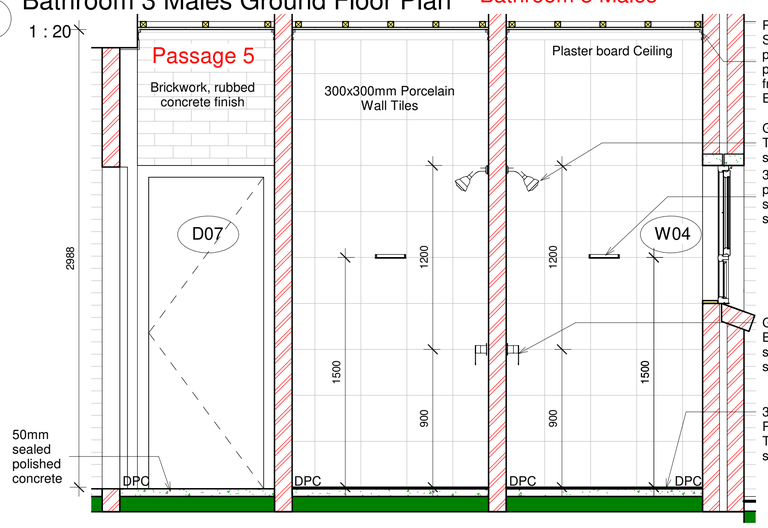


6 Bathroom 3 Males Isometric



Bathroom 3 Males Ground Floor Plan

1 : 20

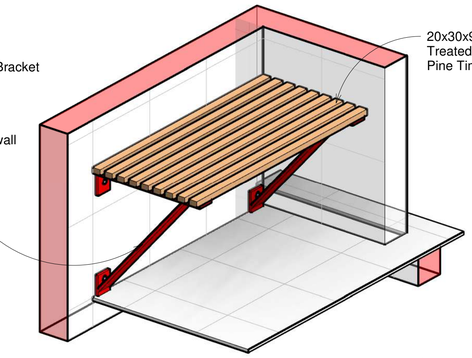


4 Bathroom 3 Males Elevation C

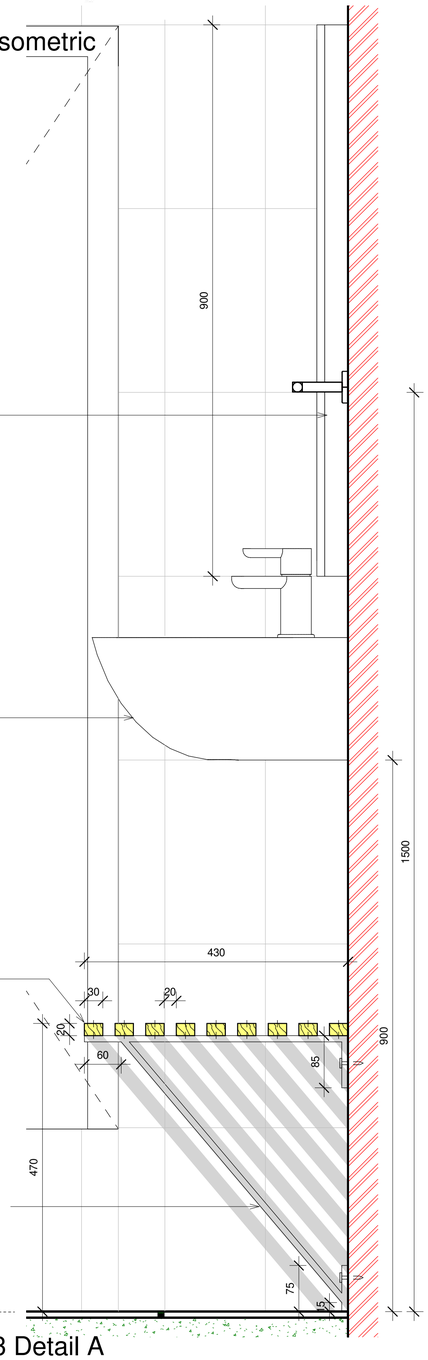
1 : 20

7 Built in Bench 3 Detail A

1 : 5



8 Built in Bench 3 Isometric



General Notes

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PLUGS, POINTS & SWICHES

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	DOUBLE 15 AMP PLUG AT CEILING FOR GARAGE DOOR MOTOR
	DOUBLE 15 AMP PLUG AT 300 ABOVE FFL TO CENTRE OF PLUG
	DOUBLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+/-1800mm AFFL) - for TV
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	5 (as indicated) 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	LIGHT SWITCH colour: black
2	2 WAY SWITCH colour: black
	32A Stove isolator

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no: **ERF 8250 ROBERTSON**

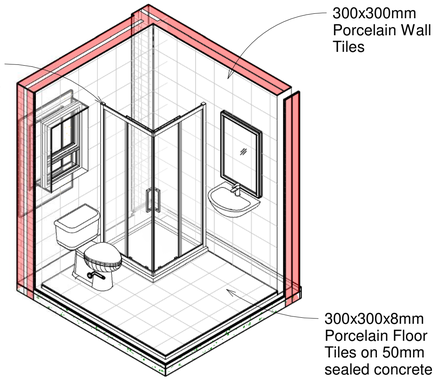
TUSK ARCHITECTURE
Tusk Construction Support Services
3 High Street
1st Floor
Rosenpark
Tygervalley
Bellville
Cape Town
Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za

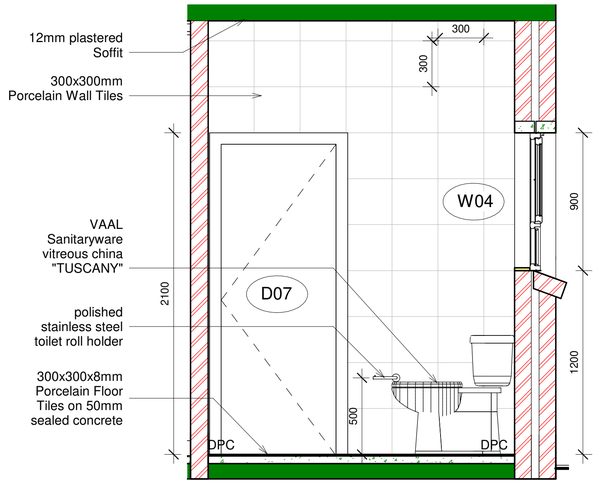
drawing title: **Room Detail Layout - Bathroom 3 Males & Passage 5**

discipline:	scale:	date:
Arch	As indicated	2022.06.27

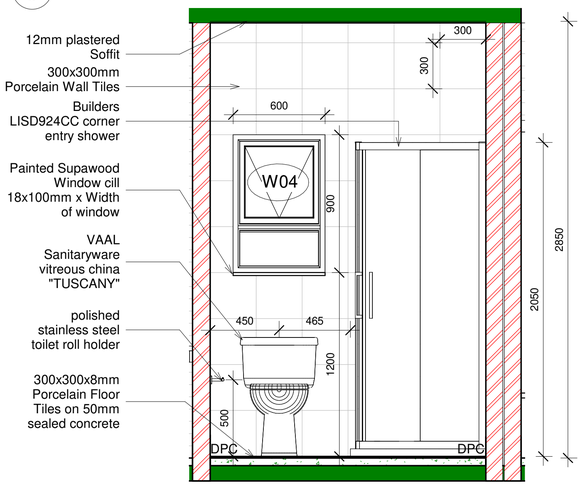
design:	drawn:	checked:
AN	RN	TG

project:	dwg no:	rev:
RFS/21	503	TEN



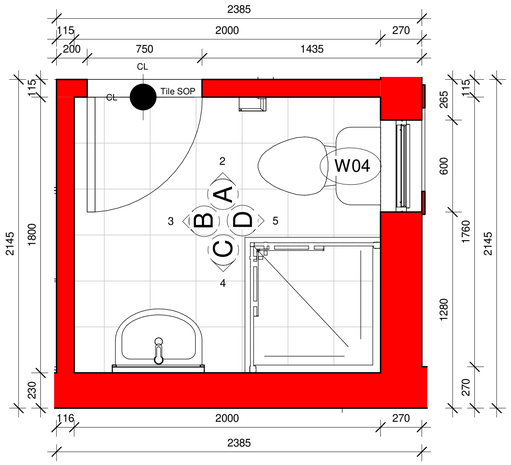


6 Bathroom 4 Officer Isometric



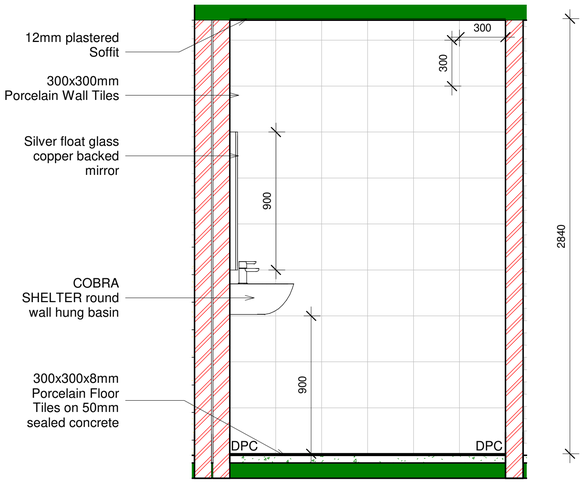
2 Bathroom 4 Officer Elevation A

1 : 20



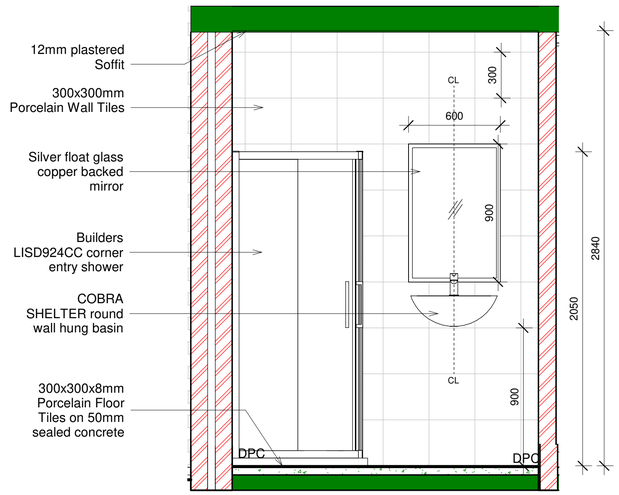
5 Bathroom 4 Officer Elevation D

1 : 20



1 Bathroom 4 Officer Ground Floor Plan

1 : 20



3 Bathroom 4 Officer Elevation B

1 : 20

4 Bathroom 4 Officer Elevation C

1 : 20

Sanitary Schedule Extract

The following descriptions / specifications are to be read in conjunction with full set of drawings

SINK

STAINLESS STEEL DOUBLE BOWL:
CASCADE CDX621-120 Stainless steel 1200x500mm inset double end bowl from FRANKE or similar approved, with recessed drainage ledge and folded bowl to be fitted to kitchen cupboard (cupboard elsewhere measured), Grade 304 (18/10). Stainless Steel sink to comply with SABS 906 fitted with approved hot and cold sink mixer (wall type), chrome plated fixed outlet, adjustable and supplied with suitable accessories in accordance to manufacturer's specifications. Sink installation height = 900mm AFFL.

WASH TROUGH

WALL MOUNTED WASH TROUGH:
Franke Model SIRX342 Washtrough, (product code 2560003), 500x450x240mm deep. Unit to be manufactured from Grade 304(18/10) Stainless Steel, 1,2mm gauge. Unit to be fixed to the wall with a pair of Stainless Steel wall fixing brackets with brackets installed at 900mm

TOILET PANS

TOILET PAN STANDARD:
VAAL Sanitaryware vitreous china "TUSCANY" (or similar approved) - product code 772863, close coupled 90 deg outlet closed rim wash down pan (code 772800) and matching 7 litre pushbutton top dual flush cistern (code 7111DT) complete with lid and fitments.

TOILET PAN PARAPLEGIC:
VAAL Sanitaryware vitreous china "PEARL PARAPLEGIC" (or similar approved) - product code 7300SC, semi-close coupled 90° outlet open rim wash down pan and matching 9 litre cistern complete with lid, fitments, and purpose made C.P. side-flush lever (right). Supplied with purpose made thermoset seat and cover plate.

HAND WASH BASINS

HAND WASH BASINS 1:
COBRA SHELTER round wall hung basin (or similar approved). 495mm long X 430mm wide. 1x pre-punched tap hole in the centre of the basin. Overflow, expansion bolts & installation manual included. Compatible with Cobra standard-sized basin mixers.

HAND WASH BASINS 2:
COBRA WELCOME small round wall hung basin. 400mm long X 320mm wide. 1x pre-punched tap hole on the right hand side of the basin. Wall fixing set & installation manual included. Compatible with Cobra standard-sized basin mixers.

PARAPLEGIC HAND WASH BASINS:
COBRA SHELTER round wall hung basin (or similar approved). 495mm long X 430mm wide. 1x pre-punched tap hole in the centre of the basin. Overflow, expansion bolts & installation manual included. Compatible with Cobra standard-sized basin mixers.

SHOWER DOORS

CORNER SHOWERS:
Builders LISD924CC corner entry shower - Chrome (885 x 885mm) (code 725902) from Builders Warehouse or similar approved

PIVOT DOORS:
Builders Aspire Pivot 900 x 1860 WHT (code 743775) from Builders Warehouse or similar approved

MIRRORS

600 x 900 x 6mm Silver float glass copper backed mirrors with beveled edges, holed for and fixed with chromium plated dome capped mirror screws with rubber buffers to plugs in brick walls.

OTHERS

TOILET ROLL HOLDER
4600 Series Type 1 polished stainless steel toilet roll holder (SKU: BUT-BAAC4601POLS) from BATHROOM BUTLER, or similar approved

SHOWER RACK
4600 Series 330mm polished stainless steel shower rack(SKU: BUT-BAAC4620POLS) from BATHROOM BUTLER, or similar approved.

ROBE/TOWEL HOOK
4600 Series single brushed stainless steel robe hook (SKU: BUT-BAAC4610BRSH) from BATHROOM BUTLER, or similar approved

SINGLE TOWEL RAIL:
Single Towel Rail 4800 (SKU: BUT-BAAC4870POLS) from BATHROOM BUTLER, or similar approved.

GRAB RAIL (REAR):
32mm diameter stainless steel rear grab rail, in satin finish complete with SS fixing screws and plastic wall plugs. Installed as per manufacturer's instructions to latest SABS standards.

GRAB RAIL (SIDE):
32mm diameter stainless steel 300x300x300mm right hand side grab rail, in satin finish complete with SS fixing screws and plastic wall plugs. Installed as per manufacturer's instructions to latest SABS standards.

TAPS

KITCHEN SINK MIXER:
PROJECTLINE swivel chrome kitchen sink mixer (1150021) from FRANKE or similar approved, installed with all required fittings.

BASIN MIXER:
GROHE BAUEDGE Single-lever basin mixer 1/2S-Size, single hole installation metal lever, GROHE Longlife 28 mm ceramic cartridge, GROHE StarLight chrome finish, mousseur pop-up waste set, 1 flexible connection hoses rapid installation system from LIXIL or simialr approved.

SHOWER MIXER:
GROHE BAUEDGE single-lever shower mixer, concealed installation consisting of set for final installation, concealed body (32 962 000), metal lever GROHE Longlife 46 mm ceramic cartridge, GROHE StarLight chrome finish, adjustable flow rate limiter escutcheon and shaft sealing optional temperature limiter from LIXIR or similar approved.

SHOWER HEAD:
GROHE TEMPESTA shower head set with 3 sprays. GROHE Rain O², Rain, Massage ball joint, 15deg rotatable shower arm with connection thread, 1/2 escutcheon, GROHE DreamSpray perfect spray pattern, GROHE StarLight chrome finish, SpeedClean anti-lime system, Inner WaterGuide for a longer life suitable for instantaneous heater from LIXIR or similar approved.

GARDEN TAP:
Standard COBRA hose Bib tap, brass (SKU: FBBHN1CD-7FT01) from COBRA or similar approved

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	DISTRIBUTION BOARD
	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	5 no. indicated, 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	LIGHT SWITCH WRAP TANK
	2 WAY SWITCH WRAP TANK
ISO	32A Stove Isolator

sign off client:

sign off architect:

sign off engineer:

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no: **ERF 8250 ROBERTSON**

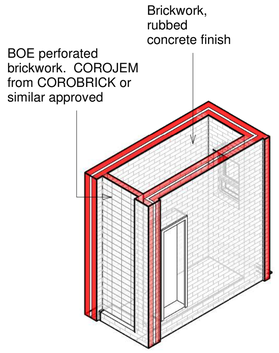
Tusk Construction Support Services
3 High Street
1st Floor
Rosenpark
Tygervalley
Bellville
Cape Town
Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za
TUSK ARCHITECTURE

drawing title: **Room Detail Layout - Bathroom 4 Officer**

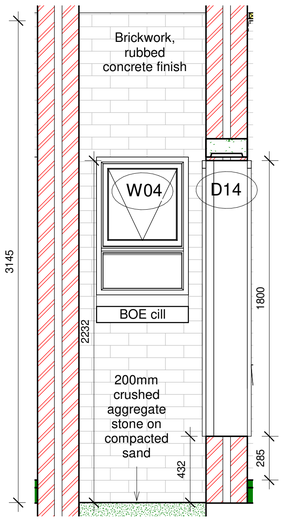
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Arch	As indicated	2022.06.27

design:	drawn:	checked:
AN	RN	TG

project:	dwg no:	rev:
RFS/21	504	TEN

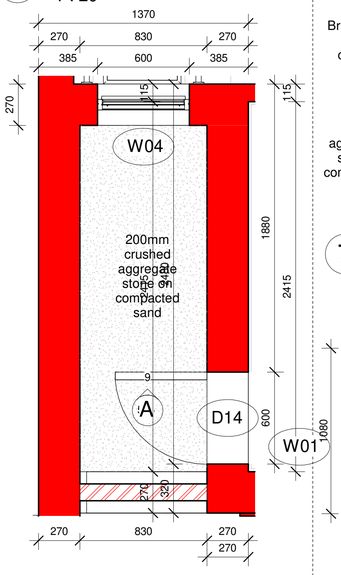


4 DUCT 1 Isometric



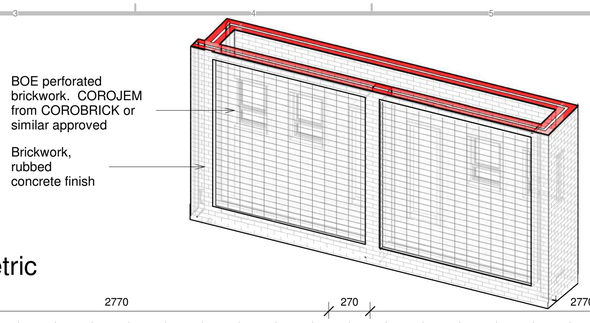
9 Duct 1 Elevation A

1 : 20

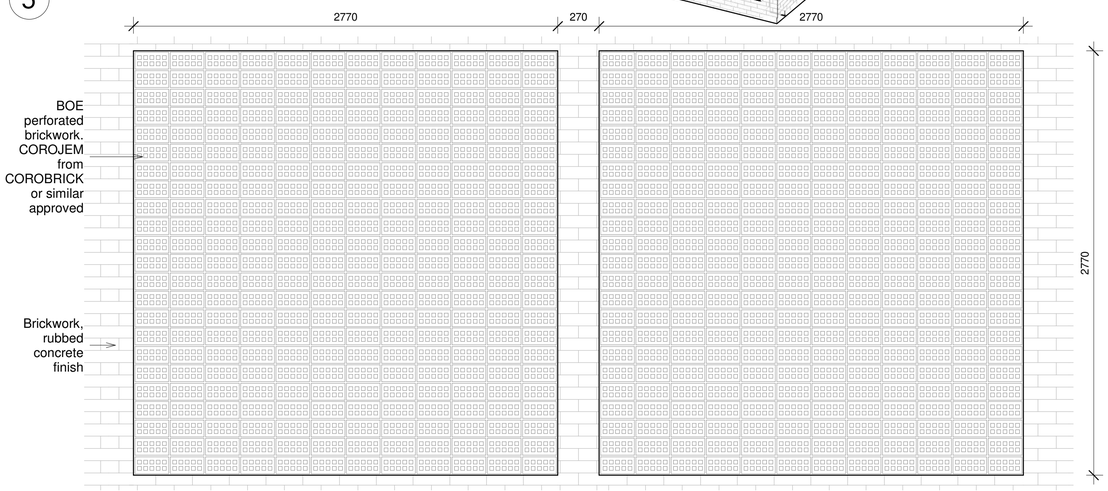


1 DUCT 1

1 : 20

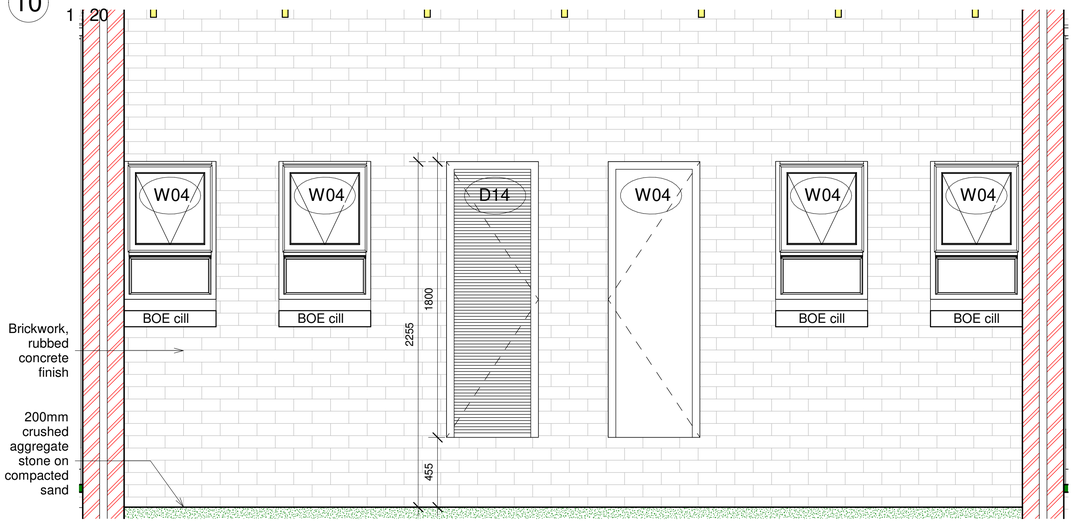


5 DUCT 2 Isometric



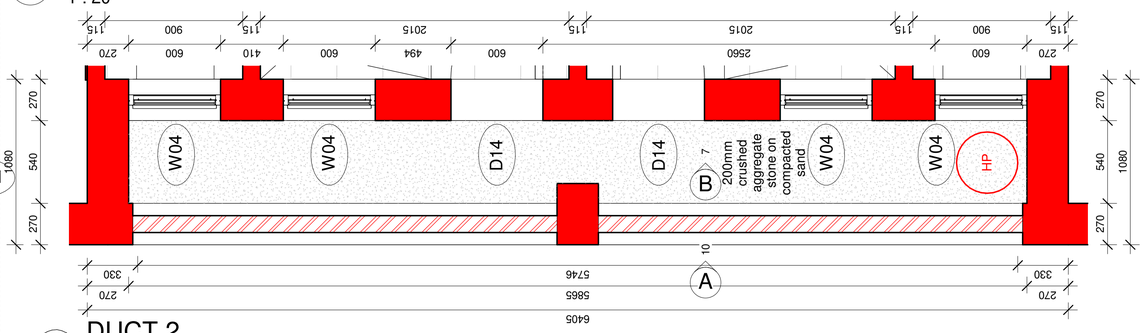
10 Duct 2 Elevation A

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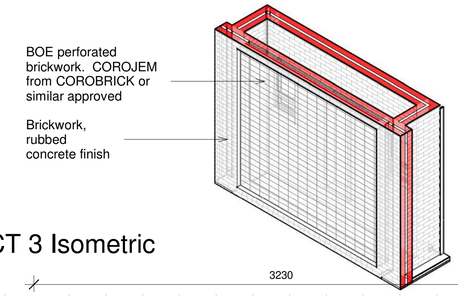
7 Duct 2 Elevation B

1 : 20

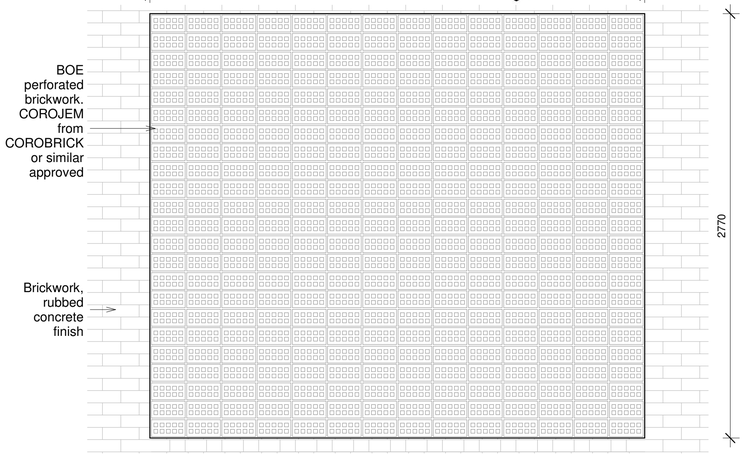


2 DUCT 2

1 : 20

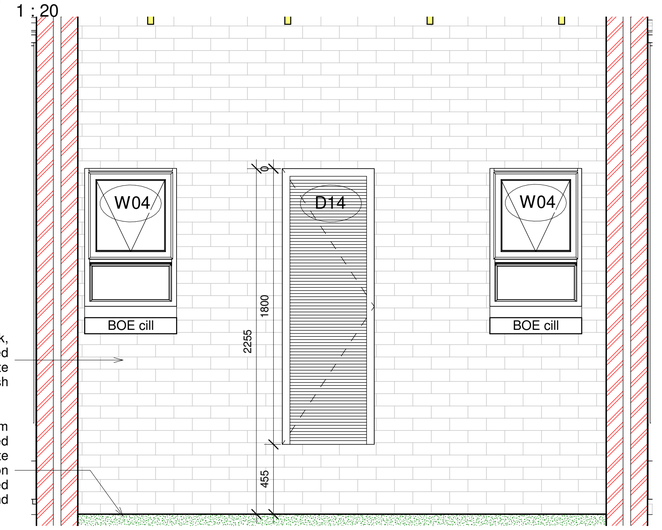


6 DUCT 3 Isometric



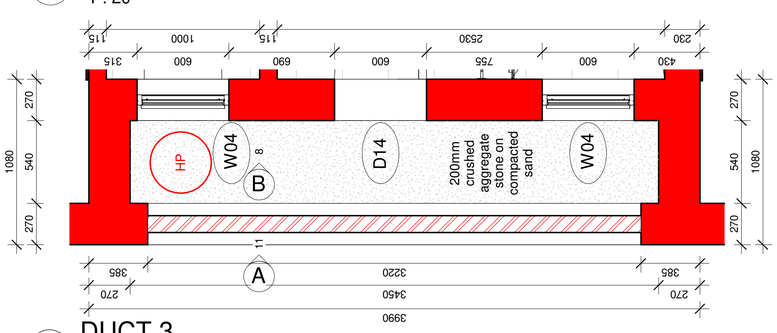
11 Duct 3 Elevation A

1 : 20



8 Duct 3 Elevation B

1 : 20



3 DUCT 3

1 : 20

General Notes

A1

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RFS/21 700-701 - Lights and Switches

RFS/21 702-703 - Plugs and Points

PLUGS, POINTS & SWICHES

SYMBOL	DESCRIPTION
	TV AERIAL CONNECTED TO SATELITE CABLE
	DOUBLE 15 AMP PLUG AT CEILING FOR GARAGE DOOR MOTOR
	DOUBLE 15 AMP PLUG AT 300 ABOVE FFL TO CENTRE OF PLUG
	DOUBLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+- 1500mm AFFL) - for TV
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	5 ton inducted, 32mm dia CONDUIT IN BROADWORK TO TOP OF CEILING
	LIGHT SWITCH either 1lever 1back
	2 lever SWITCH either 1back
	32A Stove Isolator

sign of client:

sign of architect

sign of engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no:
ERF 8250
ROBERTSON

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3 High Street
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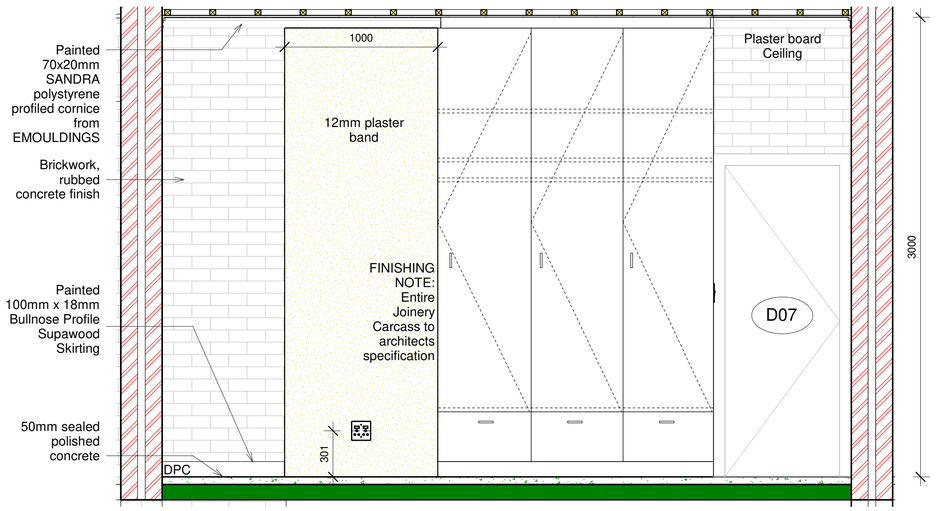
TUSK ARCHITECTURE

drawing title:
Room Detail Layout - Ducts

discipline:	scale:	date:
Arch	As indicated	2022.06.27

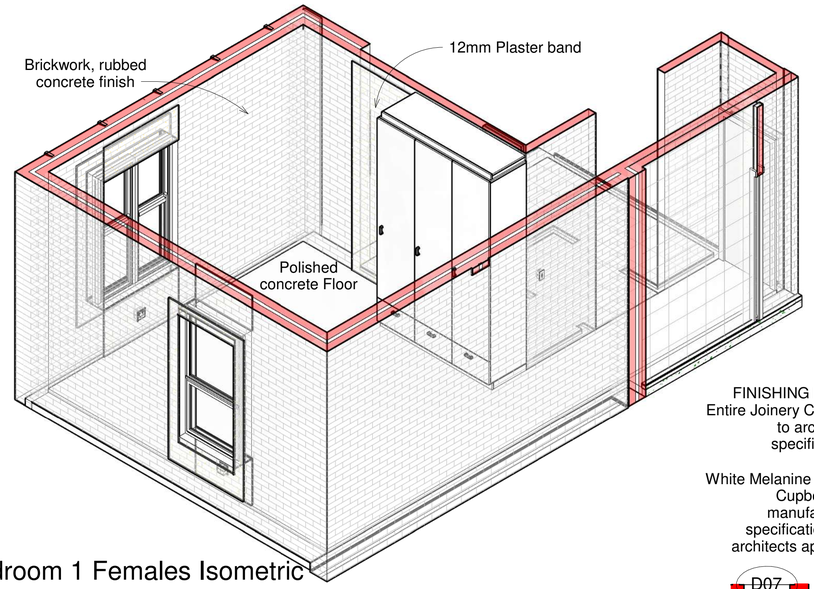
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AN	RN	TG

project:	dwg no:	rev:
RFS/21	505	TEN



6 Bedroom 1 Females Elevation A

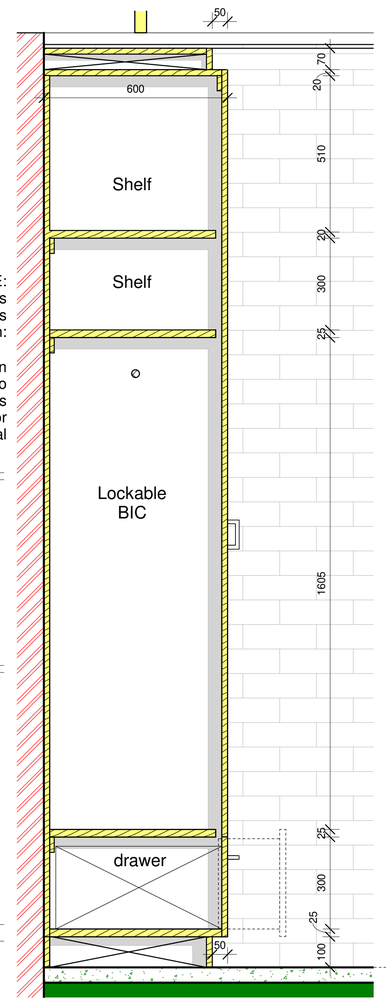
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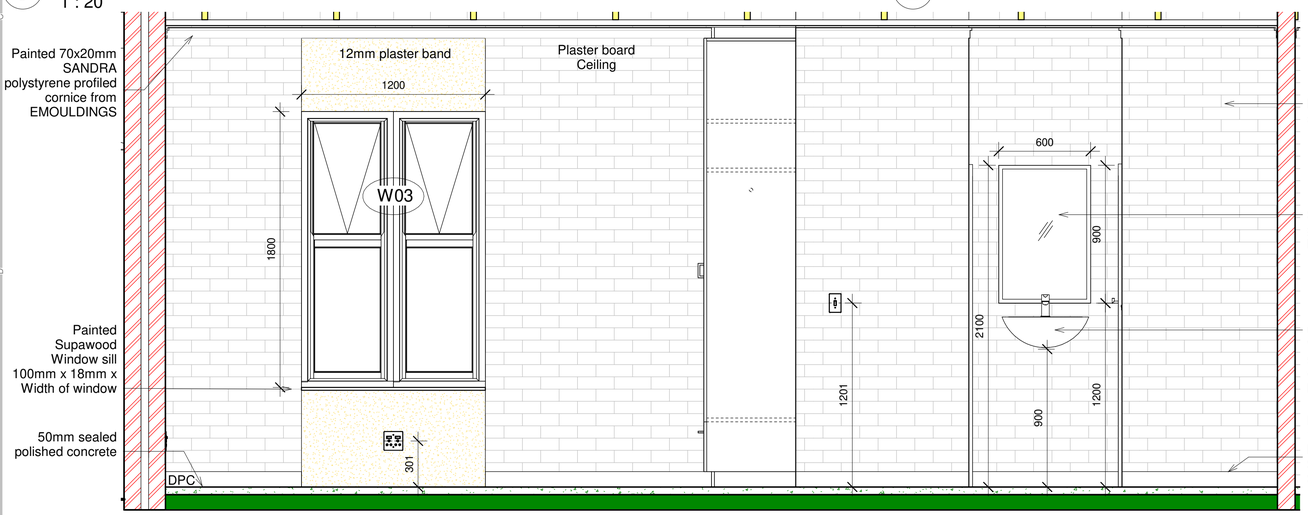


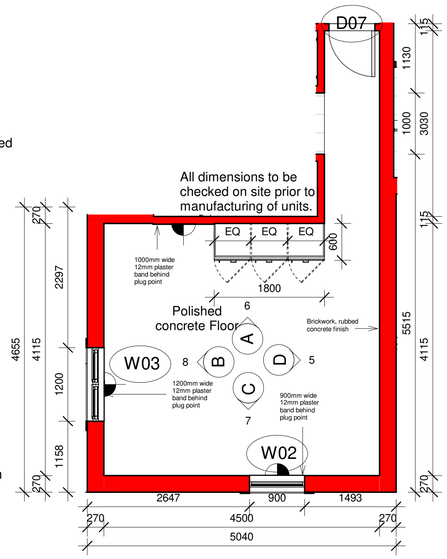
2 Bedroom 1 Females Isometric

FINISHING NOTE: Entire Joinery Carcass to architects specification:

White Melanine built in Cupboard to manufactures specifications for architects approval

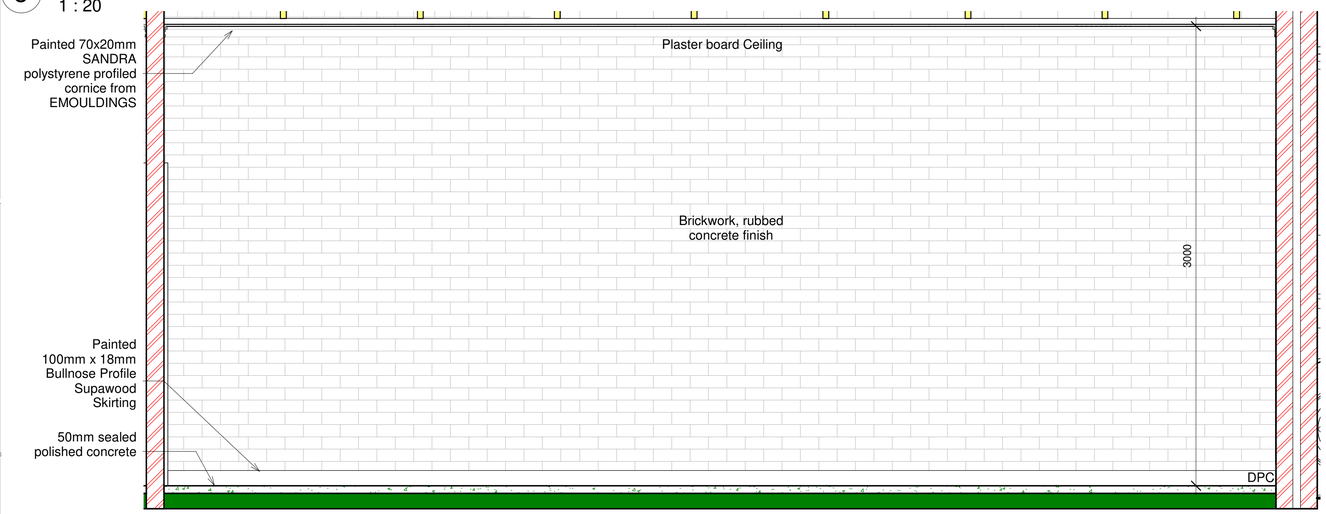






8 Bedroom 1 Females Elevation B

1 : 20

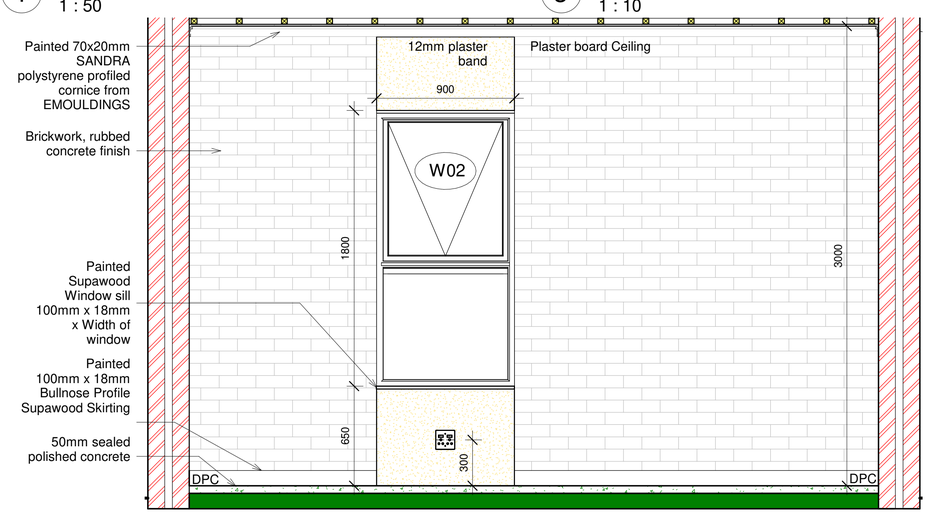


1 Bedroom 1 Females Ground Floor Plan

1 : 50

3 Built in Cupboard 1 Detail A

1 : 10



5 Bedroom 1 Females Elevation D

1 : 20

7 Bedroom 1 Females Elevation C

1 : 20

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	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+/-1800mm AFFL) - for TV
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
HP	170 litre INTEGRATED HEAT PUMP
	DOOR BELL
	5 tele initiated 32mm dia CONDUIT IN BROKEDOWN TO TOP OF CEILING
	LIGHT SWITCH colour: black
2	2 WAY SWITCH colour: black
ISO	32A Stove isolator

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project:

PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no:

ERF 8250
ROBERTSON

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3 High Street
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TUSK ARCHITECTURE

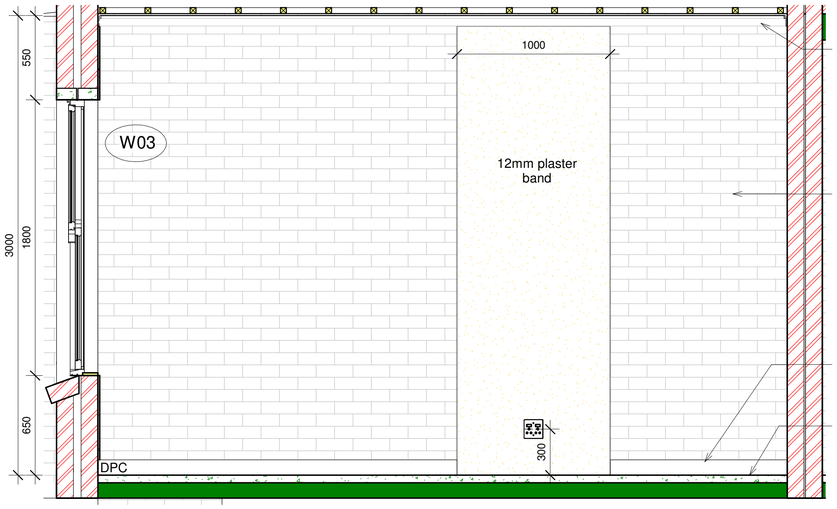
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Room Detail Layout - Bedroom 1 Females

discipline:	scale:	date:
Arch	As indicated	2022.06.27

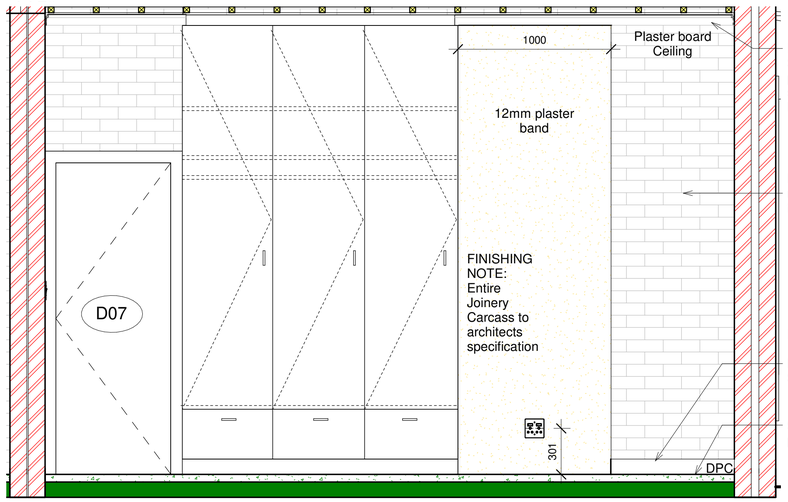
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AN	RN	TG

project:	dwg no:	rev:
RFS/21	506	TEN



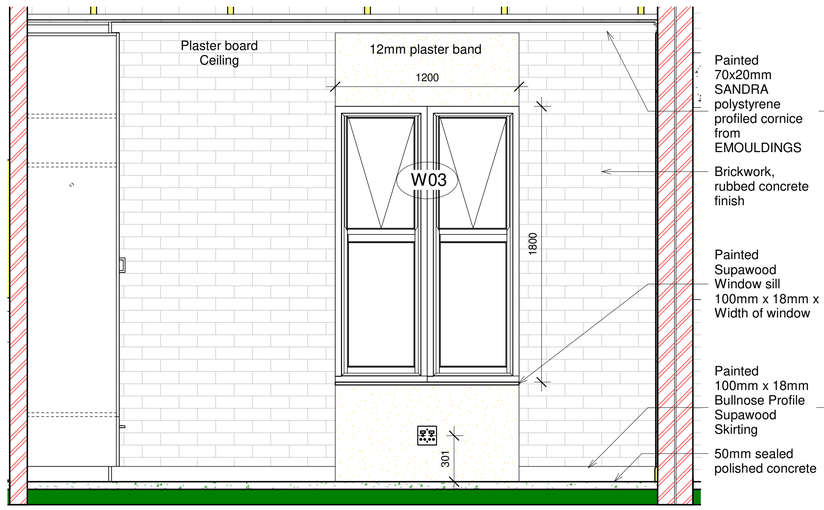
2 Bedroom 2 Males Elevation A

1 : 20



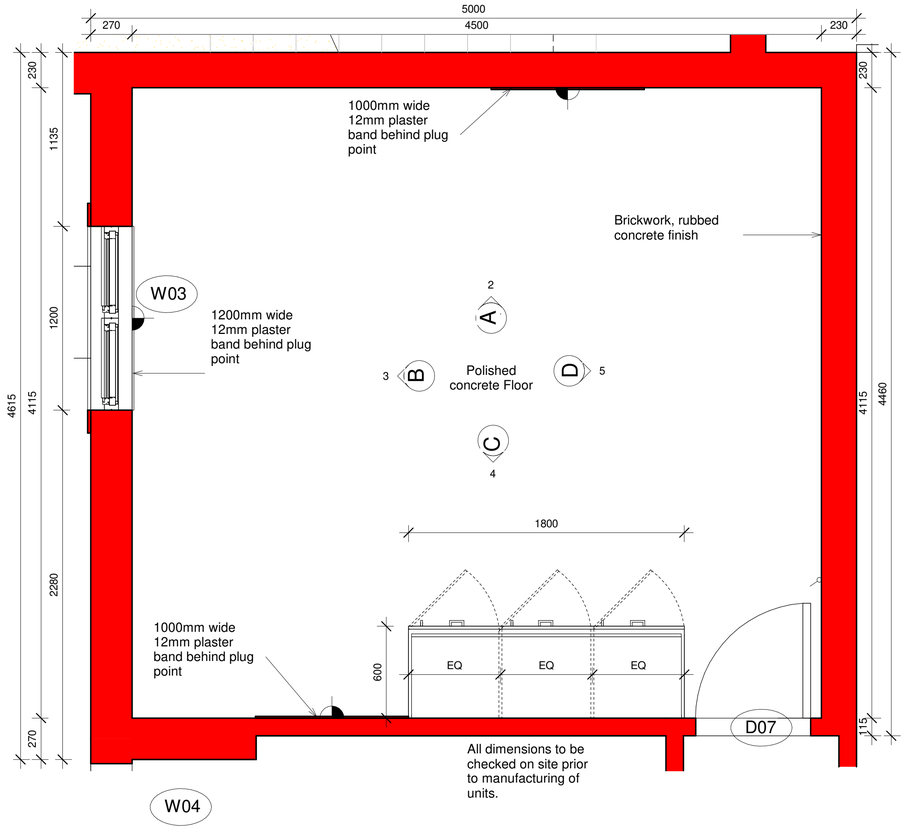
4 Bedroom 2 Males Elevation C

1 : 20



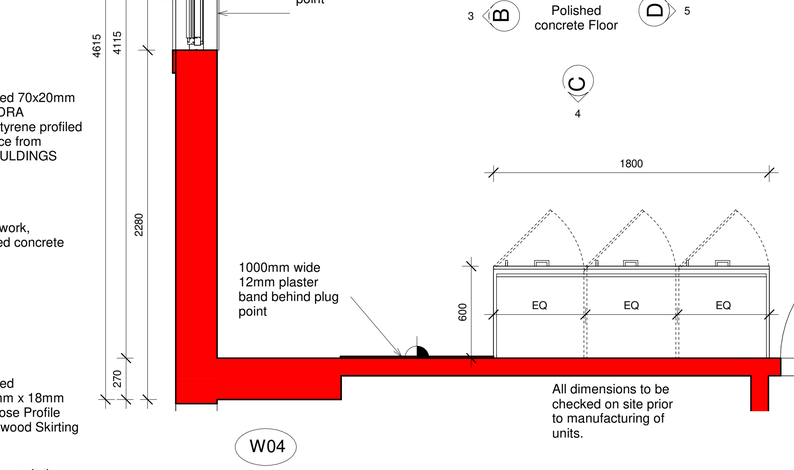
3 Bedroom 2 Males Elevation B

1 : 20



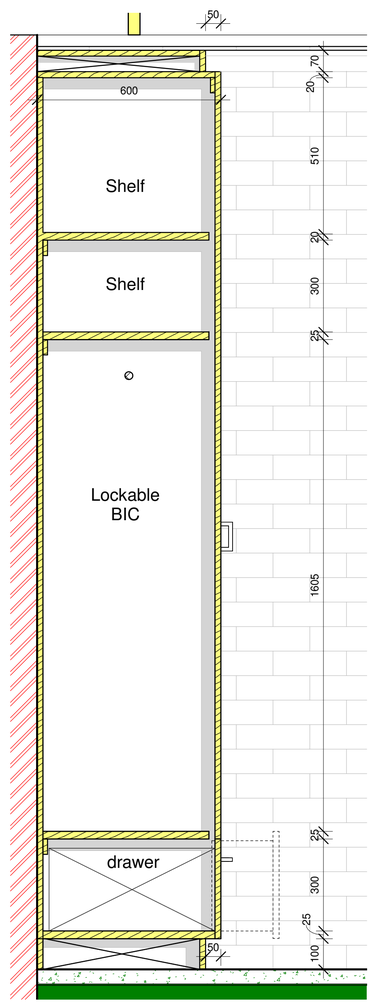
1 Bedroom 2 Males

1 : 20



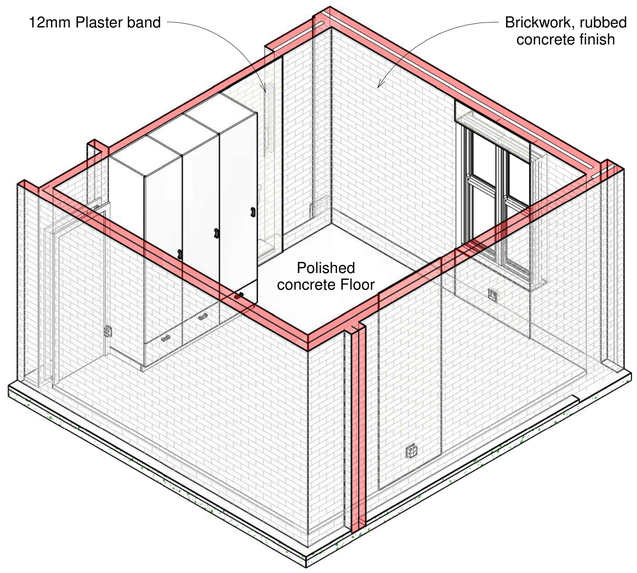
5 Bedroom 2 Males Elevation D

1 : 20



6 Built in Cupboard 2 Detail A

1 : 10



7 Bedroom 2 Males Isometric

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ISO	32A Stove Isolator

sign off client:

sign off architect:

sign off engineer:

rev:	description:	by:	date:
TEN		RN	

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no:
ERF 8250 ROBERTSON

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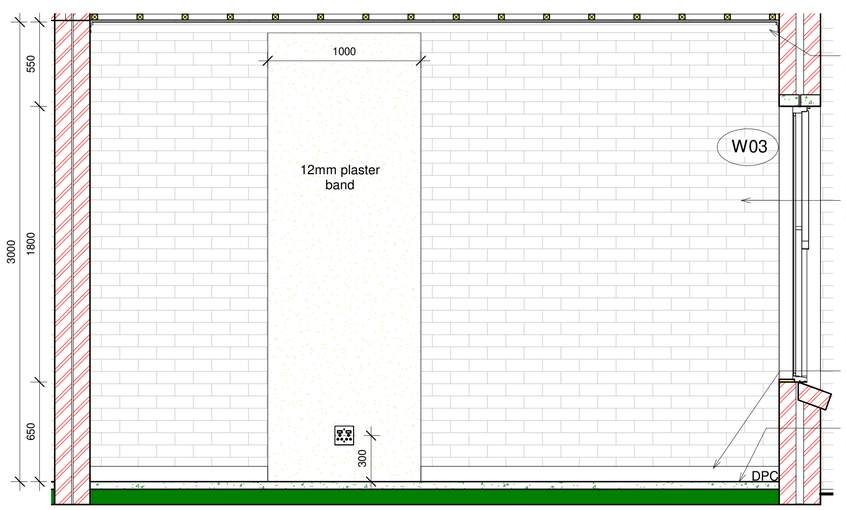
TUSK ARCHITECTURE

drawing title:
Room Detail Layout - Bedroom 2 Males

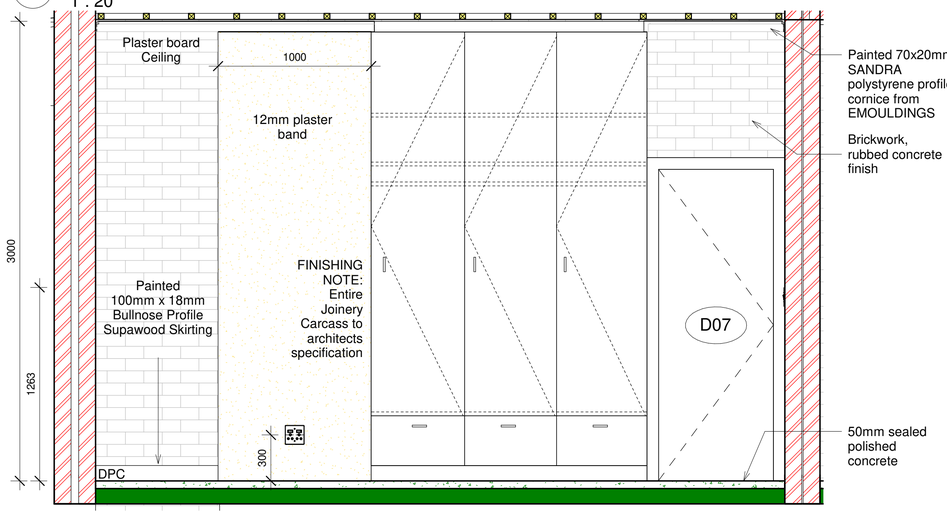
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Arch	As indicated	2022.06.27

design:	drawn:	checked:
AN	RN	TG

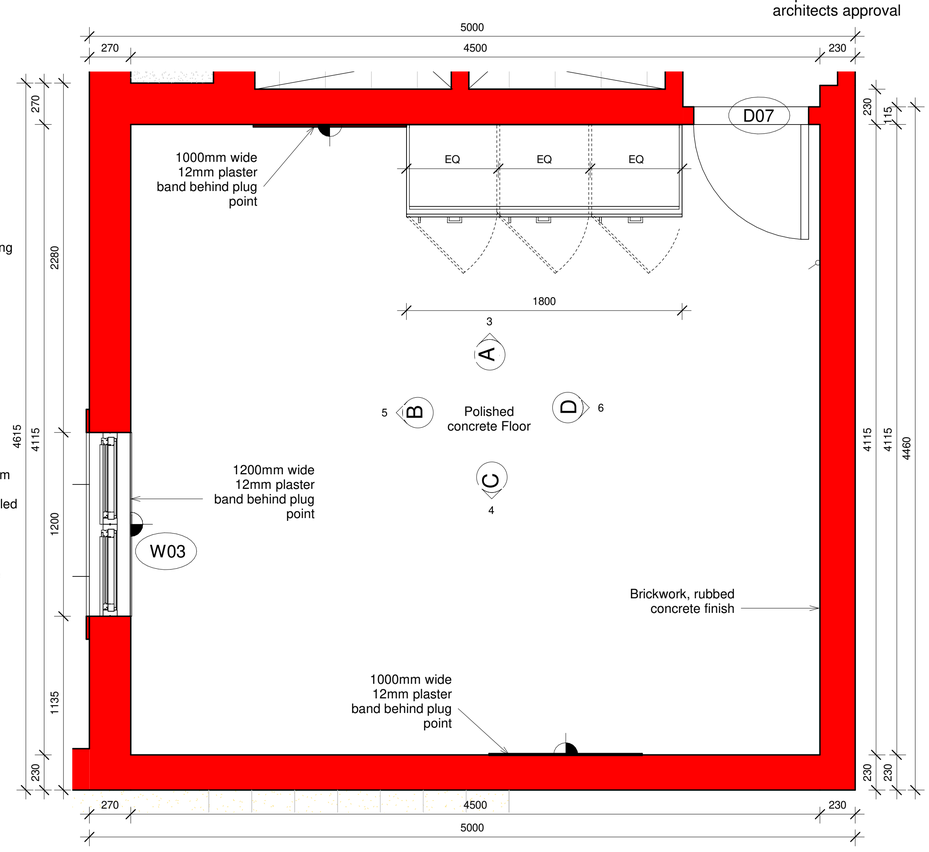
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RFS/21	507	TEN



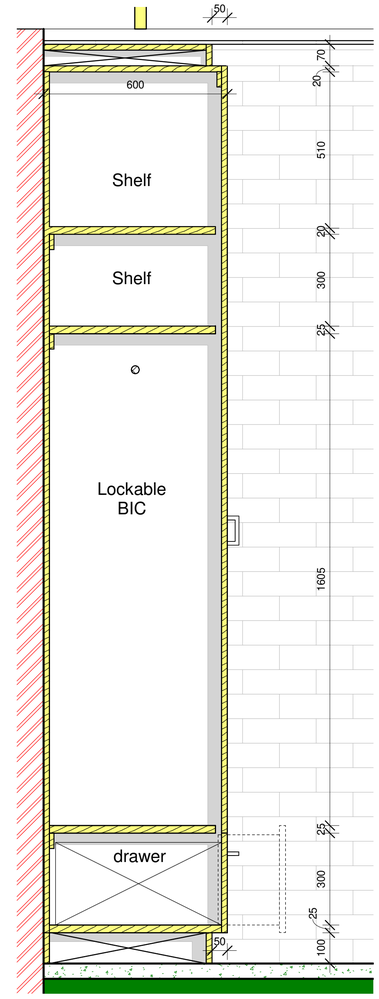
4 Bedroom 3 Males Elevation C
1 : 20



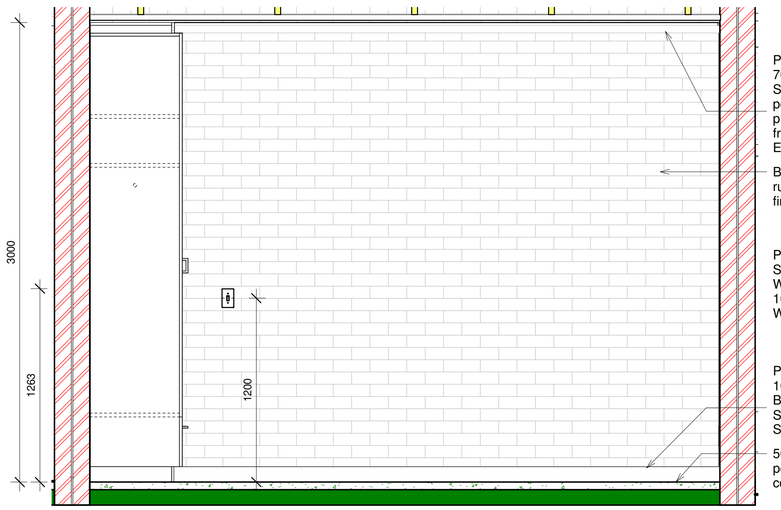
3 Bedroom 3 Males Elevation A
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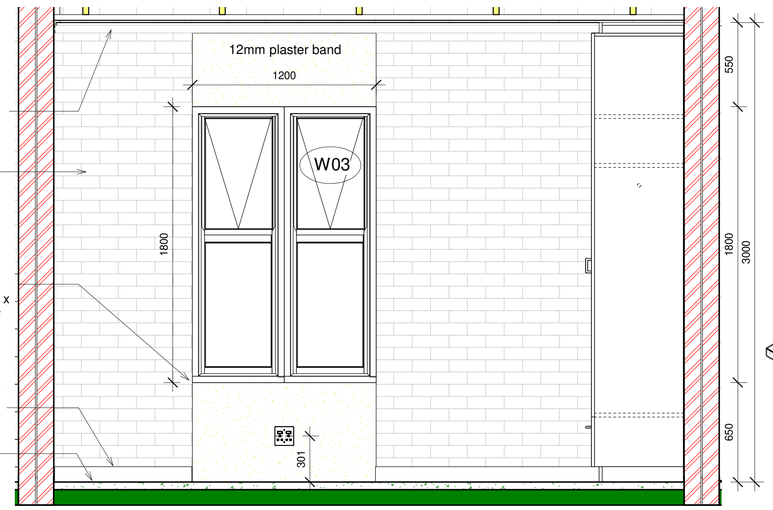
1 Bedroom 3 Males
1 : 20



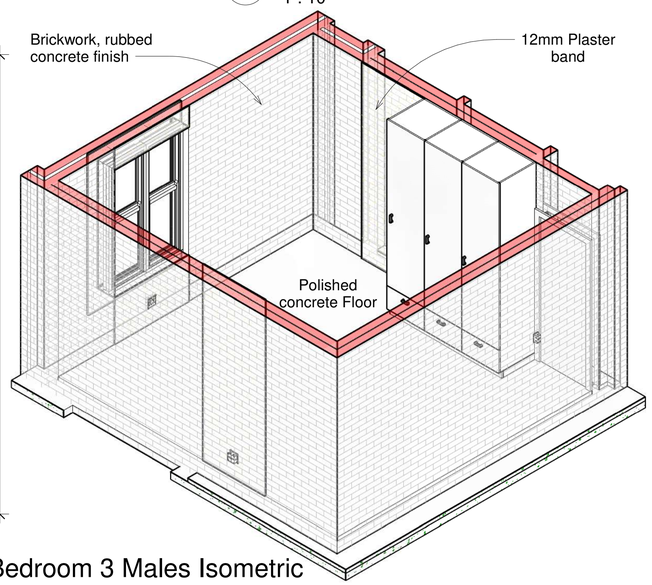
2 Built in Cupboard 3 Detail A
1 : 10



6 Bedroom 3 Males Elevation D
1 : 20



5 Bedroom 3 Males Elevation B
1 : 20



7 Bedroom 3 Males Isometric

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	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	5 (as indicated) 32mm dia CONDUIT fit BROKHORN TO TOP OF CEILING
	LIGHT SWITCH colour: black
	2 WAY SWITCH colour: black
	32A Stove Isolator

sign off client:

sign off architect:

sign off engineer:

rev:	description:	by:	date:
TEN		RN	

TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no: **ERF 8250 ROBERTSON**

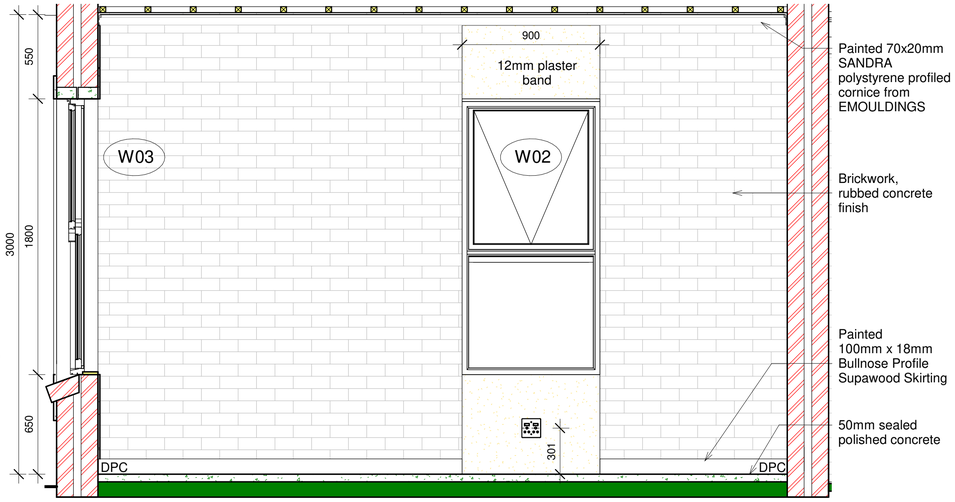
Tusk Construction Support Services
3 High Street
1st Floor
Rosenpark
Tygervalley
Bellville
Cape Town
Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za
TUSK ARCHITECTURE

drawing title: **Room Detail Layout - Bedroom 3 Males**

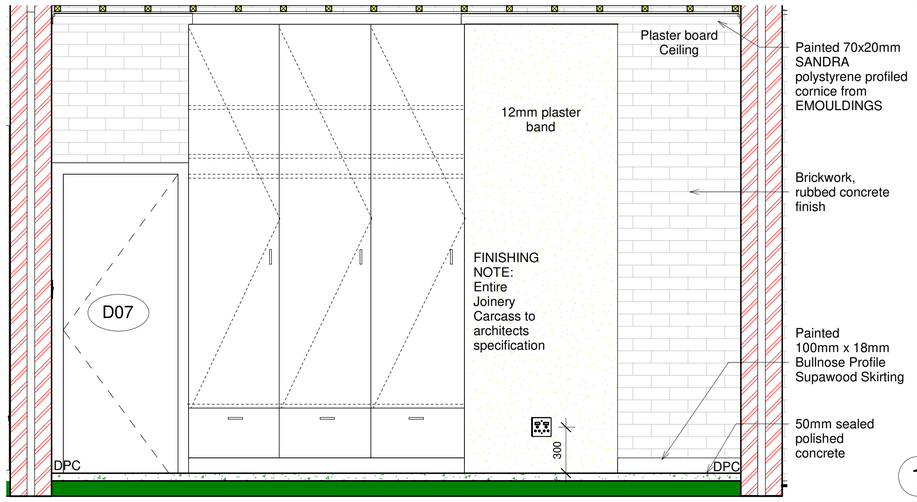
discipline:	scale:	date:
Arch	As indicated	2022.06.27

design:	drawn:	checked:
AN	RN	TG

project:	dwg no:	rev:
RFS/21	508	TEN



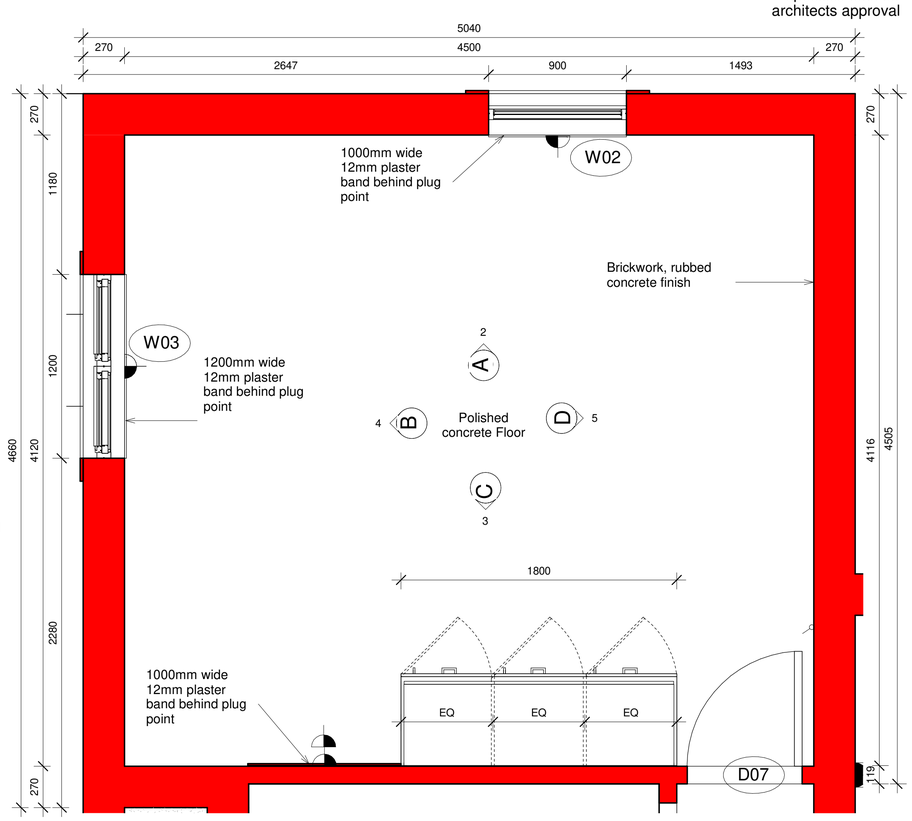
2 Bedroom 4 Males Elevation A
1 : 20



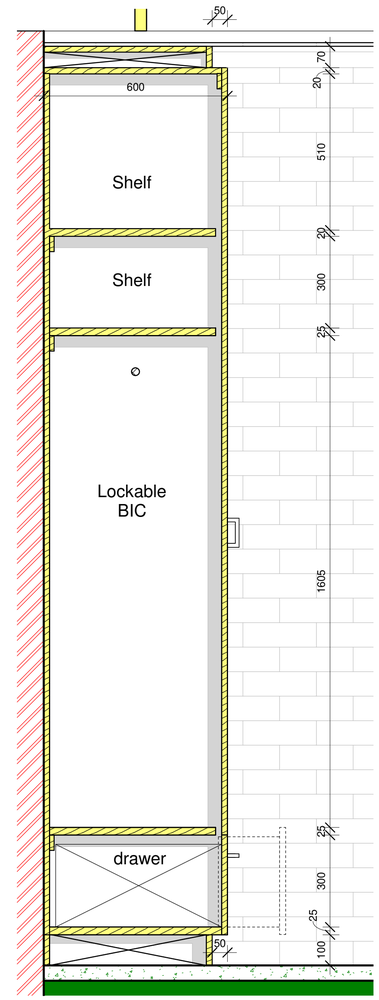
3 Bedroom 4 Males Elevation C
1 : 20

FINISHING NOTE:
Entire Joinery Carcass to architects specification:

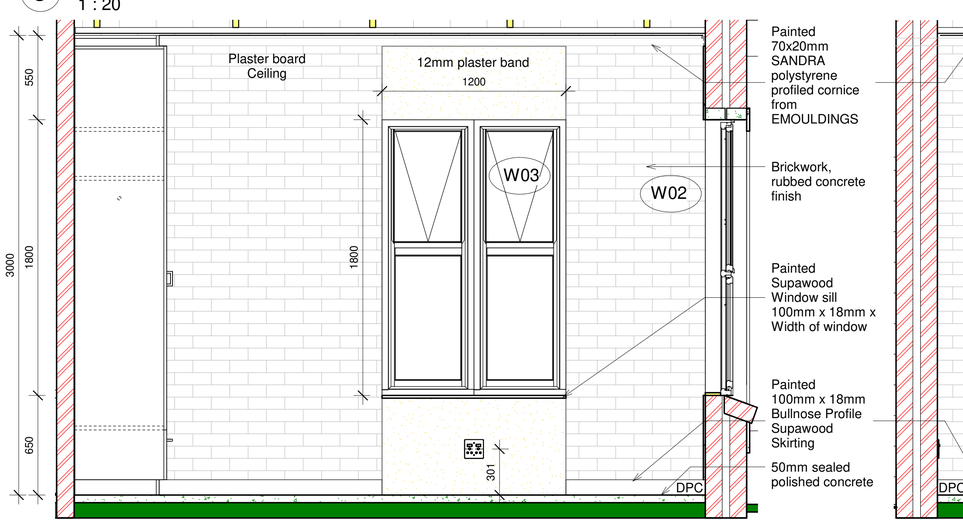
White Melanine built in Cupboard to manufactures specifications for architects approval



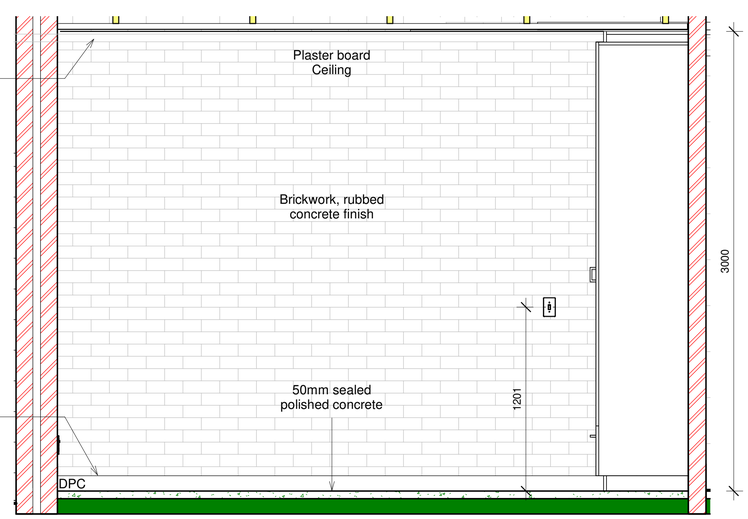
1 Bedroom 4 Males
1 : 20



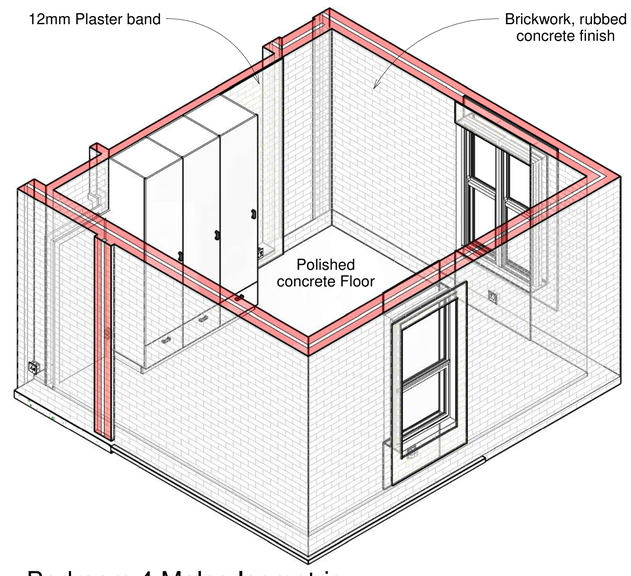
7 Built in Cupboard 4 Detail A
1 : 10



4 Bedroom 4 Males Elevation B
1 : 20



5 Bedroom 4 Males Elevation D
1 : 20



6 Bedroom 4 Males Isometric

General Notes — A1

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project Notes:

Refer to below sheets for extended details and specifications

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- Sanitary Schedule

RFS/21 603 - Balustrade Detail

Electrical Layouts:

RFS/21 700-701 - Lights and Switches

RFS/21 702-703 - Plugs and Points

PLUGS, POINTS & SWICHES	
SYMBOL	DESCRIPTION
	TV AERIAL CONNECTED TO SATELITE CABLE
	DOUBLE 15 AMP PLUG AT CEILING FOR GARAGE DOOR MOTOR
	DOUBLE 15 AMP PLUG AT 300 ABOVE FFL TO CENTRE OF PLUG
	DOUBLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+/-1500mm AFFL) - 3x "S"
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	5 pin initiated, 32mm dia CONDUIT IN BROKDOWN TO TOP OF CEILING
	LIGHT SWITCH colour: black
	2 WAY SWITCH colour: black
	32A Stove isolator

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN		RN	

TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no: **ERF 8250 ROBERTSON**

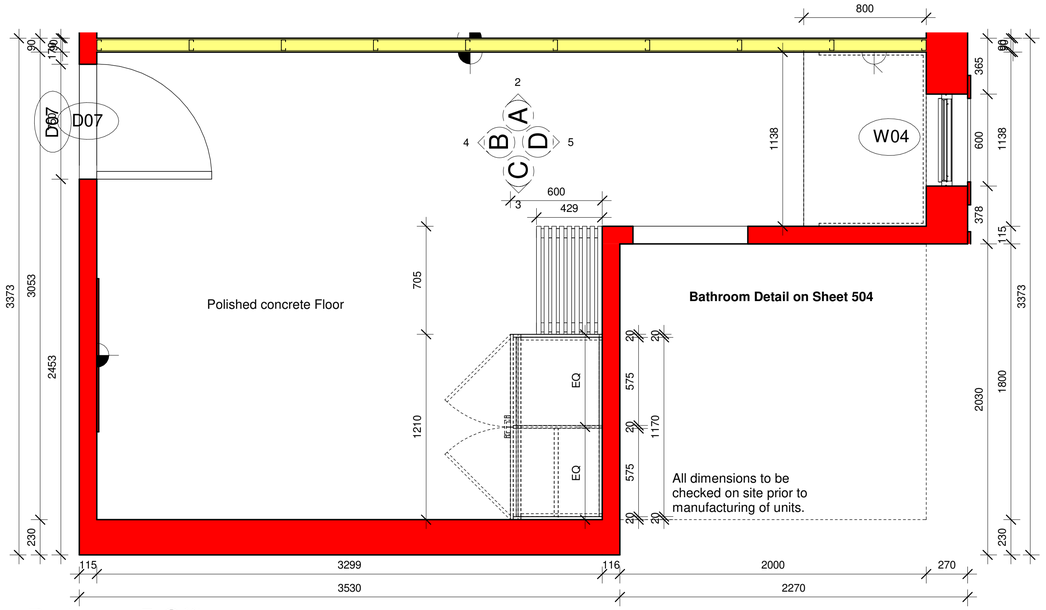
Tusk Construction Support Services
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Cape Town
Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za
TUSK ARCHITECTURE

drawing title: **Room Detail Layout - Bedroom 4 Males**

discipline:	scale:	date:
Arch	As indicated	2022.06.27

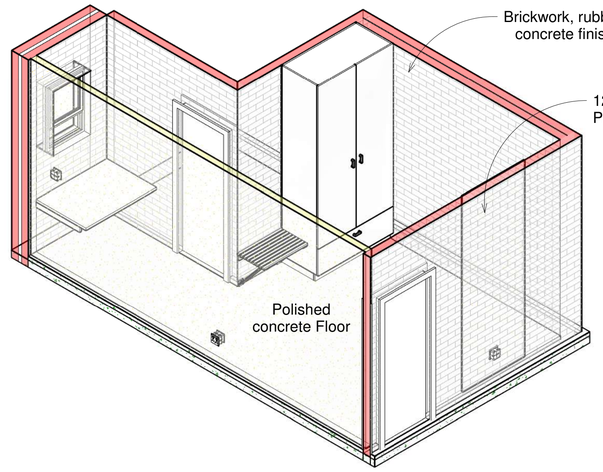
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AN	RN	TG

project:	dwg no:	rev:
RFS/21	509	TEN

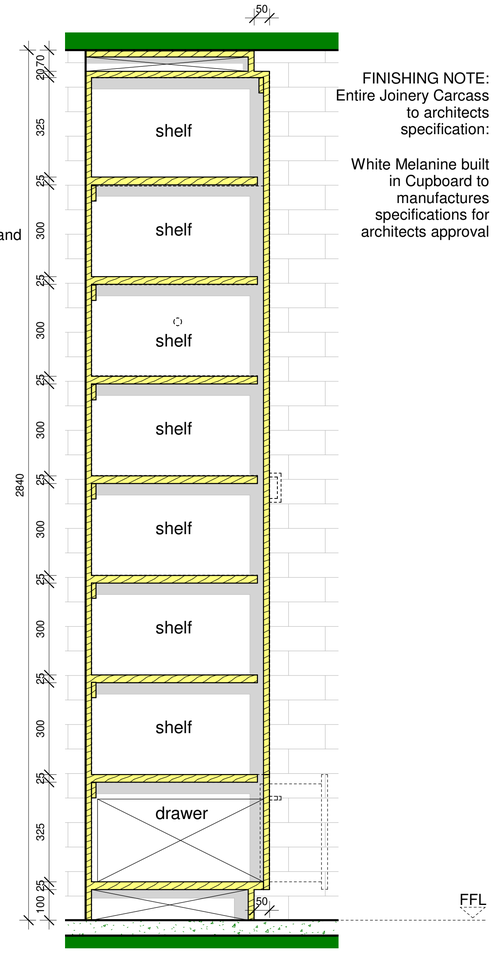


1 Bedroom 5 Officer

1 : 20



6 Bedroom 5 Officer Isometric



FINISHING NOTE:
Entire Joinery Carcass to architects specification:

White Melanine built in Cupboard to manufactures specifications for architects approval

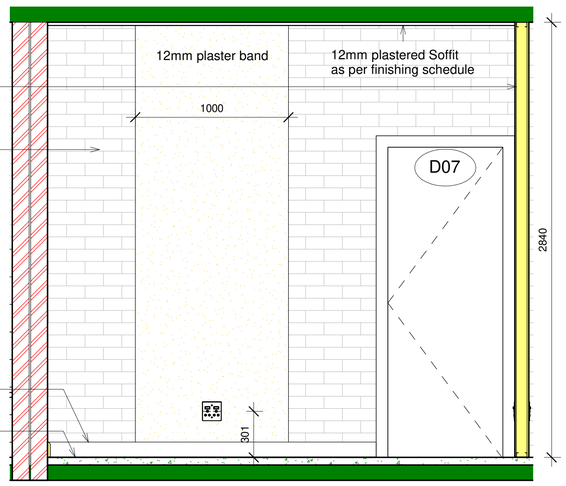
8 Built in Cupboard Detail A

1 : 10



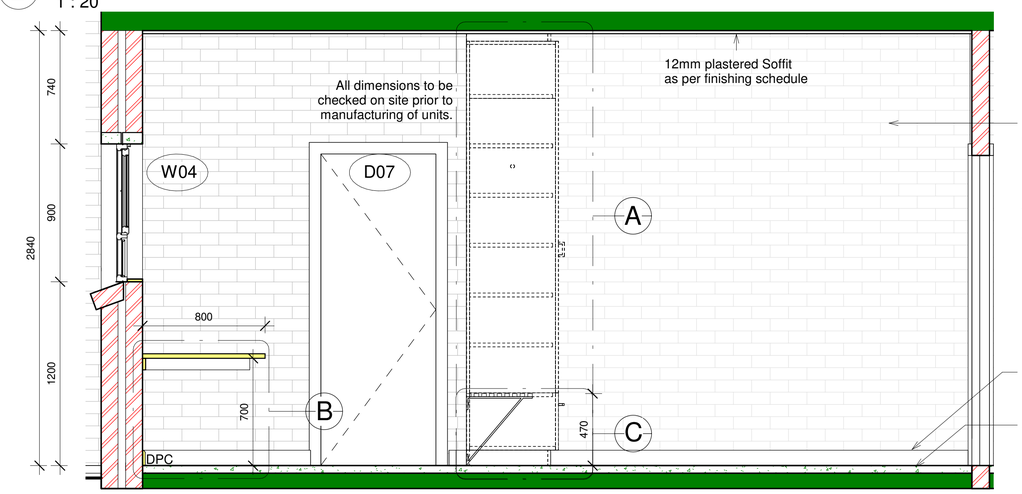
2 Bedroom 5 Officer Elevation A

1 : 20



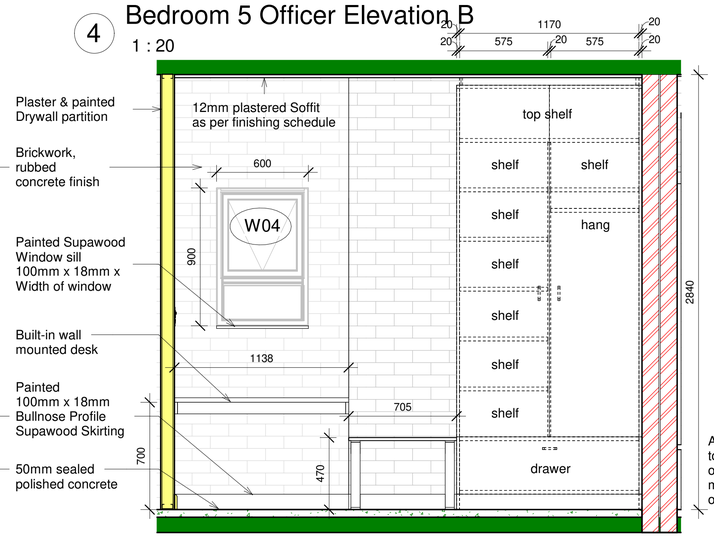
4 Bedroom 5 Officer Elevation B

1 : 20



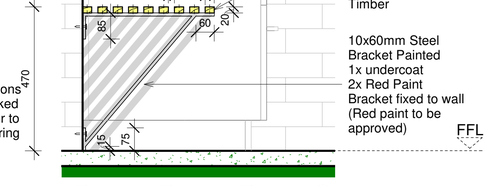
3 Bedroom 5 Officer Elevation C

1 : 20



5 Bedroom 5 Officer Elevation D

1 : 20



White Melanine built in desk to manufactures specifications for architects approval

7 Built in Desk Detail B

1 : 10

20x30x900mm Treated SA Pine Timber

10x60mm Steel Bracket Painted 1x undercoat 2x Red Paint Bracket fixed to wall (Red paint to be approved)

9 Built in Bench Detail C

1 : 10

General Notes

A1

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project Notes:

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- Construction Notes
- Sanitary Schedule

RFS/21 603 - Balustrade Detail

Electrical Layouts:

RFS/21 700-701 - Lights and Switches

RFS/21 702-703 - Plugs and Points

PLUGS, POINTS & SWICHES

SYMBOL	DESCRIPTION
	TV AERIAL CONNECTED TO SATELITE CABLE
	DOUBLE 15 AMP PLUG AT CEILING FOR GARAGE DOOR MOTOR
	DOUBLE 15 AMP PLUG AT 300 ABOVE FFL TO CENTRE OF PLUG
	DOUBLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+/- 1800mm AFFL) - 6x TV
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	5 cat. Indicated 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	LIGHT SWITCH 240Vac 16aA
	2 WAY SWITCH 240Vac 16aA
ISO	32A Stove Isolator

sign off client:

sign off architect:

sign off engineer:

rev:	description:	by:	date:
TEN		RN	

TENDER

project: PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no: ERF 8250 ROBERTSON

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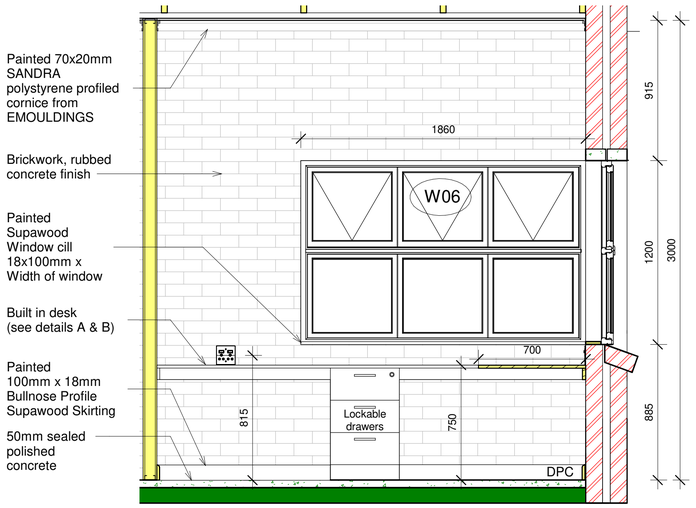
TUSK ARCHITECTURE

drawing title: Room Detail Layout - Bedroom 5 Officer

discipline:	scale:	date:
Arch	As indicated	2022.06.27

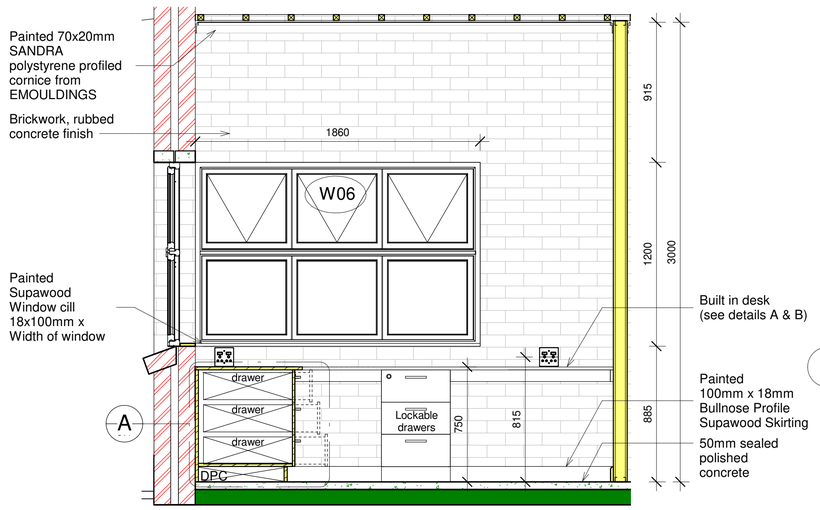
design:	drawn:	checked:
AN	RN	TG

project:	dwg no:	rev:
RFS/21	510	TEN



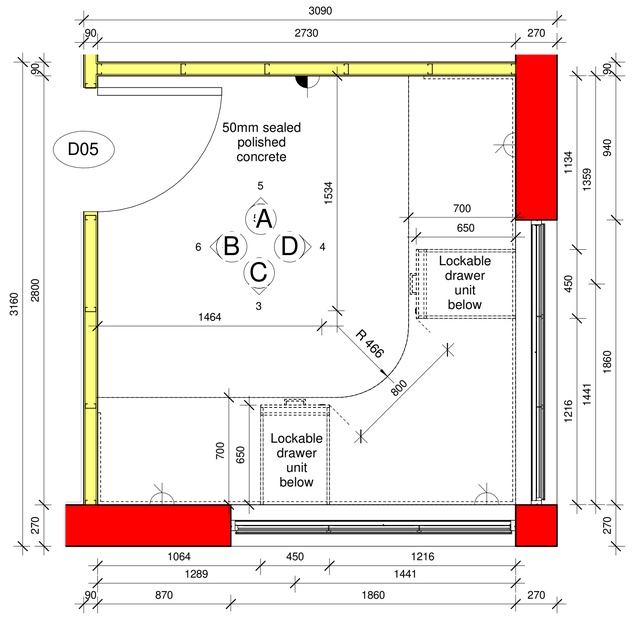
4 Watch Room Reception Elevation D

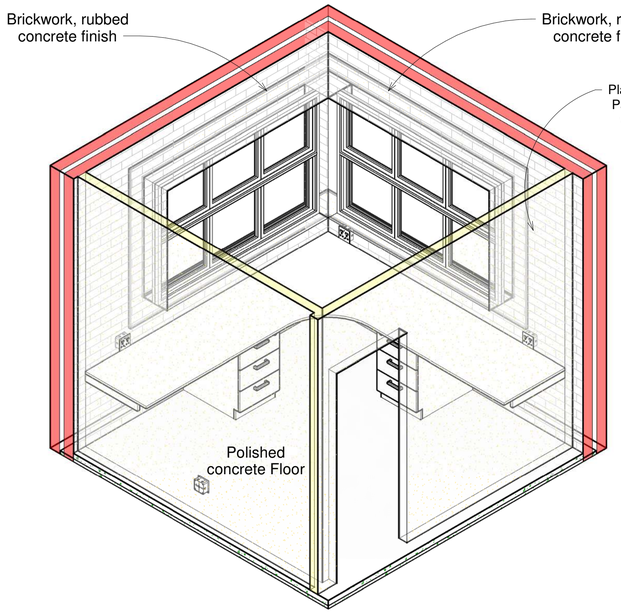
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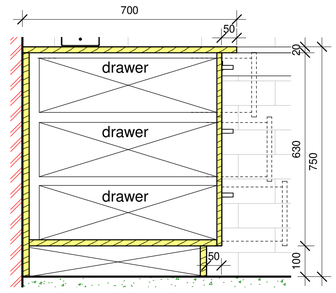
1 Watch Room Reception Ground Floor Plan

1 : 20





2 Watch Room Reception Isometric

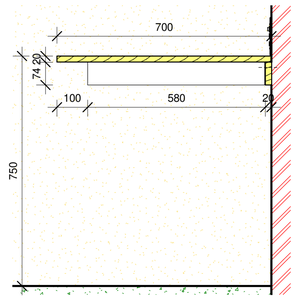


FINISHING NOTE:
Entire Joinery Carcass to architects specification:

white Melanine built in Cupboard to manufactures specifications for architects approval

7 Watch Room Reception Desk Detail A

1 : 10

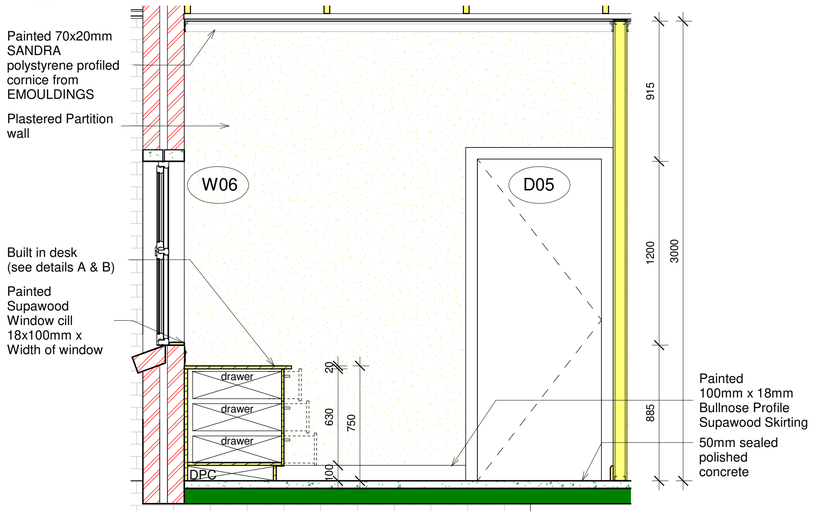


8 Watch Room Reception Desk Detail B

1 : 10

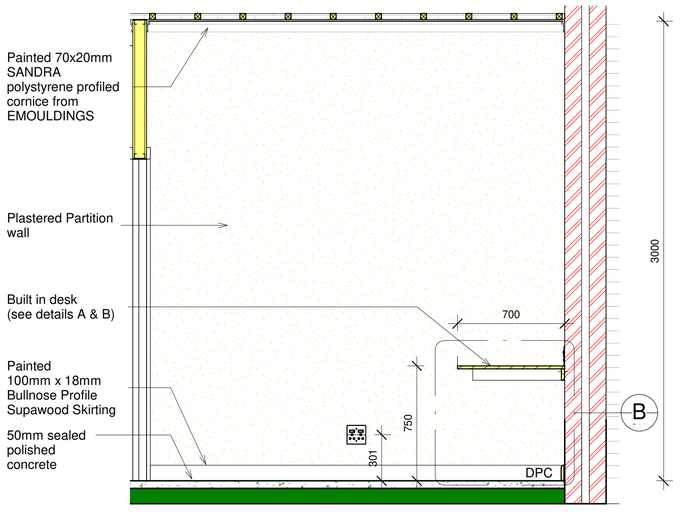
3 Watch Room Reception Elevation C

1 : 20



6 Watch Room Reception Elevation B

1 : 20



5 Watch Room Reception Elevation A

1 : 20

General Notes

A1

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	SINGLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+/- 1500mm ARTIL) + tel TV
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
HP	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	S (as indicated) 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	LIGHT SWITCH switch 1mark
	2-WAY SWITCH switch 2mark
ISO	32A Stove Isolator

sign off client:

sign off architect:

sign off engineer:

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

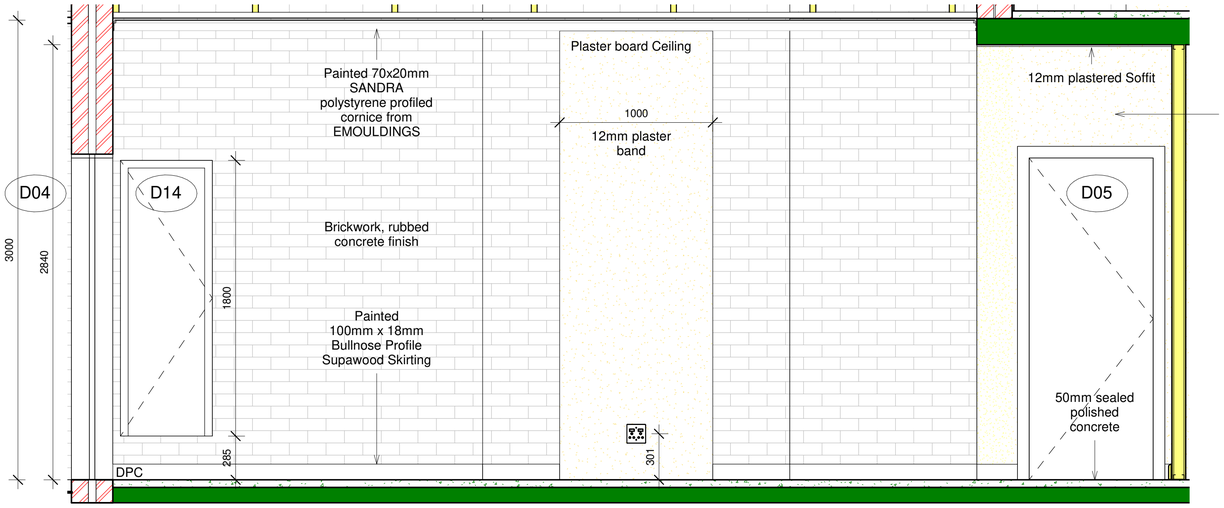
erf no: **ERF 8250 ROBERTSON**

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Bellville
Cape Town
Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za
ARCHITECTURE

drawing title: **Room Detail Layout - Watch Room Reception**

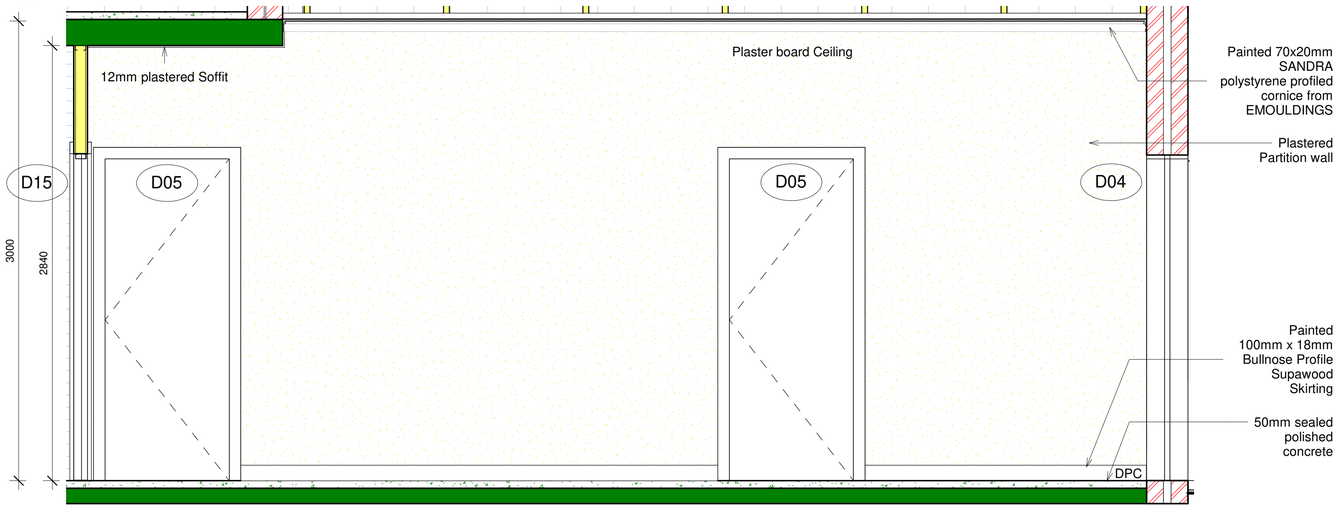
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design:	drawn:	checked:
AN	RN	TG

project:	dwg no:	rev:
RFS/21	511	TEN



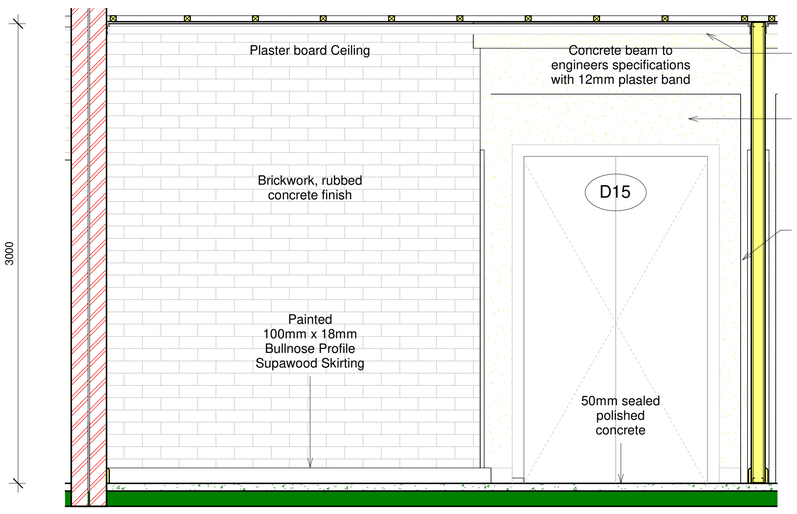
5 Reception Lobby Elevation B

1 : 20



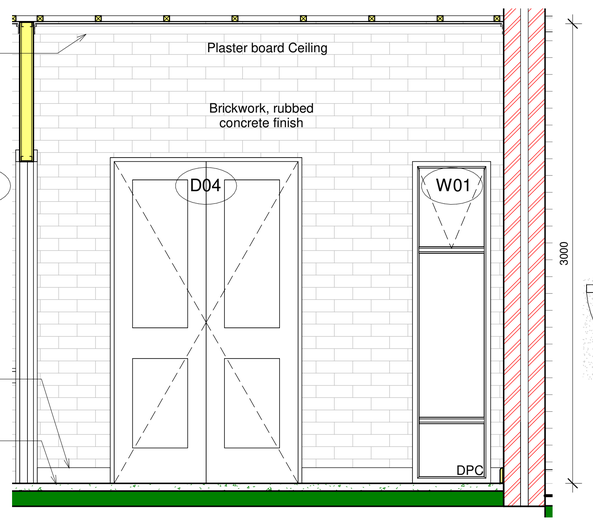
2 Reception Lobby Elevation D

1 : 20



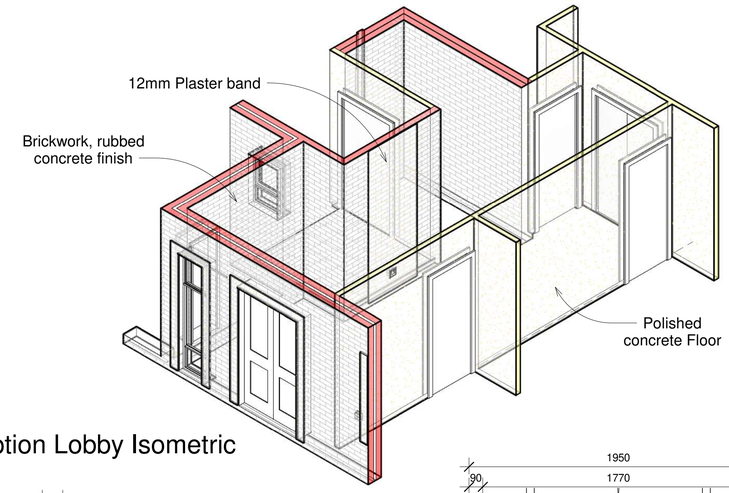
3 Reception Lobby Elevation A

1 : 20

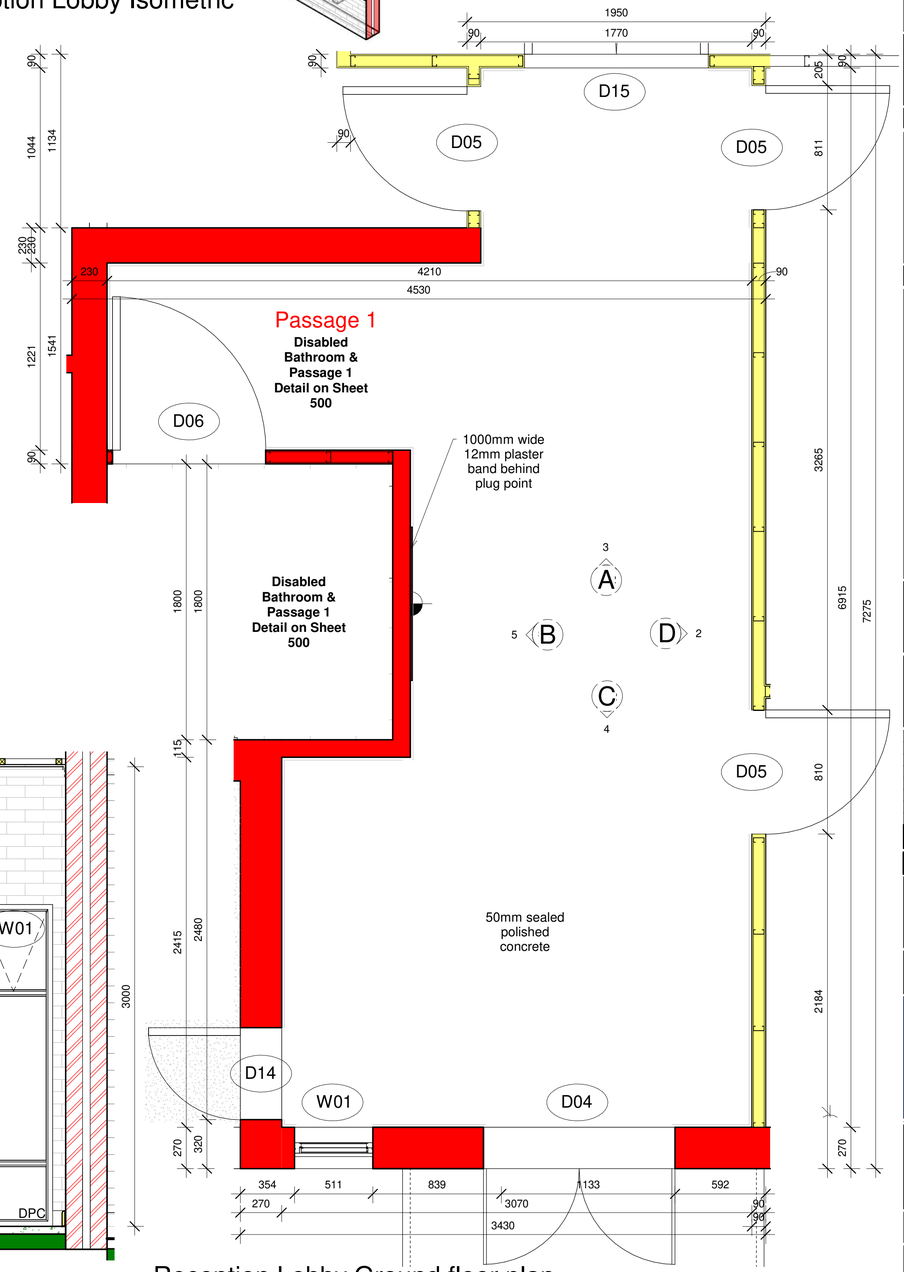


4 Reception Lobby Elevation C

1 : 20



6 Reception Lobby Isometric



1 Reception Lobby Ground floor plan

1 : 20

General Notes

A1

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project Notes:

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Finishing Schedules:

RFS/21 600 - Window Schedule

RFS/21 601 - Door Schedule

RFS/21 602 - Window Schedule
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- Sanitary Schedule

RFS/21 603 - Balustrade Detail

Electrical Layouts:

RFS/21 700-701 - Lights and Switches

RFS/21 702-703 - Plugs and Points

PLUGS, POINTS & SWICHES

SYMBOL	DESCRIPTION
	TV AERIAL CONNECTED TO SATELITE CABLE
	DOUBLE 15 AMP PLUG AT CEILING FOR GARAGE DOOR MOTOR
	DOUBLE 15 AMP PLUG AT 300 ABOVE FFL TO CENTRE OF PLUG
	DOUBLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+/- 950mm AFFL) - tbc TV
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	5 (as indicated) 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	LIGHT SWITCH colour: black
	2 WAY SWITCH colour: black
ISO	32A Stove Isolator

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no:
ERF 8250
ROBERTSON

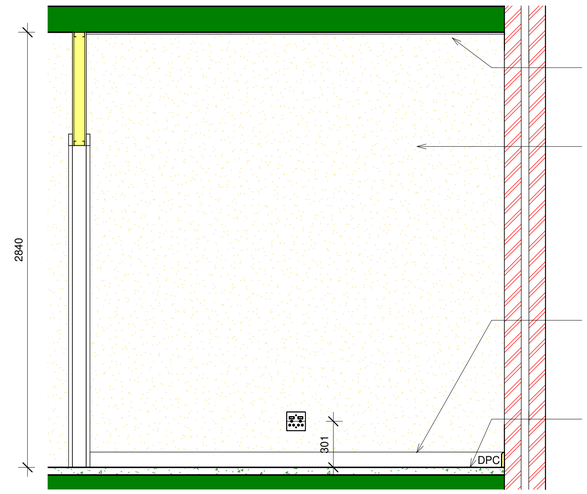
Tusk Construction Support Services
3 High Street
1st Floor
Rosenpark
Tygervalley
Bellville
Cape Town
Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za

TUSK ARCHITECTURE

drawing title:
Room Detail Layout - Reception Lobby

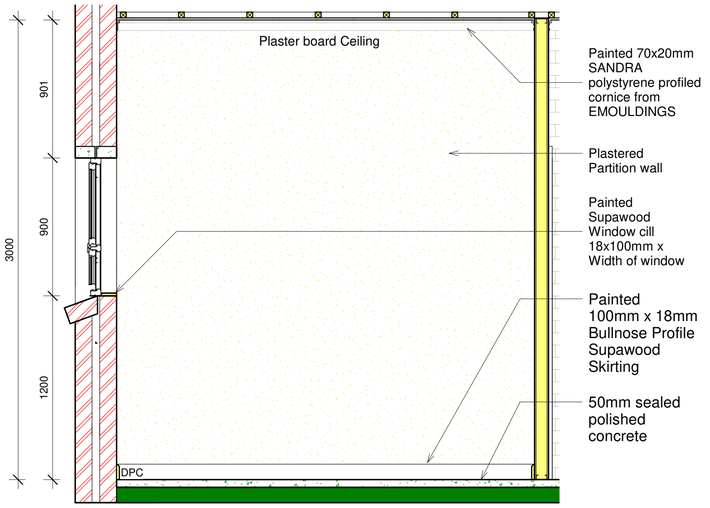
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Arch	As indicated	2022.06.27
design:	**drawn:**	**checked:**
AN	RN	TG

project:	dwg no:	rev:
RFS/21	512	TEN



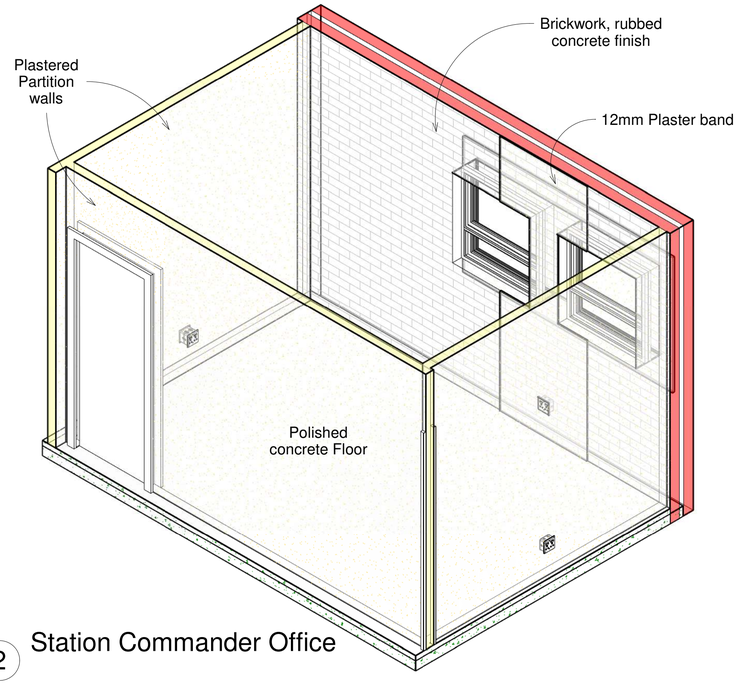
5 Station Commander Office Elevation A

1 : 20

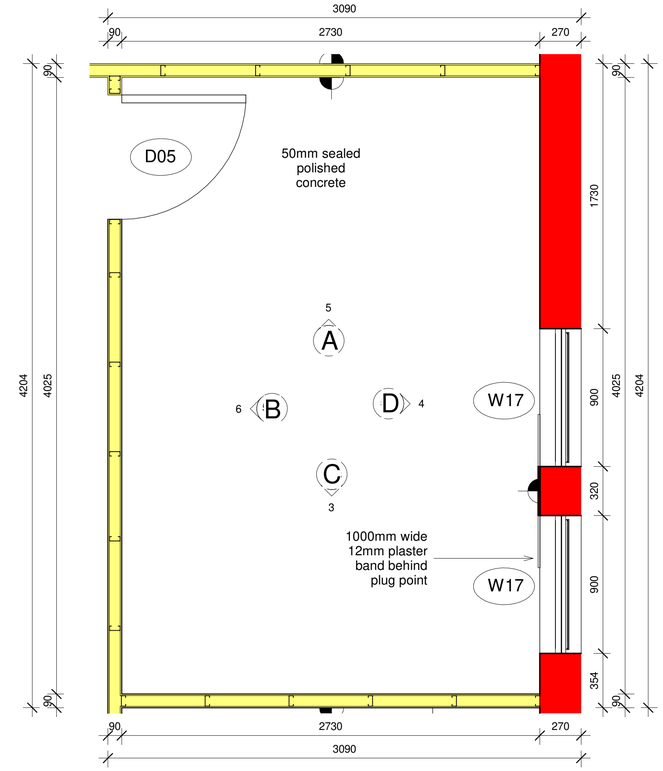


3 Station Commander Office Elevation C

1 : 20

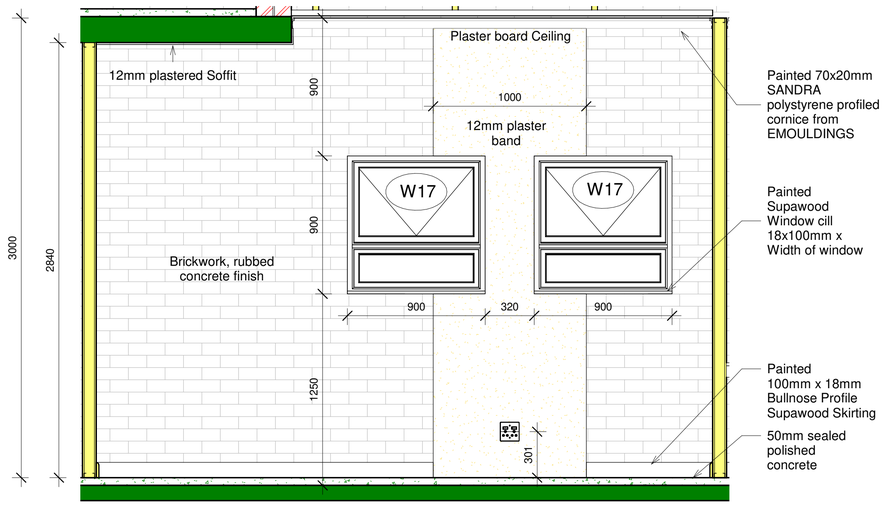


2 Station Commander Office



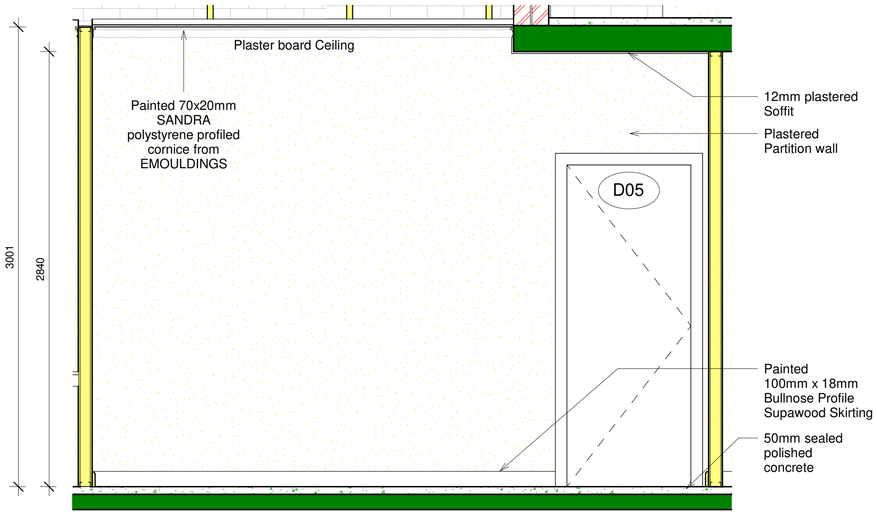
1 Station Commander Office Ground Floor Plan

1 : 20



4 Station Commander Office Elevation D

1 : 20



6 Station Commander Office Elevation B

1 : 20

General Notes

A1

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RFS/21 702-703 - Plugs and Points

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no: **ERF 8250 ROBERTSON**

Tusk Construction Support Services
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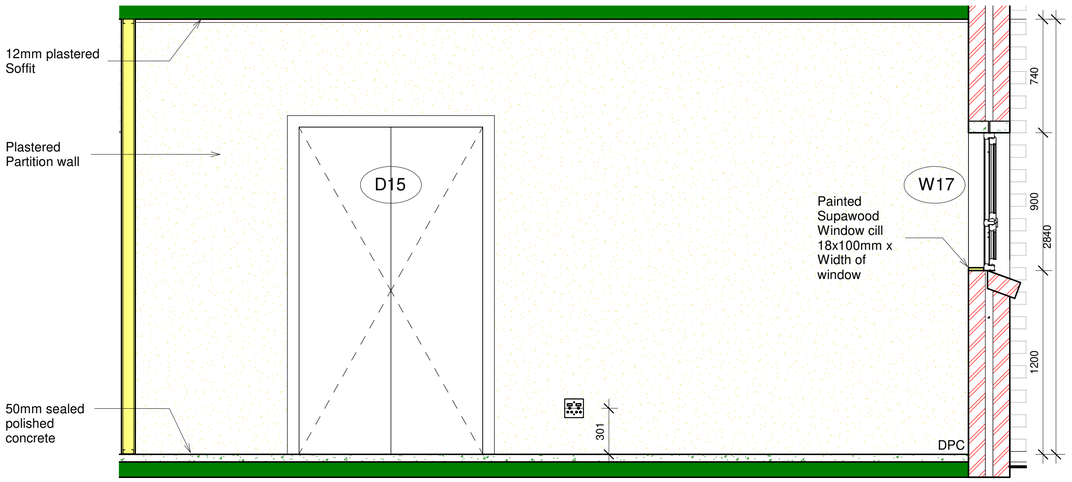
TUSK ARCHITECTURE

drawing title: **Room Detail Layout - Station Commander Office**

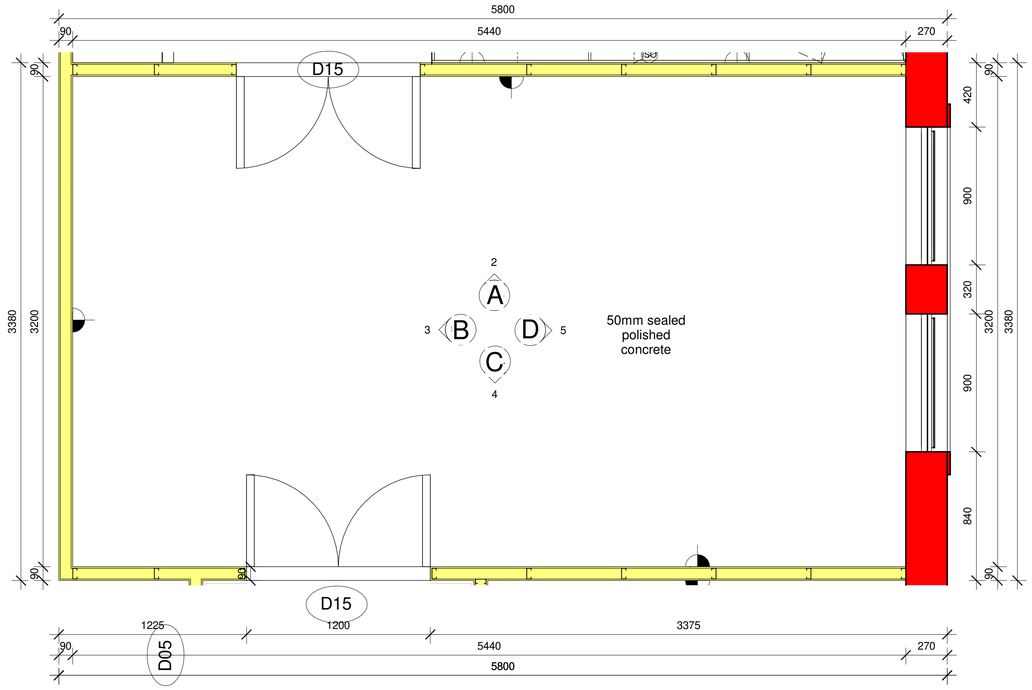
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Arch	1 : 20	2022.06.27

design:	drawn:	checked:
AN	RN	TG

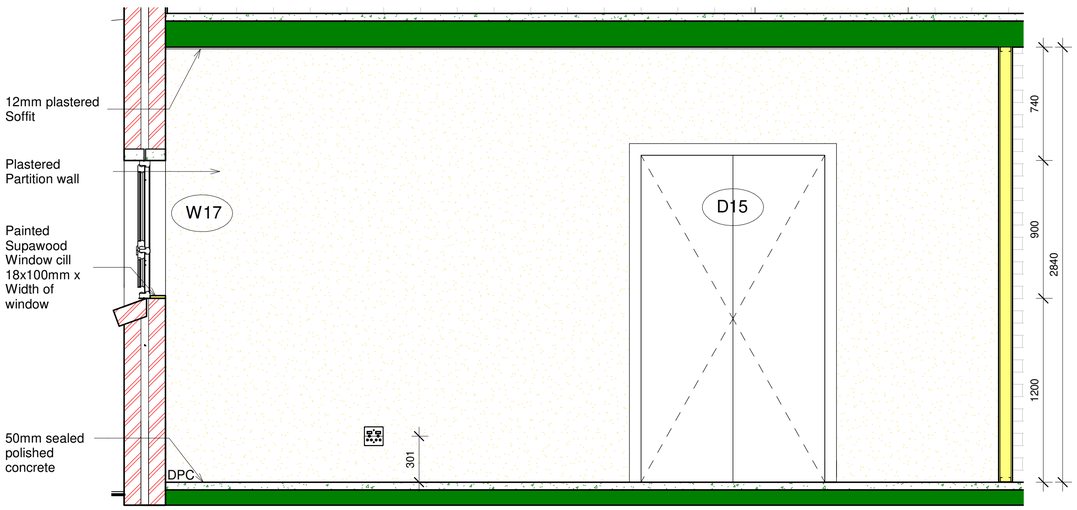
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RFS/21	513	TEN



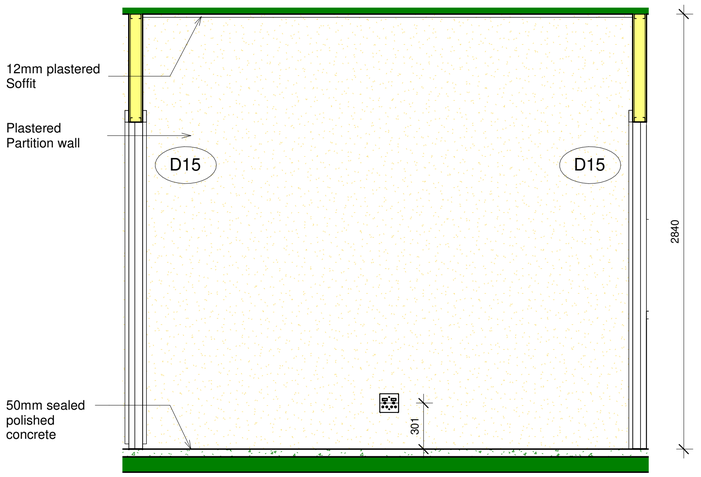
2 Boardroom Elevation A
1 : 20



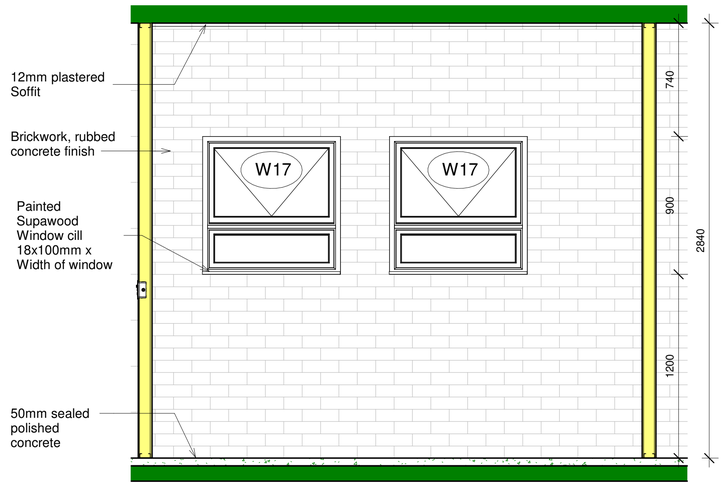
1 Boardroom Ground Floor plan
1 : 20



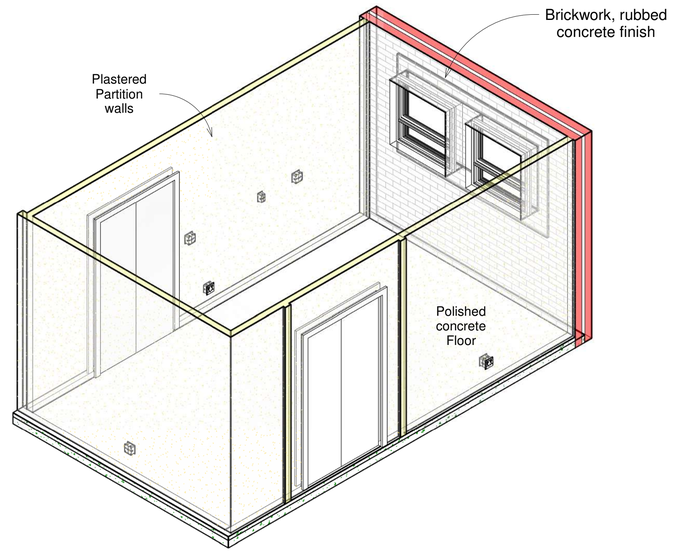
4 Boardroom Elevation C
1 : 20



3 Boardroom Elevation B
1 : 20



5 Boardroom Elevation D
1 : 20



6 Boardroom Isometric

General Notes

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	DISTRIBUTION BOARD
	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	5 cm indicated, 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
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2	2 WAY SWITCH colour: black
ISO	32A Stove Isolator

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

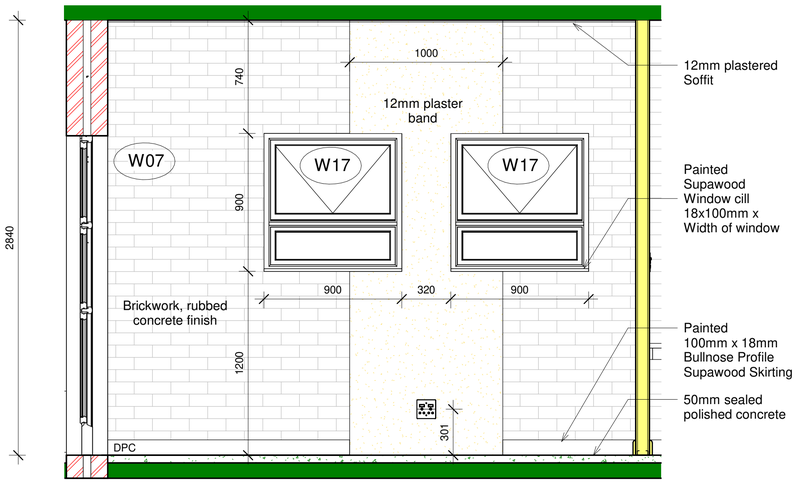
erf no:
ERF 8250
ROBERTSON

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TUSK ARCHITECTURE

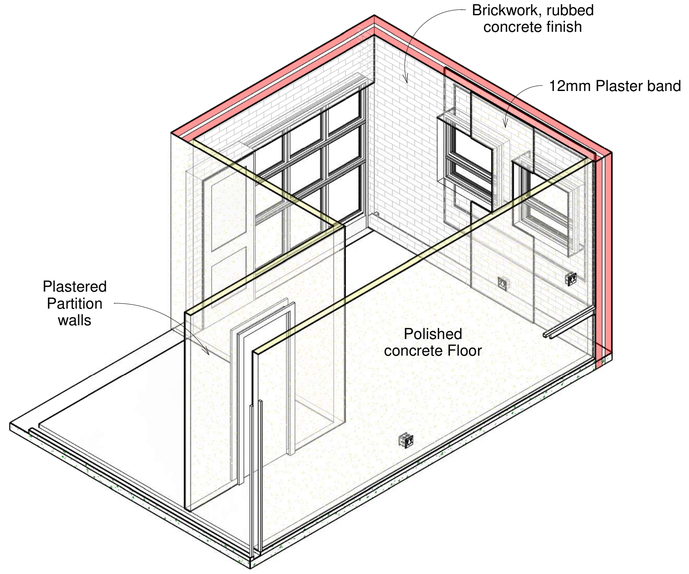
drawing title:
Room Detail Layout - Boardroom

discipline:	scale:	date:
Arch	As indicated	2022.06.27
design:	**drawn:**	**checked:**
AN	RN	TG

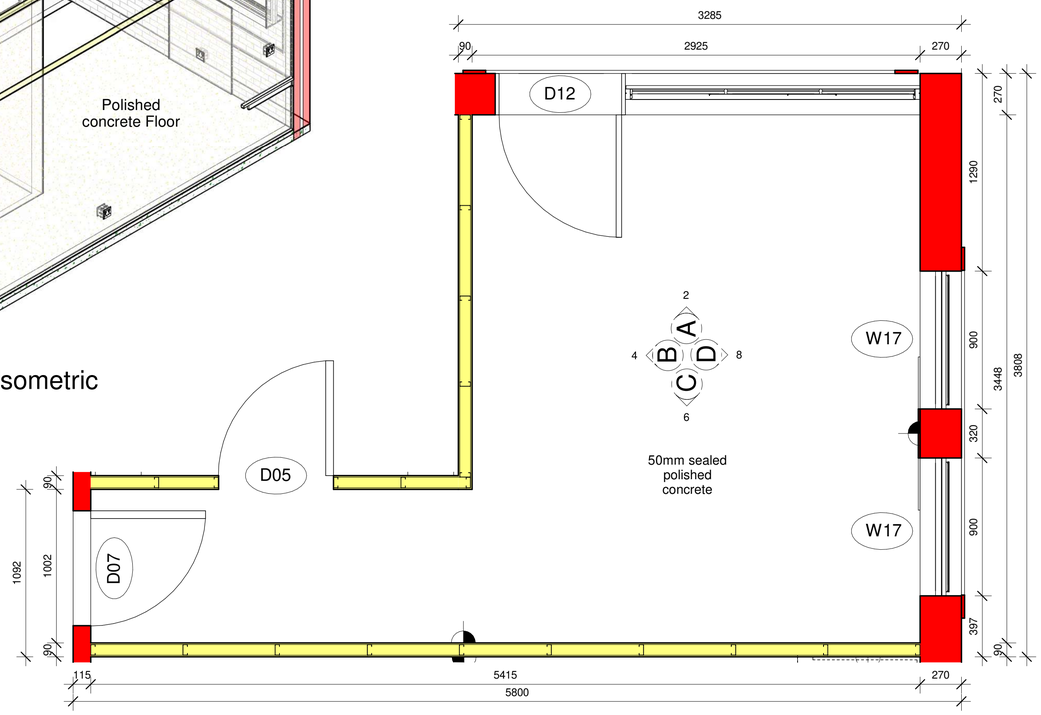
project:	dwg no:	rev:
RFS/21	514	TEN



8 Shift commander office Elevation D
1 : 20



11 Shift commander office Isometric



1 Shift commander office Ground floor plan
1 : 20

4 Shift commander office Elevation B
1 : 20

6 Shift commander office Elevation C
1 : 20

2 Shift commander office Elevation A
1 : 20

General Notes A1

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	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	5 (as indicated) 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	LIGHT SWITCH colour: black
	2 WAY SWITCH colour: black
	32A Stove Isolator

sign off client:

sign off architect:

sign off engineer:

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

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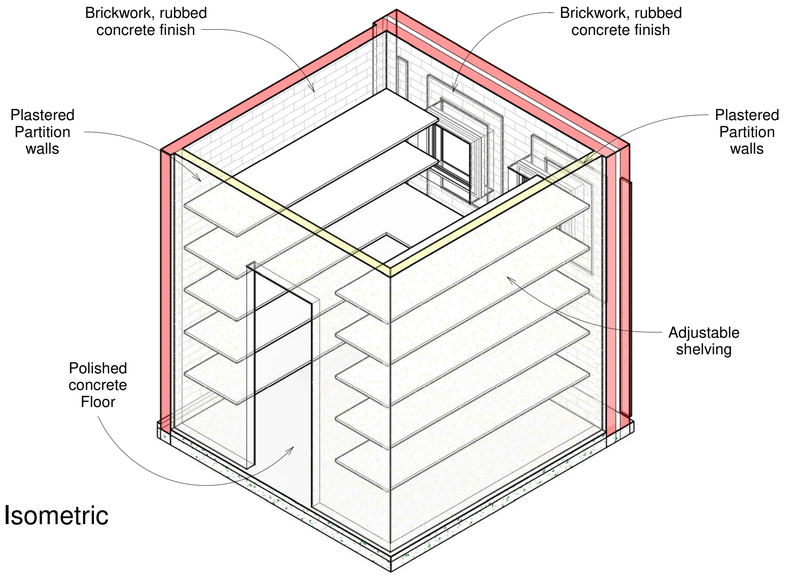
TUSK ARCHITECTURE

drawing title:
Room Detail Layout - Shift commander office

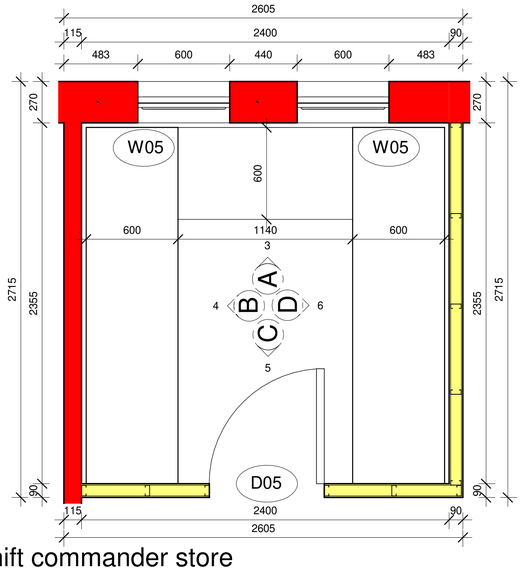
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Arch	As indicated	2022.06.27

design:	drawn:	checked:
AN	RN	TG

project:	dwg no:	rev:
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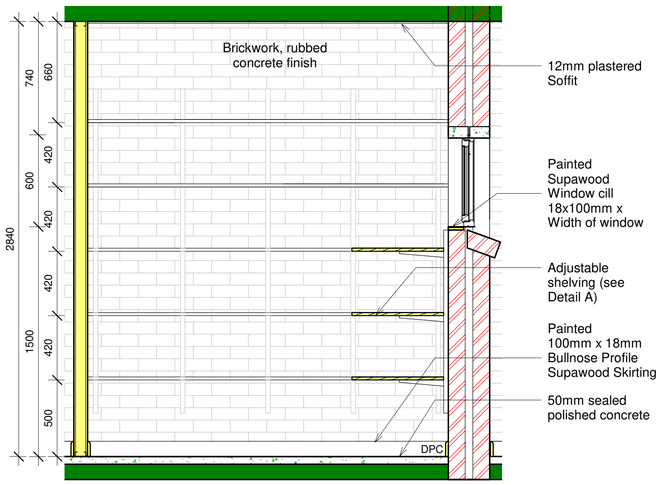


1 Shift commander store Isometric



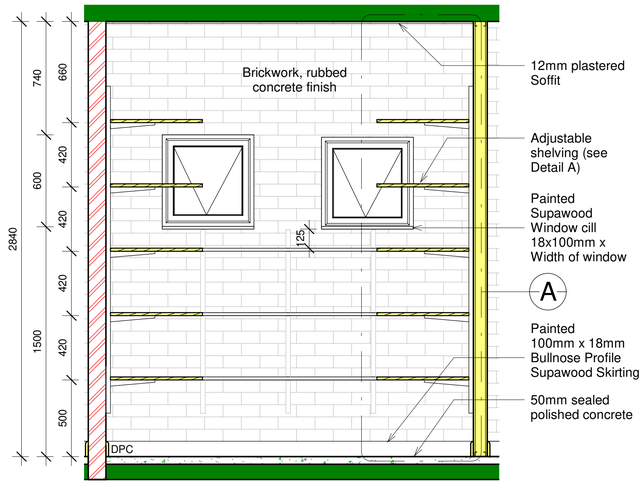
2 Shift commander store

1 : 20



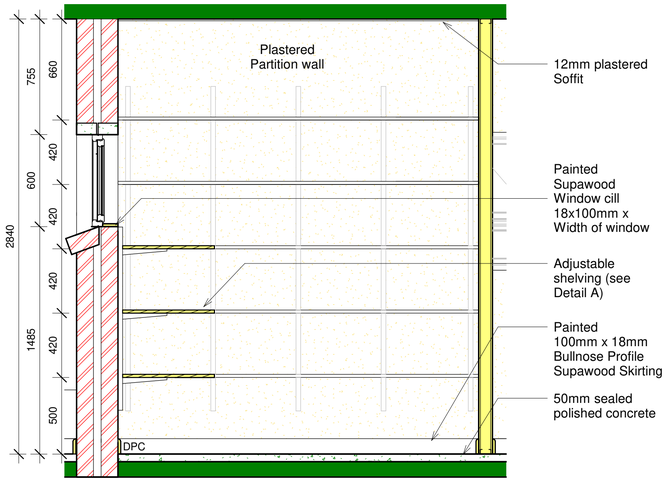
4 Shift commander store Elevation B

1 : 20



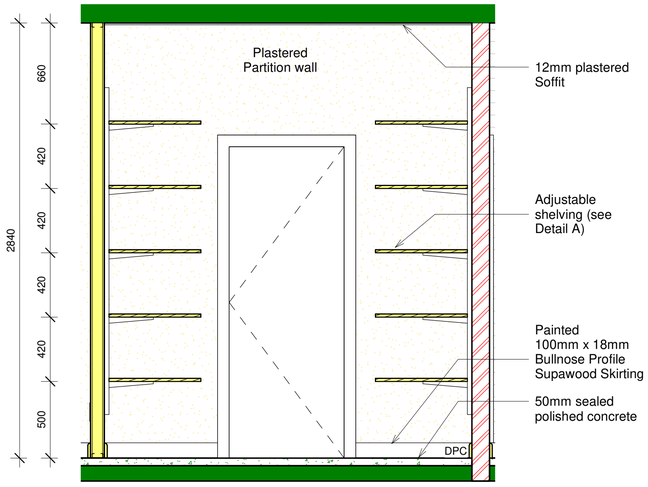
3 Shift commander store Elevation A

1 : 20



6 Shift commander store Elevation D

1 : 20



5 Shift commander store Elevation C

1 : 20

7 Shift commander store Detail A

1 : 10

General Notes

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	170 litre INTEGRATED HEAT PUMP
B	DOOR BELL
	1 (as indicated) 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	LIGHT SWITCH colour: black
2	2 WAY SWITCH colour: black
ISO	32A Stove Isolator

sign off client:

sign off architect:

sign off engineer:

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

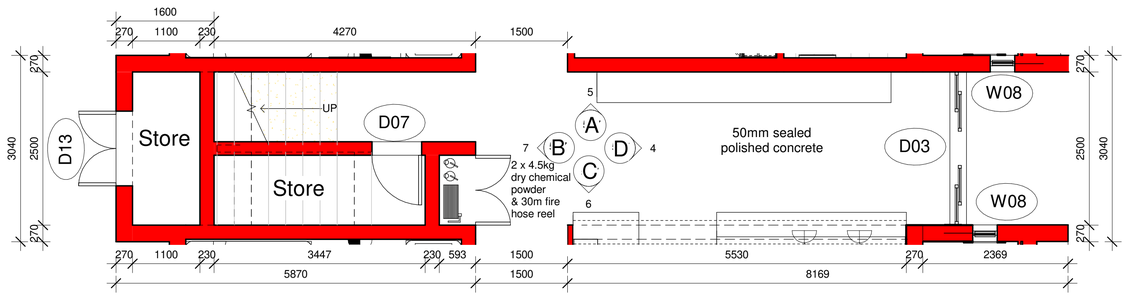
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ARCHITECTURE

drawing title:
Room Detail Layout - Shift commander store

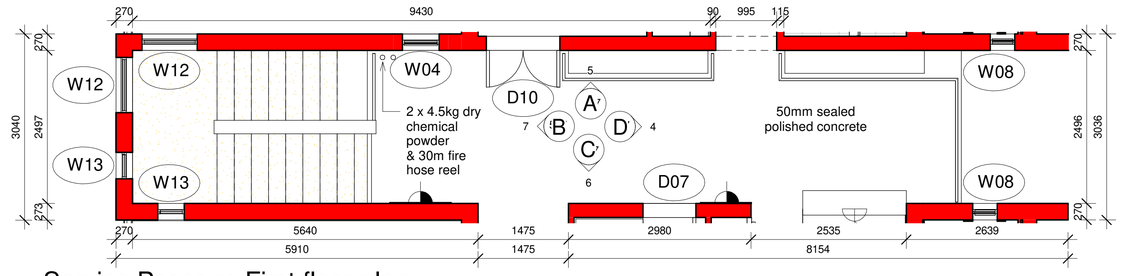
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Arch	As indicated	2022.06.27
design:	**drawn:**	**checked:**
AN	RN	TG

project:	dwg no:	rev:
RFS/21	516	TEN



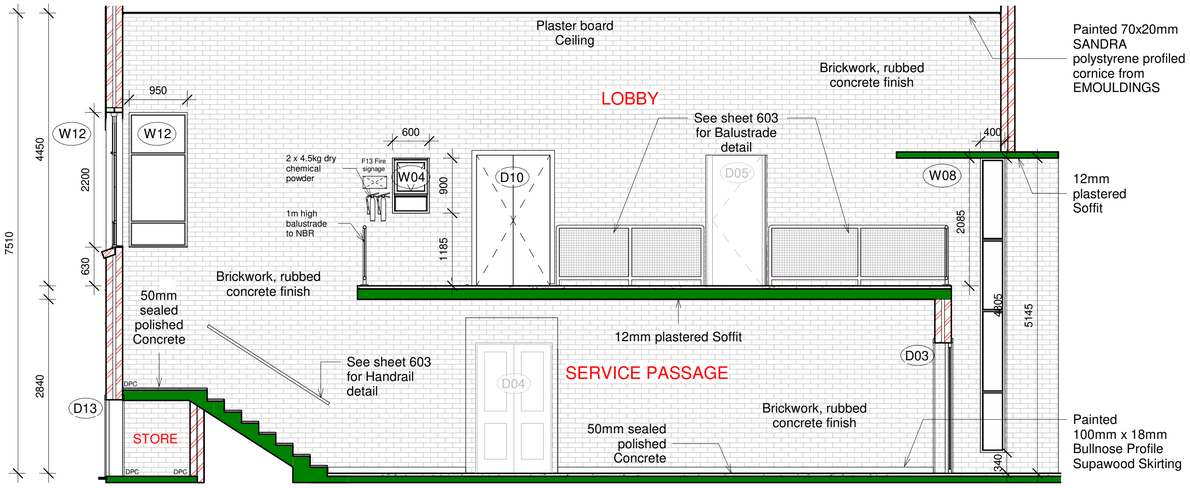
1 Service Passage Ground floor plan

1 : 50



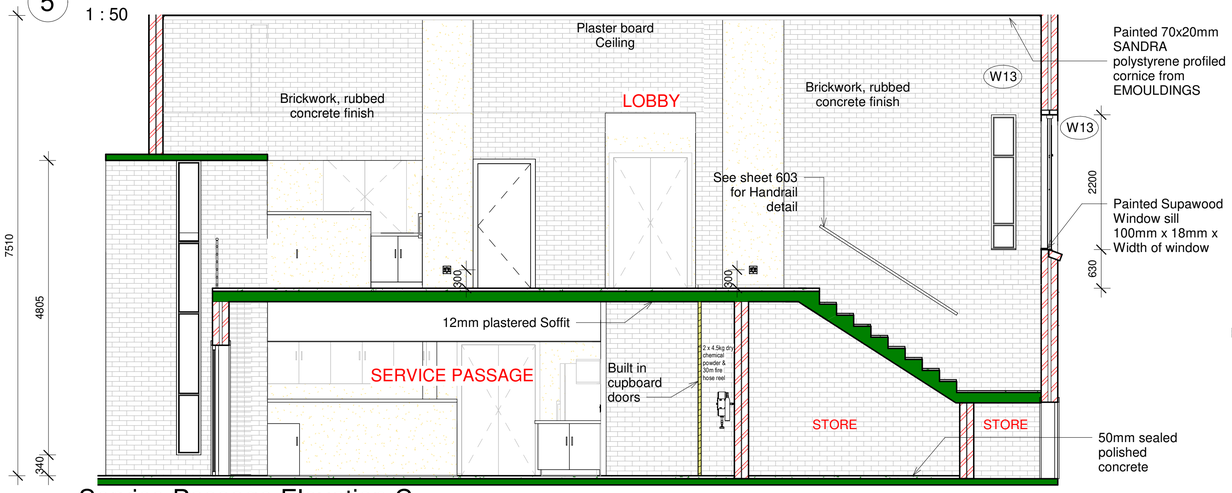
2 Service Passage First floor plan

1 : 50



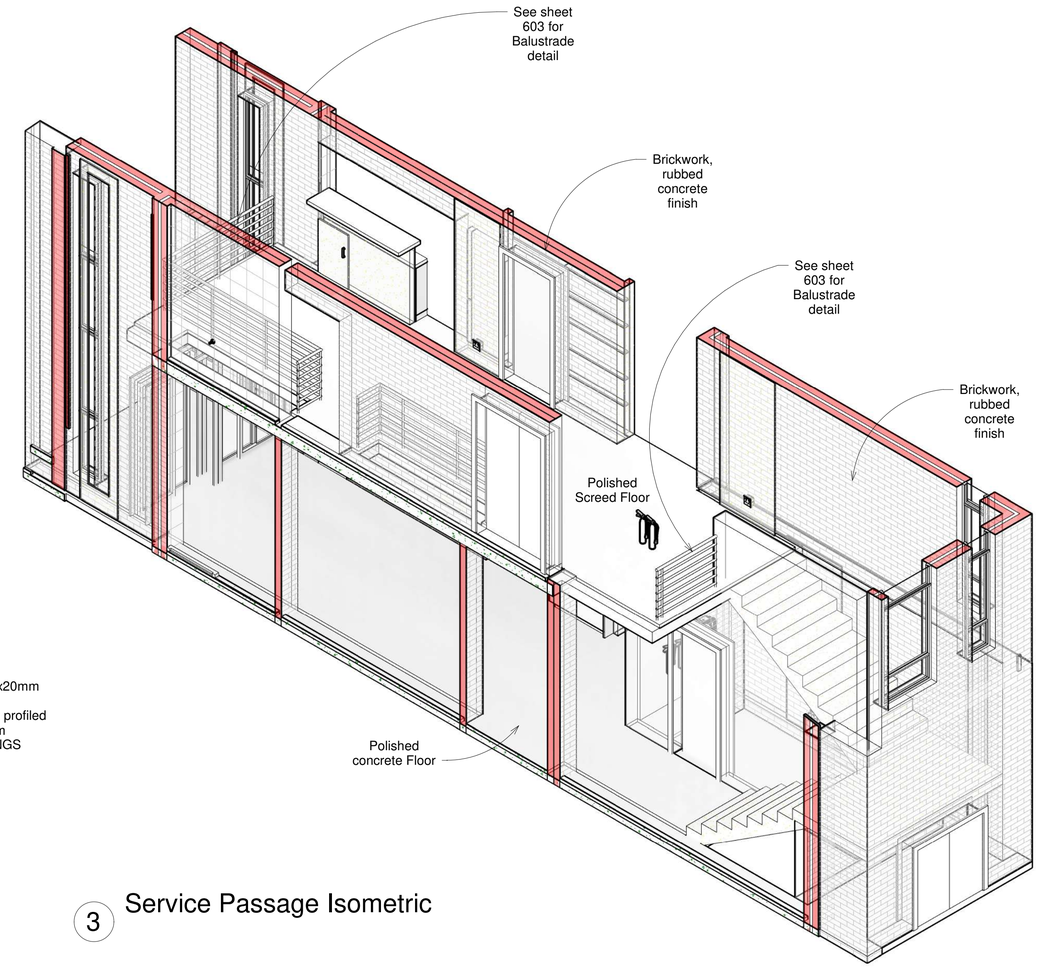
5 Service Passage Elevation A

1 : 50

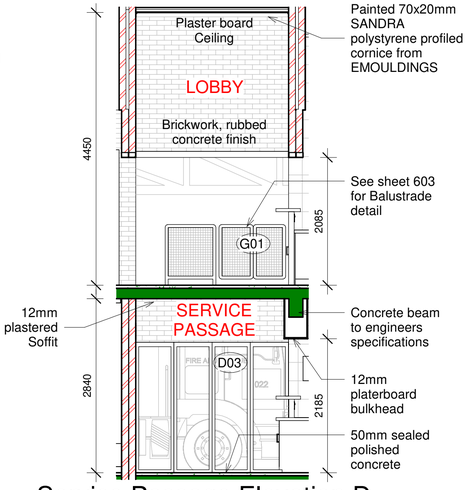


6 Service Passage Elevation C

1 : 50

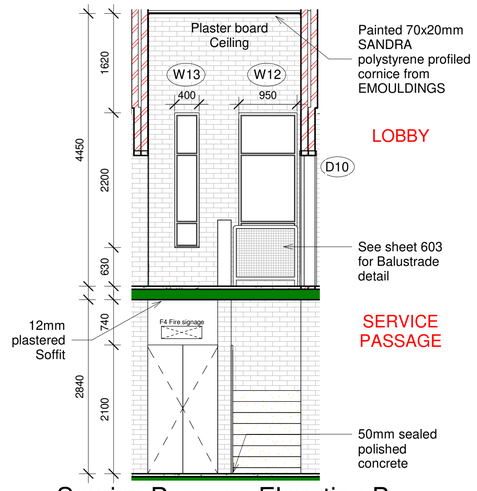


3 Service Passage Isometric



4 Service Passage Elevation D

1 : 50



7 Service Passage Elevation B

1 : 50



General Notes

A1

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project Notes:

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- Sanitary Schedule

RFS/21 603 - Balustrade Detail

Electrical Layouts:

RFS/21 700-701 - Lights and Switches

RFS/21 702-703 - Plugs and Points

PLUGS, POINTS & SWICHES	
SYMBOL	DESCRIPTION
	TV AERIAL CONNECTED TO SATELITE CABLE
	DOUBLE 15 AMP PLUG AT CEILING FOR GARAGE DOOR MOTOR
	DOUBLE 15 AMP PLUG AT 300 ABOVE FFL TO CENTRE OF PLUG
	DOUBLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL >= 1800mm AFFL / SLTV
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
HP	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	3 (as indicated) 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	LIGHT SWITCH colour: black
	2 WAY SWITCH colour: black
ISO	32A 30ma isolator

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

SUBMISSION

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

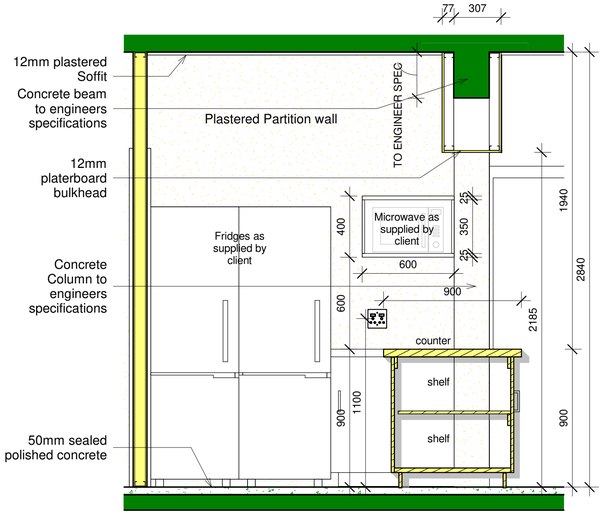
erf no:
ERF 8250 ROBERTSON

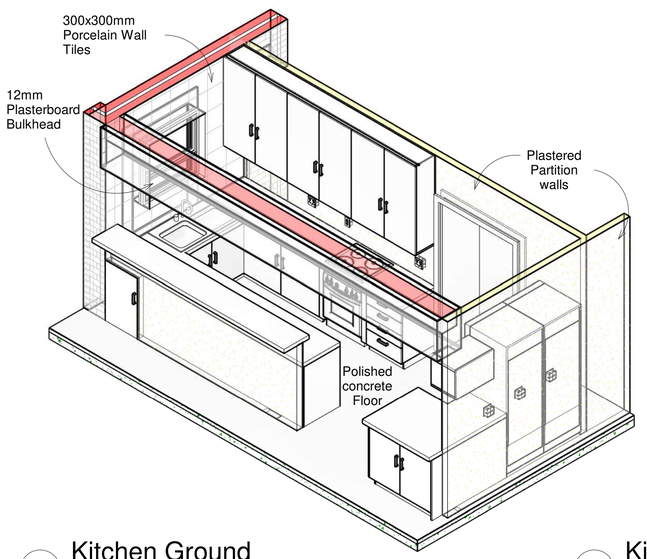
Tusk Construction Support Services
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Rosenpark
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Bellville
Cape Town
Tel: +27 (0) 21 424 4586/23
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TUSK ARCHITECTURE

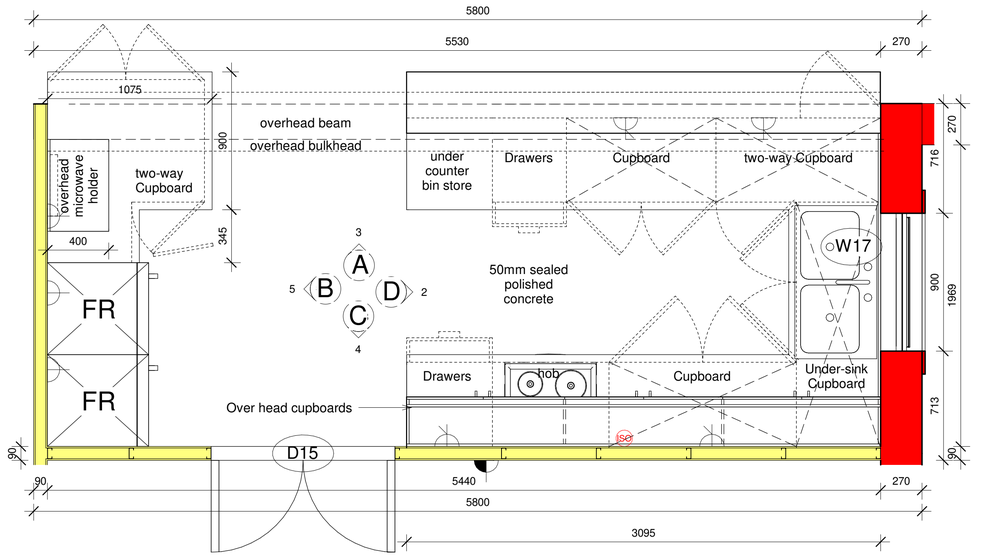
drawing title:
Room Detail Layout - Service Passage

discipline:	scale:	date:
Arch	As indicated	2022.06.27
design:	drawn:	checked:
AN	RN	TG

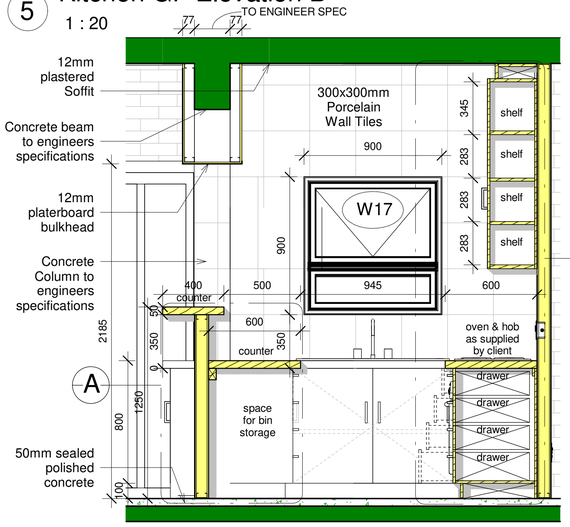
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RFS/21	517	TEN



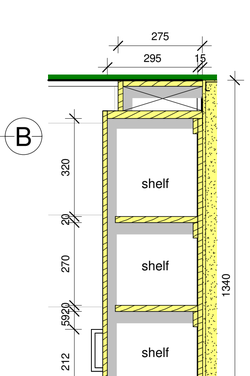




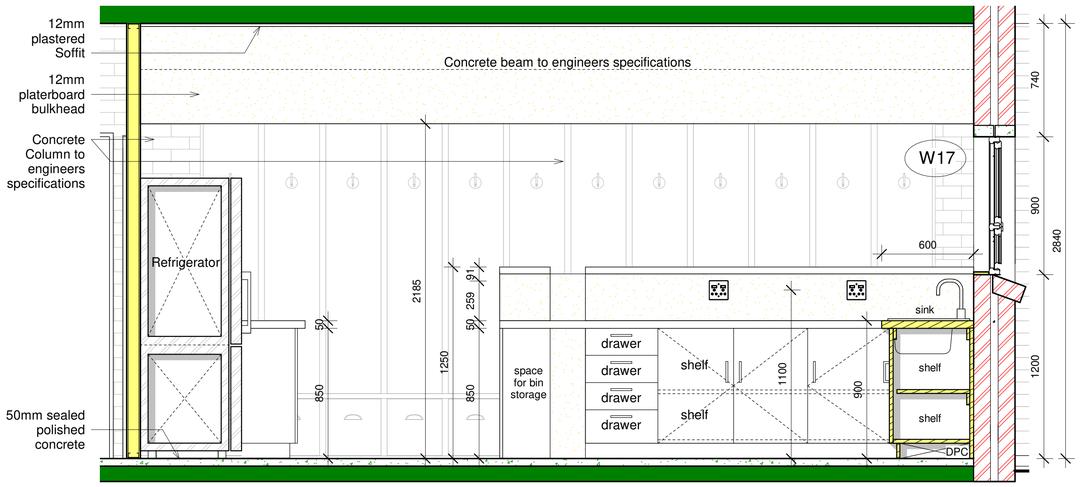
5 Kitchen GF Elevation B
1 : 20



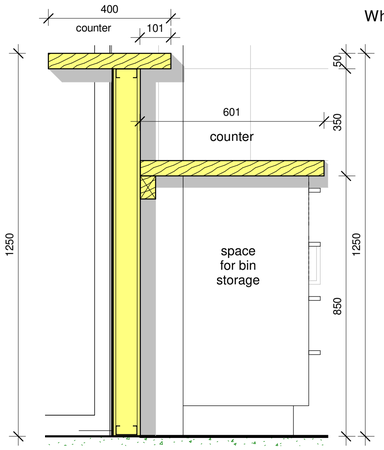
6 Kitchen Ground
1 : 20



1 Kitchen Ground Floor Plan
1 : 20



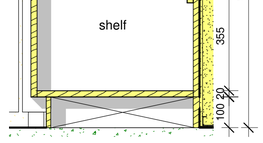
2 Kitchen GF Elevation D
1 : 20



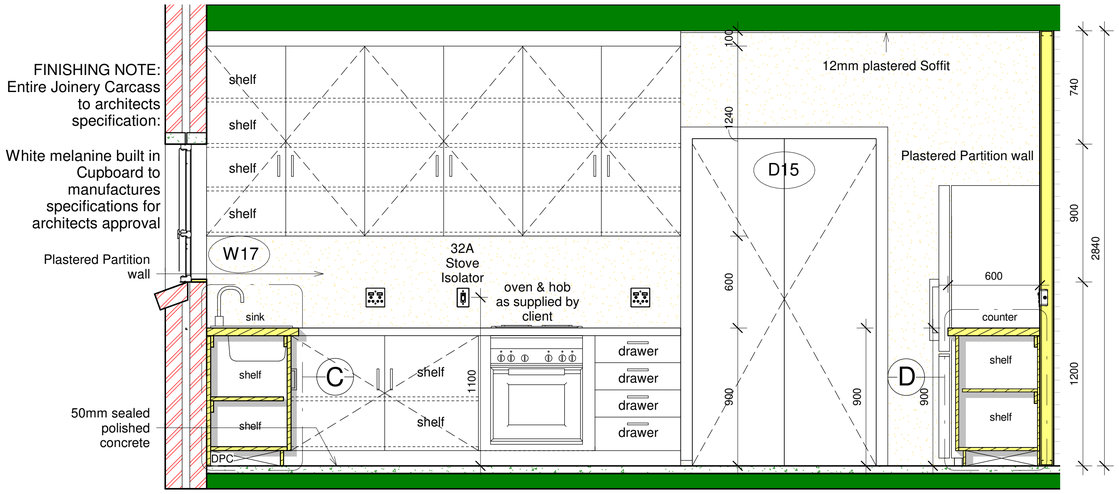
FINISHING NOTE:
Entire Joinery Carcass to architects specification:

White melanine built in Cupboard to manufactures specifications for architects approval

10 Detail D
1 : 10



3 Kitchen GF Elevation A
1 : 20



8 Detail A
1 : 10

7 Detail B
1 : 10

9 Detail C
1 : 10

4 Kitchen GF Elevation C
1 : 20

General Notes — A1

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RFS/21 700-701 - Lights and Switches

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	DOUBLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+/- 1500mm AFFL) - 3x TV
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
	1.75 litre INTEGRATED HEAT PUMP
	DOOR BELL
	1 ea individual 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	LIGHT SWITCH colour: black
2	2 WAY SWITCH colour: black
ISO	32A Stove isolator

sign off client:

sign off architect:

sign off engineer:

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no: **ERF 8250 ROBERTSON**

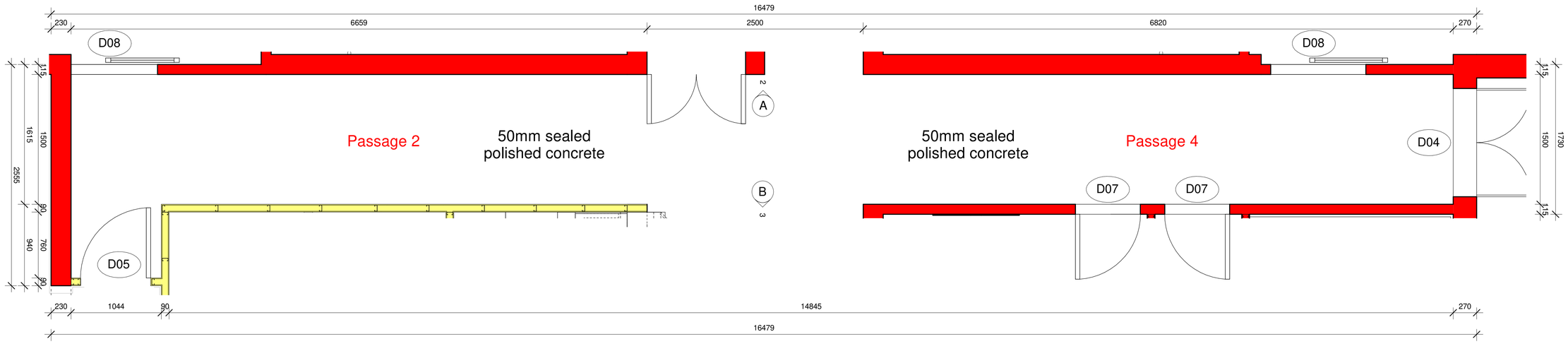
Tusk Construction Support Services
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Tygervalley
Bellville
Cape Town
Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za

TUSK ARCHITECTURE

drawing title: **Room Detail Layout - Kitchen Ground Floor**

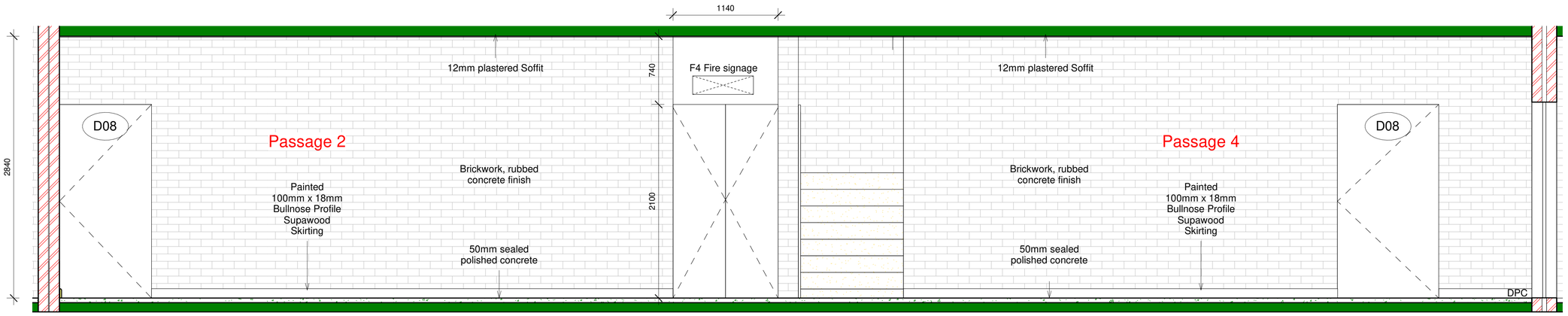
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Arch	As indicated	2022.06.27
design:	**drawn:**	**checked:**
AN	RN	TG

project:	dwg no:	rev:
RFS/21	518	TEN



1 Passage 2 & 4 Ground floor plan

1 : 25



2 Passage 2 & 4 Elevation A

1 : 25



3 Passage 2 & 4 Elevation B

1 : 25

General Notes

A1

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	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+/- 1500mm AFFL) - for TV
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
HP	115 litre INTEGRATED HEAT PUMP
	DOOR BELL
	5 cm indicated; 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	LIGHT SWITCH: colour: black
2	2 WAY SWITCH colour: black
SO	32A Stove isolator

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project:

PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no:

ERF 8250
ROBERTSON

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TUSK ARCHITECTURE

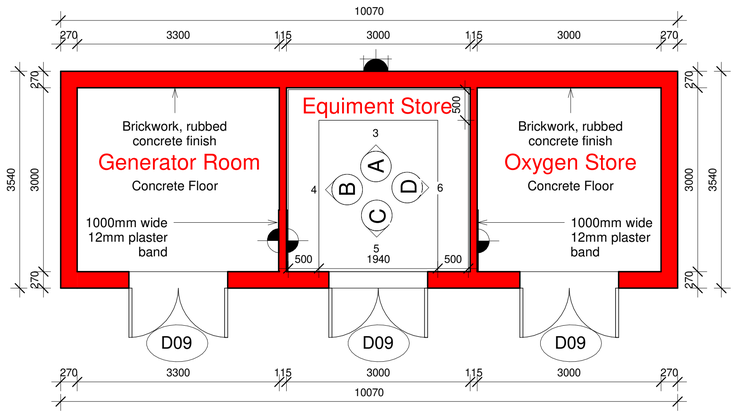
drawing title:

Room Detail Layout - Passage 2 & 4

discipline:	scale:	date:
Arch	As indicated	2022.06.27

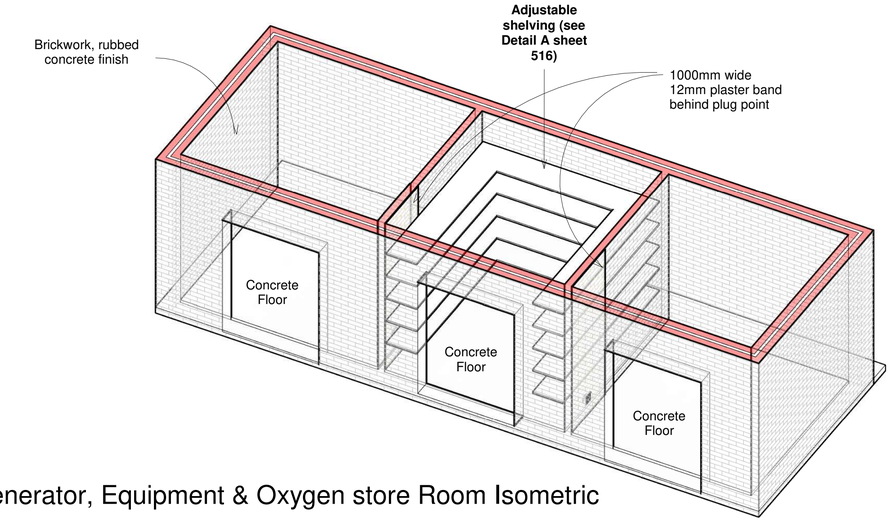
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AN	RN	TG

project:	dwg no:	rev:
RFS/21	519	TEN

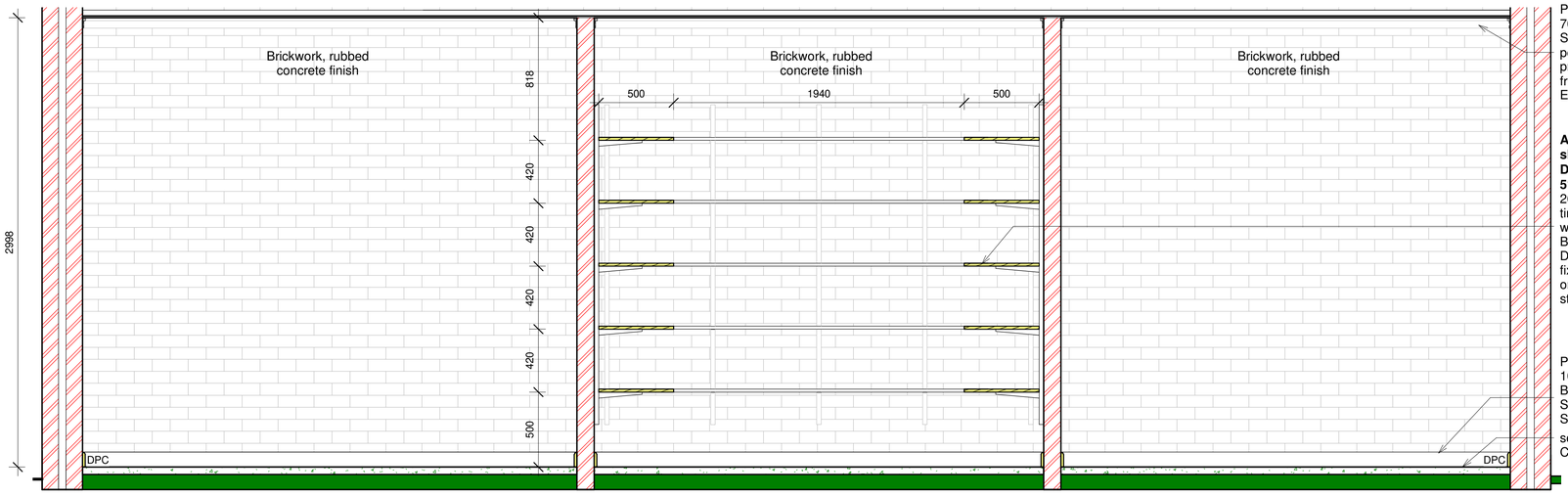


2 Generator, Equipment & Oxygen store Room Ground floor plan

1 : 50

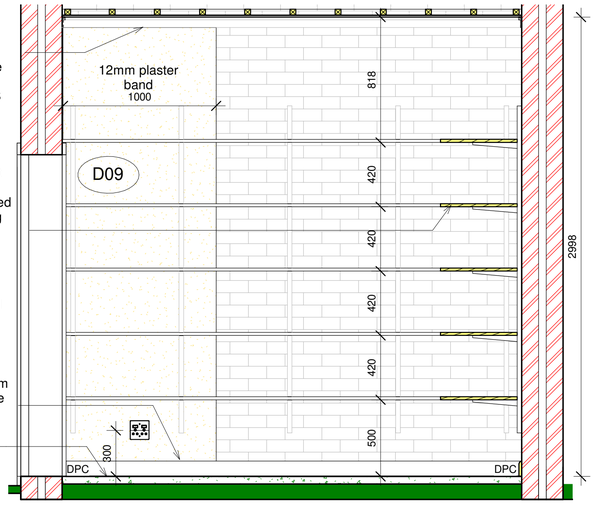


1 Generator, Equipment & Oxygen store Room Isometric



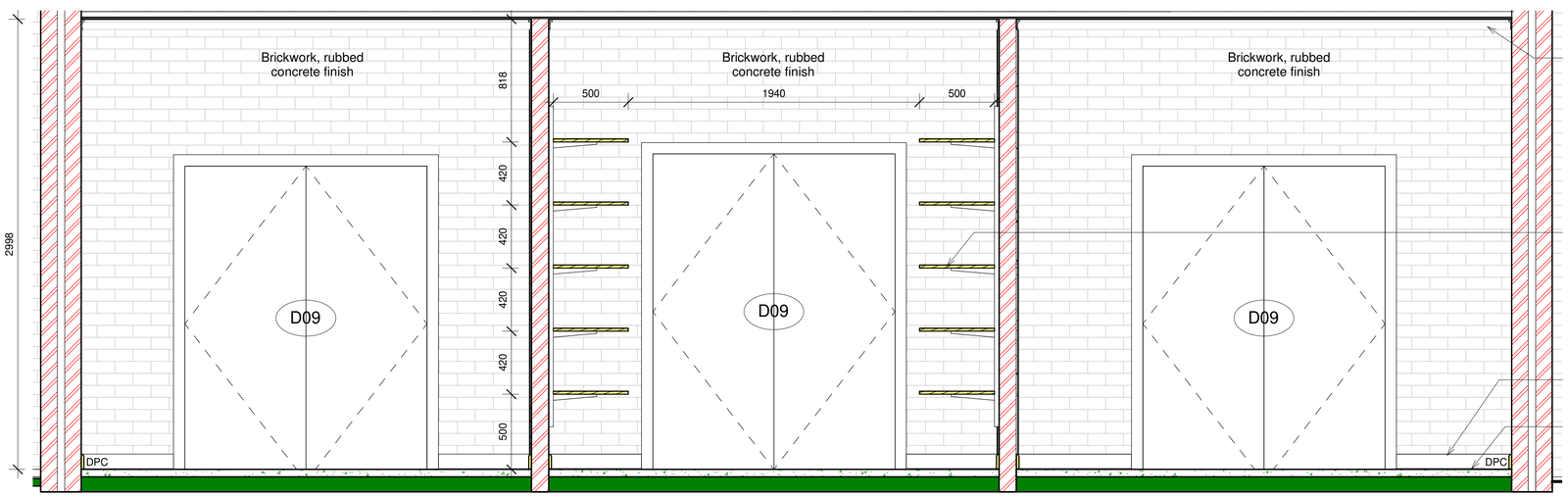
3 Generator, Equipment & Oxygen store Room Elevation A

1 : 20



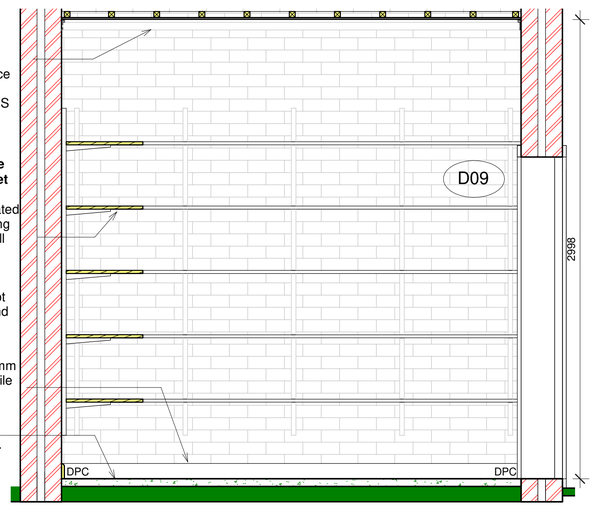
4 Equipment Store Elevation B

1 : 20



5 Generator, Equipment & Oxygen store Room Elevation C

1 : 20



6 Equipment Store Elevation D

1 : 20

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	DISTRIBUTION BOARD
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	DOOR BELL
	3 cat.indicated: 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	LIGHT SWITCH colour: black
	2 WAY SWITCH colour: black
ISO	32A Spna isolator

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

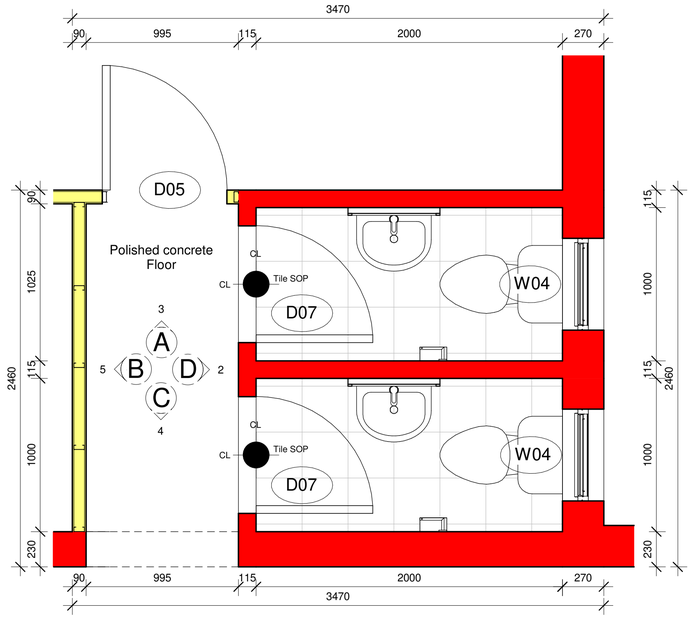
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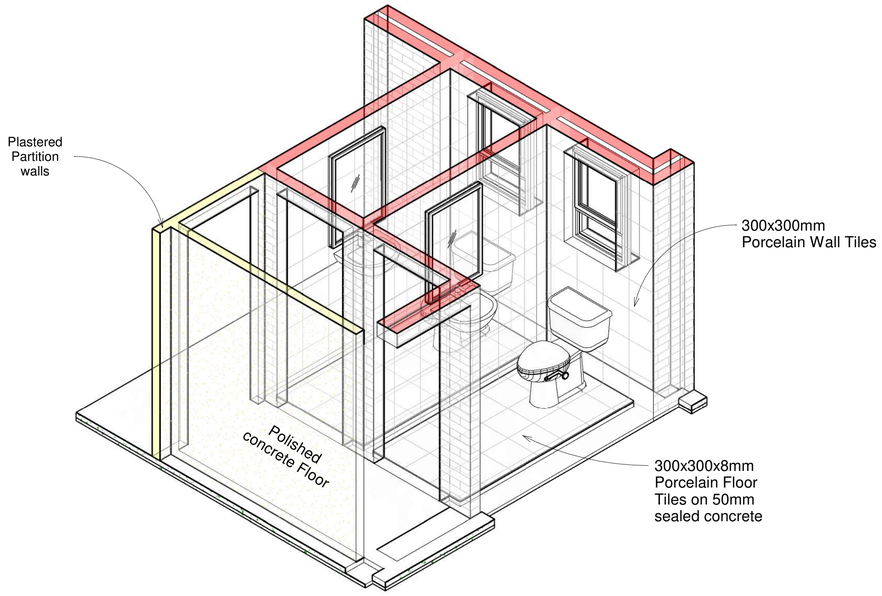
drawing title:
Room Detail Layout - Generator, Equipment & Oxygen store Room

discipline:	scale:	date:
Arch	As indicated	2022.06.27
design:	drawn:	checked:
AN	RN	TG

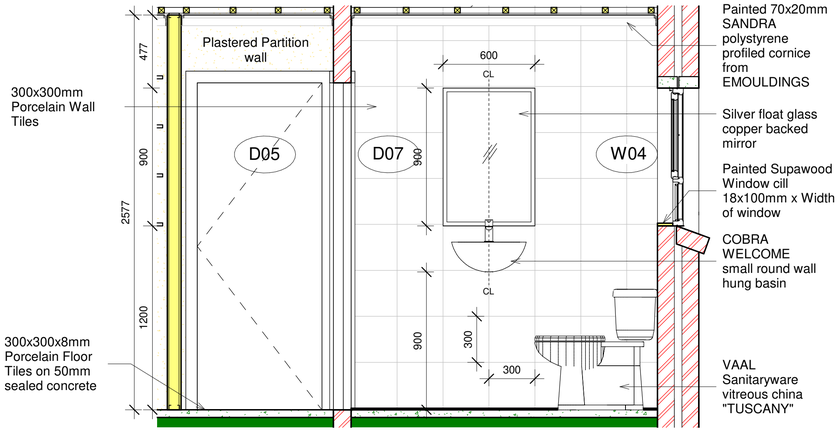
project:	dwg no:	rev:
RFS/21	520	TEN



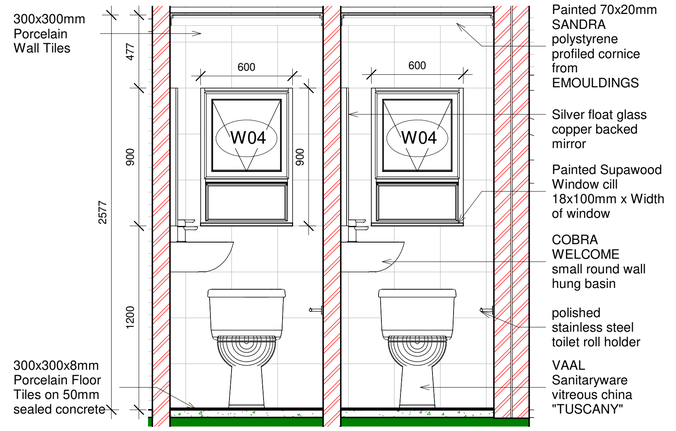
1 Toilet First floor plan
1 : 20



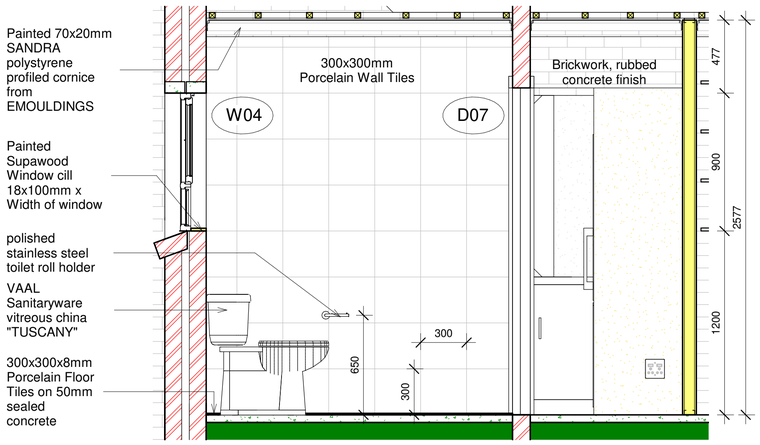
6 Toilet First floor Isometric



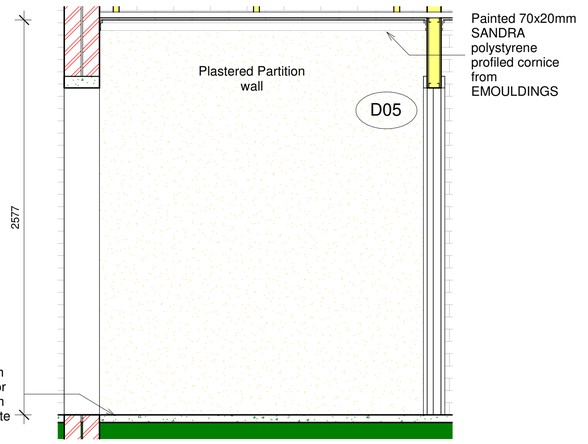
3 Toilet First floor Elevation A
1 : 20



2 Toilet First floor Elevation D
1 : 20



4 Toilet First floor Elevation C
1 : 20



5 Toilet First floor Elevation B
1 : 20

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project Notes:

Refer to below sheets for extended details and specifications

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RFS/21 600 - Window Schedule

RFS/21 601 - Door Schedule

RFS/21 602 - Window Schedule
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- Sanitary Schedule

RFS/21 603 - Balustrade Detail

Electrical Layouts:

RFS/21 700-701 - Lights and Switches

RFS/21 702-703 - Plugs and Points

PLUGS, POINTS & SWICHES	
SYMBOL	DESCRIPTION
	TV AERIAL CONNECTED TO SATELITE CABLE
	DOUBLE 15 AMP PLUG AT CEILING FOR GARAGE DOOR MOTOR
	DOUBLE 15 AMP PLUG AT 300 ABOVE FFL TO CENTRE OF PLUG
	DOUBLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+- 1800mm AFFL) - 9x7 D
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	1 cas indicated) 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	LIGHT SWITCH 1xWall Mark
2	2 WAY SWITCH 1xWall Mark
ISO	32A Stove Isolator

sign off client:

sign off architect:

sign off engineer:

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no:
ERF 8250
ROBERTSON

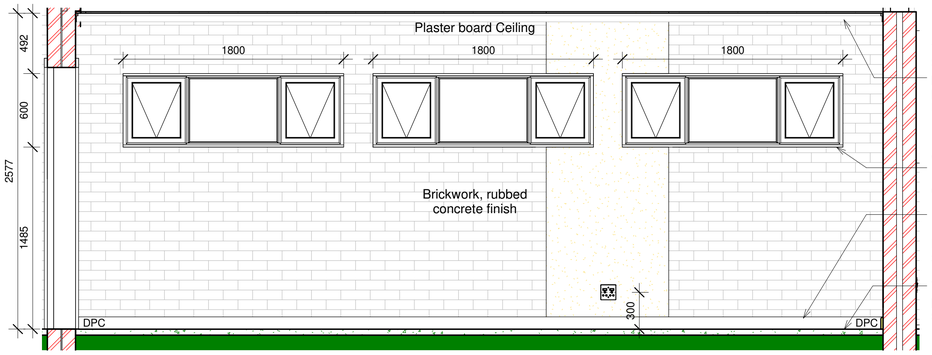
Tusk Construction Support Services
3 High Street
1st Floor
Rosenpark
Tygervalley
Bellville
Cape Town
Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za
TUSK ARCHITECTURE

drawing title:
Room Detail Layout - Toilet First floor

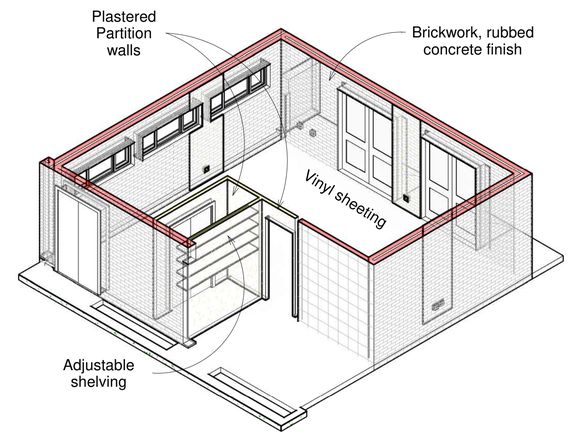
discipline:	scale:	date:
Arch	As indicated	2022.06.27

design:	drawn:	checked:
AN	RN	TG

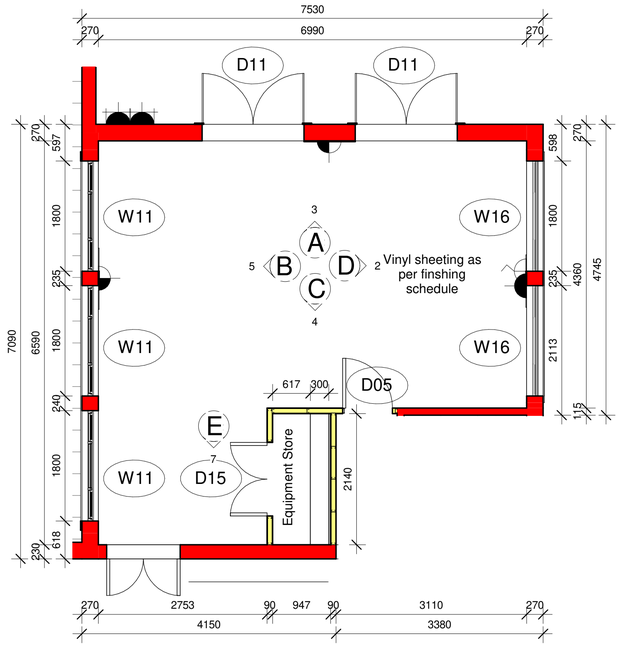
project:	dwg no:	rev:
RFS/21	521	TEN



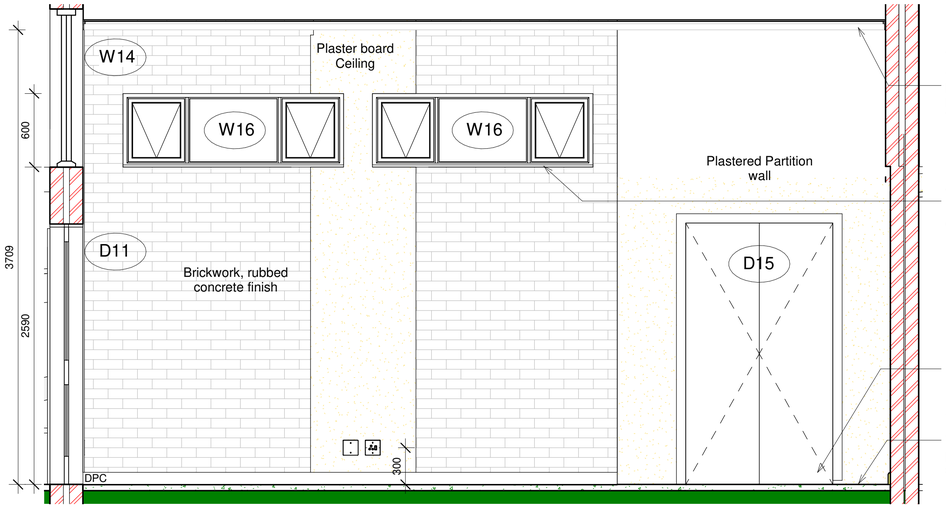
5 Gymnasium Elevation B
1 : 25



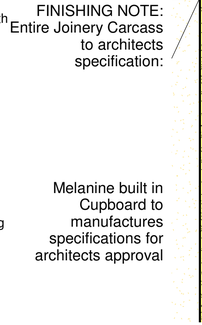
6 Gymnasium Lounge



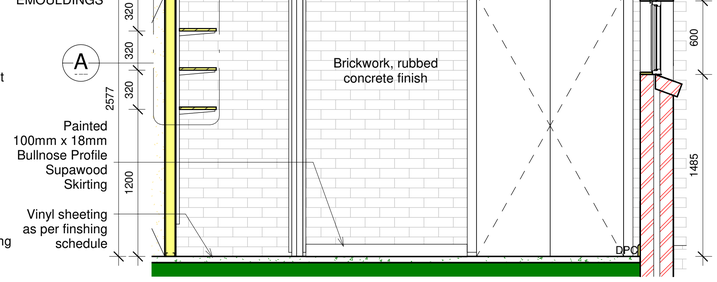
1 Gymnasium Lounge Floor plan
1 : 50



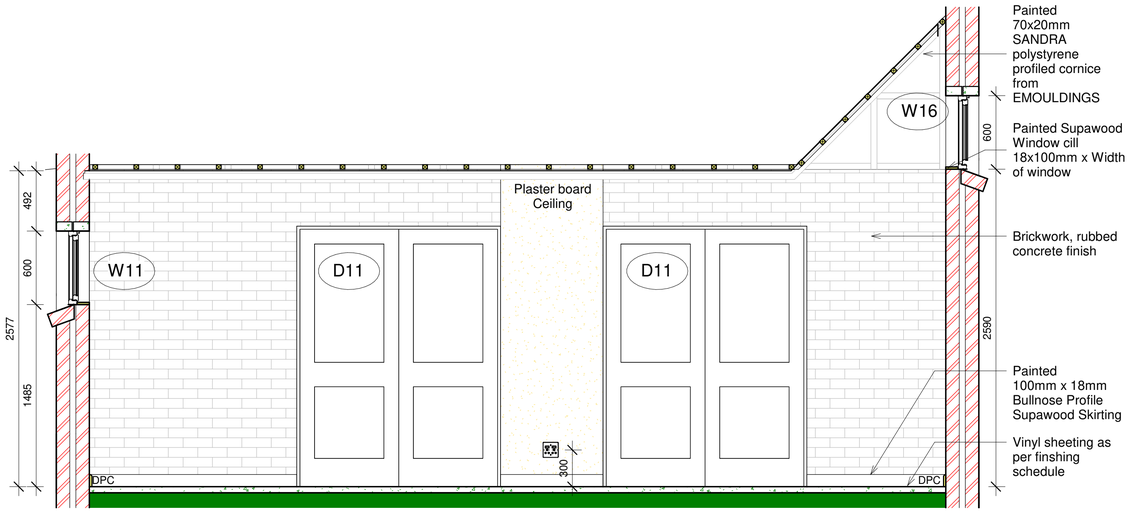
2 Gymnasium Elevation D
1 : 25



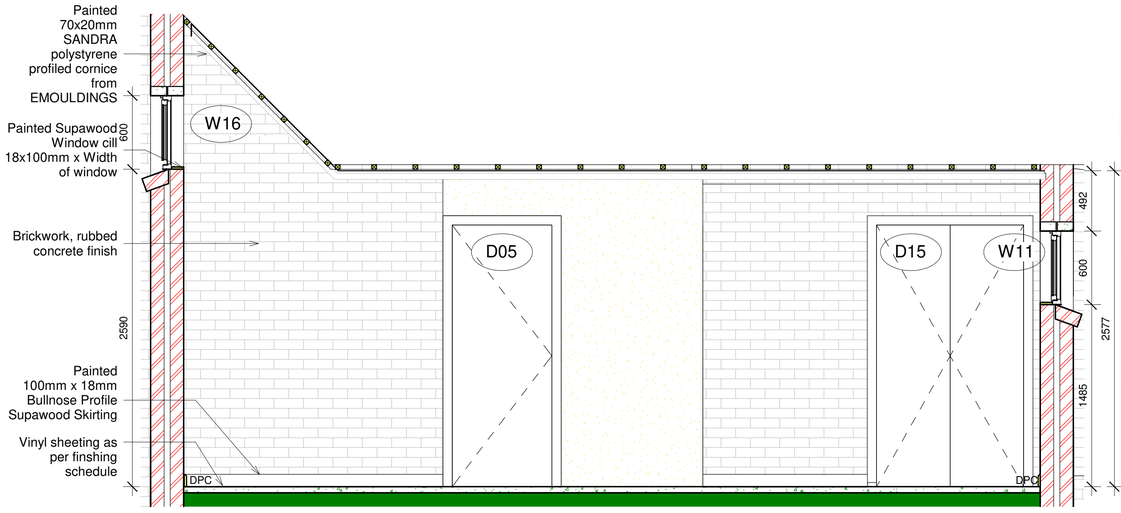
8 Gymnasium Detail A
1 : 10



7 Gymnasium Elevation E
1 : 25



3 Gymnasium Elevation A
1 : 25



4 Gymnasium Elevation C
1 : 25

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PLUGS, POINTS & SWICHES

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	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+- 1800m AFFL) for TV
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	1 cas reticulated 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	LIGHT SWITCH colour: black
2	2 WAY SWITCH colour: black
	32A Stove Isolator

sign off client:

sign off architect:

sign off engineer:

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no: **ERF 8250 ROBERTSON**

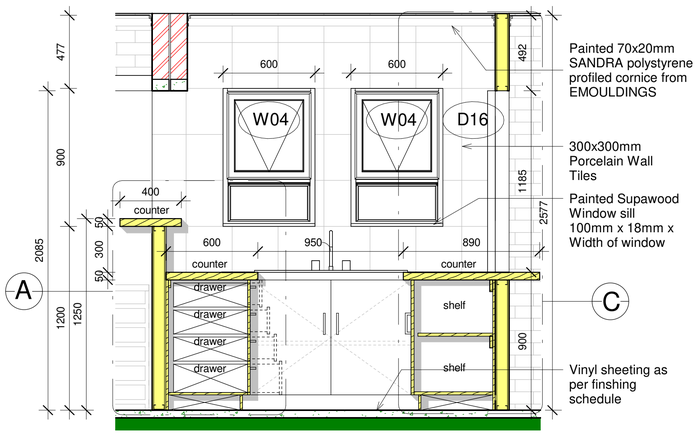
Tusk Construction Support Services
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www.tuskcss.co.za
TUSK ARCHITECTURE

drawing title: **Room Detail Layout - Gymnasium lounge**

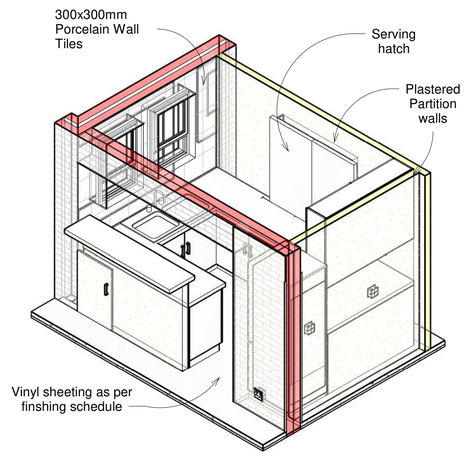
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Arch	As indicated	2022.06.27

design:	drawn:	checked:
AN	RN	TG

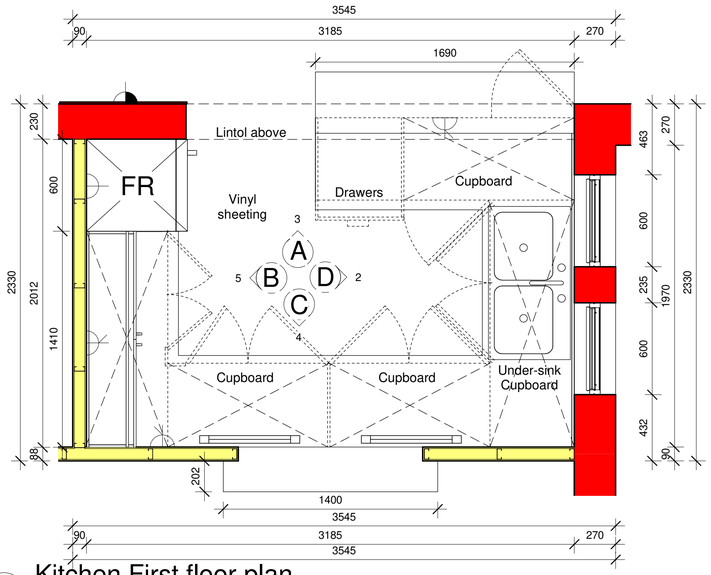
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RFS/21	522	TEN



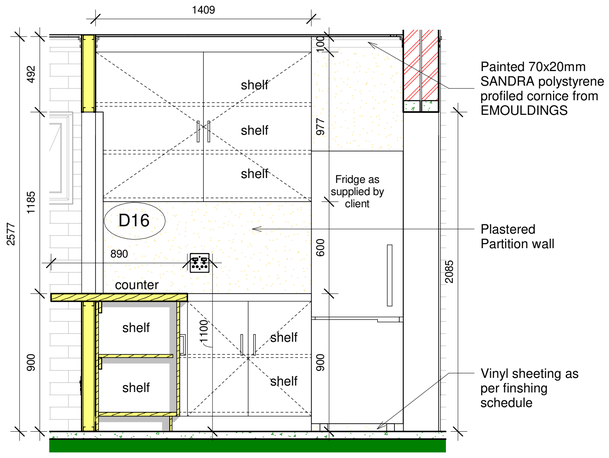
2 Kitchen First Floor Elevation D
1 : 20



6 Kitchen First floor Isometric



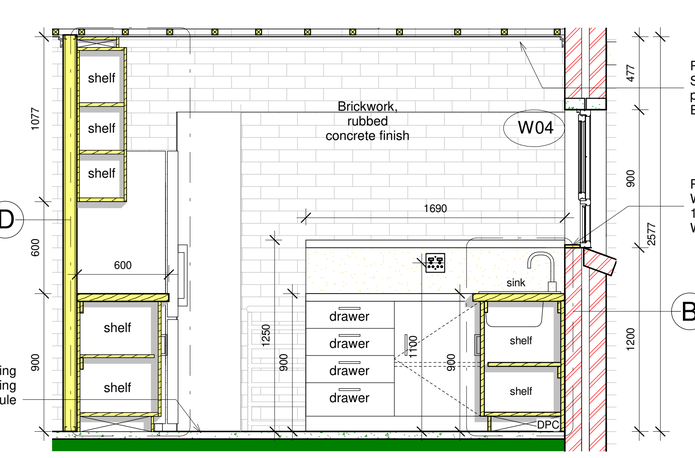
1 Kitchen First floor plan
1 : 20



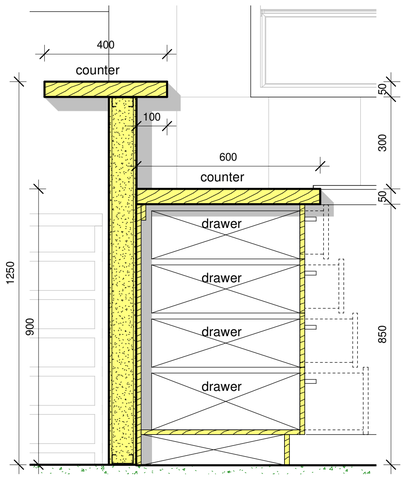
5 Kitchen First Floor Elevation B
1 : 20

FINISHING NOTE:
Entire Joinery Carcass to architects specification:

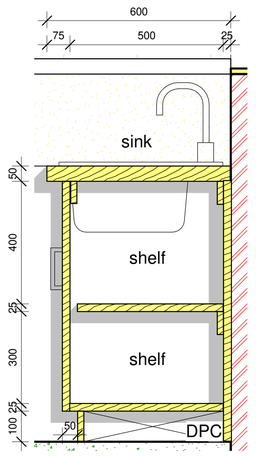
Melanine built in Cupboard to manufactures specifications for architects approval



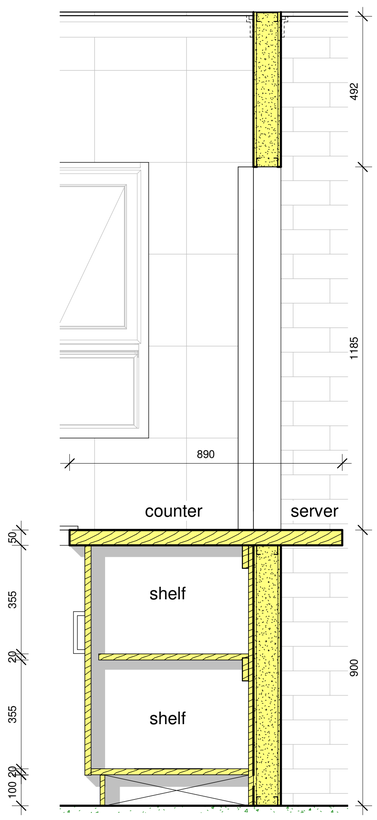
3 Kitchen First Floor Elevation A
1 : 20



9 Kitchen FF Detail A
1 : 10



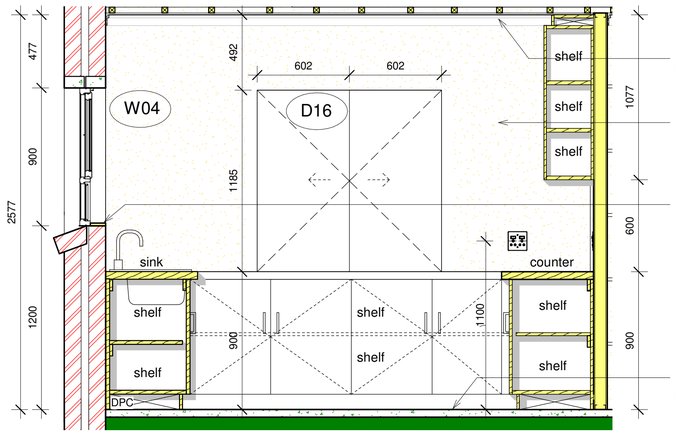
7 Kitchen FF Detail B
1 : 10



10 Kitchen FF Detail C
1 : 10



8 Kitchen FF Detail D
1 : 10



4 Kitchen First Floor Elevation C
1 : 20

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	DISTRIBUTION BOARD
	175 litre INTEGRATED HEAT PUMP
B	DOOR BELL
	5 cm reticulated 32mm dia CONDUIT IN BROADCORK TO TOP OF CEILING
	LIGHT SWITCH: without black
2	2 WAY SWITCH: without black
ISO	32A Stove Isolator

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no: **ERF 8250 ROBERTSON**

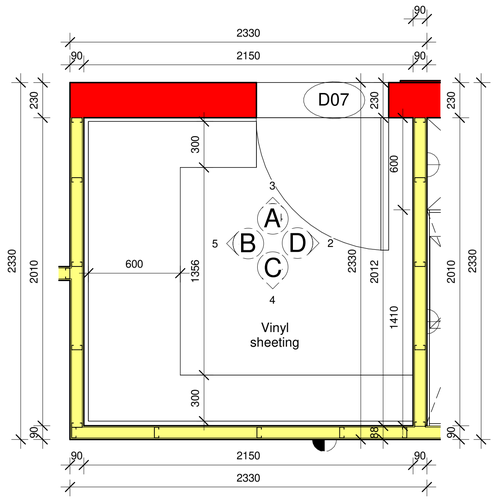
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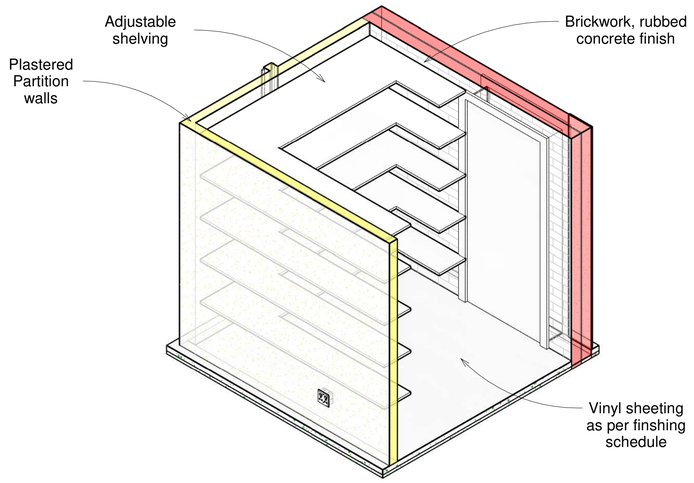
TUSK ARCHITECTURE

drawing title: **Room Detail Layout - Kitchen First Floor**

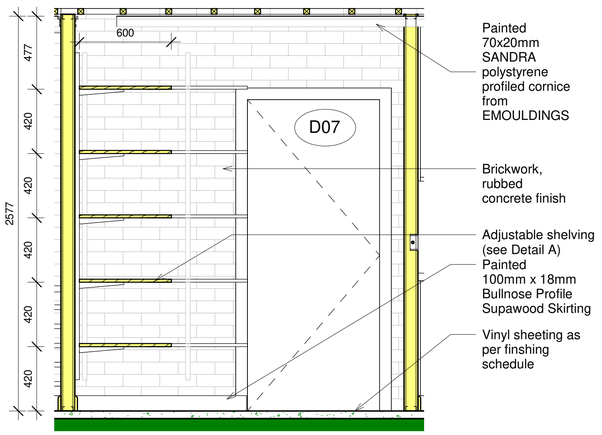
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design:	drawn:	checked:
AN	RN	TG

project:	dwg no:	rev:
RFS/21	523	TEN

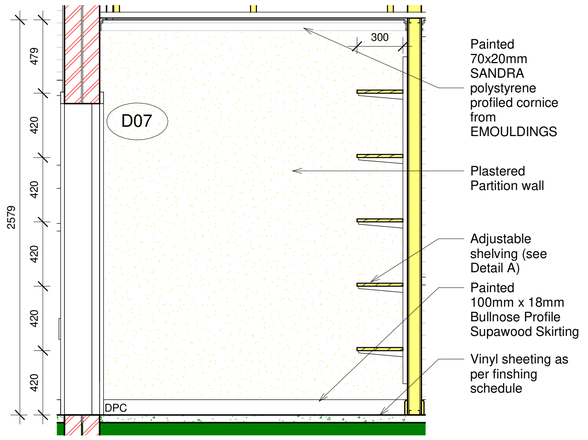




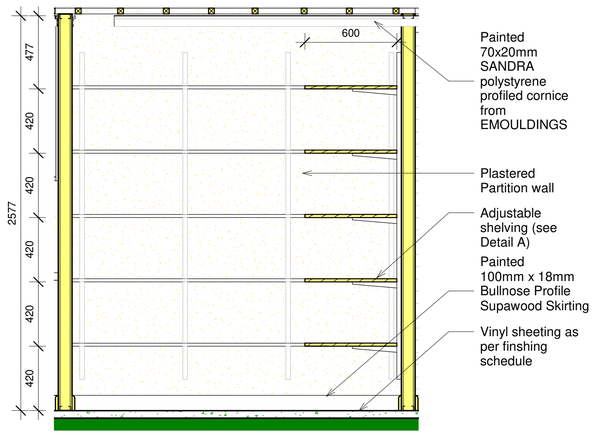
1 Store First floor plan
1 : 20



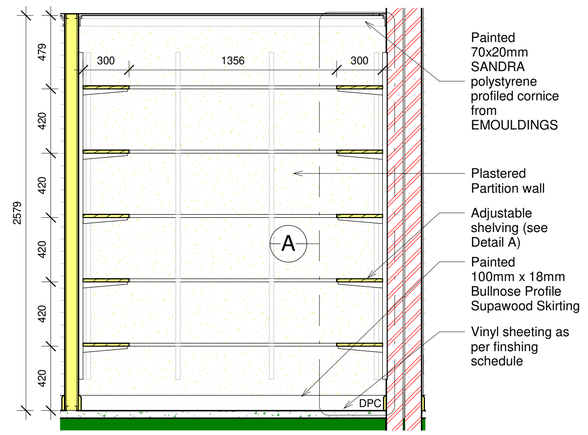
3 Store First Elevation A
1 : 20



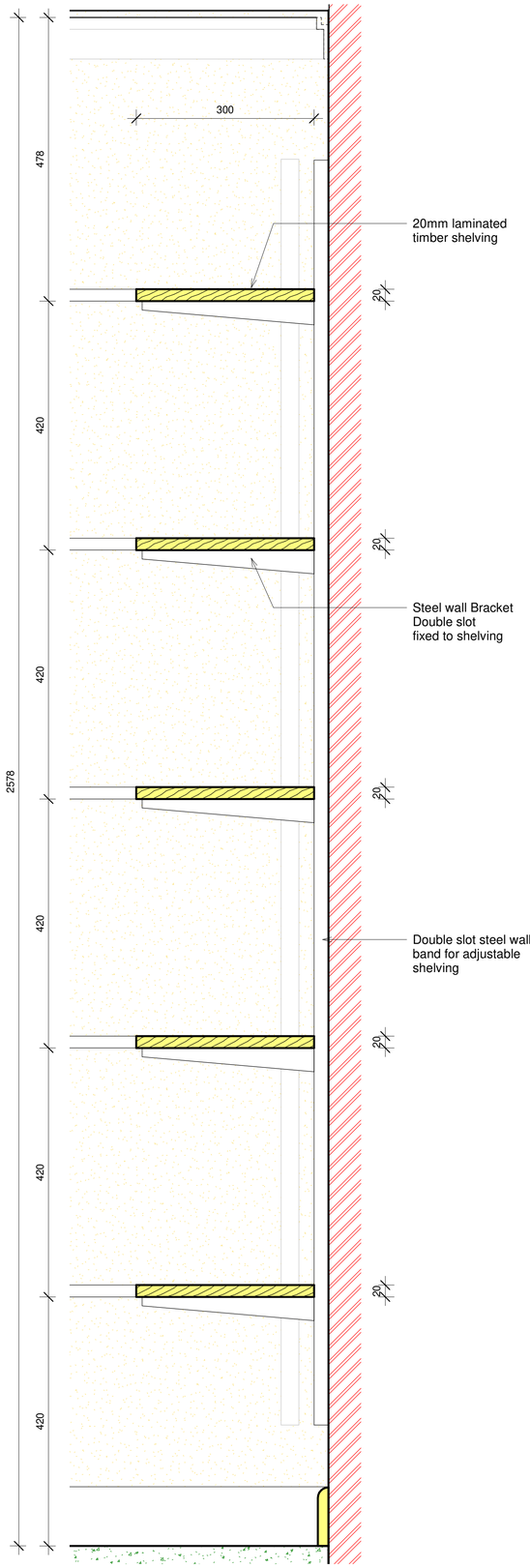
2 Store First Elevation D
1 : 20



4 Store First Elevation C
1 : 20



5 Store First Elevation B
1 : 20



7 Store First floor Detail A
1 : 5

General Notes

A1

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	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+/- 1800mm AFFL) - for TV
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
HP	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	6 tab indicated; 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	LIGHT SWITCH: indoor black
2	2 WAY SWITCH: indoor black
ISO	32A Stove isolator

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project:

PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no:

ERF 8250
ROBERTSON

Tusk Construction Support Services
3 High Street
1st Floor
Rosenpark
Tygervalley
Bellville
Cape Town
Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za

TUSK ARCHITECTURE

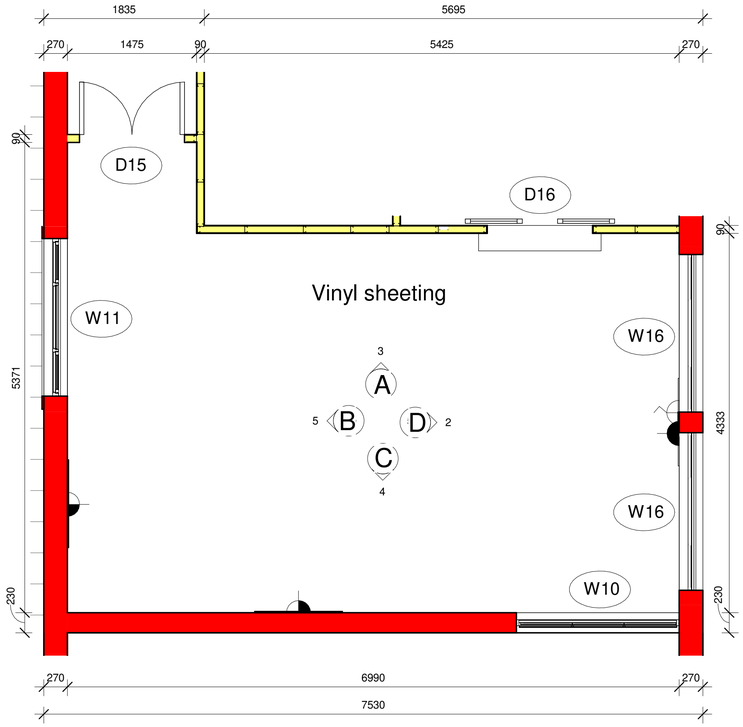
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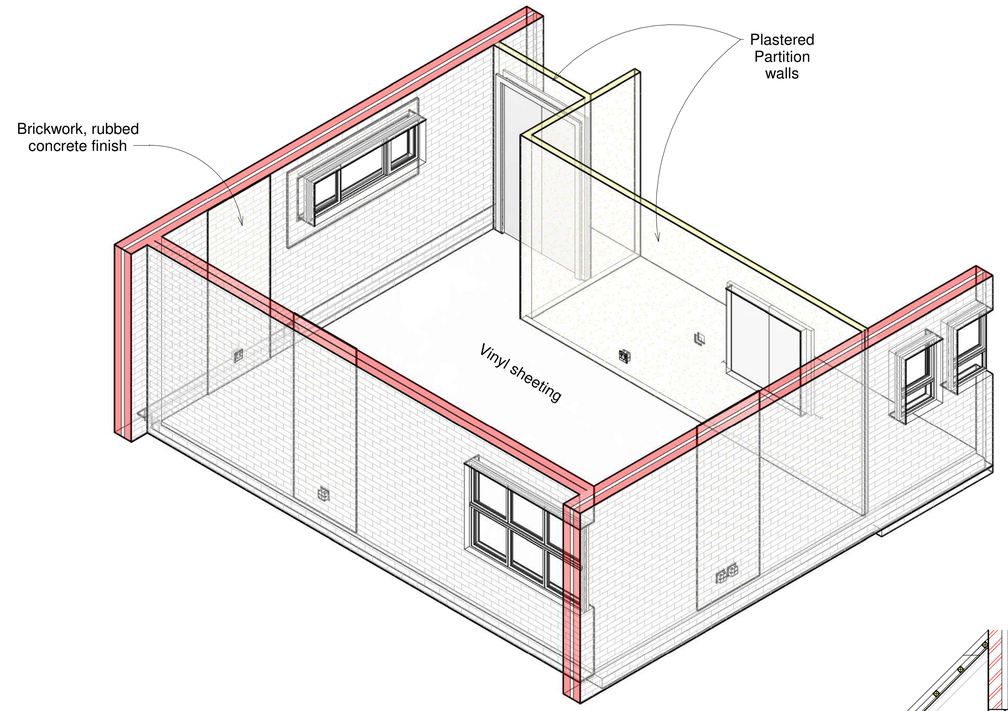
Room Detail Layout - Store First Floor

discipline:	scale:	date:
Arch	As indicated	2022.06.27

design:	drawn:	checked:
AN	RN	TG

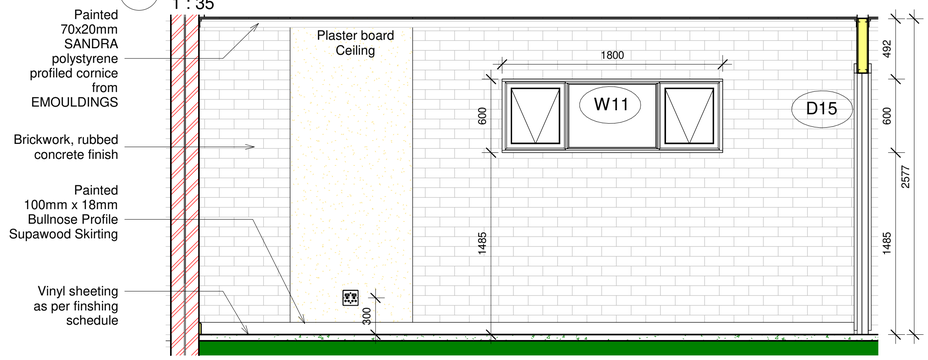
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RFS/21	524	TEN



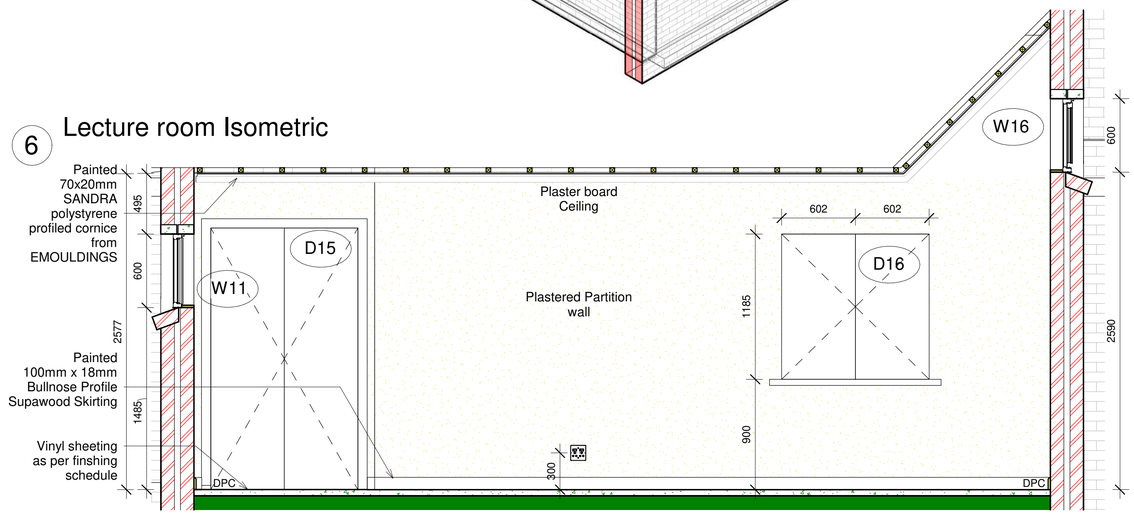


1 Lecture room floor plan

1 : 35

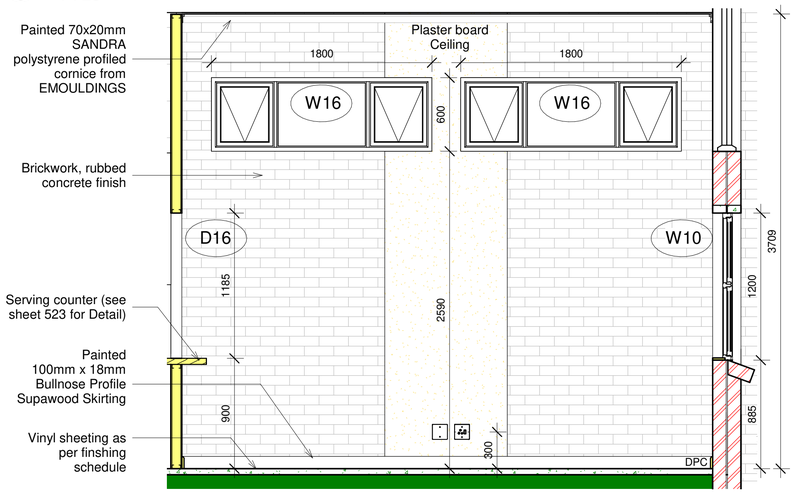


6 Lecture room Isometric



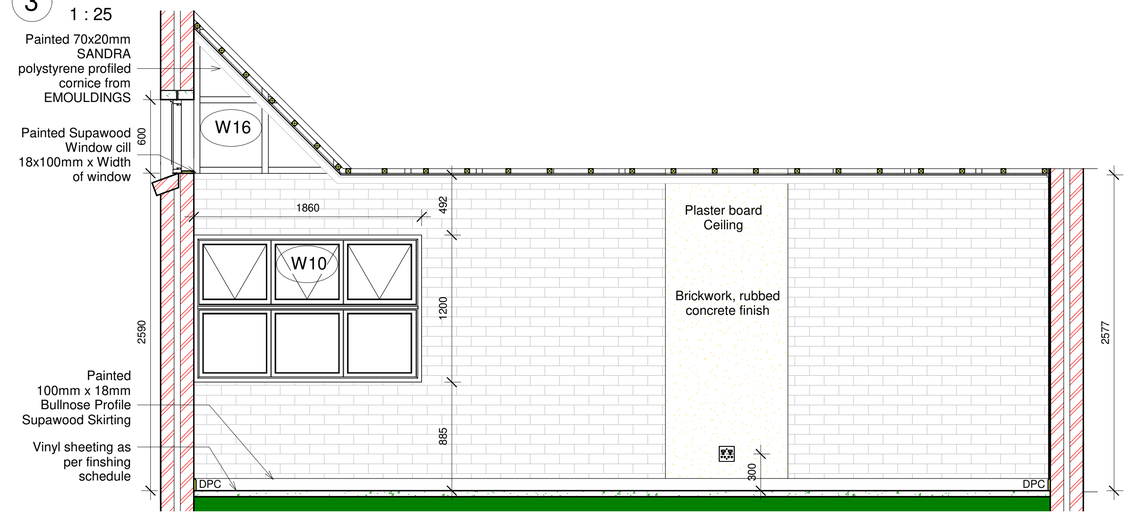
5 Lecture room Elevation B

1 : 25



3 Lecture room Elevation A

1 : 25



2 Lecture room Elevation D

1 : 25

4 Lecture room Elevation C

1 : 25

General Notes

A1

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SPECIALIST CONSULTANTS (Where applicable) All materials and workmanship to be as specified on the Consultants drawing.

project Notes:

Refer to below sheets for extended details and specifications

Finishing Schedules:

RFS/21 600 - Window Schedule

RFS/21 601 - Door Schedule

RFS/21 602 - Window Schedule
- Construction Notes
- Sanitary Schedule

RFS/21 603 - Balustrade Detail

Electrical Layouts:

RFS/21 700-701 - Lights and Switches

RFS/21 702-703 - Plugs and Points

PLUGS, POINTS & SWICHES

SYMBOL	DESCRIPTION
	TV AERIAL CONNECTED TO SATELITE CABLE
	DOUBLE 15 AMP PLUG AT CEILING FOR GARAGE DOOR MOTOR
	DOUBLE 15 AMP PLUG AT 300 ABOVE FFL TO CENTRE OF PLUG
	DOUBLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+- 1800mm AFFL) - for TV
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
	175 litre INTEGRATED HEAT PUMP
	DOOR BELL
	5 cas reticulated 32mm dia CONDUIT IN BROKKORN TO TOP OF CEILING
2	LIGHT SWITCH 1000cd Black
2	2 WAY SWITCH 1000cd Black
ISO	32A Stove Isolator

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	RN	2022.05.31

TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no: **ERF 8250 ROBERTSON**

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TUSK ARCHITECTURE

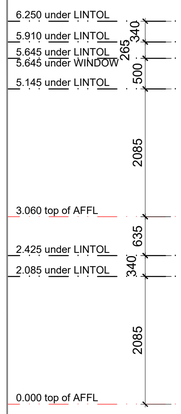
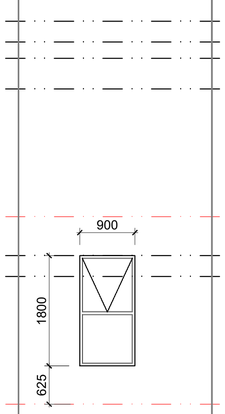
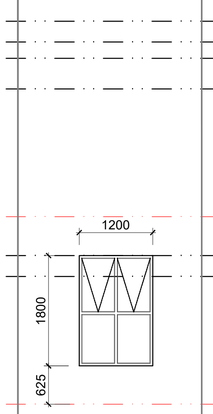
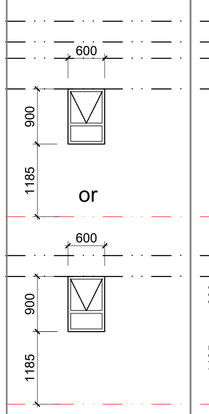
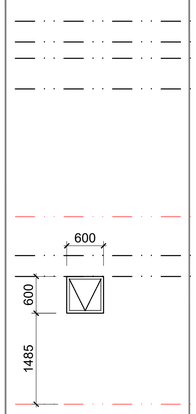
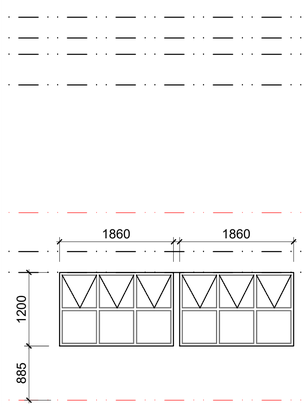
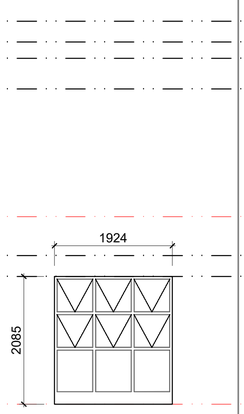
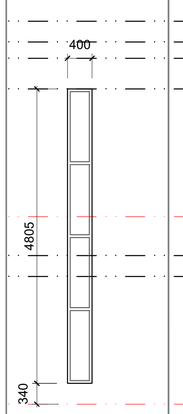
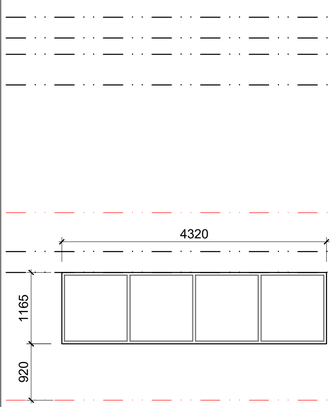
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discipline:	scale:	date:
Arch	As indicated	2022.06.27

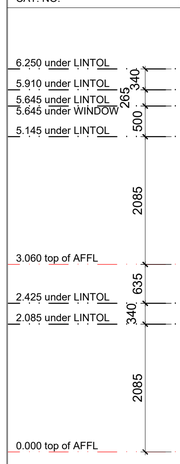
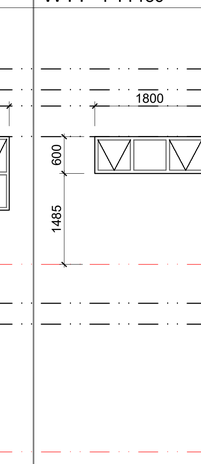
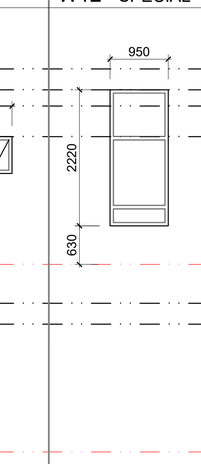
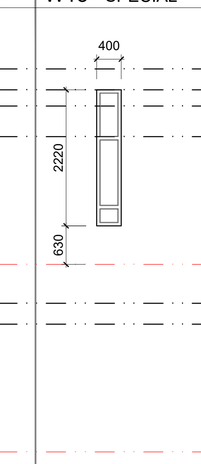
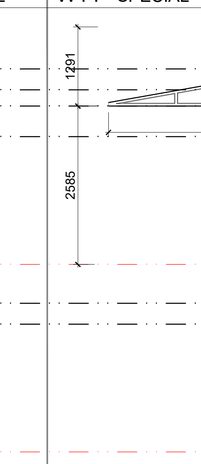
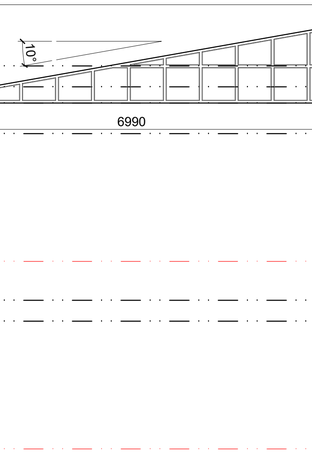
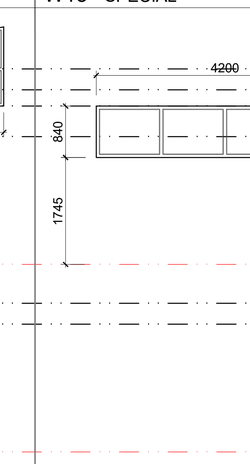
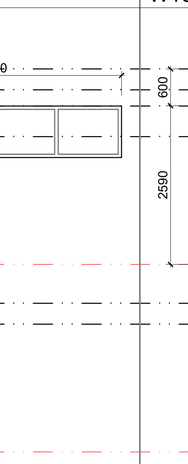
design:	drawn:	checked:
AN	RN	TG

project:	dwg no:	rev:
RFS/21	525	TEN

WINDOWS

CAT. NO.	W01 SPECIAL	W02 PT918	W03 PTTH1218	W04 PT69	W05 PT66	W06 SPECIAL	W07 SPECIAL	W08 SPECIAL	W09 SPECIAL
									
FRAME	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"
GLAZING	1x single clear - Low E 0x single obscure - Low E	2x single clear - Low E 0x single obscure - Low E	4x single clear - Low E 0x single obscure - Low E	13x single clear - Low E 1x single obscure - Low E	2x single clear - Low E 0x single obscure - Low E	1x single clear - Low E 0x single obscure - Low E	1x single clear - Low E 0x single obscure - Low E	2x single clear - Low E 0x single obscure - Low E	2x single clear - Low E 0x single obscure - Low E
QUANTITY	1x off	2x off	4x off	14x off	2x off	1x set off	1x off	2x off	2x off

WINDOWS

CAT. NO.	W10 SPECIAL	W11 PTT186	W12 SPECIAL	W13 SPECIAL	W14 SPECIAL	W15 SPECIAL	W16 PTT186	W17 PT912
								
FRAME	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame to SANS 10400 requirements - colour to be CHARCOAL from "SWARTLAND KENZO"
GLAZING	1x single clear - Low E 0x single obscure - Low E	4x single clear - Low E 0x single obscure - Low E	2x single clear - Low E 0x single obscure - Low E	2x single clear - Low E 0x single obscure - Low E	2x single clear - Low E 0x single obscure - Low E	3x single clear - Low E 0x single obscure - Low E	4x single clear - Low E 0x single obscure - Low E	7x single clear - Low E 0x single obscure - Low E
QUANTITY	1x off	4x off	2x off	2x off	2x off	3x off	4x off	7x off

- ALL OPENINGS TO BE MEASURED ON SITE PRIOR TO INSTALLATION
- ALL WINDOWS AND DOORS TO BE VIEWED FROM OUTSIDE
- ALL WINDOWS TO BE MANUFACTURED AND INSTALLED ACCORDING TO SANS 204:2011 & 10400:2011
- ALL LINTOL HEIGHT TO BE VERIFIED ON SITE.

General Notes A1

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sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	TG	2022.05.31
B	Issued for SUBMISSION	TG	2021.11.02
A	Issued for INFORMATION	TG	2021.09.23

TENDER

project:

PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no:

ERF 8250 ROBERTSON

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TUSK ARCHITECTURE

drawing title:

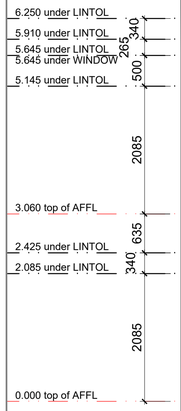
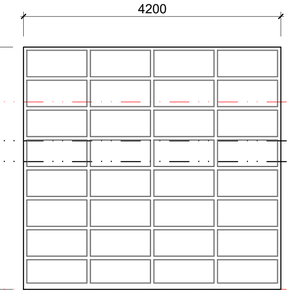
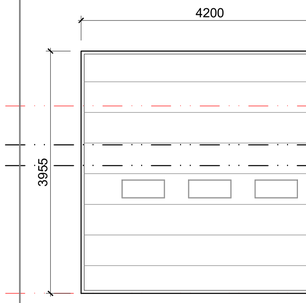
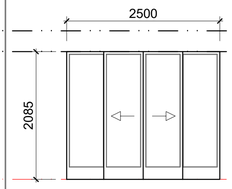
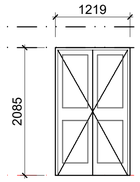
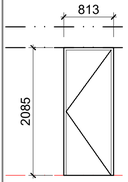
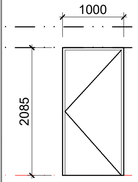
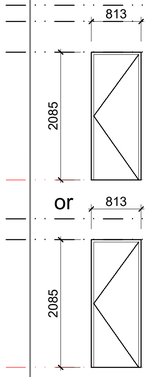
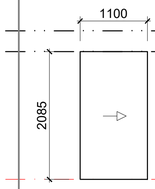
WINDOW SCHEDULE

discipline:	scale:	date:
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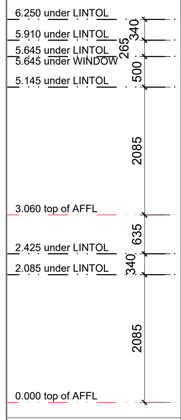
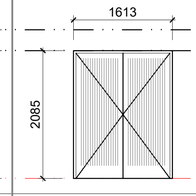
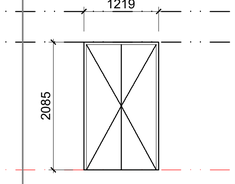
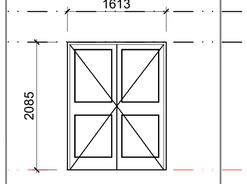
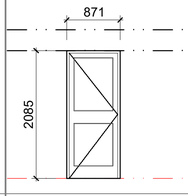
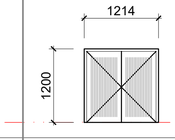
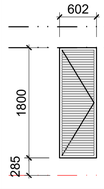
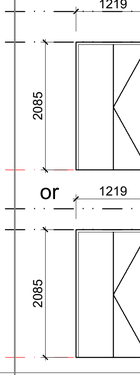
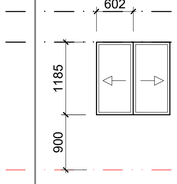
design:	drawn:	checked:
AN	TG	AN

project:	dwg no:	rev:
RFS/21	600	TEN

DOORS

DOOR NO.	D01	D02	D03	D04	D05	D06	D07	D08
									
DESCRIPTION	Powder coated aluminum frame sectional overhead automated roller shutter door with panoramic glass panels.	Powder coated aluminum frame sectional overhead automated roller shutter door with vision glass panels.	Powder coated aluminum frame double sliding automated, with opening censors.	Powder coated aluminum frame double door.	Single semi solid door for drywall installation	Single semi solid door for drywall installation	Single framed and cross braced batten door from SWARTLAND or similar approved	Single semi solid sliding door with top sliding gear
FRAME/GLAZING	Powder coated aluminum frame with panoramic glass panels, to SANS 10400 requirements - colour to match CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame with vision glass panels, to SANS 10400 requirements - colour to match CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame with low E safety glass panels, to SANS 10400 requirements - colour to match CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame with low E safety glass panels, to SANS 10400 requirements - colour to match CHARCOAL from "SWARTLAND KENZO"	Natural anodized aluminum frame for drywall	Natural anodized aluminum frame for drywall	Mild steel frame	-
DOOR FINISH	as per above	as per above	as per above	as per above	Painted with one coat universal undercoat and finished with two coats eggshell enamel to SABS standard and all in accordance with the finishing schedule.	Painted with one coat universal undercoat and finished with two coats eggshell enamel to SABS standard and all in accordance with the finishing schedule.	Painted with one coat universal undercoat and finished with two coats eggshell enamel to SABS standard and all in accordance with the finishing schedule.	Painted with one coat universal undercoat and finished with two coats eggshell enamel to SABS standard and all in accordance with the finishing schedule.
QUANTITY	3x off	3x off	1x off	2x off	5x off (2x LH + 3x RH)	1x off (0x LH + 1x RH)	16x off (9x LH + 7x RH)	16x off (9x LH + 7x RH)

DOORS

DOOR NO.	D09	D10	D11	D12	D13	D14	D15	D16	
										
DESCRIPTION	Double framed and cross braced batten door from SWARTLAND or similar approved	Double framed and cross braced batten door from SWARTLAND or similar approved	Powder coated aluminum frame double door.	Powder coated aluminum frame single door.	Double framed and cross braced batten door from SWARTLAND or similar approved	Powder coated aluminum frame single service duct door.	Double semi solid door for drywall installation	Double semi solid sliding door with top sliding gear	
FRAME/GLAZING	Mild steel frame	Mild steel frame	Powder coated aluminum frame with low E safety glass panels, to SANS 10400 requirements - colour to match CHARCOAL from "SWARTLAND KENZO"	Powder coated aluminum frame with low E safety glass panels, to SANS 10400 requirements - colour to match CHARCOAL from "SWARTLAND KENZO"	Mild steel frame	Powder coated aluminum frame - colour to match CHARCOAL from "SWARTLAND KENZO"	Natural anodized aluminum frame for drywall	-	
DOOR FINISH	Painted with one coat universal undercoat and finished with two coats eggshell enamel to SABS standard and all in accordance with the finishing schedule.	Painted with one coat universal undercoat and finished with two coats eggshell enamel to SABS standard and all in accordance with the finishing schedule.	as per above	as per above	Painted with one coat universal undercoat and finished with two coats eggshell enamel to SABS standard and all in accordance with the finishing schedule.	as per above	Painted with one coat universal undercoat and finished with two coats eggshell enamel to SABS standard and all in accordance with the finishing schedule.	Painted with one coat universal undercoat and finished with two coats eggshell enamel to SABS standard and all in accordance with the finishing schedule.	
QUANTITY	3x off	1x off	1x off	1x off (0x LH + 1x RH)	1x off	4x off (1x LH + 3x RH)	4x off	1x off	

General Notes A1

This drawing is not to be scaled, all figured dimensions to be used.

All Dimensions and cadastral setting out information to be thoroughly checked on site and all or any discrepancies to be reported to the **Architect or Lead Consultant** before any work is put in hand.

All work is to comply with the **NATIONAL BUILDING REGULATIONS (NBR) AND BUILDING STANDARDS** act 103 of 1977 as amended

All work is to comply with all relevant specifications and codes of practice of the **SOUTH AFRICAN BUREAU OF STANDARDS (SABS) / SOUTH AFRICAN NATIONAL STANDARDS (SANS)** and amendments thereto.

HEALTH AND SAFETY: All construction activities to conform to the **OCCUPATIONAL HEALTH AND SAFETY ACT 1993 (Act No 85 of 1993)**

All materials and workmanship to be as per the **MODEL PREAMBLES FOR TRADES 2008**, and any further additional preambles as noted in the Bills of Quantities.

All work is to comply with all relevant specifications and codes of practice of the **NATIONAL HOME BUILDERS REGISTRATION COUNCIL (NHBRC)** (Where applicable)

ELECTRICAL Engineer: (Where applicable) All materials and workmanship to be as specified on the Consultants drawings.

STRUCTURAL and CIVIL Engineer: (Where applicable) All materials and workmanship to be as specified on the Consultants drawings.

HVAC Engineer: (Where applicable) All materials and workmanship to be as specified on the Consultants drawings.

RATIONAL FIRE Engineer: (Where applicable) All materials and workmanship to be as specified on the Consultants drawings.

WET SERVICES Engineer: (Where applicable) All materials and workmanship to be as specified on the Consultants drawings.

SPECIALIST CONSULTANTS (Where applicable) All materials and workmanship to be as specified on the Consultants drawing.

sign off client:

sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	TG	2022.05.31
B	Issued for SUBMISSION	TG	2021.11.02
A	Issued for INFORMATION	TG	2021.09.23

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no:
ERF 8250
ROBERTSON

Tusk Construction Support Services
3 High Street
1st Floor
Rosenpark
Tygervalley
Bellville
Cape Town
Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za
TUSK ARCHITECTURE

drawing title:
DOOR SCHEDULE

discipline:	scale:	date:
Arch	1:50	2021.06.23

design:	drawn:	checked:
AN	TG	AN

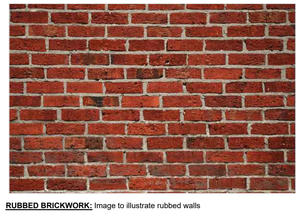
project:	dwg no:	rev:
RFS/21	601	TEN

FINISHING SCHEDULE INTERNAL

		MACHINE BAYS	ENTRANCE	RECEPTION LOBBY	DUCT 1	WATCH ROOM RECEPTION	STATION COMMANDER	DISABLED WC	PASSAGE 1	BOARDROOM	KITCHEN 1	PASSAGE 2	BEDROOM 1 FEMALES	WC 1 FEMALES	BATHROOM 1 FEMALES	PASSAGE 3	BATHROOM 2 MALES	DUCT 2	WC 2 MALES	BEDROOM 2 MALES	STORE 1	STORE 2	STAIRS	SERVICE PASSAGE	PASSAGE 4	BEDROOM 3 MALES	BATHROOM 3 MALES	PASSAGE 5	WC 3 MALES	DUCT 3	BEDROOM 4 MALES	BEDROOM 5 OFFICER	BATHROOM 4 OFFICER	SHIFT COMMANDER OFFICE	STORE 3	STOEP		GENERATOR ROOM	EQUIPMENT STORE	OXYGEN STORE	WASHBAY		FIRST FLOOR LOBBY	LECTURE ROOM	STORE 4	KITCHEN 2	GYMNASIUM/LOUNGE	EQUIPMENT STORE	PASSAGE 6	WC 4	WC 5	BALCONY
FLOORS	**POLISHED CONCRETE FLOOR EXTERNAL:** Diamond polished and grinded level 2 concrete floor/screed (+/-50mm thick) with 35Mpa/40Mpa mix with 600g perm3 of micro fibre. Mesh and saw cuts to be installed over larger floor areas. Floors to receive sealant and hardener as part of sub contractors specification and installation (Design and supply). Finish levels to installers/manufacturers specification and Architect's approval.		🔥																																🔥															🔥
	POLISHED CONCRETE FLOOR INTERNAL: Diamond polished and grinded level 2 concrete floor/screed (+/- 50mm thick) with 35Mpa/40Mpa mix with 600g perm3 of micro fibre. Mesh and saw cuts to be installed over larger floor areas. Floors to receive sealant and hardener as part of sub contractors specification and installation (Design and supply). Finish levels to installers/manufacturers specification and Architect's approval.	🔥		🔥		🔥	🔥		🔥	🔥	🔥	🔥	🔥			🔥	🔥			🔥	🔥		🔥	🔥	🔥	🔥		🔥			🔥	🔥			🔥	🔥																		
	VINYL FLOOR SHEETING: Supply and fix 2.0mm/2.5mm thick x 1.2m wide Superflex fully flexible vinyl sheeting, manufactured in accordance with SANS 786 and to FLOORWORX's suggested installation. The sheeting must be rolled in both directions with an articulated 68kg three-sectional roller immediately after it had been laid into the adhesive. Joints must be butted, grooved and heat welded .																																																			
	PORCELAIN FLOOR TILES: 300x300x8mm NON-SLIP full body matt porcelain floor tiles with 2mm joints on full tile cement bedding, in accordance with PW371-A and SANS 13006 group B1a water absorption equal or grater than 0.5%. Grout joints as per BS EN 13006 (PW371) 12.1 (p). 6mm wide movement joints to be observed with patent stainless steel expansion joint strips consisting of synthetic fibre inserts installed to manufacturer's instruction and as marked in the construction drawings.							🔥						🔥	🔥			🔥		🔥								🔥		🔥					🔥																			
	POWER FLOATED CONCRETE FLOOR: 50mm thick untinted Granolithic finish composed of one part cement, one part fine sand, two parts coarse sand and one part 5mm exposed granite particles, laid by specialist in panels not exceeding 10m2. incl approved brass dividing strips. Floated with a steel trowel to perfectly smooth surface, free from bumps and scratches, and sealed with approved durable surface coat.																					🔥															🔥	🔥	🔥	🔥										
	DUCT FLOOR SURFACE: 200mm crushed aggregate stone on compacted sand.				🔥														🔥											🔥																					
WALLS	**RUBBED BRICK WALLS:** 110, 230 or 270mm thick baked clay stock bricks with even colour in stretcher bond with brick force every fourth course and bedded in 6:1 cement mortar with 'fair face' and rubbed concrete finish with two coats STONESHIELD Penetrating-Sealer™ Natural-Look to all rubbed walls (interior walls only), or similar approved. All to architects approval.	🔥		🔥	🔥	🔥	🔥	🔥	🔥	🔥	🔥	🔥	🔥			🔥	🔥	🔥		🔥	🔥	🔥	🔥	🔥	🔥	🔥		🔥		🔥	🔥	🔥	🔥		🔥	🔥	🔥			🔥	🔥	🔥	🔥		🔥	🔥	🔥	🔥	🔥	🔥	🔥		🔥
	DRYWALLS: Drywall partitions to be flush jointed and skimmed flush -apply 1 coat bonding liquid and 2 coats PLASCON double velvet acrylic PVA - Colour to be confirmed.			🔥		🔥	🔥	🔥	🔥	🔥	🔥	🔥													🔥							🔥	🔥	🔥	🔥									🔥	🔥	🔥	🔥	🔥	🔥			
	PLASTER BAND: 12mm thick plaster band to RUBBED WALLS. Width and height as per ROOM DETAIL LAYOUTS.			🔥	🔥	🔥	🔥	🔥		🔥	🔥		🔥	🔥			🔥		🔥		🔥	🔥	🔥	🔥	🔥	🔥	🔥		🔥		🔥	🔥	🔥	🔥		🔥	🔥	🔥			🔥	🔥	🔥	🔥		🔥	🔥	🔥	🔥	🔥	🔥	🔥		🔥
	INTERNAL PLASTER: Internal Plaster wood float plaster to a minimum 12mm 4:1 mixture cement plaster applied to wall, maintain full length structural joints through the plaster and score plaster surfaces to be tiled							🔥			🔥			🔥	🔥		🔥		🔥								🔥		🔥					🔥																			
	WALL TILES: Half body 300x300mm porcelain tiles laid in true straight, vertical and horizontal 2mm joints, including patent stainless steel corner strips; in approved tile bedding adhesive in accordance with PW 371-A 12.1 (n and o). Finish off joints with grout in accordance with PW 371-A 12.1 (p and q) and SANS 10107. Colour to architects' approval.							🔥			🔥			🔥	🔥			🔥		🔥								🔥		🔥					🔥																	🔥	🔥		
	VERTICAL STEEL ROOF CLADDING: KLIPLOK vertical roof sheeting cladding, colour to be Volcanic Grey) installed as per manufacturers specification, on steel frames and support as per ENGINEERS specification.	🔥																																																	
	TIMBER SKIRTING: 18mm x 100mm high Supawood timber skirting, painted with 1x timber undercoat and 2 coats PLASCON double velvet acrylic PVA - Colour to be confirmed.	🔥		🔥		🔥	🔥		🔥	🔥	🔥	🔥	🔥				🔥				🔥			🔥	🔥	🔥	🔥		🔥			🔥	🔥			🔥	🔥																		
CEILINGS	**PLASTERED SOFFITS:** Rub down all rough areas, 1 coat plaster and 1 coat Rhinolite plaster layer (if needed): Paint with 1 coat Primer and 2 coats Plascon Polvin acrylic PVA colour Cloud White.	🔥		🔥			🔥			🔥	🔥	🔥										🔥	🔥		🔥	🔥							🔥	🔥	🔥	🔥	🔥																	
	PLASTER BOARD CEILINGS: 1200x2400x9.5mm gypsum tapered edged ceiling boards secured to 38x38mm pine brandering with Sfarp Point Screws 35mm at max 150mm centers. Boards tightly butted together and installed with the longer side running perpendicular to the direction of brandering. The boards shall be installed with the shorter side joints staggered by at least 300mm and centered on ceiling framework. Boards shall be installed with printed side up and all joints to be taped and skimmed with 3mm patent lightweight plaster on the same day as boards have been erected and plaster shall be finished to smooth polished surface to ensure a smooth unblemished ceiling surface ceiling edged with specified cornice. Seal with a full coat of plaster primer and apply 2x coats of emulsion paint, in accordance with PW 371-A 9.1.2 (a-r) Joint strips to be installed in areas where ceiling is not plastered.			🔥		🔥	🔥	🔥	🔥			🔥	🔥	🔥	🔥	🔥	🔥							🔥	🔥	🔥	🔥																											
	CEILING CORNICE: 70 x 20mm SANDRA polystyrene profiled cornice from ESSENTIAL MOULDINGS and painted with 2x coats of emulsion paint.			🔥		🔥	🔥	🔥	🔥			🔥	🔥	🔥	🔥										🔥	🔥	🔥	🔥																											
	ISOBOARD CEILING: 12x7900x50mm ISOBOARD high density thermal insulation boards with beveled and shiplap edges fixed to purling on the underside of the steel trusses.	🔥																																																		
	PLASTER BOARD TRAP DOOR: Plaster board 600x600mm with 38x38mm SA Pine surround and cross bracing to inside fit into 600x600mm frame constructed of 114x38 SA Pine fixed between trusses.																🔥												🔥																								
OTHER	**INTERNAL WINDOW CILLS:** 18mm x 100mm wide Supawood timber window cill, painted with 1x timber undercoat and 2 coats PLASCON double velvet acrylic PVA - Colour to be confirmed.			🔥		🔥	🔥	🔥		🔥	🔥		🔥	🔥	🔥		🔥		🔥	🔥			🔥		🔥	🔥			🔥	🔥	🔥	🔥	🔥	🔥																			
	JOINERY: Joinery as per ROOM DETAIL LAYOUTS					🔥			🔥	🔥		🔥		🔥		🔥		🔥								🔥	🔥				🔥	🔥		🔥					🔥						🔥	🔥	🔥		🔥				
	BALUSTRADES: Balustrades as per balustrade schedule																						🔥																														
	SANITARY WARE: Sanitary ware as per sanitary schedule							🔥		🔥		🔥	🔥			🔥		🔥									🔥		🔥					🔥																			



BRICK WORK: Image to illustrate even colour of brickwork to be sourced



RUBBED BRICKWORK: Image to illustrate rubbed walls

SANITARY SCHEDULE

The following descriptions / specifications are to be read in conjunction with full set of drawings

SINK

STAINLESS STEEL DOUBLE BOWL:
CASCADE CDX621-120 Stainless steel 1200x500mm inset double end bowl from FRANKE or similar approved, with recessed drainage ledge and folded bowl to be fitted to kitchen cupboard (cupboard elsewhere measured). Grade 304 (18/10). Stainless Steel sink to comply with SABS 906 fitted with approved hot and cold sink mixer (wall type), chrome plated fixed outlet, adjustable and supplied with suitable accessories in accordance to manufacturer's specifications. Sink installation height = 900mm AFFL.

WASH TROUGH

WALL MOUNTED WASH TROUGH:
Franke Model SIRX342 Washtrough, (product code 2560003). 500x450x240mm deep. Unit to be manufactured from Grade 304(18/10) Stainless Steel, 1.2mm gauge. Unit to be fixed to the wall with a pair of Stainless Steel wall fixing brackets with brackets installed at 900mm

TOILET PANS

TOILET PAN STANDARD:
VAAL Sanitaryware vitreous china "TUSCANY" (or similar approved) - product code 772883, close coupled 9l deg outlet closed rim wash down pan (code 772800) and matching 7 litre pushbutton top dual flush cistern (code 7111DT) complete with lid and fitments.

TOILET PAN PARAPLEGIC:
VAAL Sanitarywre vitreous china "PEARL PARAPLEGIC" (or similar approved) - product code 7300SC, semi-close cougled 90° outlet open rim wash down pan and matching 9 litre cistern complete with lid, fitments, and purpose made C.P. side-flush lever (right). Supplied with purpose made thermoset seat and cover plate.

HAND WASH BASINS

HAND WASH BASINS 1:
COBRA SHELTER round wall hung basin (or similar approved). 495mm long X 430mm wide. 1x pre-punched tap hole in the centre of the basin. Overflow, expansion bolts & installation manual included. Compatible with Cobra standard-sized basin mixers.

HAND WASH BASINS 2:
COBRA WELCOME small round wall hung basin. 400mm long X 320mm wide. 1x pre-punched tap hole on the right hand side of the basin. Wall fixing set & installation manual included. Compatible with Cobra standard-sized basin mixers.

PARAPLEGIC HAND WASH BASINS:
COBRA SHELTER round wall hung basin (or similar approved). 495mm long X 430mm wide. 1x pre-punched tap hole in the centre of the basin. Overflow, expansion bolts & installation manual included. Compatible with Cobra standard-sized basin mixers.

SHOWER DOORS

CORNER SHOWERS:
Builders LISD924CC corner entry shower - Chrome (885 x 885mm) (code 725902) from Builders Warehouse or similar approved

PIVOT DOORS
Builders Aspire Pivot 900 x 1860 WHT (code 743775) from Builders Warehouse or similar approved

MIRRORS

600 x 900 x 6mm Silver float glass copper backed mirrors with beveled edges, holed for and fixed with chromium plated dome capped mirror screws with rubber buffers to plugs in brick walls.

OTHERS

TOILET ROLL HOLDER
4600 Series Type 1 polished stainless steel toilet roll holder (SKU: BUT-BAAC4601POLS) from BATHROOM BUTLER, or similar approved

SHOWER RACK
4600 Series 330mm polished stainless steel shower rack(SKU: BUT-BAAC4620POLS) from BATHROOM BUTLER, or similar approved.

ROBE/TOWEL HOOK
4600 Series single brushed stainless steel robe hook (SKU: BUT-BAAC4610BRSH) from BATHROOM BUTLER, or similar approved

SINGLE TOWEL RAIL:
Single Towel Rail 4800 (SKU: BUT-BAAC4870POLS) from BATHROOM BUTLER, or similar approved.

GRAB RAIL (REAR):
32mm diameter stainless steel rear grab rail, in satin finish complete with SS fixing screws and plastic wall plugs. Installed as per manufacturer's instructions to latest SABS standards.

GRAB RAIL (SIDE):
32mm diameter stainless steel 300x300x300mm right hand side grab rail, in satin finish complete with SS fixing screws and plastic wall plugs. Installed as per manufacturer's instructions to latest SABS standards.

All toilets, basins, sinks ect are to be supplied with angle valves

TAPS

KITCHEN SINK MIXER:
PROJECTLINE swivel chrome kitchen sink mixer (1150021) from FRANKE or similar approved, installed with all required fittings.

BASIN MIXER:
COBRA AMAZON standard single lever basin mixer tap - chrome (SKU: FBN1D1AM-0GT0427) or similar approved.

SHOWER MIXER:
COBRA NILE single lever shower mixer tap - chrome (SKU:FSWM1CNI-0GT0426) or similar approved.

SHOWER HEAD:
COBRA ZAMBESI triangular shower head 76mm - chrome (SKU: FSWHT1GN-0GT0156) or similar approved.

GARDEN TAP:
Standard COBRA hose Bib tap, brass (SKU: FBBHN1CD-7FT01) from COBRA or similar approved

CONSTRUCTION NOTES

The following descriptions / specifications are to be read in conjunction with full set of drawings

EXTERNAL SITE WORKS:

EARTHWORKS AND LEVELS:
All site works and levels according to civil engineers details.

PAVING:
Approved 80mm interlocking pavers laid as per engineers details and specs

EXCAVATIONS:
Builders waste is to be delivered to the ASHTON waste facility at the cost of the contractor. Clean excavated material from foundation and roadway excavations will be spoiled on site to create earth berms of 3 m base and approximately 1.8 m high and are to be compacted in layers of 250mm to 90% MOD ASHTON and neatly trimmed.

FOUNDATIONS:

COLUMN FOOTINGS:
Column footing as per engineer's design and specs provide for the casting and testing of concrete test cubes as per engineer's requirements

CONCRETE STRIP FOUNDATION FOOTINGS:
Strip footings as per engineer's design and specs

FOUNDATION WALLS:
Extra hard-baked clay bricks laid in stretcher bond with brick force every second course and bedded in 6:1 cement mortar

BACK FILLING:

FILLING:
Filling compacted in layers to engineer's specifications provide for the testing of compaction

INSECT POISON:
Applied to foundation trenches and filling in accordance with SABS 1164 / 1165 by specialist, a certificate of guarantee (covering 10 years) to be issued by applicator.

FLOOR CONSTRUCTION:

DPM:
250um polyethylene waterproofing membrane sheeting laid in accordance with manufacturer's specification

SURFACE BED:
125mm 15mpa Reinforced concrete surface bed cast in sections and cut through and casted around columns all in accordance with engineers details and specifications.

SCREED:
Cement screed laid on clean surface - overall thickness of screed and floor finish to be 40mm (see finishes: floor) where no finish, screed to be finished off smooth with a steel trowel.

CONCRETE APRON:
Concrete apron as per engineers details and specifications.

FLOOR FINISH

POLISHED CONCRETE EXTERNAL:
as per finishing schedule

POLISHED CONCRETE INTERNAL:
as per finishing schedule

VINYL FLOOR SHEETING:
as per finishing schedule

PORCELAIN FLOOR TILES:
as per finishing schedule

POWER FLOATED CONCRETE:
as per finishing schedule

WALL CONSTRUCTION:

DPC:
375um polyethylene DPC sheeting in appropriate strips laid in strict accordance with the manufacturer's specification under all walls at surface, slab level, and under window sills.

STOCK BRICK:
'Fair faced' baked clay bricks with even colour, in stretcher bond with brick force every fourth course and bedded in 6:1 cement mortar.

DETAIL WALLS:
110mm BOE perforated brickwork. COROJEM from COROBRICK or similar approved with with rubbed concrete finish.

INTERNAL PLASTER:
Wood float plaster to a minimum 12mm 4:1 mixture cement plaster applied to wall. Maintain full length structural joints through the plaster and score plaster surfaces to be tiled.

EXTERIOR PLASTER:
Wood float plaster to a minimum 12mm 4:1 mixture cement plaster applied to wall. Maintain full length structural joints through the plaster.

EXTERIOR PLASTER BAND (around windows/doors)
150mm wide plaster band to all windows/doors (as indicated) on all sides and to top of window/door and 300mm plaster band below all window cills.

PRE-CAST LINTELS:
Standard pre-stressed concrete lintel bedded in mortar and extending not less than 225mm on either side of opening. Where openings exceed 3000mm in width, 2x12mm reinforcing rods per course (for 230mm wall) and 3x12mm reinforcing rods per course (for 345mm wall) to be laid in 3:1 mortar every course for 4 courses above lintels.

INTERIOR WINDOW SILLS:
as per finishing schedule.

EXTERIOR WINDOW SILLS:
Brick-on-edge baked clay stock bricks with 'fair face' and rubbed concrete finish with DPC laid under as per DPC note before.1

WALL FINISHES

EXTERIOR WALLS:
270mm thick 'fair face' baked clay stock bricks with even colour in stretcher bond with brick force every fourth course and bedded in 6:1 cement mortar with rubbed concrete finish. All to architects approval.

EXTERIOR PAINT:
Emulsion paint on universal undercoats to exterior new cement plaster (NW 140). Surface to be dry, sound and clean and cured for a minimum of 14 days, with a moisture content measured with a Doser Hygrometer (or equal), of BD 2 scale - 8% or less. apply one coat ofalkali-resistant primer SANS 1416, one coat universal undercoat SANS 681 with an over-coating time of 16 hours and finish with two coats matt, high-opacity finish "contract" emulsion paint SANS 1586 grade 4 with 2 hours drying time between coats. Restrict paint to one manufacturer. Complete paint systems - primer, undercoat and finishing coat to be recommended by same supplier. Exterior quality to be used for exterior work. Colour to be confirmed.

INTERIOR WALL FINISHES:
as per finishing schedule

DRYWALLS:
as per finishing schedule

WALL TILES:
as per finishing schedule

WALL PLASTER INTERNAL:
as per finishing schedule

WALL PLASTER EXTERNAL:
as per finishing schedule

WALL TILES INTERNAL:
as per finishing schedule

VERTICAL WALL CLADDING:
as per finishing schedule

CONCRETE/STEEL STRUCTURE

BRICKWORK COLUMNS:
Brickwork columns as per engineer details and specifications.

STEEL COLUMNS:
Steel columns as per engineer details and specifications.

CONCRETE BEAM:
Concrete beam as per engineers details and specifications.

CEILINGS

PLASTERBOARD CEILINGS:
as per finishing schedule

PLASTERED SOFFITS:
as per finishing schedule

ISOBOARD CEILINGS:
as per finishing schedules

PLASTERBOARD TRAP DOORS:
as per finishing schedule

ROOF:

STEEL TRUSSES:
Steel trusses per engineers design and specifications .

TIMBER TRUSSES:
Timber trusses as per manufacturers specification and approval

EXPOSED TIMBER TRUSSES:
Sand down all exposed roof trusses to smooth and even finish. Prepare trusses with one coat universal undercoat SANS 681 with an over coating time of 16 hours and finish with two coats matt, high-opacity finish "contract" emulsion paint SANS 1586 grade 4 with 2 hours drying time between coats. Restrict paint to one manufacturer. Colour to be architects approval.

ROOF SHEETING:
Kliplok 700, 0.58mm thickness, with chromadek finish roof sheets fixed to steel/timber purlins per engineers design and specifications

ROOF INSULATION:
SISALATION fr405 insulation membrane to underside of all roof sheeting.

FLASHINGS:
350mm Flashing and counter flashing's as per manufacturer's details and specifications.

FASCIA:
300x10mm NUTEK fascia on MACHINE BAY building and 225x10mm on remainder of roof overhangs as per manufacturer's details and specifications.

ALUMINUM GUTTERS 1:
125x65mm domestic OGEE x 6mm gutters from WATERTIGHT or similar approved. Gutters installed as per manufacturers specification. Colour to be CHARCOAL, to match roof sheeting.

ALUMINUM GUTTERS 2:
150x125mm domestic OGEE x 6mm gutters from WATERTIGHT or similar approved. Gutters installed as per manufacturers specification. Colour to be CHARCOAL, to match roof sheeting.

RAIN WATER DOWNPIPES 1:
Ø100mm PVC downpipe. Downpipe to be fixed to wall with brackets matching the down pipes.

RAIN WATER DOWNPIPES 2:
Ø150mm PVC downpipe. Downpipe to be fixed to wall with brackets matching the down pipes.

CERTIFICATES:
A certificate from the fixing contractor as well as a separate certificate from the sheeting supplier, must be submitted before final completion.

General Notes A1

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HVAC Engineer: (Where applicable) All materials and workmanship to be as specified on the Consultants drawings.

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WET SERVICES Engineer: (Where applicable) All materials and workmanship to be as specified on the Consultants drawings.

SPECIALIST CONSULTANTS (Where applicable) All materials and workmanship to be as specified on the Consultants drawing.

sign off client:

sign off architect:

sign off engineer:

rev:	description:	by:	date:
TEN	Issued for TENDER	TG	2022.05.31
B	Issued for SUBMISSION	TG	2021.11.02
A	Issued for INFORMATION	TG	2021.09.23

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no.:
ERF 8250
ROBERTSON

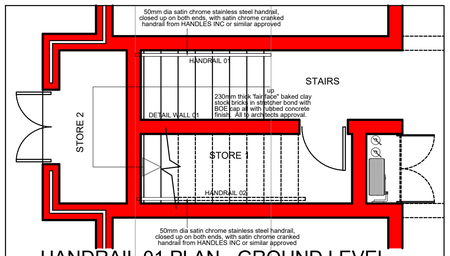
Tusk Construction Support Services
3 High Street
1st Floor
Rosenpark
Tygervalley
Bellville
Cape Town
Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za
TUSK ARCHITECTURE

drawing title:
FINISHING SCHEDULES
CONSTRUCTION NOTES
SANITARY SCHEDULE

discipline:	scale:	date:
Arch	-	2021.06.23

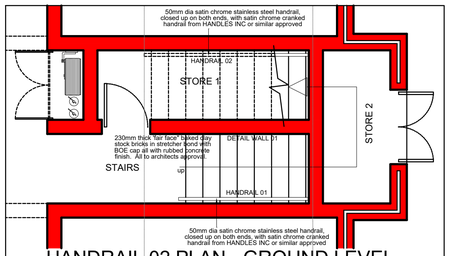
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AN	TG	AN

project:	dwg no:	rev:
RFS/21	602	TEN



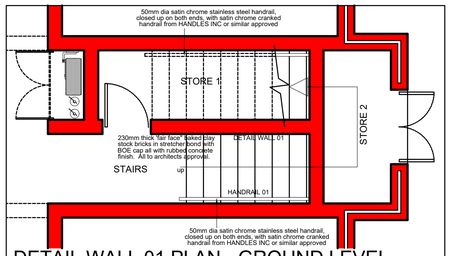
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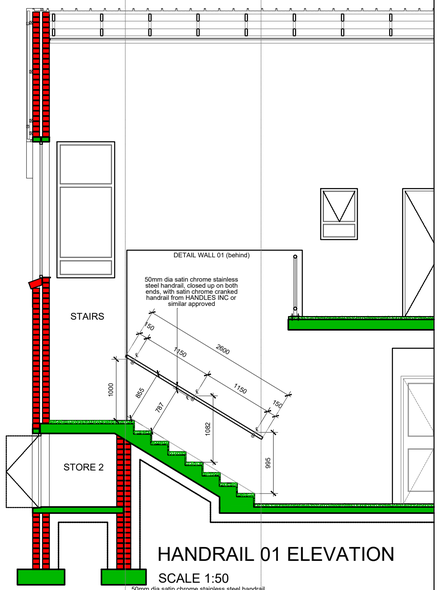
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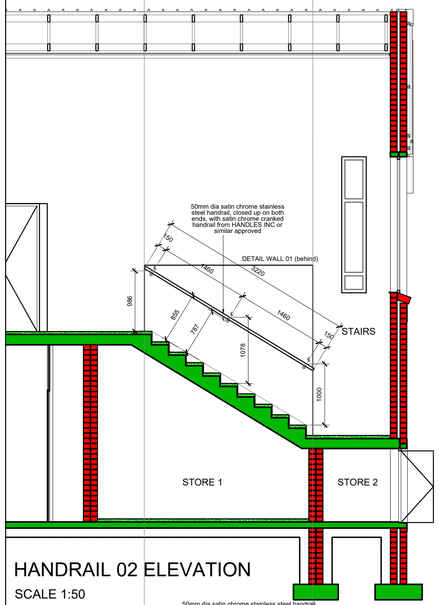
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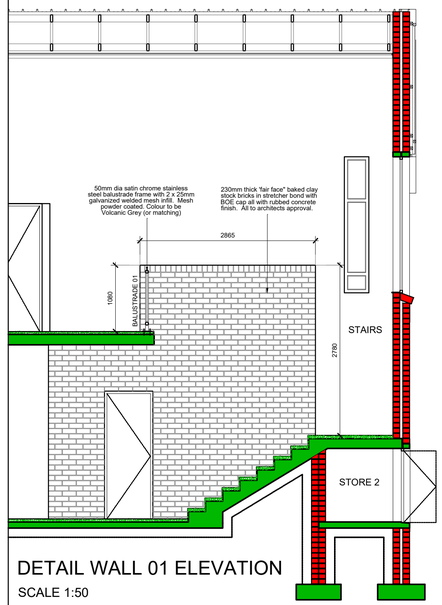
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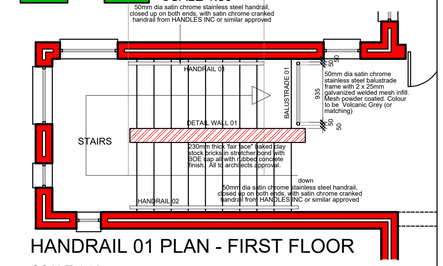
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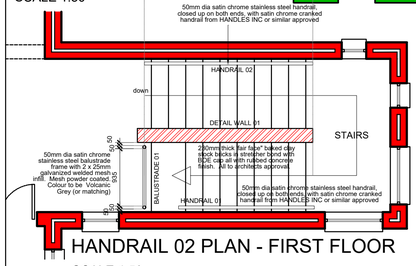
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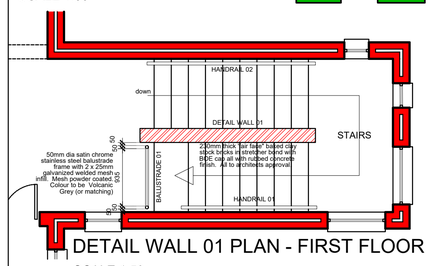
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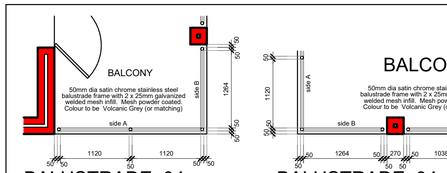
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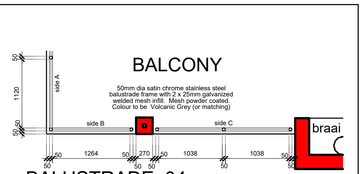
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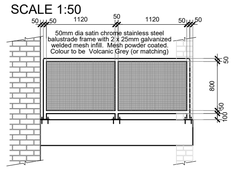
BALUSTRADE 04
SIDE A

SCALE 1:50



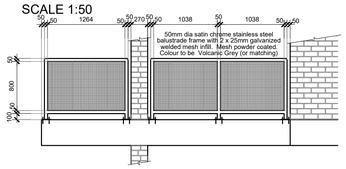
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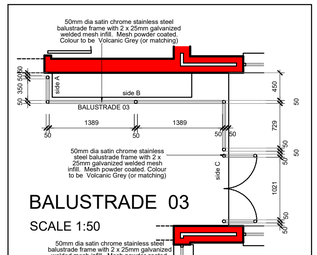
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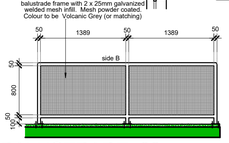


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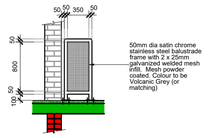


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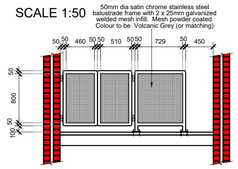
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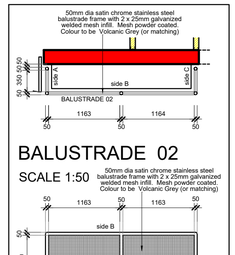
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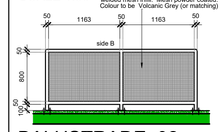


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SIDE C ELEVATION

SCALE 1:50

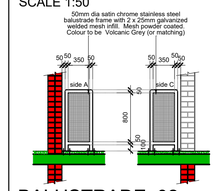


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SCALE 1:50



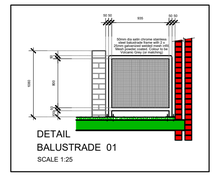
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SIDE B ELEVATION

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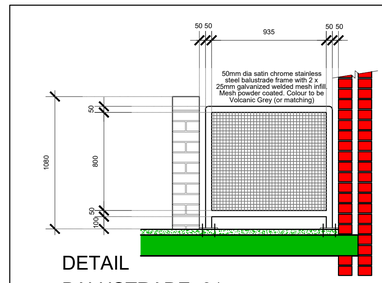
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SIDE A & C

SCALE 1:50



DETAIL
BALUSTRADE 01

SCALE 1:25



DETAIL
BALUSTRADE 01

SCALE 1:25

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sign off client:

sign off architect:

sign off engineer:

rev:	description:	by:	date:
TEN	Issued for TENDER	TG	2022.05.31
B	Issued for SUBMISSION	TG	2021.11.02
A	Issued for INFORMATION	TG	2021.09.23

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no.:
ERF 8250
ROBERTSON

Tusk Construction Support Services
3 High Street
1st Floor
Rosenpark
Tygervalley
Bellville
Cape Town
Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za

TUSK ARCHITECTURE

drawing title:
BALUSTRADE SCHEDULE

discipline:	scale:	date:
Arch	1:50	2021.06.23

design:	drawn:	checked:
AN	TG	AN

project:	dwg no:	rev:
RFS/21	603	TEN



TUSK

CONSTRUCTION
SUPPORT
SERVICES

PREPARED BY:
Ironmongery Warehouse
Tusk Construction
Support Services

TUSK
3 High Street
Bellville

Tel: +27 (0) 21 424 4586/23

www.tuskcss.co.za

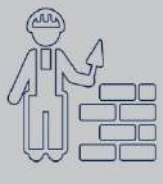
TUSK CSS

CAPE TOWN

RFS/21 - 604

IRONMONGERY SCHEDULE

Rev 0



www.ironmongerywarehouse.co.za

Project **Robertson Fire Station**
Date **29 April, 2022**
Revision **0**
Specified by **Monika Steininger**
Contact **| monika@ironware.co.za**

Index -

#	Floor/Level	Door	Type	Area / Location	Hand	Recipe	Remarks
1	FIRST	D03	AUTOMATED	AUTOMATED SLIDING		D03 BY SPECIALIST	
2	FIRST	D04/1	ALUM DD	ENTRANCE		D04 ALUM DOUBLE	
3	FIRST	D04/2	ALUM DD	PASSAGE		D04 ALUM DOUBLE	
4	FIRST	D05/1	ALUM FRAME	WATCH ROOM RECEPTION		D05/D07	
5	FIRST	D05/2	ALUM FRAME	STORE		D05/07 STORE	
6	FIRST	D05/3	ALUM FRAME	GYMNASIUM/LOUNGE		D05 GYM	
7	FIRST	D05/4	ALUM FRAME	STATION COMMANDER		D05/D07	
8	FIRST	D05/5	ALUM FRAME	PASSAGE		D05 PASSAGE	
9	FIRST	D06	ALUM FRAME	DISABLED WC		D06	
10	FIRST	D07/01		WC		D07 CUBICLE	MILD STEEL FRAME
11	FIRST	D07/02		WC		D07 CUBICLE	MILD STEEL FRAME
12	FIRST	D07/03		STORE		D05/07 STORE	MILD STEEL FRAME
13	FIRST	D07/04		FEMALE WC		D07 CUBICLE	MILD STEEL FRAME
14	FIRST	D07/05		FEMALE BATHROOM		D07 CUBICLE	MILD STEEL FRAME
15	FIRST	D07/06		MALE BATHROOM		D07 CUBICLE	MILD STEEL FRAME
16	FIRST	D07/07		MALE WC		D07 CUBICLE	MILD STEEL FRAME
17	FIRST	D07/08		BEDROOM 1 FEMALES		D05/D07	MILD STEEL FRAME
18	FIRST	D07/09		BEDROOM 2 MALES		D05/D07	MILD STEEL FRAME
19	GROUND	D07/10		STORE		D05/07 STORE	MILD STEEL FRAME
20	FIRST	D07/11		BEDROOM 3 MALES		D05/D07	MILD STEEL FRAME
21	FIRST	D07/12		BEDROOM 4 MALES		D05/D07	MILD STEEL FRAME
22	FIRST	D07/12	2 X SHOWER	BATHROOM MALE		D07 TWIN SHOWER	MILD STEEL FRAME
23	FIRST	D07/13		WC MALE		D07 CUBICLE	MILD STEEL FRAME
24	FIRST	D07/14		SHIFT COMMANDER OFFICE		D05/D07	MILD STEEL FRAME
25	FIRST	D07/15		BEDROOM 5 OFFICER		D05/D07	MILD STEEL FRAME
26	FIRST	D07/16		BATHROOM OFFICER		D07 CUBICLE	MILD STEEL FRAME
27	FIRST	D08/1		SLIDING		D08 SLIDING	
28	FIRST	D08/2		SLIDING		D08 SLIDING	
29	GROUND	D09/1		GENERATOR ROOM		D09	MILD STEEL FRAME
30	GROUND	D09/2		EQUIPMENT STORE		D09	MILD STEEL FRAME
31	GROUND	D09/3		OXYGEN STORE		D09	MILD STEEL FRAME

Index -

#	Floor/Level	Door	Type	Area / Location	Hand	Recipe	Remarks
32	FIRST	D10		LOBBY		D10 GYM/LOBBY	MILD STEEL FRAME
33	FIRST	D11/1	ALUM DD	BALCONY		D11 BALCONY	
34	FIRST	D11/2	ALUM DD	BALCONY		D11 BALCONY	
35	FIRST	D12	ALUM	SHIFT COMMANDER OFFICE		D05/D07	
36	FIRST	D13		STORE		D13/15 STORE	MILD STEEL FRAME
37	FIRST	D14/1	ALUM	DUCT		D14 DUCT	
38	FIRST	D14/2	ALUM	DUCT		D14 DUCT	
39	FIRST	D14/3	ALUM	DUCT		D14 DUCT	
40	FIRST	D15/1	ALUM FRAME	EQUIPTMENT STORE		D13/15 STORE	
41	FIRST	D15/2	ALUM FRAME	KITCHEN		D15 KITCHEN/BOARD	
42	FIRST	D15/3	ALUM FRAME	BOARDROOM		D15 KITCHEN/BOARD	
43	GROUND	D15/4	ALUM FRAME	LECTURE ROOM		D15 KITCHEN/BOARD	
44	GROUND	D16	SLIDING	KITCHEN HATCH		D16	

www.ironmongerywarehouse.co.za

Project	**Robertson Fire Station**
Date	**29 April, 2022**
Revision	**0**
Specified by	**Monika Steininger**
Contact	**| monika@ironware.co.za**

Ironmongery Schedule -

Recipe: D03 BY SPECIALIST

	Image	Product Code	Product Description	Finish	Unit	Qty
1		SPECIALIST	BY SPECIALIST	Not Specified	Each	1.0

1 Door on Recipe D03 BY SPECIALIST

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	FIRST	D03		AUTOMATED	AUTOMATED SLIDING	0	Recipe Applied		

www.ironmongerywarehouse.co.za

Project	**Robertson Fire Station**
Date	**29 April, 2022**
Revision	**0**
Specified by	**Monika Steininger**
Contact	**| monika@ironware.co.za**

Ironmongery Schedule -

Recipe: D04 ALUM DOUBLE

	Image	Product Code	Product Description	Finish	Unit	Qty
1		IW3043SS	IRONWARE 3*100MM 2BB SINKLESS HINGE SS	SS	Pair	3.0
2		IW2013SS	IRONWARE 35MM CYLINDER DEAD LOCK	SS	Each	1.0
3		IWI2051NPMK	IRONWARE 66MM DOUBLE CYLINDER - MASTER KEYED	NP	Each	1.0
4		IW1331/25/450	CALINI 25*450*300CTC P/HANDLE OFFSET BT	SS	Each	2.0
5		IW1903CYLSS	CALINI NARROW STYLE CYLINDER ESCUTCHEON SS	SS	Pair	1.0
6		IWFSBTB22	CALINI 22MM PULL HANDLE BACK TO BACK FIXING SET WITH ROSETTE FOR: IW1330 - 25MM DIA | SS	SS	Set	1.0
7		IS115RV	EN2-4 SLIDE CHANNEL DOOR CLOSER PUSH SID	SIL	Each	2.0
8		QS762	QS762 FIRE DOOR COORDINATOR 42"	SIL	Each	1.0
9		DFB-SC-180	150MM FLUSH LEVER BOLT SC	SS	Each	2.0

2 Doors on Recipe D04 ALUM DOUBLE

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	FIRST	D04/1		ALUM DD	ENTRANCE	0	Recipe Applied		
2	FIRST	D04/2		ALUM DD	PASSAGE	0	Recipe Applied		

Ironmongery Schedule -

Recipe: D05 GYM

	Image	Product Code	Product Description	Finish	Unit	Qty
1		IW3043SS	IRONWARE 3*100MM 2BB SINKLESS HINGE SS	SS	Pair	1.0
2		IW1320/170	CALINI ROUND PULL HANDLE: LENGTH = 170MM | CTC =150MM | POST =19MM | SS	SS	Each	2.0
3		IWFSBTB19	CALINI 19MM PULL HANDLE BACK TO BACK FIXING SET WITH ROSETTE FOR: IW1306 | IW1318 - 22MM DIA & 25MM DIA | IW1320 - 19MM DIA | SS	SS	Set	1.0
4		IS115	SLIDE CHANNEL DOOR CLOSER EN 2-3 SILVER	SIL	Each	1.0
5		IW6002SS	IRONWARE 150*150MM OUTLINE ENGRAVED SS MALE AND FEMALE	SS	Each	1.0
6		KP1.2*15*85	1.2S.S K/P 150*<850MM	SS	Each	2.0

1 Door on Recipe D05 GYM

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	FIRST	D05/3		ALUM FRAM E	GYMNASIUM/LOU NGE	0	Recipe Applied		

Ironmongery Schedule -

Recipe: D05 PASSAGE

	Image	Product Code	Product Description	Finish	Unit	Qty
1		IW3043SS	IRONWARE 3*100MM 2BB SINKLESS HINGE SS	SS	Pair	1.0
2		IW1320/170	CALINI ROUND PULL HANDLE: LENGTH = 170MM | CTC =150MM | POST =19MM | SS	SS	Each	2.0
3		IWFSBTB19	CALINI 19MM PULL HANDLE BACK TO BACK FIXING SET WITH ROSETTE FOR: IW1306 | IW1318 - 22MM DIA & 25MM DIA | IW1320 - 19MM DIA | SS	SS	Set	1.0
4		IS115	SLIDE CHANNEL DOOR CLOSER EN 2-3 SILVER	SIL	Each	1.0
5		IW5001SC	IRONWARE ROUND DOOR STOP	SC	Each	1.0
6		KP1.2*15*85	1.2S.S K/P 150*<850MM	SS	Each	2.0

1 Door on Recipe D05 PASSAGE

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	FIRST	D05/5		ALUM FRAME	PASSAGE	0	Recipe Applied		

Ironmongery Schedule -

Recipe: D05/07 STORE

	Image	Product Code	Product Description	Finish	Unit	Qty
1		IW2207SS	IRONWARE COMMERCIAL CYLINDER SASH LOCK	SS	Each	1.0
2		IWI2081NPMK	IRONWARE 43MM SINGLE CYLINDER - MASTER KEYED	NP	Each	1.0
3		IW1008H	CALINI LEVER HANDLE ON SCREW TYPE ROSETTE SS	SS	Pair	1.0
4		IW1904CYLSS	CALINI ROUND SCREW TYPE CYLINDER ESCUTCHEON SS	SS	Pair	0.5
5		IW5009SC	IRONWARE MAGNETIC FLOOR DOOR STOP/HOLDER	SC	Each	1.0
6		HBM	Hinges by manufacturer	Not Specified	Not Specified	1.0

3 Doors on Recipe D05/07 STORE

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	FIRST	D05/2		ALUM FRAME	STORE	0	Recipe Applied		
2	FIRST	D07/03			STORE	0	Recipe Applied		MILD STEEL FRAME
3	GROUND	D07/10			STORE	0	Recipe Applied		MILD STEEL FRAME

Ironmongery Schedule -

Recipe: D05/D07

	Image	Product Code	Product Description	Finish	Unit	Qty
1		IW3043SS	IRONWARE 3*100MM 2BB SINKLESS HINGE SS	SS	Pair	1.0
2		IW2207SS	IRONWARE COMMERCIAL CYLINDER SASH LOCK	SS	Each	1.0
3		IWI2061NPMK	IRONWARE 66MM KNOB CYLINDER - MASTER KEYED	NP	Each	1.0
4		IW1008H	CALINI LEVER HANDLE ON SCREW TYPE ROSETTE SS	SS	Pair	1.0
5		IW1904CYLSS	CALINI ROUND SCREW TYPE CYLINDER ESCUTCHEON SS	SS	Pair	1.0
6		IW5001SC	IRONWARE ROUND DOOR STOP	SC	Each	1.0

9 Doors on Recipe D05/D07

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	FIRST	D05/1		ALUM FRAME	WATCH ROOM RECEPTION	0	Recipe Applied		
2	FIRST	D05/4		ALUM FRAME	STATION COMMANDER	0	Recipe Applied		
3	FIRST	D07/08			BEDROOM 1 FEMALES	0	Recipe Applied		MILD STEEL FRAME
4	FIRST	D07/09			BEDROOM 2 MALES	0	Recipe Applied		MILD STEEL FRAME
5	FIRST	D07/11			BEDROOM 3 MALES	0	Recipe Applied		MILD STEEL FRAME
6	FIRST	D07/12			BEDROOM 4 MALES	0	Recipe Applied		MILD STEEL FRAME
7	FIRST	D07/14			SHIFT COMMANDER OFFICE	0	Recipe Applied		MILD STEEL FRAME
8	FIRST	D07/15			BEDROOM 5 OFFICER	0	Recipe Applied		MILD STEEL FRAME
9	FIRST	D12		ALUM	SHIFT COMMANDER OFFICE	0	Recipe Applied		

Ironmongery Schedule -

Recipe: D06

	Image	Product Code	Product Description	Finish	Unit	Qty
1		IW3043SS	IRONWARE 3*100MM 2BB SINKLESS HINGE SS	SS	Pair	1.5
2		IW2031	IRONWARE WC DEAD LOCK WITH 8MM FOLLOWER	SS	Each	1.0
3		IW1321	CALINI ROUND PULL HANDLE: LENGTH = 625MM & 325MM | CTC = 600mm & 300mm | POST =25MM | SS	SS	Set	1.0
4		IW1926	IRONWARE WC INDICATOR SET	SS	Each	1.0
5		QS700DA/1	QS700DA/1 DELAYED ACTION WITH ARM 2-3	SIL	Each	1.0
6		IW6005SS	IRONWARE 150*150MM OUTLINE ENGRAVED SS DISABLED	SS	Each	1.0

1 Door on Recipe D06

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	FIRST	D06		ALUM FRAME	DISABLED WC	0	Recipe Applied		

Ironmongery Schedule -

Recipe: D07 CUBICLE

	Image	Product Code	Product Description	Finish	Unit	Qty
1		IW2031	IRONWARE WC DEAD LOCK WITH 8MM FOLLOWER	SS	Each	1.0
2		IW1320/170	CALINI ROUND PULL HANDLE: LENGTH = 170MM | CTC =150MM | POST =19MM | SS	SS	Each	2.0
3		IW1921	IRONWARE 50MM ROUND WC INDICATOR SET	SS	Each	1.0
4		IWFSBTB19	CALINI 19MM PULL HANDLE BACK TO BACK FIXING SET WITH ROSETTE FOR: IW1306 | IW1318 - 22MM DIA & 25MM DIA | IW1320 - 19MM DIA | SS	SS	Set	1.0
5		IW5034	IRONWARE HOOK & BUFFER	SS	Each	1.0
6		HBM	Hinges by manufacturer	Not Specified	Not Specified	1.0

8 Doors on Recipe D07 CUBICLE

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	FIRST	D07/01			WC	0	Recipe Applied		MILD STEEL FRAME
2	FIRST	D07/02			WC	0	Recipe Applied		MILD STEEL FRAME
3	FIRST	D07/04			FEMALE WC	0	Recipe Applied		MILD STEEL FRAME
4	FIRST	D07/05			FEMALE BATHROOM	0	Recipe Applied		MILD STEEL FRAME
5	FIRST	D07/06			MALE BATHROOM	0	Recipe Applied		MILD STEEL FRAME
6	FIRST	D07/07			MALE WC	0	Recipe Applied		MILD STEEL FRAME
7	FIRST	D07/13			WC MALE	0	Recipe Applied		MILD STEEL FRAME
8	FIRST	D07/16			BATHROOM OFFICER	0	Recipe Applied		MILD STEEL FRAME

Ironmongery Schedule -

Recipe: D07 TWIN SHOWER

	Image	Product Code	Product Description	Finish	Unit	Qty
1		IW2031	IRONWARE WC DEAD LOCK WITH 8MM FOLLOWER	SS	Each	1.0
2		IW1320/170	CALINI ROUND PULL HANDLE: LENGTH = 170MM | CTC =150MM | POST =19MM | SS	SS	Each	2.0
3		IW1921	IRONWARE 50MM ROUND WC INDICATOR SET	SS	Each	1.0
4		IWFSBTB19	CALINI 19MM PULL HANDLE BACK TO BACK FIXING SET WITH ROSETTE FOR: IW1306 | IW1318 - 22MM DIA & 25MM DIA | IW1320 - 19MM DIA | SS	SS	Set	1.0
5		IS115	SLIDE CHANNEL DOOR CLOSER EN 2-3 SILVER	SIL	Each	1.0
6		IW5034	IRONWARE HOOK & BUFFER	SS	Each	1.0
7		HBM	Hinges by manufacturer	Not Specified	Not Specified	1.0

1 Door on Recipe D07 TWIN SHOWER

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	FIRST	D07/12		2 X SHOWER	BATHROOM MALE	0	Recipe Applied		MILD STEEL FRAME

Ironmongery Schedule -

Recipe: D08 SLIDING

	Image	Product Code	Product Description	Finish	Unit	Qty
1		IW2040SS	IRONWARE 60MM CYLINDER HOOK LOCK	SS	Each	1.0
2		IWI2061NPMK	IRONWARE 66MM KNOB CYLINDER - MASTER KEYED	NP	Each	1.0
3		IW1320/170	CALINI ROUND PULL HANDLE: LENGTH = 170MM | CTC =150MM | POST =19MM | SS	SS	Each	2.0
4		IW1904CYLSS	CALINI ROUND SCREW TYPE CYLINDER ESCUTCHEON SS	SS	Pair	1.0
5		IWFSBTB19	CALINI 19MM PULL HANDLE BACK TO BACK FIXING SET WITH ROSETTE FOR: IW1306 | IW1318 - 22MM DIA & 25MM DIA | IW1320 - 19MM DIA | SS	SS	Set	1.0
6		ST100A	STRAIGHTAWAY 100A TOP HUNG SLIDING HW	SIL	Each	1.0

2 Doors on Recipe D08 SLIDING

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	FIRST	D08/1			SLIDING	0	Recipe Applied		
2	FIRST	D08/2			SLIDING	0	Recipe Applied		

Ironmongery Schedule -

Recipe: D09

	Image	Product Code	Product Description	Finish	Unit	Qty
1		IW2140SS	IRONWARE REBATE KIT FOR IW2207 | IW2219 LOCK	SS	Each	1.0
2		IW2207SS	IRONWARE COMMERCIAL CYLINDER SASH LOCK	SS	Each	1.0
3		IW4060SS	IRONWARE DUST EXCLUDING SOCKET	SS	Each	1.0
4		IW1008H	CALINI LEVER HANDLE ON SCREW TYPE ROSETTE SS	SS	Pair	1.0
5		IW1904CYLSS	CALINI ROUND SCREW TYPE CYLINDER ESCUTCHEON SS	SS	Pair	1.0
6		EB3013	HOOK CABIN 150MM CP	CP	Each	2.0
7		IW4123SS	IRONWARE 150MM FLUSH LEVER BOLT	SS	Each	2.0
8		HBM	Hinges by manufacturer	Not Specified	Not Specified	1.0

3 Doors on Recipe D09

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	GROUND	D09/1			GENERATOR ROOM	0	Recipe Applied		MILD STEEL FRAME
2	GROUND	D09/2			EQUIPMENT STORE	0	Recipe Applied		MILD STEEL FRAME
3	GROUND	D09/3			OXYGEN STORE	0	Recipe Applied		MILD STEEL FRAME

Ironmongery Schedule -

Recipe: D10 GYM/LOBBY

	Image	Product Code	Product Description	Finish	Unit	Qty
1		IW2140SS	IRONWARE REBATE KIT FOR IW2207 | IW2219 LOCK	SS	Each	1.0
2		IW2219SS	IRONWARE COMMERCIAL CYLINDER DEAD LOCK	SS	Each	1.0
3		IW4060SS	IRONWARE DUST EXCLUDING SOCKET	SS	Each	1.0
4		IWI2051NPMK	IRONWARE 66MM DOUBLE CYLINDER - MASTER KEYED	NP	Each	1.0
5		IW1331/25/450	CALINI 25*450*300CTC P/HANDLE OFFSET BT	SS	Each	2.0
6		IW1904CYLSS	CALINI ROUND SCREW TYPE CYLINDER ESCUTCHEON SS	SS	Pair	1.0
7		IWFSBTB22	CALINI 22MM PULL HANDLE BACK TO BACK FIXING SET WITH ROSETTE FOR: IW1330 - 25MM DIA | SS	SS	Set	1.0
8		IS115	SLIDE CHANNEL DOOR CLOSER EN 2-3 SILVER	SIL	Each	2.0
9		QS762	QS762 FIRE DOOR COORDINATOR 42"	SIL	Each	1.0
10		IW4123SS	IRONWARE 150MM FLUSH LEVER BOLT	SS	Each	2.0
11		HBM	Hinges by manufacturer	Not Specified	Not Specified	1.0

1 Door on Recipe D10 GYM/LOBBY

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	FIRST	D10			LOBBY	0	Recipe Applied		MILD STEEL FRAME

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Project	**Robertson Fire Station**
Date	**29 April, 2022**
Revision	**0**
Specified by	**Monika Steininger**
Contact	**| monika@ironware.co.za**

Ironmongery Schedule -

Recipe: D11 BALCONY

	Image	Product Code	Product Description	Finish	Unit	Qty
1		IW3043SS	IRONWARE 3*100MM 2BB SINKLESS HINGE SS	SS	Pair	3.0
2		IW2001SS	IRONWARE 35MM CYLINDER SASH LOCK	SS	Each	1.0
3		IWI2051NPMK	IRONWARE 66MM DOUBLE CYLINDER - MASTER KEYED	NP	Each	1.0
4		IW1008H	CALINI LEVER HANDLE ON SCREW TYPE ROSETTE SS	SS	Pair	1.0
5		IWSBP5CYLSS	CALINI 285*28MM SQUARE CYLINDER BACK PLATE | CTC = 85MM | SS	SS	Pair	1.0
6		EB3013	HOOK CABIN 150MM CP	CP	Each	2.0
7		DFB-SC-180	150MM FLUSH LEVER BOLT SC	SS	Each	2.0

2 Doors on Recipe D11 BALCONY

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	FIRST	D11/1		ALUM DD	BALCONY	0	Recipe Applied		
2	FIRST	D11/2		ALUM DD	BALCONY	0	Recipe Applied		

Ironmongery Schedule -

Recipe: D13/15 STORE

	Image	Product Code	Product Description	Finish	Unit	Qty
1		IW3043SS	IRONWARE 3*100MM 2BB SINKLESS HINGE SS	SS	Pair	2.0
2		IW2140SS	IRONWARE REBATE KIT FOR IW2207 | IW2219 LOCK	SS	Each	1.0
3		IW2219SS	IRONWARE COMMERCIAL CYLINDER DEAD LOCK	SS	Each	1.0
4		IW5054SS	IRONWARE ADJUSTABLE ROLLER CATCH SS	SS	Each	1.0
5		IWI2081NPMK	IRONWARE 43MM SINGLE CYLINDER - MASTER KEYED	NP	Each	1.0
6		IW1485SS	IRONWARE 63X44MM FLUSH RING PULL HANDLE	SS	Each	1.0
7		IW1904CYLSS	CALINI ROUND SCREW TYPE CYLINDER ESCUTCHEON SS	SS	Pair	0.1
8		IW4123SS	IRONWARE 150MM FLUSH LEVER BOLT	SS	Each	2.0

2 Doors on Recipe D13/15 STORE

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	FIRST	D13			STORE	0	Recipe Applied		MILD STEEL FRAME
2	FIRST	D15/1		ALUM FRAME	EQUIPTMENT STORE	0	Recipe Applied		

Ironmongery Schedule -

Recipe: D14 DUCT

	Image	Product Code	Product Description	Finish	Unit	Qty
1		IW3043SS	IRONWARE 3*100MM 2BB SINKLESS HINGE SS	SS	Pair	1.0
2		IW5054SS	IRONWARE ADJUSTABLE ROLLER CATCH SS	SS	Each	1.0
3		IW1485SS	IRONWARE 63X44MM FLUSH RING PULL HANDLE	SS	Each	1.0

3 Doors on Recipe D14 DUCT

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	FIRST	D14/1		ALUM	DUCT	0	Recipe Applied		
2	FIRST	D14/2		ALUM	DUCT	0	Recipe Applied		
3	FIRST	D14/3		ALUM	DUCT	0	Recipe Applied		

Ironmongery Schedule -

Recipe: D15 KITCHEN/BOARD

	Image	Product Code	Product Description	Finish	Unit	Qty
1		IW3043SS	IRONWARE 3*100MM 2BB SINKLESS HINGE SS	SS	Pair	3.0
2		IW2026SS	IRONWARE 50MM CYLINDER DEAD LOCK WITH ADJUSTABLE ROLLER CATCH	SS	Each	1.0
3		IW4060SS	IRONWARE DUST EXCLUDING SOCKET	SS	Each	1.0
4		IWI2051NPMK	IRONWARE 66MM DOUBLE CYLINDER - MASTER KEYED	NP	Each	1.0
5		IW1331/25/450	CALINI 25*450*300CTC P/HANDLE OFFSET BT	SS	Each	2.0
6		IW1904CYLSS	CALINI ROUND SCREW TYPE CYLINDER ESCUTCHEON SS	SS	Pair	1.0
7		IWFSBTB22	CALINI 22MM PULL HANDLE BACK TO BACK FIXING SET WITH ROSETTE FOR: IW1330 - 25MM DIA | SS	SS	Set	1.0
8		IW4123SS	IRONWARE 150MM FLUSH LEVER BOLT	SS	Each	2.0
9		521RN	REBATE CONVERSION SET (LONG) NP	Not Specified	Each	1.0

3 Doors on Recipe D15 KITCHEN/BOARD

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	FIRST	D15/2		ALUM FRAME	KITCHEN	0	Recipe Applied		
2	FIRST	D15/3		ALUM FRAME	BOARDROOM	0	Recipe Applied		
3	GROUND	D15/4		ALUM FRAME	LECTURE ROOM	0	Recipe Applied		

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Project	**Robertson Fire Station**
Date	**29 April, 2022**
Revision	**0**
Specified by	**Monika Steininger**
Contact	**| monika@ironware.co.za**

Ironmongery Schedule -

Recipe: D16

	Image	Product Code	Product Description	Finish	Unit	Qty
1		IW1482SS	CALINI 40*20 OVAL FLUSH PULL HANDLE	SS	Each	4.0
2		SGBM	Sliding gear by manufacturer	Not Specified	Not Specified	1.0

1 Door on Recipe D16

	Floor/Level	Door Number	Hand	Type Mark	Area / Location	Rev	Change Details	Mk Ref	Remarks
1	GROUND	D16		SLIDING	KITCHEN HATCH	0	Recipe Applied		

Total number of doors **44**

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Project	**Robertson Fire Station**
Date	**29 April, 2022**
Revision	**0**
Specified by	**Monika Steininger**
Contact	**| monika@ironware.co.za**

Bill of Quantities Itemised -

HINGES

Image	Code	Description	Finish	Unit	Qty	Rate	Total
	IW3043SS	IRONWARE 3*100MM 2BB SINKLESS HINGE SS	SS	Pair	40.5	R98.00	R3 969.00

LOCKS

Image	Code	Description	Finish	Unit	Qty	Rate	Total
	IW2001SS	IRONWARE 35MM CYLINDER SASH LOCK	SS	Each	2.0	R189.00	R378.00
	IW2013SS	IRONWARE 35MM CYLINDER DEAD LOCK	SS	Each	2.0	R169.00	R338.00
	IW2026SS	IRONWARE 50MM CYLINDER DEAD LOCK WITH ADJUSTABLE ROLLER CATCH	SS	Each	3.0	R267.00	R801.00
	IW2031	IRONWARE WC DEAD LOCK WITH 8MM FOLLOWER	SS	Each	10.0	R111.00	R1 110.00
	IW2040SS	IRONWARE 60MM CYLINDER HOOK LOCK	SS	Each	2.0	R206.00	R412.00
	IW2140SS	IRONWARE REBATE KIT FOR IW2207 | IW2219 LOCK	SS	Each	6.0	R180.00	R1 080.00
	IW2207SS	IRONWARE COMMERCIAL CYLINDER SASH LOCK	SS	Each	15.0	R205.00	R3 075.00
	IW2219SS	IRONWARE COMMERCIAL CYLINDER DEAD LOCK	SS	Each	3.0	R205.00	R615.00
	IW4060SS	IRONWARE DUST EXCLUDING SOCKET	SS	Each	7.0	R68.00	R476.00
	IW5054SS	IRONWARE ADJUSTABLE ROLLER CATCH SS	SS	Each	5.0	R136.00	R680.00
	IWI2051NPMK	IRONWARE 66MM DOUBLE CYLINDER - MASTER KEYED	NP	Each	8.0	R260.00	R2 080.00

Bill of Quantities Itemised -

LOCKS

Image	Code	Description	Finish	Unit	Qty	Rate	Total
	IWI2061NPMK	IRONWARE 66MM KNOB CYLINDER - MASTER KEYED	NP	Each	11.0	R370.00	R4 070.00
	IWI2081NPMK	IRONWARE 43MM SINGLE CYLINDER - MASTER KEYED	NP	Each	5.0	R210.00	R1 050.00

DOOR HANDLES

Image	Code	Description	Finish	Unit	Qty	Rate	Total
	IW1008H	CALINI LEVER HANDLE ON SCREW TYPE ROSETTE SS	SS	Pair	17.0	R385.00	R6 545.00
	IW1320/170	CALINI ROUND PULL HANDLE: LENGTH = 170MM | CTC =150MM | POST =19MM | SS	SS	Each	26.0	R128.00	R3 328.00
	IW1321	CALINI ROUND PULL HANDLE: LENGTH = 625MM & 325MM | CTC = 600mm & 300mm | POST =25MM | SS	SS	Set	1.0	R525.00	R525.00
	IW1331/25/450	CALINI 25*450*300CTC P/HANDLE OFFSET BT	SS	Each	12.0	R690.00	R8 280.00
	IW1482SS	CALINI 40*20 OVAL FLUSH PULL HANDLE	SS	Each	4.0	R68.00	R272.00
	IW1485SS	IRONWARE 63X44MM FLUSH RING PULL HANDLE	SS	Each	5.0	R90.00	R450.00
	IWSBP5CYLSS	CALINI 285*28MM SQUARE CYLINDER BACK PLATE | CTC = 85MM | SS	SS	Pair	2.0	R132.00	R264.00

ESCUTCHEONS & INDICATORS

Image	Code	Description	Finish	Unit	Qty	Rate	Total
	IW1903CYLSS	CALINI NARROW STYLE CYLINDER ESCUTCHEON SS	SS	Pair	2.0	R48.00	R96.00
	IW1904CYLSS	CALINI ROUND SCREW TYPE CYLINDER ESCUTCHEON SS	SS	Pair	19.7	R116.00	R2 285.20
	IW1921	IRONWARE 50MM ROUND WC INDICATOR SET	SS	Each	9.0	R185.00	R1 665.00

Bill of Quantities Itemised -

ESCUTCHEONS & INDICATORS

Image	Code	Description	Finish	Unit	Qty	Rate	Total
	IW1926	IRONWARE WC INDICATOR SET	SS	Each	1.0	R195.00	R195.00

DOOR HANDLE FIXING BOLTS

Image	Code	Description	Finish	Unit	Qty	Rate	Total
	IWFSBTB19	CALINI 19MM PULL HANDLE BACK TO BACK FIXING SET WITH ROSETTE FOR: IW1306 | IW1318 - 22MM DIA & 25MM DIA | IW1320 - 19MM DIA | SS	SS	Set	13.0	R110.00	R1 430.00
	IWFSBTB22	CALINI 22MM PULL HANDLE BACK TO BACK FIXING SET WITH ROSETTE FOR: IW1330 - 25MM DIA | SS	SS	Set	6.0	R110.00	R660.00

DOOR CLOSERS

Image	Code	Description	Finish	Unit	Qty	Rate	Total
	IS115	SLIDE CHANNEL DOOR CLOSER EN 2-3 SILVER	SIL	Each	5.0	R1 950.00	R9 750.00
	IS115RV	EN2-4 SLIDE CHANNEL DOOR CLOSER PUSH SID	SIL	Each	4.0	R2 280.00	R9 120.00
	QS700DA/1	QS700DA/1 DELAYED ACTION WITH ARM 2-3	SIL	Each	1.0	R1 280.00	R1 280.00
	QS762	QS762 FIRE DOOR COORDINATOR 42"	SIL	Each	3.0	R1 550.00	R4 650.00

ACCESSORIES

Image	Code	Description	Finish	Unit	Qty	Rate	Total
	EB3013	HOOK CABIN 150MM CP	CP	Each	10.0	R113.60	R1 136.00
	IW5001SC	IRONWARE ROUND DOOR STOP	SC	Each	10.0	R84.80	R848.00
	IW5009SC	IRONWARE MAGNETIC FLOOR DOOR STOP/HOLDER	SC	Each	3.0	R64.00	R192.00
	IW5034	IRONWARE HOOK & BUFFER	SS	Each	9.0	R48.00	R432.00

Bill of Quantities Itemised -

ACCESSORIES

Image	Code	Description	Finish	Unit	Qty	Rate	Total
	IW6002SS	IRONWARE 150*150MM OUTLINE ENGRAVED SS MALE AND FEMALE	SS	Each	1.0	R125.00	R125.00
	IW6005SS	IRONWARE 150*150MM OUTLINE ENGRAVED SS DISABLED	SS	Each	1.0	R125.00	R125.00

DOOR BOLTS

Image	Code	Description	Finish	Unit	Qty	Rate	Total
	DFB-SC-180	150MM FLUSH LEVER BOLT SC	SS	Each	8.0	R244.40	R1 955.20
	IW4123SS	IRONWARE 150MM FLUSH LEVER BOLT	SS	Each	18.0	R79.20	R1 425.60

KICK PLATES

Image	Code	Description	Finish	Unit	Qty	Rate	Total
	KP1.2*15*85	1.2S.S K/P 150*<850MM	SS	Each	4.0	R167.00	R668.00

SLIDING GEAR

Image	Code	Description	Finish	Unit	Qty	Rate	Total
	ST100A	STRAIGHTAWAY 100A TOP HUNG SLIDING HW	SIL	Each	2.0	R1 450.00	R2 900.00

NOT SPECIFIED

Image	Code	Description	Finish	Unit	Qty	Rate	Total
	521RN	REBATE CONVERSION SET (LONG) NP	Not Specified	Each	3.0	R396.90	R1 190.70

INFORMATION

Image	Code	Description	Finish	Unit	Qty	Rate	Total
	HBM	Hinges by manufacturer	Not Specified	Not Specified	16.0	R0.00	R0.00
	SGBM	Sliding gear by manufacturer	Not Specified	Not Specified	1.0	R0.00	R0.00

www.ironmongerywarehouse.co.za

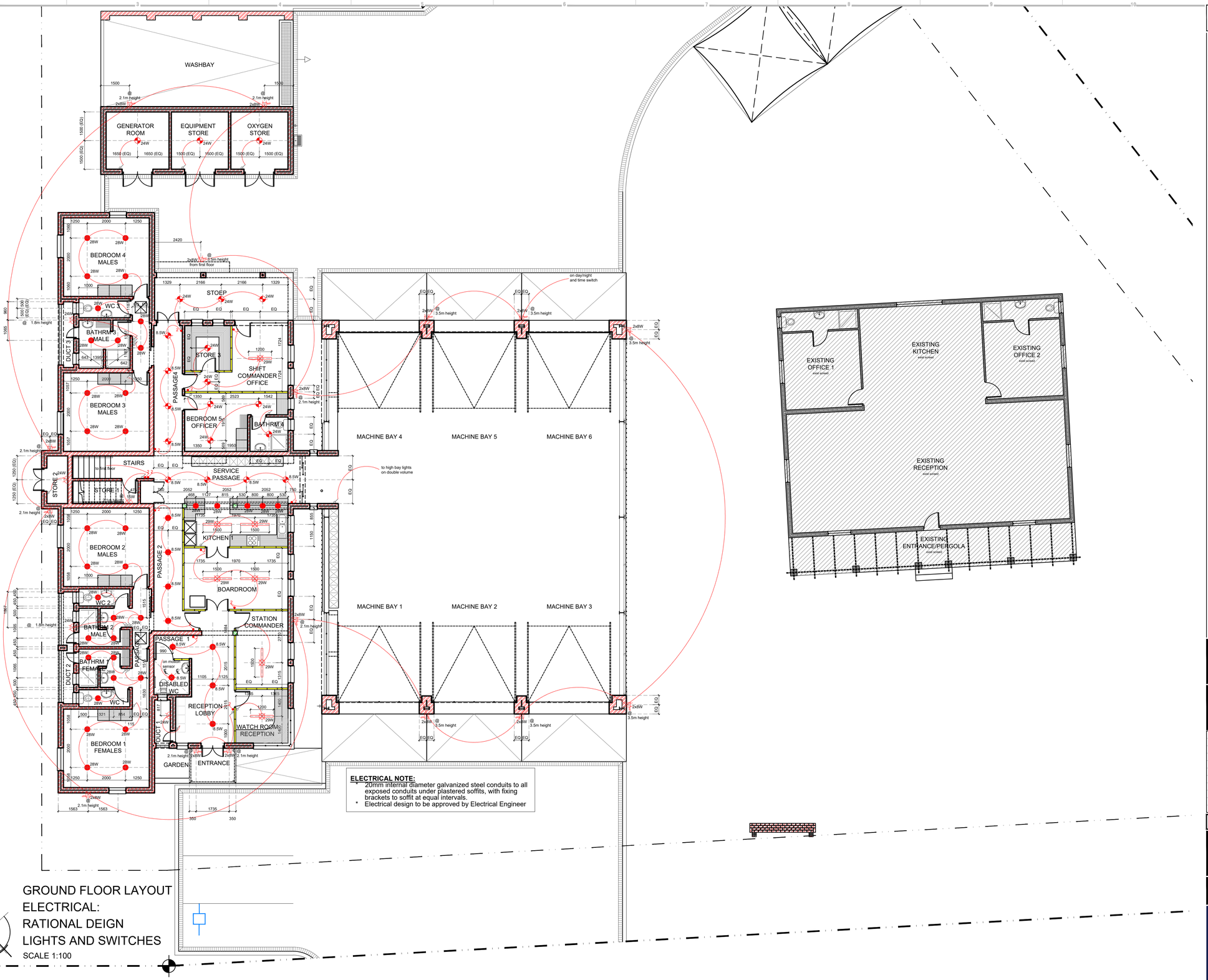
Project	**Robertson Fire Station**
Date	**29 April, 2022**
Revision	**0**
Specified by	**Monika Steininger**
Contact	**| monika@ironware.co.za**

Bill of Quantities Itemised -

INFORMATION

Image	Code	Description	Finish	Unit	Qty	Rate	Total
	SPECIALIST	BY SPECIALIST	Not Specified	Each	1.0	R0.00	R0.00

Provisional Budget Excluding V.A.T **R81 926.70**



ELECTRICAL LEGEND

SURFACE MOUNTED LIGHT FITTING colour: black	
LOW VOLTAGE RECESSED TILT DOWNLIGHT colour: black	
SURFACE MOUNTED LOW VOLTAGE TILT DOWNLIGHT colour: black	
HIGH BAY INDUSTRIAL LIGHT colour: black	
WALL MOUNTED WEATHERPROOF LIGHT colour: black	
WALL LIGHT - (1,8m HIGH) colour: black	
FLUORESCENT SURFACE MOUNTED BRIGHTVIEW DIFFUSER IN 900, 1200 OR 1500MM LENGTHS colour: black	
LIGHT SWITCH - "Veti Range" from LIGHTNING WAREHOUSE or similar approved colour: black	
2 WAY SWITCH - "Veti Range" from LIGHTNING WAREHOUSE or similar approved colour: black	

ELECTRICAL NOTE:

- 20mm internal diameter galvanized steel conduits to all exposed conduits under plastered soffits, with fixing brackets to soffit at equal intervals.
- Electrical design to be approved by Electrical Engineer

GROUND FLOOR LAYOUT
ELECTRICAL:
RATIONAL DEIGN
LIGHTS AND SWITCHES
SCALE 1:100

General Notes A1

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sign off client:

sign off architect:

sign off engineer:

rev:	description:	by:	date:
TEN	Issued for TENDER	TG	2022.05.31
B	Issued for SUBMISSION	TG	2021.11.02
A	Issued for INFORMATION	TG	2021.09.23

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no.:
ERF 8250
ROBERTSON

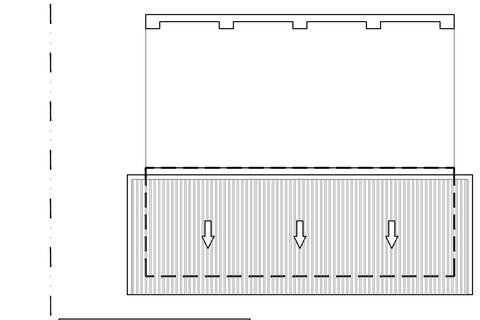
Tusk Construction Support Services
3 High Street
1st Floor
Rosenpark
Tygervalley
Bellville
Cape Town
Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za
ARCHITECTURE

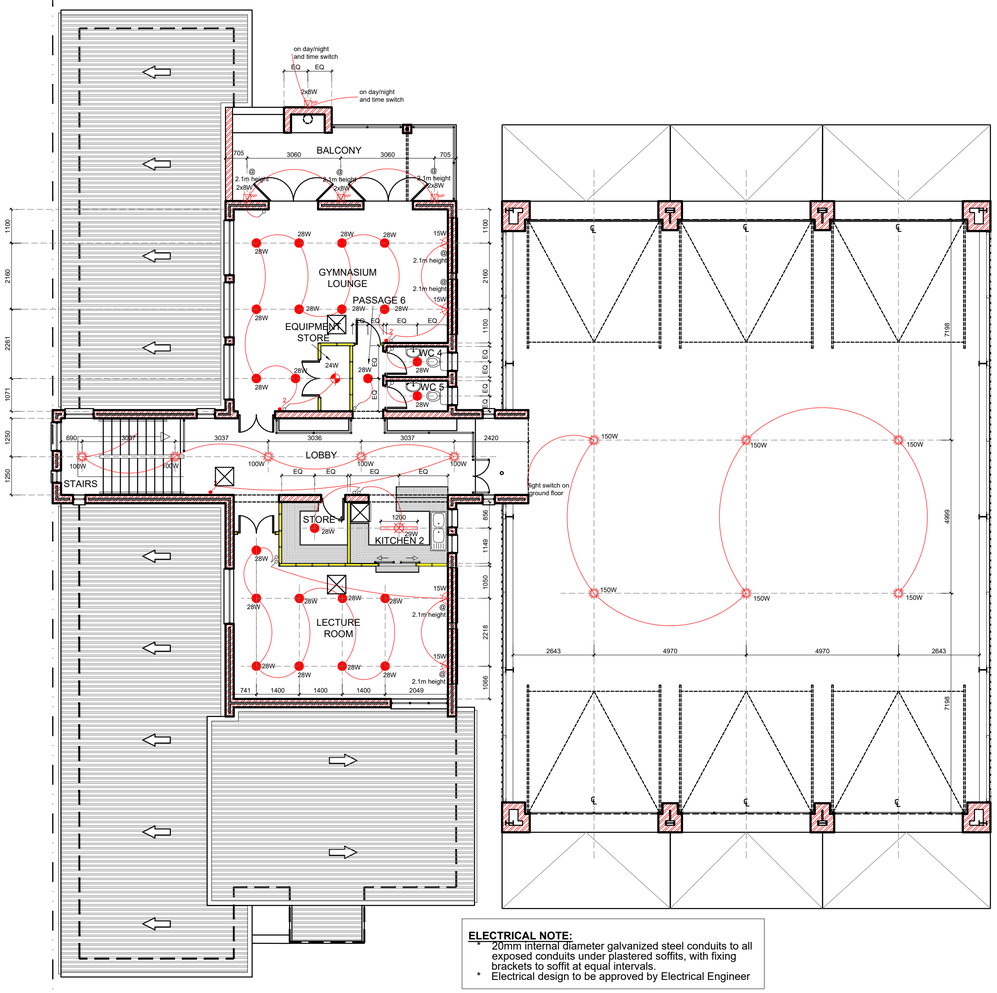
drawing title:
ELECTRICAL
LIGHTS AND SWITCHES
GROUND FLOOR LEVEL

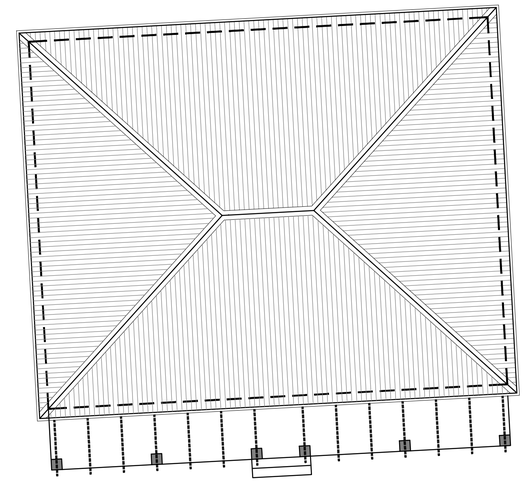
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Arch	1:100	2021.06.23

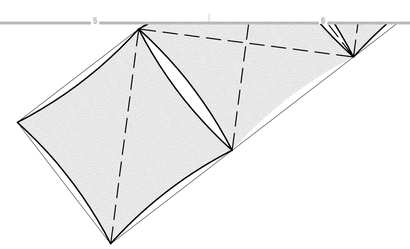
design:	drawn:	checked:
AN	TG	AN

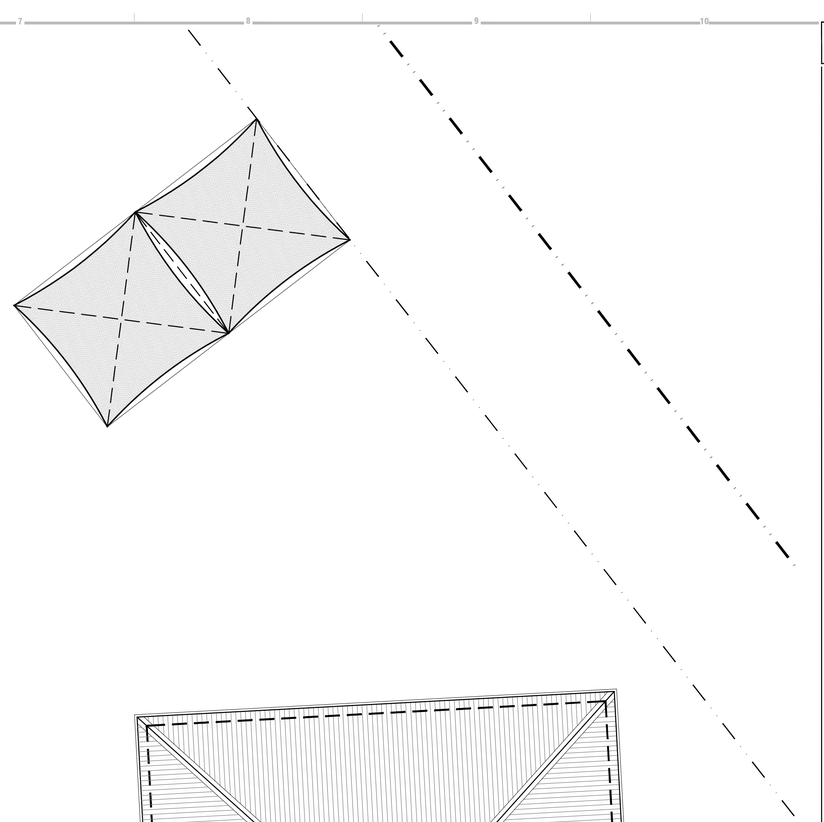
project:	dwg no:	rev:
RFS/21	700	TEN











ELECTRICAL LEGEND

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LOW VOLTAGE RECESSED TILT DOWNLIGHT colour: black	
SURFACE MOUNTED LOW VOLTAGE TILT DOWNLIGHT colour: black	
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ELECTRICAL NOTE:

- 20mm internal diameter galvanized steel conduits to all exposed conduits under plastered soffits, with fixing brackets to soffit at equal intervals.
- Electrical design to be approved by Electrical Engineer

FIRST FLOOR LAYOUT
ELECTRICAL:
RATIONAL DESIGN
LIGHTS AND SWITCHES
SCALE 1:100

General Notes A1

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sign off architect:

sign off engineer

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TEN	Issued for TENDER	TG	2022.05.31
B	Issued for SUBMISSION	TG	2021.11.02
A	Issued for INFORMATION	TG	2021.09.23

TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no: **ERF 8250 ROBERTSON**

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3 High Street
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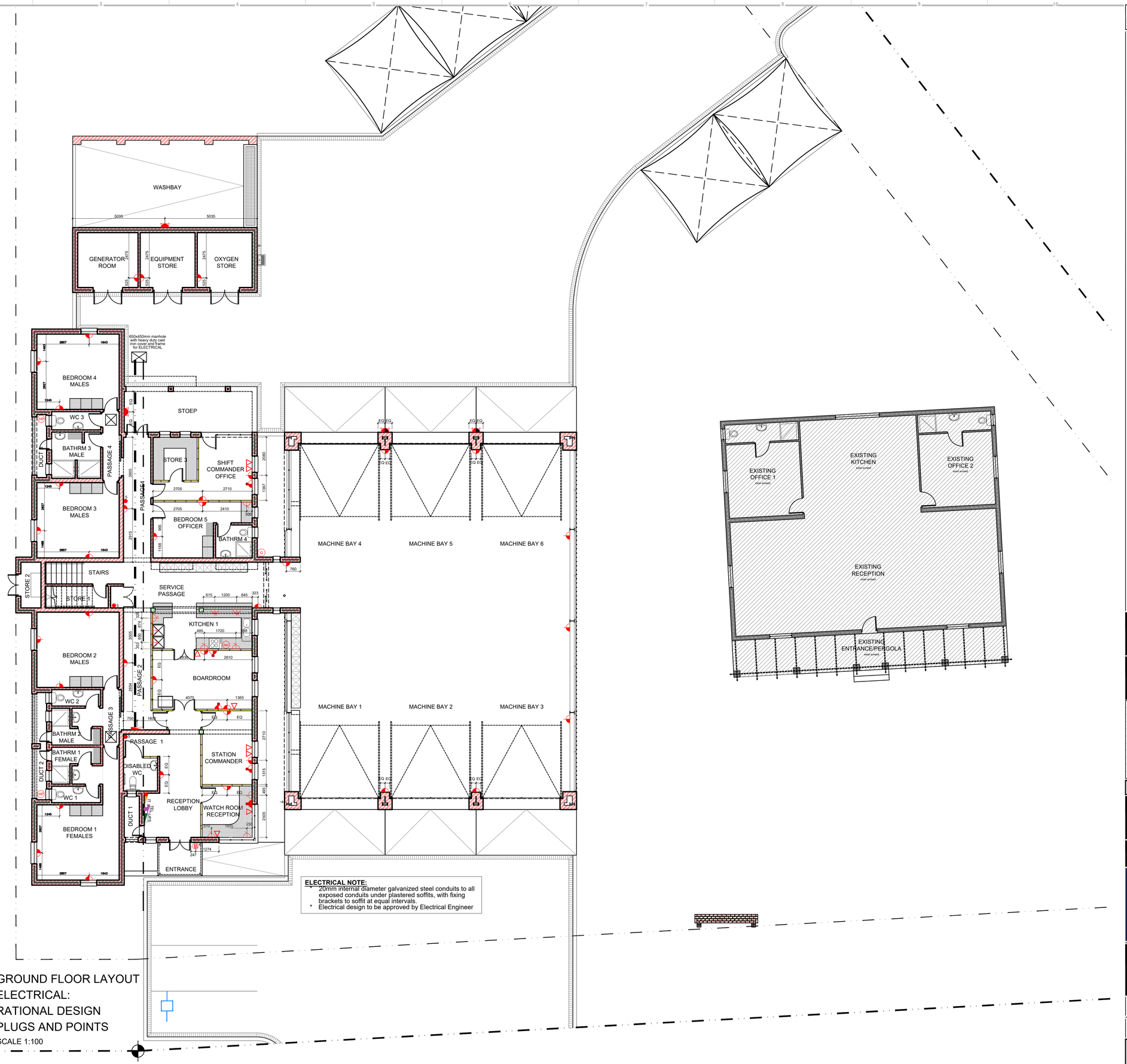
TUSK ARCHITECTURE

drawing title: **ELECTRICAL LIGHTS AND SWITCHES FIRST FLOOR LEVEL**

discipline:	scale:	date:
Arch	1:100	2021.06.23

design:	drawn:	checked:
AN	TG	AN

project:	dwg no:	rev:
RFS/21	701	TEN



ELECTRICAL NOTE:

* 20mm internal diameter galvanized steel conduits to all exposed conduits under plastered soffits, with fixing brackets to soffit at equal intervals.
* Electrical design to be approved by Electrical Engineer

PLUGS AND POINTS	
SYMBOL	DESCRIPTION
	TV AERIAL CONNECTED TO SATELITE CABLE
	DOUBLE 15 AMP PLUG AT CEILING FOR GARADE DOOR MOTOR
	DOUBLE 15 AMP PLUG AT 300 ABOVE FFL TO CENTRE OF PLUG
	DOUBLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT 1200 ABOVE FFL TO CENTRE OF PLUG
	SINGLE 15 AMP PLUG AT HEIGHT TO CLIENTS APPROVAL (+/-1800mm AFFL) - for TV
	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
HP	200 litre INTEGRATED HEAT PUMP, IHP200 from SIRAC or similar approved
G	SUPERLINE 600 DUAL 150litres (DSG-150) from KWIKOT or similar approved
B	DOOR BELL
	5 (as indicated) 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	5 (as indicated) 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
SO	32AMP STOVE ISOLATOR
	110mm PVC electrical conduit
	50mm PVC electrical conduit for future use
	SINGLE DEDICATED PLUG POINT AT 300 ABOVE FFL TO CENTRE OF PLUG
	SINGLE DEDICATED PLUG POINT AT 1200 ABOVE FFL TO CENTRE OF PLUG
	DATA POINT
IT	DATA/IT DB
TEL	TELKOM DB
UPS	UPS DB
	SATELLITE DISH
	WIFI DISH
	SURVEILLANCE CAMERA POINT

GROUND FLOOR LAYOUT
ELECTRICAL:
RATIONAL DESIGN
PLUGS AND POINTS
SCALE 1:100

General Notes A1

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sign off architect:

sign off engineer

rev:	description:	by:	date:
TEN	Issued for TENDER	TG	2022.05.31
B	Issued for SUBMISSION TEN	TG	2021.11.02
A	Issued for INFORMATION	TG	2021.09.23

TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no.: **ERF 8250 ROBERTSON**

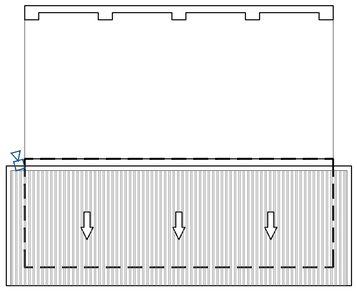
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TUSK ARCHITECTURE

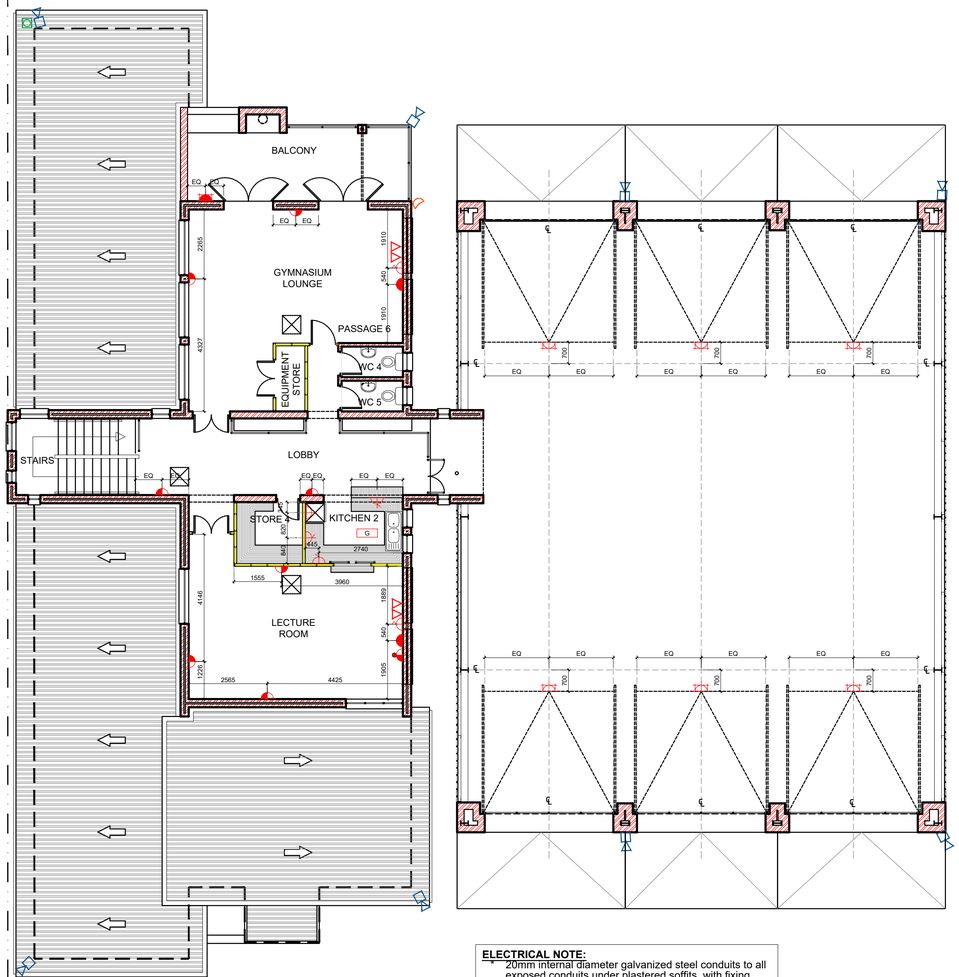
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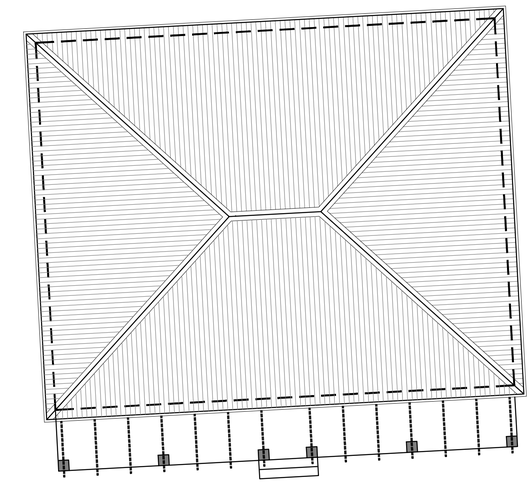
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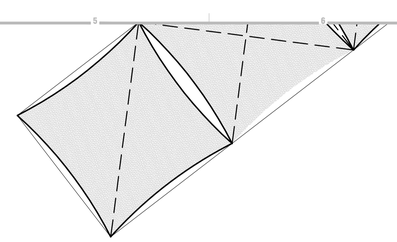
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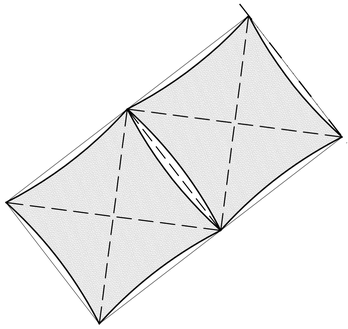
project:	dwg no:	rev:
RFS/21	702	TEN











ELECTRICAL NOTE:
* 20mm internal diameter galvanized steel conduits to all exposed conduits under plastered soffits, with fixing brackets to soffit at equal intervals.
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PLUGS AND POINTS	
SYMBOL	DESCRIPTION
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	DOUBLE 15 AMP PLUG AT CEILING FOR GARADE DOOR MOTOR
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	WATERPROOF SINGLE EXTERNAL PLUG POINT
	DISTRIBUTION BOARD
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	5 (as indicated) 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
	5 (as indicated) 32mm dia CONDUIT IN BRICKWORK TO TOP OF CEILING
iso	32AMP STOVE ISOLATOR
	110mm PVC electrical conduit
	50mm PVC electrical conduit for future use
	SINGLE DEDICATED PLUG POINT AT 300 ABOVE FFL TO CENTRE OF PLUG
	SINGLE DEDICATED PLUG POINT AT 1200 ABOVE FFL TO CENTRE OF PLUG
	DATA POINT
IT	DATA/T DB
TEL	TELKOM DB
UPS	UPS DB
	SATELLITE DISH
	WIFI DISH
	SURVEILLANCE CAMERA POINT

FIRST FLOOR LAYOUT
ELECTRICAL:
RATIONAL DESIGN
PLUGS AND POINTS
SCALE 1:100

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sign off engineer:

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TEN	Issued for TENDER	TG	2022.05.31
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TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no: **ERF 8250 ROBERTSON**

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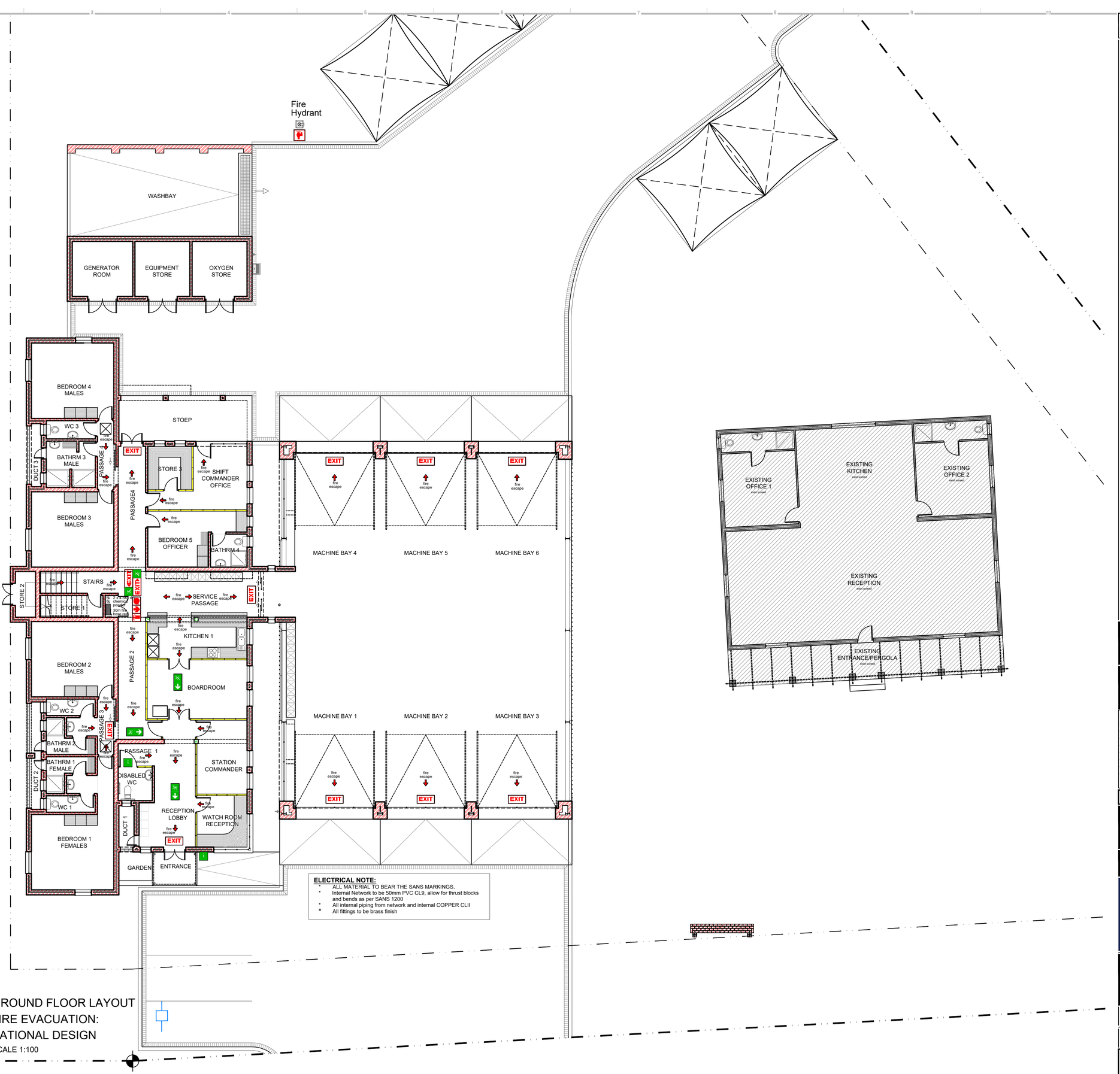
TUSK ARCHITECTURE

drawing title: **ELECTRICAL PLUGS AND POINTS FIRST FLOOR LEVEL**

discipline:	scale:	date:
Arch	1:100	2021.06.23

design:	drawn:	checked:
AN	TG	AN

project:	dwg no:	rev:
RFS/21	703	TEN



FIRE NOTES:

1. ALL WORK TO COMPLY WITH SABS 0400-1990.
2. OCCUPANCY CLASSIFICATION G1.
3. FIRE HYDRANTS TO BE INSTALLED IN ACCORDANCE WITH SABS 1128.
4. HOSE REELS TO BE INSTALLED IN ACCORDANCE WITH SABS 543.
5. EXTINGUISHERS TO BE INSTALLED IN ACCORDANCE WITH SABS 0105.
6. WATER SUPPLY FOR FIRE FIGHTING EQUIPMENT TO BE INDEPENDENT OF DOMESTIC WATER SUPPLY.
7. WATER SUPPLY AND FIRE FIGHTING EQUIPMENT TO COMPLY WITH PART W AND WATER BRANCH BY LAWS
8. STRUCTURAL ELEMENTS AND COMPONENTS TO COMPLY WITH TT7.
9. MARKING AND SIGNAGE TO COMPLY WITH SABS 1186.
10. WALL COVERINGS TO COMPLY WITH TT15.
11. FLOOR COVERINGS TO COMPLY WITH TT14.
12. SUSPENDED CEILINGS TO COMPLY WITH TT13.
13. EXIT DOORS WHERE FOR SECURITY REASONS IT IS NECESSARY TO LOCK SUCH DOORS. AN APPROVED LOCKING MECHANISM TO BE INSTALLED AS TO COMPLY WITH LOCAL BY LAWS.

PLUGS AND POINTS

SYMBOL	DESCRIPTION
	FIRE HYDRANT SIGN
	30M FIRE HOSE REEL SIGN
	FIRE EXTINGUISHER SIGN
	RED ARROW, LOCATION OF FIRE FIGHTING EQUIPMENT SIGN
	STEPS ON FIRE ESCAPE
	WHEELCHAIR ACCESS SIGN
	ESCAPE ROUTE RIGHT SIGN
	ESCAPE ROUTE LEFT SIGN
	ESCAPE ROUTE DOWN SIGN
EXIT	EMERGENCY EXIT LEFT SIGN
EXIT	EMERGENCY EXIT RIGHT SIGN
EXIT	EMERGENCY EXIT AHEAD SIGN

ELECTRICAL NOTE:

- ALL MATERIAL TO BEAR THE SANS MARKINGS.
- Internal Network to be 50mm PVC CL9, allow for thrust blocks and bends as per SANS 1200
- All internal piping from network and internal COPPER CLII
- All fittings to be brass finish

GROUND FLOOR LAYOUT
FIRE EVACUATION:
RATIONAL DESIGN
SCALE 1:100

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TEN	Issued for TENDER	TG	2022.05.31
B	Issued for SUBMISSION	TG	2021.11.02
A	Issued for INFORMATION	TG	2021.09.23

TENDER

project:
PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no:
ERF 8250
ROBERTSON

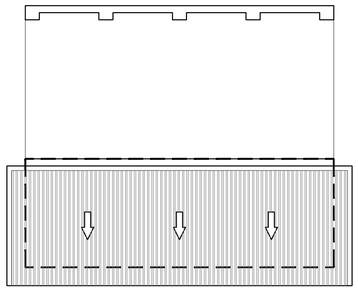
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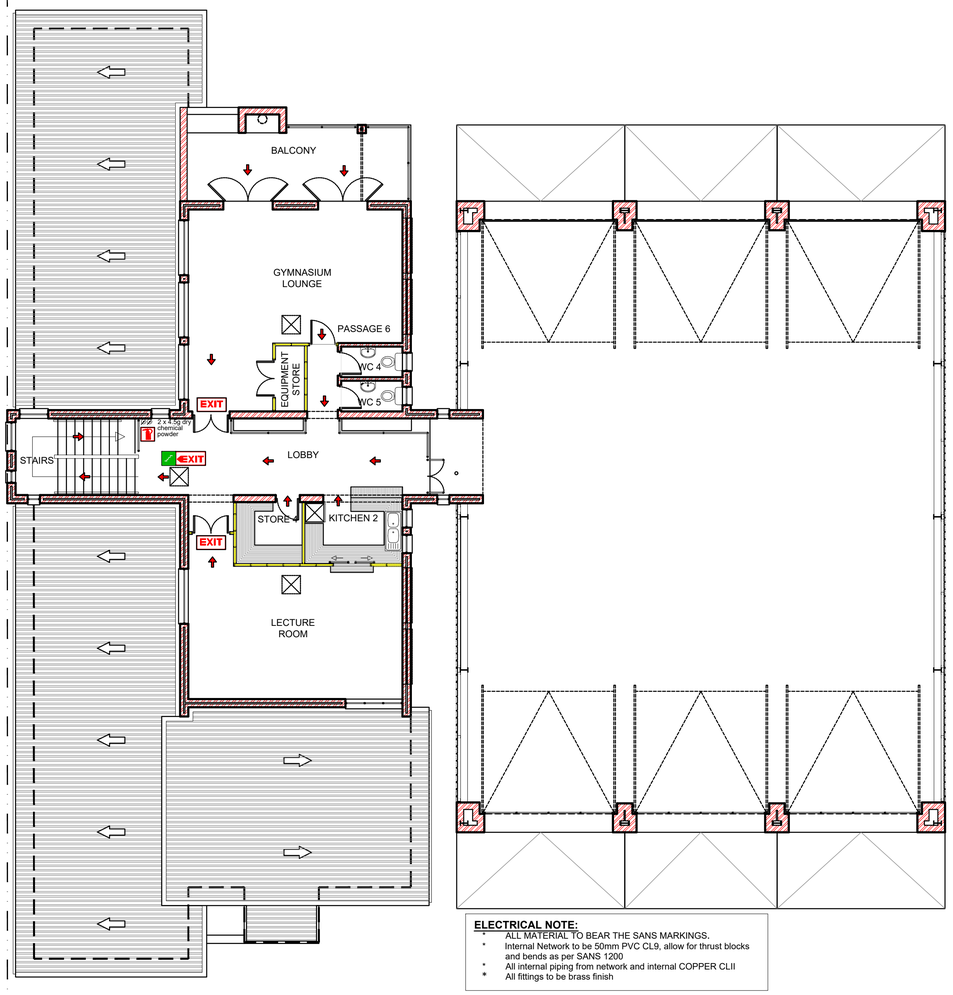
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FIRE EVACUATION GROUND FLOOR

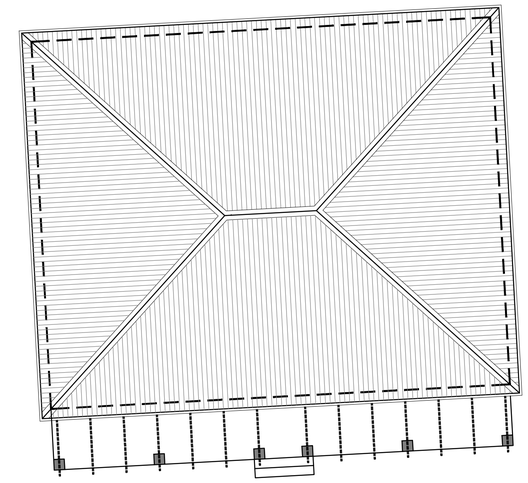
discipline:	scale:	date:
Arch	1:100	2021.06.23

design:	drawn:	checked:
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project:	dwg no:	rev:
RFS/21	704	TEN







FIRE NOTES:

1. ALL WORK TO COMPLY WITH SABS 0400-1990.
2. OCCUPANCY CLASSIFICATION G1.
3. FIRE HYDRANTS TO BE INSTALLED IN ACCORDANCE WITH SABS 1128.
4. HOSE REELS TO BE INSTALLED IN ACCORDANCE WITH SABS 543.
5. EXTINGUISHERS TO BE INSTALLED IN ACCORDANCE WITH SABS 0105.
6. WATER SUPPLY FOR FIRE FIGHTING EQUIPMENT TO BE INDEPENDENT OF DOMESTIC WATER SUPPLY.
7. WATER SUPPLY AND FIRE FIGHTING EQUIPMENT TO COMPLY WITH PART W AND WATER BRANCH BY LAWS
8. STRUCTURAL ELEMENTS AND COMPONENTS TO COMPLY WITH TT7.
9. MARKING AND SIGNAGE TO COMPLY WITH SABS 1186.
10. WALL COVERINGS TO COMPLY WITH TT15.
11. FLOOR COVERINGS TO COMPLY WITH TT14.
12. SUSPENDED CEILINGS TO COMPLY WITH TT13.
13. EXIT DOORS WHERE FOR SECURITY REASONS IT IS NECESSARY TO LOCK SUCH DOORS, AN APPROVED LOCKING MECHANISM TO BE INSTALLED AS TO COMPLY WITH LOCAL BY LAWS.

PLUGS AND POINTS	
SYMBOL	DESCRIPTION
	FIRE HYDRANT SIGN
	30M FIRE HOSE REEL SIGN
	FIRE EXTINGUISHER SIGN
	RED ARROW, LOCATION OF FIRE FIGHTING EQUIPMENT SIGN
	STEPS ON FIRE ESCAPE
	WHEELCHAIR ACCESS SIGN
	ESCAPE ROUTE RIGHT SIGN
	ESCAPE ROUTE LEFT SIGN
	ESCAPE ROUTE DOWN SIGN
EXIT	EMERGENCY EXIT LEFT SIGN
EXIT	EMERGENCY EXIT RIGHT SIGN
EXIT	EMERGENCY EXIT AHEAD SIGN

ELECTRICAL NOTE:

- ALL MATERIAL TO BEAR THE SANS MARKINGS.
- Internal Network to be 50mm PVC CL9, allow for thrust blocks and berds as per SANS 1200
- All internal piping from network and internal COPPER CLII
- All fittings to be brass finish

FIRST FLOOR LAYOUT
FIRE EVACUATION:
RATIONAL DESIGN
SCALE 1:100

General Notes A1

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TENDER

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erf no:
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ROBERTSON

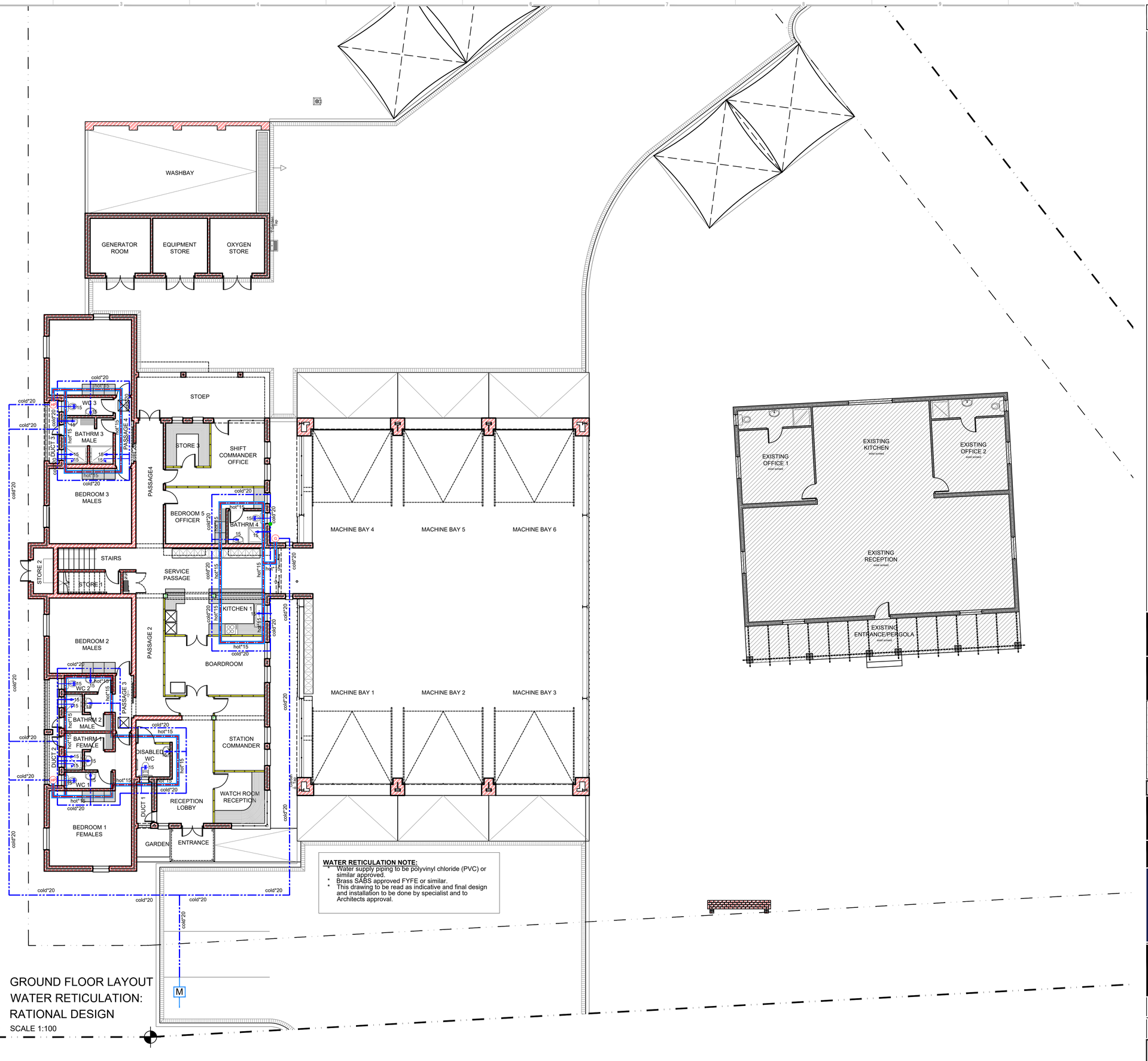
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drawing title:
FIRE EVACUATION FIRST FLOOR

discipline:	scale:	date:
Arch	1:100	2021.06.23

design:	drawn:	checked:
AN	TG	AN

project:	dwg no:	rev:
RFS/21	705	TEN



WATER RETICULATION NOTE:

* Water supply piping to be polyvinyl chloride (PVC) or similar approved.
* Brass SABS approved FYFE or similar.
* This drawing to be read as indicative and final design and installation to be done by specialist and to Architects approval.

SANS 10252-1 WATER LEGEND	
	PIPE CARRYING COLD WATER
	PIPE CARRYING HOT WATER
	LAGGED PIPE
	MIXER (SINGLE MANUAL CONTROLS, SINGLE LEVER)
	SHOWER (FIXED)
	STOP COCK
M	WATER METER
	RISER PIPE

GROUND FLOOR LAYOUT
WATER RETICULATION:
RATIONAL DESIGN
SCALE 1:100

General Notes A1

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TENDER

project:
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erf no:
ERF 8250
ROBERTSON

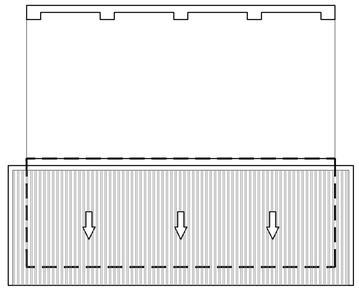
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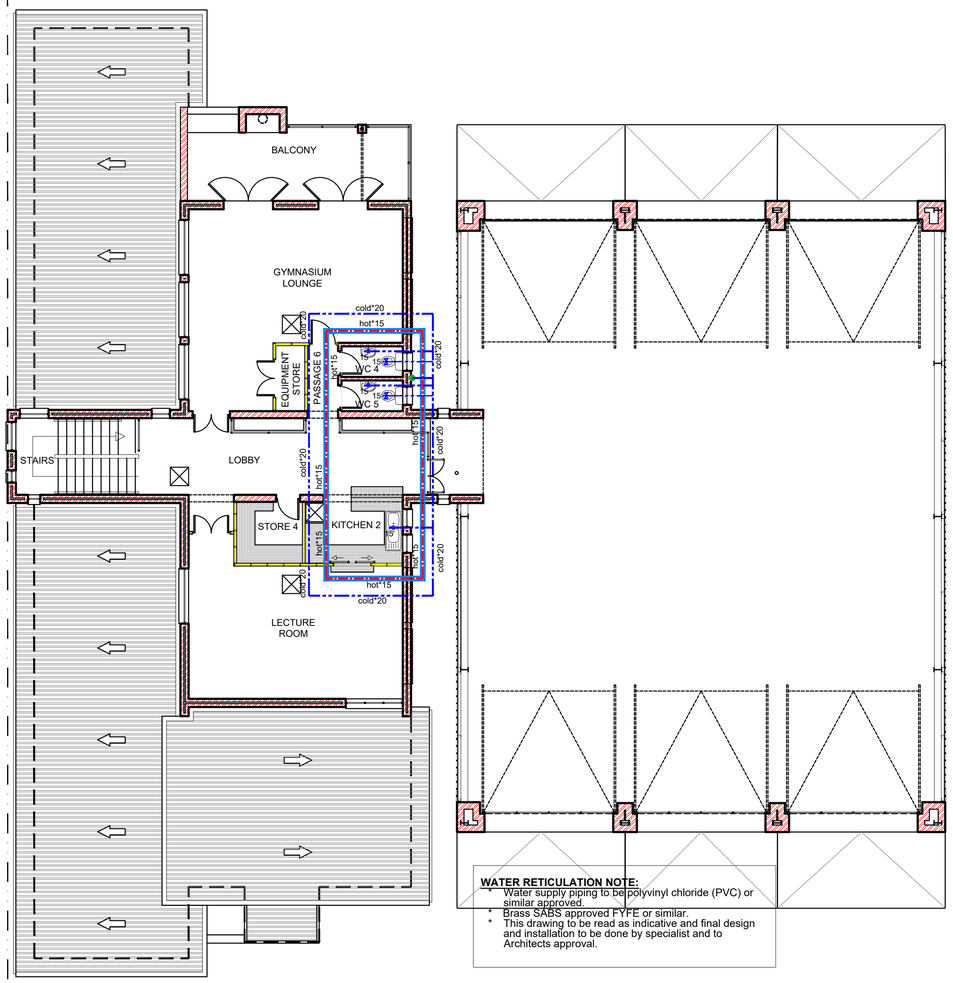
drawing title:
SCHEMATIC WATER RETICULATION GROUND FLOOR

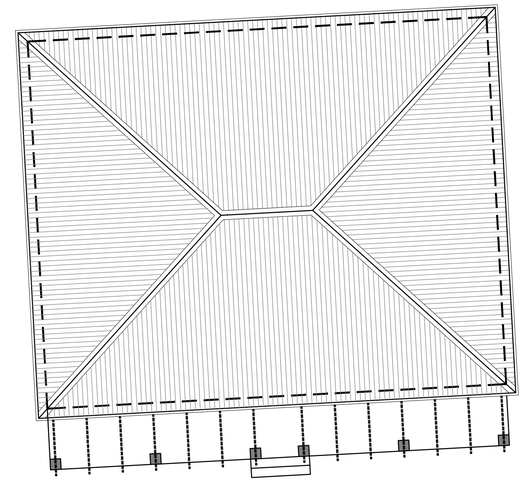
discipline:	scale:	date:
Arch	1:100	2021.06.23

design:	drawn:	checked:
AN	TG	AN

project:	dwg no:	rev:
RFS/21	706	TEN







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	STOP COCK
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FIRST FLOOR LAYOUT
WATER RETICULATION:
RATIONAL DESIGN
SCALE 1:100

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TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no: **ERF 8250 ROBERTSON**

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TUSK ARCHITECTURE

drawing title: **SCHEMATIC WATER RETICULATION FIRST FLOOR**

discipline:	scale:	date:
Arch	1:100	2021.06.23

design:	drawn:	checked:
AN	TG	AN

project:	dwg no:	rev:
RFS/21	707	TEN

GENERAL NOTES

1. All setting-out dimensions, levels and dimensions to be confirmed by the Contractor on site. Any discrepancies to be brought to the Engineer's attention. Under no conditions are dimensions to be scaled off the drawings.
2. Engineering drawings and Structural construction notes are to be read in conjunction and reference to the relevant Architectural, Civil, Structural, Mechanical & Electrical engineers' drawings as well as any specifications in the Bill of Quantities. Errors, omissions & discrepancies to be brought to the Engineer attention prior to commencement of work.
3. Information and specification contained on drawings takes preference over information in the Bill of Quantities.
4. Alternative products to those specified may only be used with Engineer's approval.
5. Refer to Architect's drawings for waterproofing details and specifications.
6. The health and safety procedures and regulations are to be implemented on the site and the Contractor is to ensue that these are maintained throughout the contract duration.
7. Dewatering of the site and prevention of damages to existing site environs, elements and equipment is to be strictly enforced at all times throughout the duration of the contract.
8. Design, materials used and method of construction to be in accordance with SANS 10100, 10137 and 10160 to 10164. The Contractor is to ensure that copies of all the relevant SANS Specifications referred to on the drawings and in the project documentation shall be available for reference on site.
9. Latest SANS 2001 (previously SANS 1200) clauses, project specifications and relevant contract documentation to be applied throughout the project duration and any deviation from these to be conveyed to Engineer and Project Team prior to implementation.
10. It is the contractor's responsibility to ensure that he understands and complies with all relevant engineering drawings and specifications and is adequately experienced to undertake all aspects of the work safely.
11. All details and dimensions pertaining to any existing structures are to be confirmed on site by the contractor and the engineer is to be immediately informed of any unexpected aspects pertaining to them.
12. The contractor is at all times to be fully responsible for quality control on site ensuring strict compliance with all drawings, details and specifications issued for construction by the professional team.
13. No element of work will be deemed finished until successful required test results for said element have been received and accepted by the engineer.

FOUNDATIONS AND EARTHWORKS

1. Refer to SANS 2001-BE1 for earthworks specification.
2. All bases and foundations are placed centrally below columns and brickwork unless otherwise shown.
3. Retaining walls, footings and column foundations to be cast directly against the vertical excavated faces unless otherwise shown.
4. Backfilling behind retaining walls to Engineer's approval. Where applicable, backfilling shall be done simultaneously on both sides of walls.
5. All rising foundation brickwork to have continuous brick force every 2nd course and cavity to be filled to underside of stepped DPC with 13mm aggregate, 15MPa concrete taking care not to allow any honeycombing.

SCREEDS

1. SAND-CEMENT SCREEDS

1.1. All screeds are to be minimum 30mm thick. Joints should be provided over joints in the slab/surface bed below. Joints in screed are to extend at least halfway through the thickness of the topping. The aspect ratio of the panel sizes should be no more than 1:1/2. Tile joints should coincide with the screed joints and sealed with polyurethane sealant.

1.2. Materials for Screed:

1.2.1. The screed should be CEM II/A 42,5 N cement and clean well-graded sand of average or low water requirement. Normal concrete sand to be used, not plaster sand. Minimum characteristic strength of 30MPa at 28 days. Mix proportions according to SANS 10190

SURFACE BEDS

1. Once the concrete is firmly set, 7 to 15 hours after pouring, commence the saw-cut joints. Joints in finishes to be placed directly over all joints in the surface beds.
2. All backfilling under surface beds to comply with SANS 2001-BE1. Imported approved cohesionless backfill, in layers not exceeding 150mm, to be compacted to 100% MOD AASHTO. In-situ backfill, if approved, to be compacted to 98% MOD AASHTO.
3. The contractor shall provide results of compaction testing (in compliance with SANS 2001-BE1 5.1.1 and 5.1.2.1) of the earthworks layers for approval, before casting surface beds.
4. All surface beds to have a minimum thickness 250 micron DPC below them with adequate laps and turned up to the full depth of surface bed as bond breaker against all brickwork on all sides. Top of surface bed level to be a minimum of 150mm above the final outside levels as per SANS 10400, unless specifically specified otherwise.
5. PT surface bed to have a 1:200 slope to allow for drainage.

REINFORCEMENT

1. Reinforcement to be cut and bent in accordance with SANS 282.
2. Welded mesh fabric to comply with SANS 1024.
3. Refer to SANS 2001-CC1 as well as SANS 920 for all reinforcement manufacture and fixing.
4. Reinforcement is not to be cut, or heat treated without the Engineers approval.
5. The Contractor is to ensure that “Pull Out Bars” have no kinks once straightened.
6. All reinforcement is to be inspected and checked by the Contractor prior to notifying the Engineer. The Engineer shall be given a minimum of 48 hour (two days) warning prior to his inspection of the reinforcement. The concrete pours are to be scheduled to suit this requirement.
7. On Multi storey buildings back propping is to be agreed with engineer in detail and no stripping is allowed before permission is obtained from the engineer.
8. It is the contractor's responsibility to ensure that all reinforcement and cover blocks are correctly and accurately fixed, and remain in place during pouring
9. The engineer will not sign off on any concrete cast where he was not notified to carry out a rebar inspection visit.
10. The following quantities are given in terms of rebar mass per cubic metre of concrete, and shall be verified against project specifcations by the Engineer and Contractor:

    Strip Footings: 85 kg/m³
    Bases: 100 kg/m³
    Columns: 200 kg/m³
    Beams: 250 kg/m³
    Slabs: 110 kg/m³

CONCRETE

1. Refer to SANS 2001-CC1 for all concrete specifications and read in conjunction with project specifications where applicable.
2. All cements used to be CEM II 42.5 N, unless other specified.
3. All concrete elements to be moist cured to and according to SABS 1200 for a minimum period of 7 days after final set of concrete.
4. Stripping of shuttering and propping shall be in accordance with SANS 2001-CC1.
5. Sandstone aggregates will not be approved.
6. Contractor to submit all concrete mix designs to the engineer prior to commencement of construction.
7. The Contractor is to take six test cubes from each day's casting and from at least every 50m3 of concrete of each grade placed. Cubes are to be carefully marked and cured. An independent accredited lab is to crush three cubes at 7 days and three cubes at 28 days. (According to SANS 5863)
8. **Minimum concrete strength at 28 days to be 30MPa.**
9. Refer to Architect's drawings for positions of rain-water down-pipes and associated equipment, including waterproofing details.
10. No openings, sleeves or recesses that are not shown on the drawings, may be constructed through any structural member or close to any column, without the explicit approval of the Engineer.
11. Cast-in items to be hot-dipped galvanized, clean, free of oil, dirt or any other foreign material that may impair the bond with concrete. Placing tolerances to SANS 2001-CC1.
12. Beam dimensions shown on plans are:
    12.1. Down-stand beams; width of beam (a) x depth of beam (b) including slab depth.
    12.2. Up-stand beams; width of beam (a) x depth of beam (b) including slab depth.
13. All exposed corners are to have 25 x 25mm chamfers.
14. All specialist's grouts and epoxies to be in strict accordance to manufacturer's specification.
15. Unless otherwise shown all columns are placed symmetrically on grid lines.
16. Exposed concrete finish of walls, upstands and soffits:
    Concrete degree of accuracy 2 as per SANS 2001-CC1, unless stated otherwise by Architect.
17. On vertical concrete elements consisting of more than one lift, care is to be taken to seal the underside of the shutter to avoid grout leaking onto previously poured elements.
18. All structural use of concrete to be in accordance with the requirements of:
    18.1. SANS 10100-01 (2000): The structural use of Concrete part 1: design
    18.2. SANS 10100-02 (1994): The structural use of Concrete part 2: materials and execution of work.
20. Holes, chases and fixing blocks: no holes or chases, other than those shown on the drawings or approved by the engineer, shall be cut or otherwise formed in the concrete. The manner of attaching fixtures to be embedded in the concrete shall be subject to approval by the engineer.
21. Excess concrete such as, burrs, spillage, overcast, etc. Is to be rubbed down smooth and have a similar colour variation between the different concrete elements.

STRUCTURAL STEELWORK:

1. All setting out dimensions, levels and detail dimensions are to be checked and confirmed by the Contractor and relevant Sub-Contractor prior to commencement of fabrication. This applies to both works undertaken in the workshop and on site.
2. Refer to SANS 2001-CS1 and SANS 1431 for Structural Steelwork Specification.
3. All structural steelwork shall be grade S355JR. Cold-formed open steel sections are to have a minimum yield stress of 240 MPa. The Contractor is to acquire tensile strength testing results for each batch of steel from which cold-formed sections are sourced.
4. The Contractor is to submit a certificate verifying the structural steel grade from the steel manufacturer.
5. The contractor is responsible for the design, erection, maintenance and removal, if necessary, of all temporary bracing and/or propping. Where required due to transport constraints, the Contractor is to submit a proposal for the Engineers approval of the splicing of trusses and larger members.
6. The Contractor/Fabricator to ensure at all times that centres of gravity of members intersect at nodal points, unless the eccentricities are specified on engineer's drawings.
7. It is the responsibility of the Contractor/Fabricator/Supplier to ensure the availability and delivery of products and steel profiles specified and shown on the drawings well ahead of the construction programme to avoid delays.
8. Structural bolts shall be grade 8.8 hot-dipped-galvanized unless otherwise noted.
9. Provide cementitious non-shrink grout under base plates prior to any loads being applied. Hot-dip galvanized laminated finger shaped packing to be provided under base plates.
10. Welding to conform to the SANS 10167 and 1044 specifications:
11. Unless otherwise shown, the minimum weld size shall be that of the thickest plate of the connecting plates/elements, so that the connection transfers the full force that can be developed in connecting members.
12. Electrodes shall be E7018 when using electric arc welding. The Contractor is to motivate and apply in writing for the approval of any alternative welding process that may be proposed.
13. Full element strength must be achieved for all butt-welded elements.
14. Full element strength must be achieved for all splices and spliced joints.
15. Only Coded and suitably qualified Welders may undertake welding operations, both under workshop and on-site conditions.
16. On-site equipment must be in good working condition at all times and strict safety procedures must be implemented and maintained.
17. To ensure the full strength of the connection the contractor shall design all welds and gussets to achieve the required strength.
18. Quality control on welding shall be as follows:
    18.1. All welds shall be inspected using visual aids
    18.2. All butt welds: 100% ultrasonic NDT
    18.3. All fillet welds: 20% MPI
    18.4. Crane / crawl beams: 100% ultrasonic NT
19. The following applies where HSFG bolts are specified and used:
    19.1. All the contact surfaces at HSFG bolt splices shall be clean and free from oil, grease, rust, scale, paint or any other impurities at the time of bolting.
    19.2. The tightening of high strength friction-grip bolts shall be done according to the turn-of-the-nut method as specified in clause 5.3.1(a) of SANS 10094
    19.3. or
    19.4. where HSFG bolts have been specified, the contractor shall use "coronet"-type load indicating washers in conjunction with such bolts.
20. Where slotted holes are provided the nut shall be finger tightened and a lock-nut be provided unless otherwise indicated.
21. All structural steelwork including all bolts, nuts, plates and cold formed sections to be hot dipped galvanized according to SANS121/ISO 1461 Specifications.
22. A test certificate in which the quality and thickness of the galvanizing is verified shall be handed to the engineer for approval, by the contractor before fabrication commences
23. All damaged galvanizing to be painted with 2x coats of zincfix (cold galvanizing).

TEMPORARY SUPPORT WORK

1. It is always the contractor's responsibility to ensure the adequacy of temporary support work. This responsibility to include, inter alia, lateral bracing, warning signs and public protection measures.
2. Support work to remain in place until new support beams are in place and caulked and in the case of new cast in-situ concrete support, cured for a minimum of 14 days.

BRICKWORK & BLOCKWORK

1. All brickwork, blockwork, masonry units, mortars and workmanship shall comply with the following specifications:
    1.1. SANS 227:burnt clay masonry units
    1.2. SANS 285:calcium silicate masonry units
    1.3. SANS 1215:concrete masonry blocks
    1.4. SANS 10164 and SANS 10400 construction of brickwork & blockwork
    1.5. SANS 10400 and SANS 10164 specification for brickwork, blockwork, anchors, wall ties & straps
    1.6. SANS 10164 Part I - 1980 Table 1 Class II mortar
    1.7. SANS 28 cavity less then 75mm, (no single wire ties to be used)
2. Loadbearing Blockwork: minimum crushing strength = 14 MPa unless otherwise shown.
3. All other brickwork & blockwork: minimum crushing strength = 7 MPa
4. All brickwork, blockwork and masonry walls shall comply with the following specifications:
    4.1. In all load bearing brickwork supply approved continuous brick force in every fourth layer for 75mm high bricks and third layer for 115mm high bricks
    4.2. In all load bearing blockwork supply approved continuous brick force every second layer
    4.3. In addition, supply continuous brick force in every layer for the first four layers above and below the top of foundations & slabs, as well as over all window and door openings
    4.4. Minimum laps of brick force to be 300mm.
5. All brickwork and blockwork wall ties, anchors and straps to be hot-dipped galvanized.
6. Use hoop iron wall ties to fix brickwork to steel and concrete columns; every fourth/third course in brickwork and every second course in blockwork.
7. In cavity walls, wall ties to be embedded in masonry joints at right angles to the brick skins.
8. The number of wall ties per m2 of walling shall be:
    8.1. 50mm > Cavity: 2,5 ties/m2
    8.2. 50mm < Cavity < 100mm: 3,0 ties/ m2
    8.3. 100mm < Cavity < 150mm: 5,0 ties/ m2
    8.4. At door / window openings and discontinued edges, provide additional wall ties that are spaced at 300mm vertically, or as instructed, or as shown on the drawings.
9. Use modified PWD galvanized ties of 3,15mm diameter unless otherwise stated.
10. For high-lift grouted walls, ties complying with the requirements of SANS 10164 Part 2 Annex A (14) shall be spaced at horizontal intervals not exceeding 900mm and vertically at centres not exceeding 300mm, with each layer staggered by 450mm.
11. All ties to be embedded to a depth of at least 50mm into the mortar joint of each brick skin.
12. Use 25 x 2.5 vertical twist hoop iron wall ties in all cavities exceeding 55mm but less than 150mm.
13. At the interfaces of brickwork / blockwork and concrete elements the Contractor is to make deep V-joints right through the plaster thickness.
14. Refer to Engineer's drawings for load bearing brickwork and blockwork.
15. For G.A. and setting out of all brickwork and blockwork refer to Architect's drawings.
16. Refer to Architect's drawings for positions of expansion joints in brickwork / blockwork.
17. All brickwork / blockwork shall be fixed to concrete & steel columns by means of hoop iron every fourth course and blockwork every second course, with 10mm Jointex and sealed with polysulphide sealant. In cavity walls, wall ties shall join the leaves and shall be embedded in masonry joints at right angles to the leaves as the work progresses. Tops of cavity walls to be left open to ventilate for as long as possible.
18. Wet all clay bricks prior to use.
19. Concrete bricks and blocks to be kept dry prior to being used.
20. Walls on different types of footings and foundations to be separated using movement joints e.g. walls on piled foundations and on strip footings. Stability requirements over joints to be met in all cases.
21. All internal non-load bearing brickwork to stop 20mm below soffit of slabs and sealed in accordance with the architectural and acoustic engineering specifications.
22. Pre-cast concrete lintels are to be placed above all door/window openings, refer to architects' drawings and details. Additional to the lintels, for all openings of exceeding 2.5m but less than 3.5m must have a brick beam in accordance with SANS 10400:K, 4.2.9.

STRUCTURAL TIMBER

1. Gang nailed roof trusses to be designed According to SANS 10160 & SANS 10243 by specialist contractor. This contractor is to inspect erection of the roof trusses and sign off that they are satisfied with the erection.
2. All roof trusses are to be tied down by means of galvanised hoop-iron built in securely at least 6 brick courses below wall plate as per SANS 10400.
3. All South African pine timber specified is to be grade 5 unless specified otherwise.

EXCAVATION NOTE:

1. Builders waste is to be delivered to the ashton waste facility at the cost of the contractor.
2. Clean excavated material from foundation and roadway excavations will be spoiled on site to create earth beams of 3m base and approximately 1.8m high and are to be compacted in layers of 250mm to 90% mod aashto and neatly trimmed

General Notes A1

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SPECIALIST CONSULTANTS (Where applicable) All materials and workmanship to be as specified on the Consultants drawing.

rev:	description:	by:	date:
C	Notes and specifications added	WV	2022.06.23
B	Issued for INFORMATION - STAGE 4	WV	2022.04.29
A	Issued for INFORMATION	WV	2022.02.22

TENDER

project: PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no: ERF 1234 ROSENPARK BELLVILLE

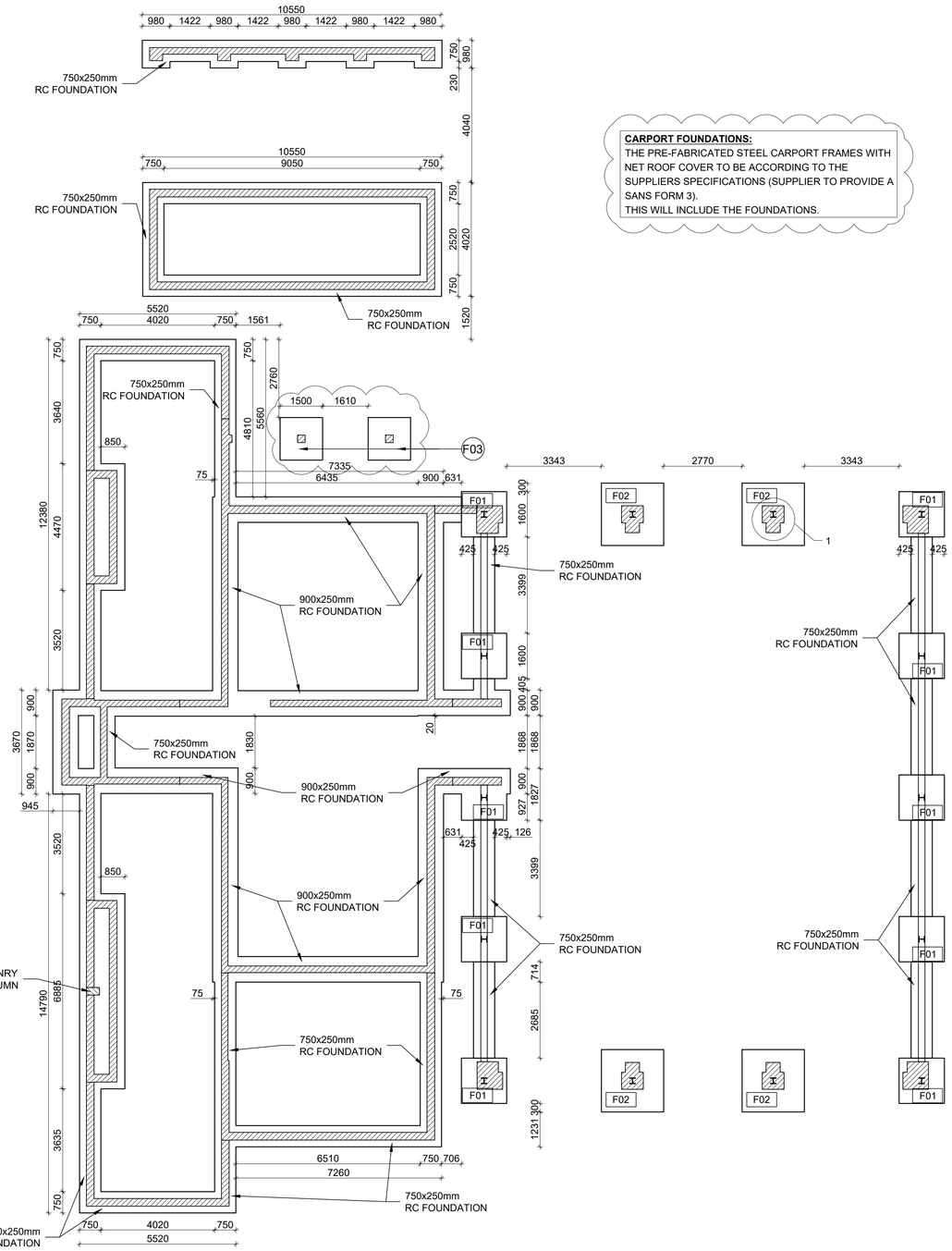
TUSK
Tusk Construction Support Services
3 High Street
1st Floor
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www.tuskcss.co.za
STRUCTURE

drawing title: GENERAL NOTES AND SPECIFICATIONS

discipline:	scale:	date:
STRUCT	AS SHOWN	2022.04.29

design:	drawn:	checked:
WV	WV	JF

project:	dwg no:	rev:
PS2006_21	000	C

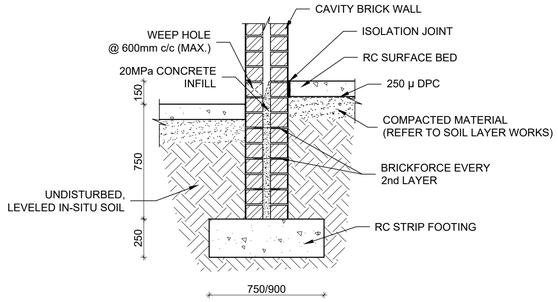


FOUNDATION LAYOUT

SCALE 1 : 100

CARPORT FOUNDATIONS:
THE PRE-FABRICATED STEEL CARPORT FRAMES WITH NET ROOF COVER TO BE ACCORDING TO THE SUPPLIERS SPECIFICATIONS (SUPPLIER TO PROVIDE A SANS FORM 3).
THIS WILL INCLUDE THE FOUNDATIONS.

TABLE 01	RC BASES			
TYPE	BASE SIZE	QTY	DEPTH	STUB COLUMN (WxBxH)
01	1600 x 1600mm	10	400mm	500 x 500 x 1000mm
02	2200 x 2200mm	4	400mm	500 x 500 x 1000mm
03	1500 x 1500mm	2	400mm	N/A
NOTE:	FOUNDING LAYER AT MINIMUM 1000mm BELOW NGL FOR ALL TYPES OF FOUNDATIONS			



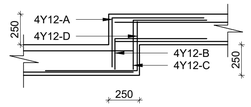
FOUNDATION SECTION TYPICAL

SCALE 1:20

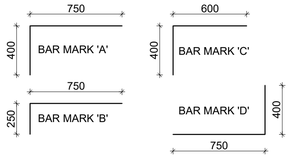
EXCAVATION NOTE:

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REINFORCEMENT DETAILS - TYPICAL



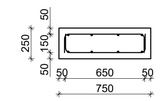
ELEVATION



TYPICAL STEP IN FOUNDATION DETAIL

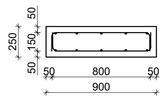
SCALE 1 : 25

REINFORCEMENT NOTE:
REFER TO DRAWING PS2006_21-000-GENERAL NOTES AND SPECIFICATIONS FOR THE STEEL QUANTITIES



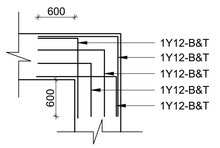
TYPICAL 750x250mm FOUNDATION REINF

SCALE 1 : 25



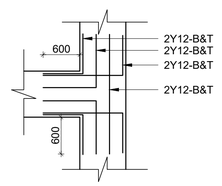
TYPICAL 900x250mm FOUNDATION REINF

SCALE 1 : 25



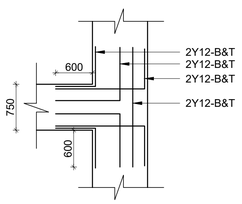
750 TO 750mm CORNER DETAIL - TYPICAL

SCALE 1 : 50



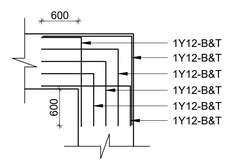
750 TO 750mm T-SECTION DETAIL - TYPICAL

SCALE 1 : 50



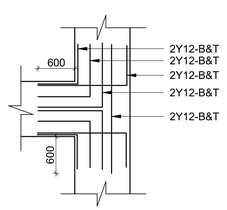
750 TO 900mm T-SECTION DETAIL - TYPICAL

SCALE 1 : 50



900 TO 900mm CORNER DETAIL - TYPICAL

SCALE 1 : 50



900 TO 900mm T-SECTION DETAIL - TYPICAL

SCALE 1 : 50

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rev:	description:	by:	date:
C	Notes and specifications added. F03 position and quantity revised.	JF	2022.06.24
B	Issued for INFORMATION - STAGE 4	JF	2022.04.29
A	Issued for INFORMATION	JF	2022.02.22

TENDER

project: PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no: ERF 1234 ROSENPARK BELLVILLE

Tusk Construction Support Services
3 High Street
1st Floor
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Tygervalley
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Tel: +27 (0) 21 424 4586/23
www.tuskcss.co.za
STRUCTURE

drawing title: FOUNDATION LAYOUT AND DETAILS

discipline:	scale:	date:
STRUCT	AS SHOWN	2022.04.29

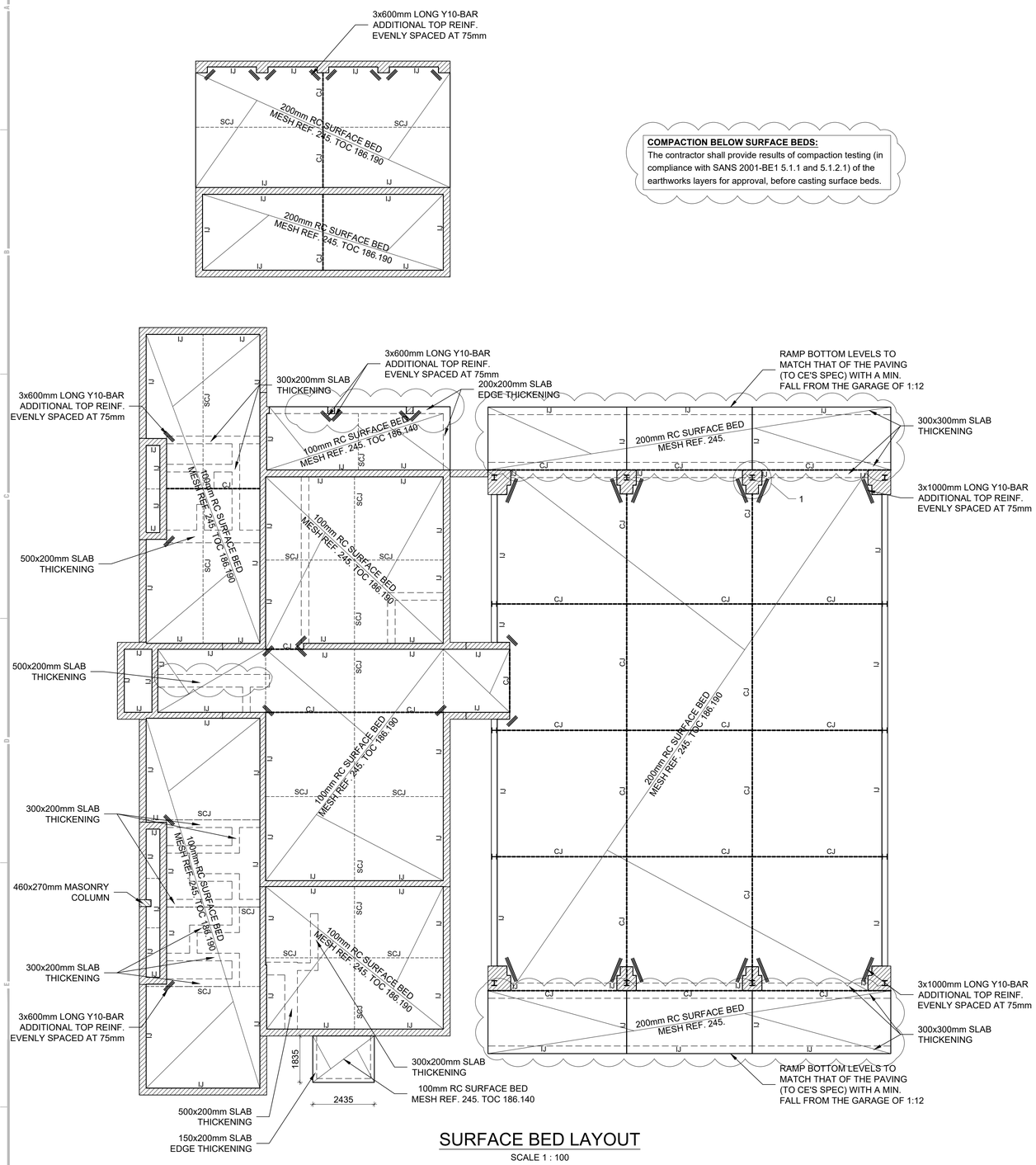
design:	drawn:	checked:
WV	JF	WV

project:	dwg no:	rev:
PS2006_21	100	C

EXCAVATION NOTE:

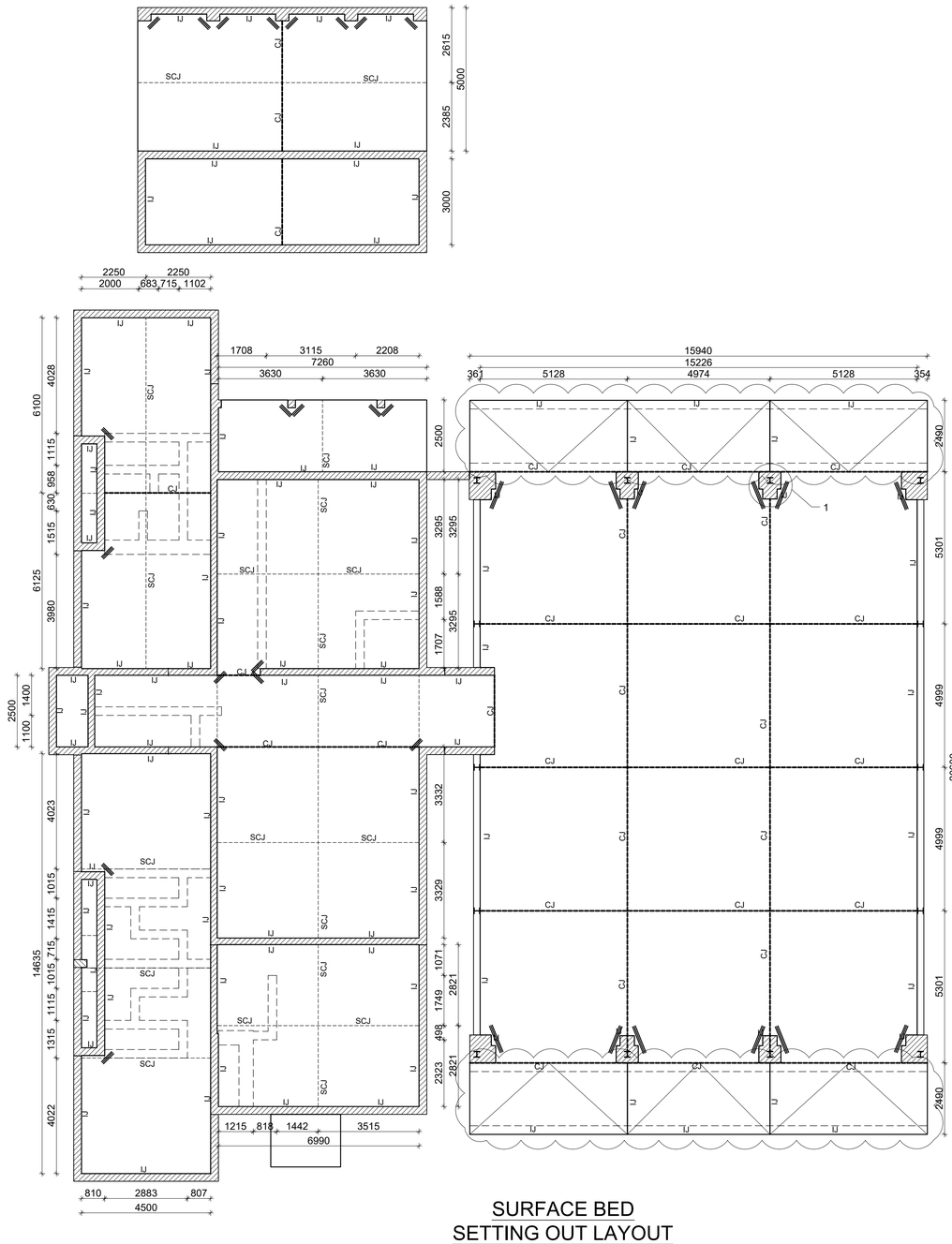
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COMPACTION BELOW SURFACE BEDS:
The contractor shall provide results of compaction testing (in compliance with SANS 2001-BE1 5.1.1 and 5.1.2.1) of the earthworks layers for approval, before casting surface beds.



SURFACE BED LAYOUT

SCALE 1 : 100



SURFACE BED SETTING OUT LAYOUT

SCALE 1 : 100

General Notes A1

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rev:	description:	by:	date:
C	Vehicle ramps added, additional notes and specifications and staircase balustrade wall's slab thickening.	JF	2022.06.24
B	Issued for INFORMATION - STAGE 4	JF	2022.04.29
A	Issued for INFORMATION	JF	2022.02.22

TENDER

project: PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no: ERF 1234 ROSENPARK BELLVILLE

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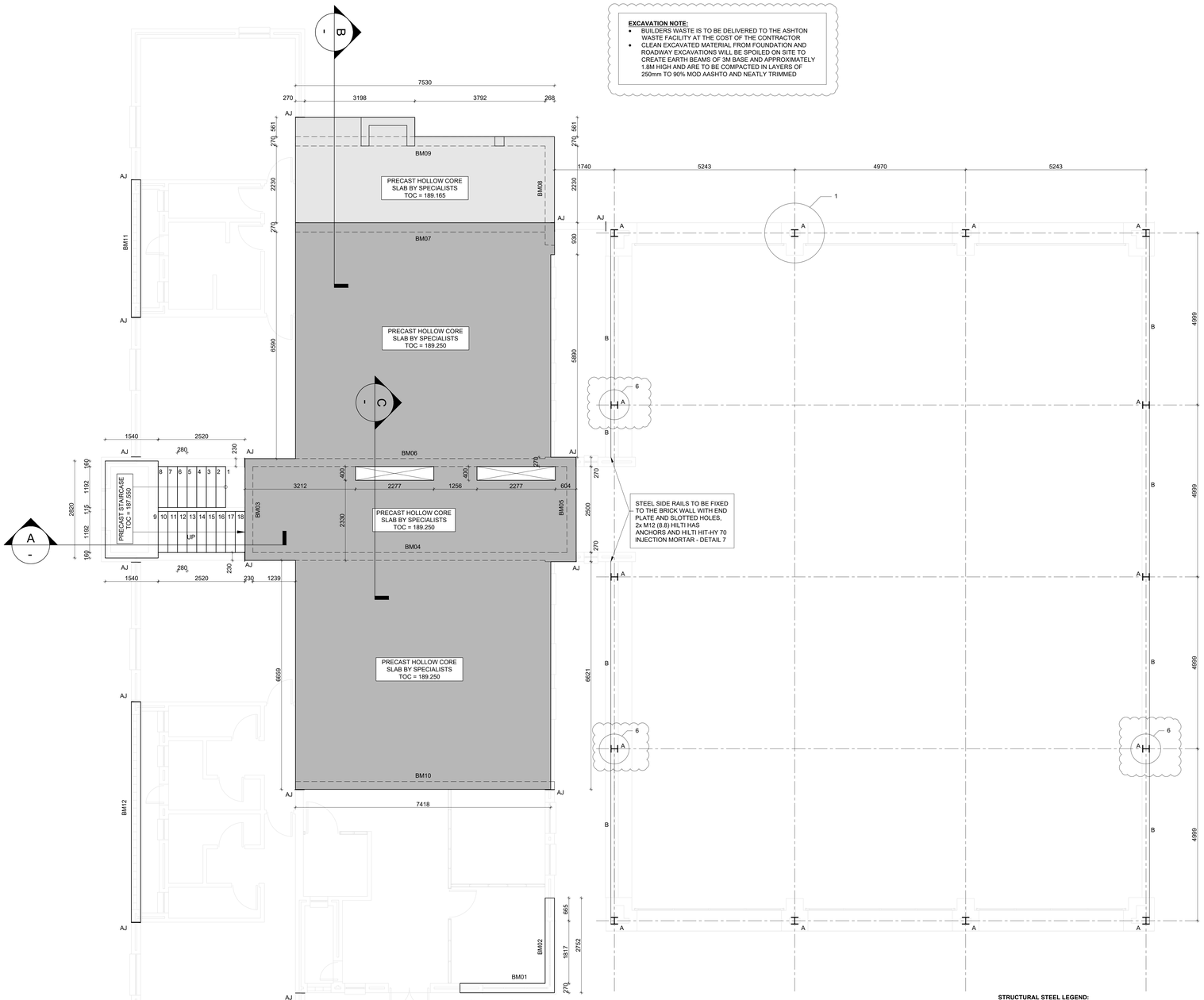
TUSK STRUCTURE

drawing title: **SURFACE BED LAYOUT**

discipline:	scale:	date:
STRUCT	AS SHOWN	2022.04.29

design:	drawn:	checked:
WV	JF	WV

project:	dwg no:	rev:
PS2006_21	101	C



EXCAVATION NOTE:

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PRE-CAST SLAB NOTE:

- PRE-CAST SLAB TO BE DESIGNED AND SUPPLIED BY SPECIALIST. HOLLOW CORE OR SIMILAR APPROVED
- PRE-CAST FLOOR TO BE SUPPORTED BY THE BRICK WALLS AND RC BEAMS, AS PER ENGINEERS SPECIFICATIONS
- TO BE SUBMITTED FOR APPROVAL, MINIMUM 2 WEEKS LEAD TIME.
- SANS 10400 FORM 3 TO BE SUPPLIED BY SPECIALIST

REINFORCEMENT NOTE:

- REFER TO DRAWING PS2006_21-000-GENERAL NOTES AND SPECIFICATIONS FOR THE STEEL QUANTITIES

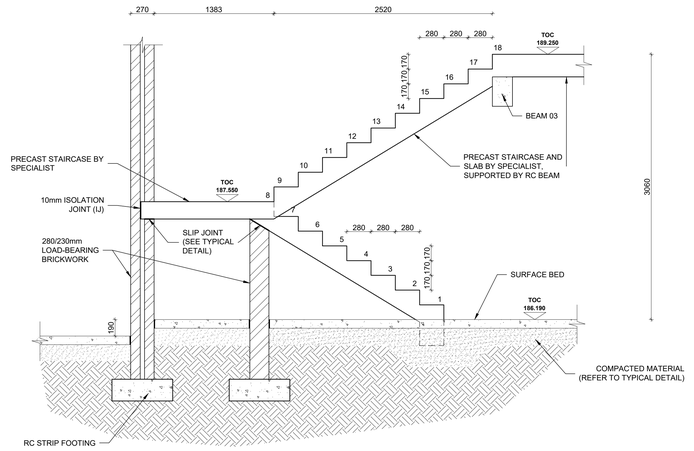
RC BEAM LEGEND:

BEAM NO.	SIZE	TYPE (U/S OR D/S)
BM01	280x340mm	D/S
BM02	280x340mm	D/S
BM03	230x340mm	D/S
BM04	230x340mm	D/S
BM05	230x340mm	D/S
BM06	230x340mm	D/S
BM07	280x510mm	D/S
BM08	280x425mm	D/S
BM09	280x425mm	D/S
BM10	280x340mm	D/S

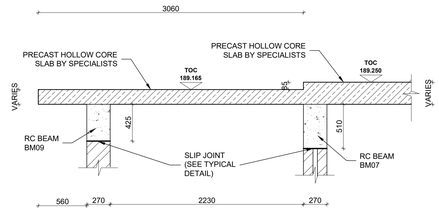
STRUCTURAL STEEL LEGEND:

ITEM	SIZE	STEEL GRADE
A	203x203x46 kg/m H-COLUMN	S355JR
B	150x65x20x3.0mm CFLC SIDE RAILS	300W

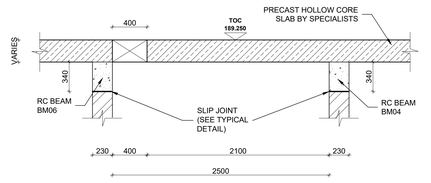
FIRST FLOOR LAYOUT
SCALE 1 : 50



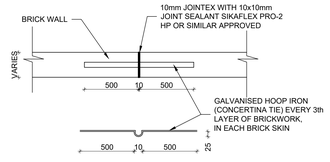
SECTION A - A
SCALE 1 : 25



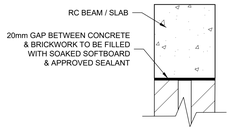
SECTION B - B
SCALE 1 : 25



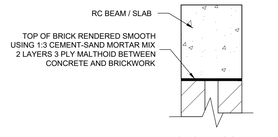
SECTION C - C
SCALE 1 : 25



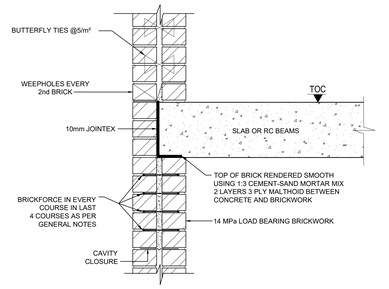
TYPICAL ARTICULATED JOINT (AJ) DETAIL-01
SCALE 1:20



GAP BETWEEN NON-LOADBEARING WALL & RC ELEMENT TYPICAL DETAIL
SCALE 1:10



SLIP JOINT TYPICAL DETAIL
SCALE 1:10



TYPICAL SLIP JOINT OVER LOAD BEARING MASONRY
SCALE 1:20

General Notes — A0

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SPECIALIST CONSULTANTS (Where applicable) All materials and workmanship to be as specified on the Consultants drawing.

rev:	description:	by:	date:
C	Details and notes added	WV	2022.06.23
B	Issued for INFORMATION - STAGE 4	WV	2022.04.29
A	Issued for INFORMATION	WV	2022.02.22

TENDER

PROJECT: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

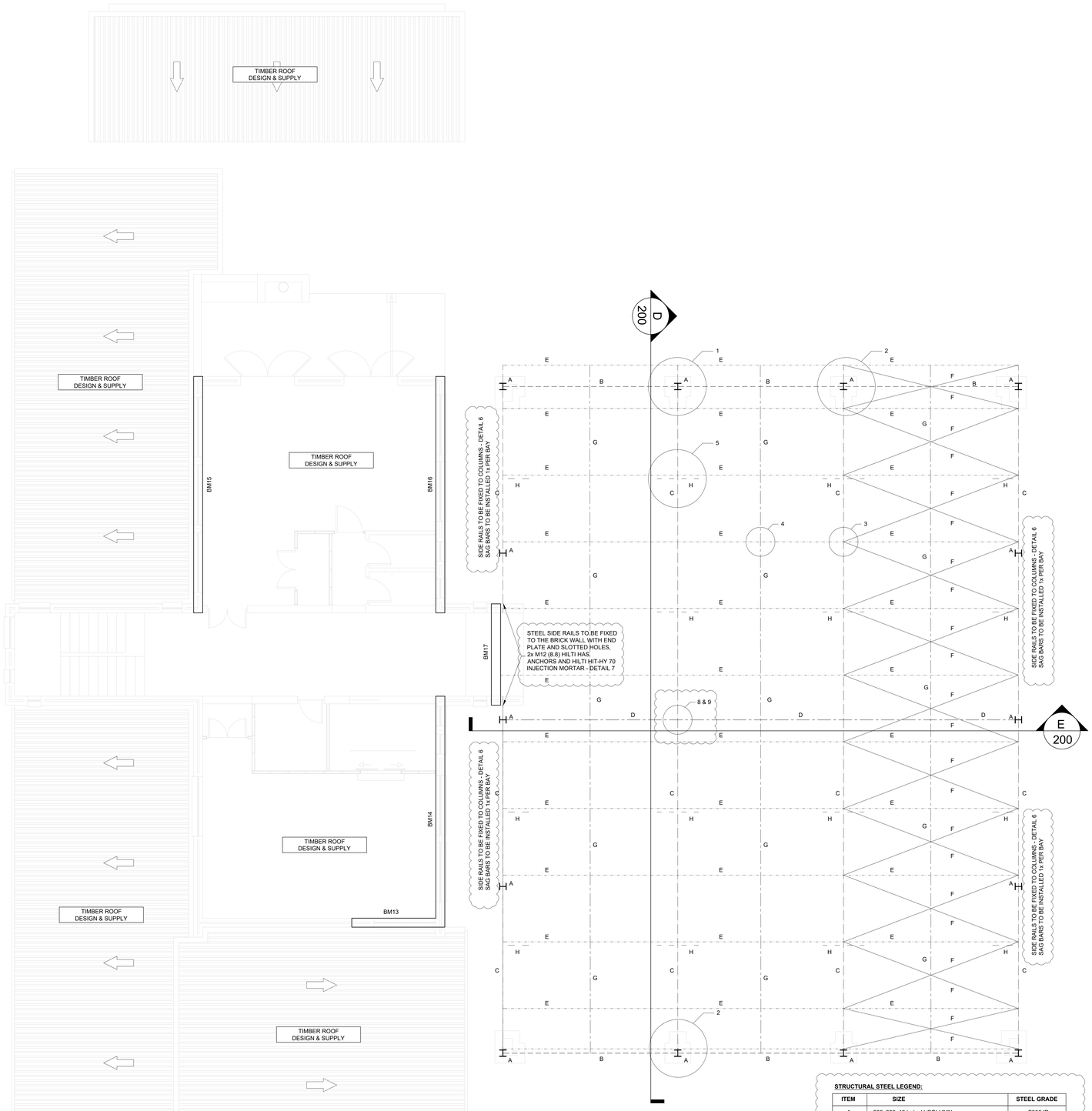
ERF NO: ERF 8250 ROBERTSON

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Cape Town
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www.tuskcss.co.za

TUSK STRUCTURE

DRAWING TITLE: **FIRST FLOOR PLAN VIEW, SECTIONS AND DETAILS**

discipline:	scale:	date:
STRUCT	AS SHOWN	2022.04.29
design: WV	drawn: WV	checked: JF
project: PS2006_21	dwg no: 102	rev: C



EAVES BEAM & ROOF LAYOUT

SCALE 1 : 50

RC BEAM LEGEND:

BEAM NO.	SIZE	TYPE (U/S OR D/S)
BM13	280x340mm	U/S
BM14	280x510mm	U/S
BM15	280x510mm	U/S
BM16	280x510mm	U/S
BM17	280x510mm	U/S

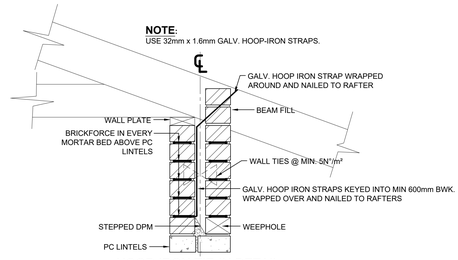
STRUCTURAL STEEL LEGEND:

ITEM	SIZE	STEEL GRADE
A	203x203x46 kg/m H-COLUMN	S355JR
B	254x146x31 kg/m I-BEAM	300W
C	TRUSS TYPE 1	S355JR
D	GIRDER TYPE 2	S355JR
E	150x65x20x3.0mm CFLC PURLINS @ MAX 1800mm c/c	300W
F	60x60x6mm RSA (CROSS BRACING)	S355JR
G	30x30x5mm RSA (SAG BARS)	S355JR
H	30x30x5mm RSA (KNEE BRACE)	S355JR
J	150x65x20x3.0mm CFLC SIDE RAILS @ MAX 1800mm c/c	300W

EXCAVATION NOTE:

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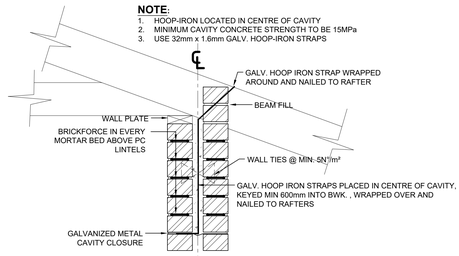
REINFORCEMENT NOTE:
REFER TO DRAWING PS2006_21-000-GENERAL NOTES AND SPECIFICATIONS FOR THE STEEL QUANTITIES



NOTE:
USE 32mm x 1.6mm GALV. HOOP-IRON STRAPS.

HOOP-IRON TIE-IN DETAIL
6No BRICK COURSES ABOVE LINTELS

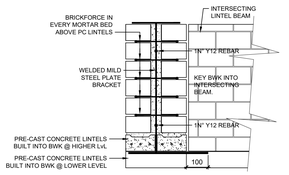
SCALE 1:10



NOTE:
1. HOOP-IRON LOCATED IN CENTRE OF CAVITY
2. MINIMUM CAVITY CONCRETE STRENGTH TO BE 15MPa
3. USE 32mm x 1.6mm GALV. HOOP-IRON STRAPS

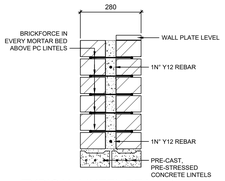
HOOP-IRON TIE-IN DETAIL
6No BRICK COURSES ABOVE CAVITY CLOSURE

SCALE 1:10



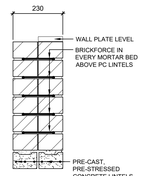
INTERSECTING LINTEL BEAM DETAIL

SCALE 1:10



TYPICAL LINTEL BEAM DETAIL
280THK WALL

SCALE 1:10



TYPICAL LINTEL BEAM DETAIL
230THK WALL

SCALE 1:10

General Notes A0

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rev:	description:	by:	date:
C	Details and specifications added	WV	2022.06.23
B	Issued for INFORMATION - STAGE 4	WV	2022.04.29
A	Issued for INFORMATION	WV	2022.03.22

TENDER

PROJECT: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

ERF 8250
ROBERTSON

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STRUCTURE

DRAWING TITLE: **EAVES LEVEL, ROOF LAYOUT AND TYPICAL DETAILS**

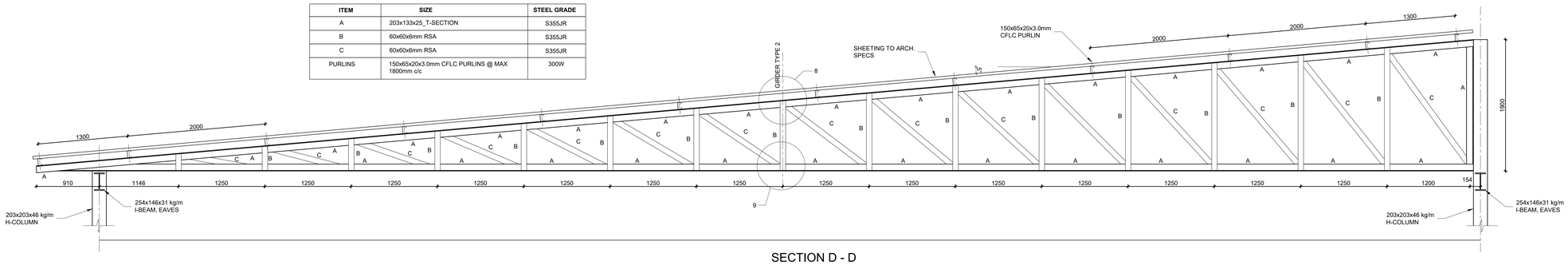
discipline:	scale:	date:
STRUCT	AS SHOWN	2022.04.29

design:	drawn:	checked:
WV	WV	JF

project:	dwg no:	rev:
PS2006_21	103	C

TRUSS TYPE 1 - LEGEND:

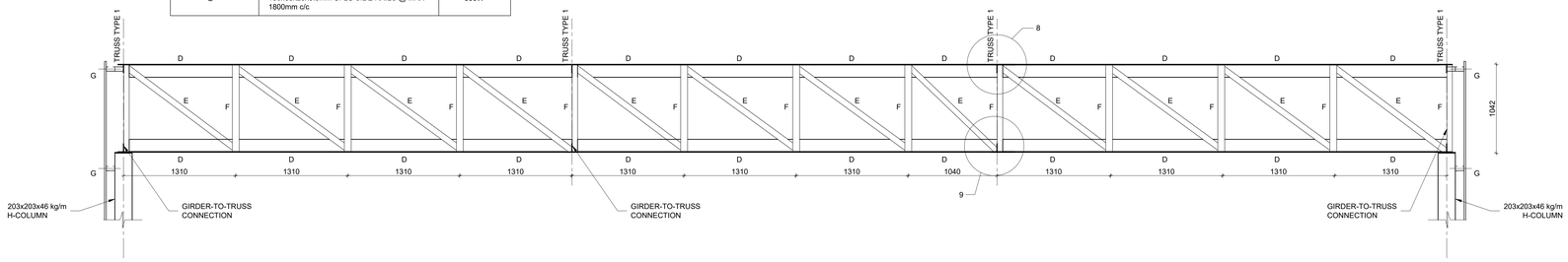
ITEM	SIZE	STEEL GRADE
A	203x133x25_T-SECTION	S355JR
B	60x60x6mm RSA	S355JR
C	60x60x6mm RSA	S355JR
PURLINS	150x65x20x3.0mm CFLC PURLINS @ MAX 1800mm c/c	300W



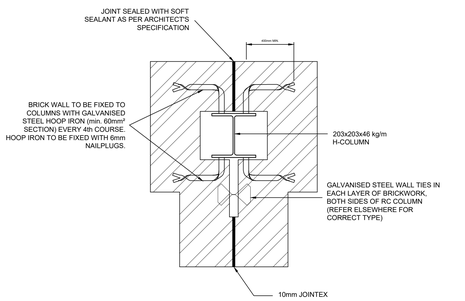
SECTION D - D
SCALE 1 : 25

GIRDER TYPE 2 - LEGEND:

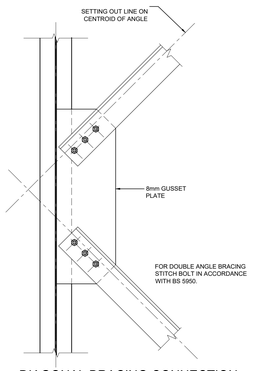
ITEM	SIZE	STEEL GRADE
D	305x156x40_T-SECTION	S355JR
E	70x70x8mm RSA	S355JR
F	70x70x8mm RSA	S355JR
G	150x65x20x3.0mm CFLC SIDE RAILS @ MAX 1800mm c/c	300W



SECTION E - E
SCALE 1 : 25

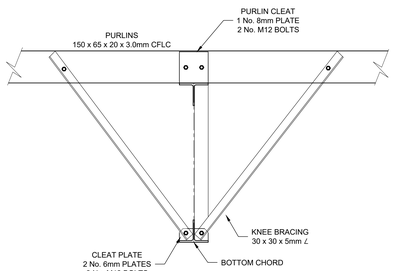


TYPICAL WALL / STEEL COLUMN CONNECTION DETAIL 1
SCALE 1:10

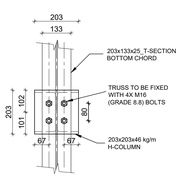


DIAGONAL BRACING CONNECTION TO COLUMN WEB DETAIL 3
SCALE 1:10

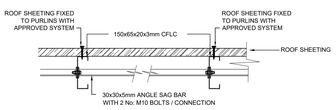
USER NOTES:
1. CONNECTION OF BRACING GUSSET MAY REQUIRE HSFG BOLTS IN OVERSIZED HOLES.
2. RELIEF SYSTEM AND METHOD STATEMENT TO BE AGREED WITH STEEL CONTRACTOR.
3. RSA BRACING SHOWN WITH CENTRE OF GRAVITY ON INTERSECTION LINE.



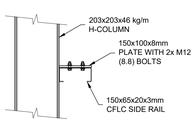
DETAIL 5
TYPICAL KNEE BRACING
SCALE 1:10



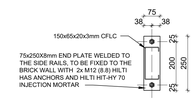
CONNECTION DETAIL 2
SCALE 1:10



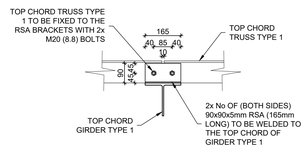
SAG BAR FIXNG DETAIL 4
SCALE 1:10



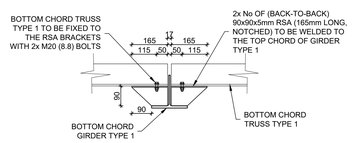
CONNECTION DETAIL 6
SCALE 1:10



CONNECTION DETAIL 7
SCALE 1:10



CONNECTION DETAIL 8
SCALE 1:10



CONNECTION DETAIL 9
SCALE 1:10

EXCAVATION NOTE:
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rev:	description:	by:	date:
C	Details and specifications added	WV	2022.06.23
B	Issued for INFORMATION - STAGE 4	WV	2022.04.29
A	Issued for INFORMATION	WV	2022.02.22

TENDER

project: **PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY**

erf no: **ERF 8250 ROBERTSON**

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TUSK STRUCTURE

drawing title: **ROOF SECTIONS AND DETAILS**

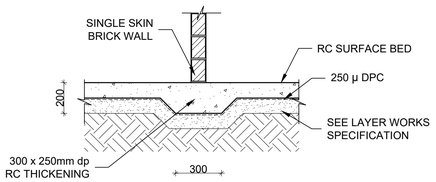
discipline:	scale:	date:
STRUCT	AS SHOWN	2022.04.29

design:	drawn:	checked:
WV	WV	JF

project:	dwg no:	rev:
PS2006_21	200	C

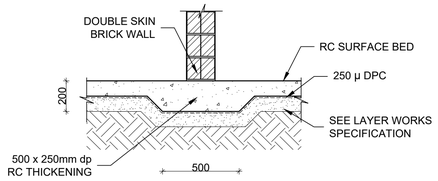
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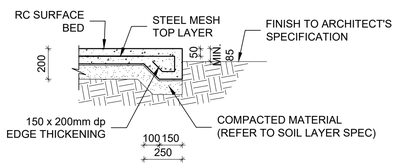
SLAB THICKENING
SINGLE SKIN WALL
NON-LOADBEARING
TYPICAL

SCALE 1:20



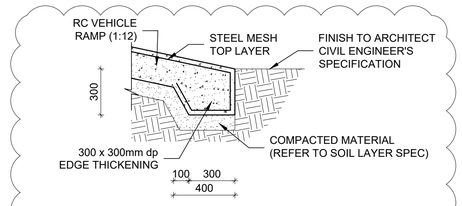
SLAB THICKENING
DOUBLE SKIN WALL
NON-LOADBEARING
TYPICAL

SCALE 1:20



EDGE DETAIL IN SURFACE BED
150x200mm-TYPICAL

SCALE 1:20



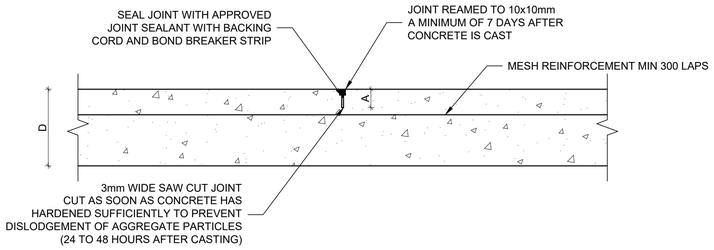
EDGE DETAIL IN SURFACE BED
150x200mm-TYPICAL

SCALE 1:20

SAW CUT DEPTH	
SLAB THICKNESS "D"mm	"A"
100	25
200	30

APPROVED JOINT SEALANTS:

- ABE FLEXOTHANE 1H
- SIKAFLEX PRO-3WF
- PROSTRUCT 748



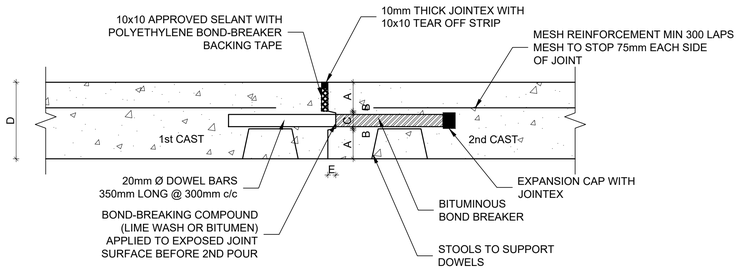
SAW-CUT JOINT (SCJ)
TYPICAL

SCALE 1:5

CONSTRUCTION JOINT DIMENSIONS				
SLAB THICKNESS "D"mm	"A"	"B"	"C"	"E"
100	38	3	25	13
200	74	6	35	20

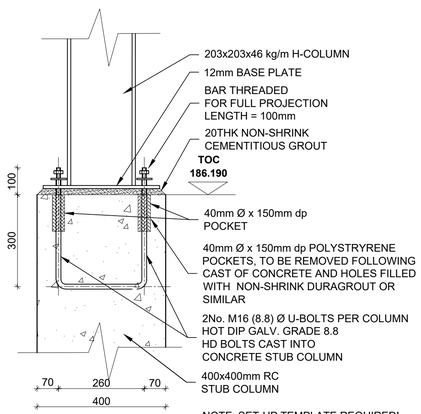
APPROVED JOINT SEALANTS:

- SIKAFLEX 35SL
- SIKAFLEX PRO-2HP
- PROSTRUCT 642 OR 644
- DURAKOL 25



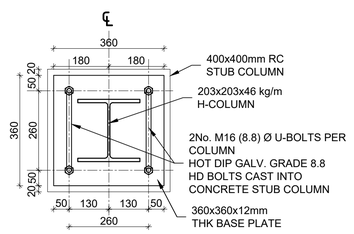
CONSTRUCTION JOINT (CJ)

SCALE 1:5



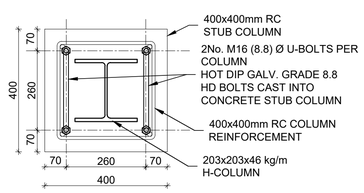
DETAIL 1 - SECTION

SCALE 1:10



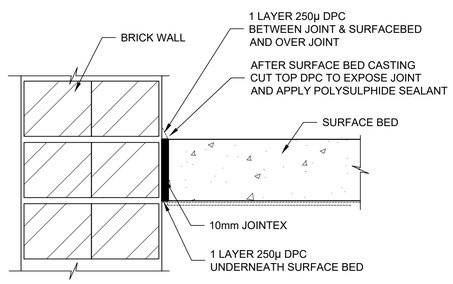
DETAIL 1 - PLAN VIEW

SCALE 1:10



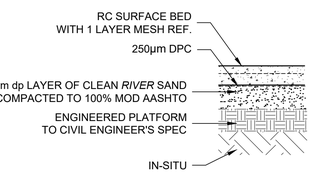
ANCHOR U-BOLT PLACEMENT
DETAIL 1

SCALE 1:10



ISOLATION JOINT (IJ)
TYPICAL DETAIL

SCALE 1:5



TYPICAL INTERNAL SOIL LAYER
SPECIFICATION DETAIL

SCALE 1:20

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rev:	description:	by:	date:
C	Ramp edge detail and notes and specifications added	JF	2022.06.24
B	Issued for INFORMATION - STAGE 4	JF	2022.04.29
A	Issued for INFORMATION	JF	2022.02.22

TENDER

project: PROPOSED NEW FIRE STATION for LANGEBERG MUNICIPALITY

erf no: ERF 1234 ROSENPARK BELLVILLE

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TUSK STRUCTURE

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VOLUME 2: THE GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS, THIRD EDITION, 2015

This publication is available and tenderers must obtain copies at their own cost from the South African Institution of Civil Engineering (SAICE), Private Bag X200, Halfway House 1685, Tel: (011) 805 5947, Fax: (011) 805 5971, e-mail: civilinfo@saice.org.za.

VOLUME 3: SANS STANDARDISED SPECIFICATIONS FOR CIVIL ENGINEERING CONSTRUCTION

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VOLUME 4: ASAQS MODEL PREMABLE FOR TRADES 2008

Note: ASAQS Model Premables for trades 2008 are page numbered i & 1- 49 for this section

The Association of South African Quantity Surveyors
Die Vereniging van Suid-Afrikaanse Bourekenaars

MODEL PREAMBLES FOR TRADES 2008

forming part of
the bills of quantities

Project: _____

_____

_____

Contract Reference Number: _____

Effective date November 2008

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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

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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 ouklip 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 0,03m^3 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. **CONSTRUCTON**

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 0,033m^3

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 9m^2

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 compresive 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. Perpends 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 m^2 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 m^2 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 $6m^2$ 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 $6m^2$ 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

0.16 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 rechargeble 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

Cast iron step irons BS 1247

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	Joints
Fibre-cement, concrete, pitch-impregnated fibre and vitrified clay pipes for use under ground in non-pressure pipe lines	Flexible joints in accordance with the manufacturer's instructions
Cast iron for use above ground	Spigot and socket joints with tarred rope yarn and caulking compound or Plain ended joints with stainless steel couplings with neoprene rubber sleeves
Cast iron for use below ground	Spigot and socket joints with tarred rope yarn and caulking compound
Galvanized mild steel	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
Joints between pipes of different materials shall be as follows:	
Between cast iron and mild steel	Spigot and socket joints with tarred rope yarn and caulking compound
Between cast iron and clay	Spigot and socket joint with semi-dry cement caulking and 1:2 cement mortar fillet
Between mild steel or copper and clay	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/m^2

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

VOLUME 5: SCHEDULE OF RATES

Note: The Schedule of rates are page numbered 1 – 111 for this section

Item No		Quantity	Rate	Amount

BILL NO 1

EARTHWORKS

For preambles see "Model Preambles for Trades"

SUPPLEMENTARY PREAMBLES

Site survey

A suitable survey of the natural ground levels of the site in a grid of grids is to be carried out by a registered land surveyor to the approval of the principal agent after clearing of the site and before commencement of excavations and filling. On completion of the works another grid survey of the final levels shall be carried out by a registered land surveyor to the approval of the principal agent. Costs relating to the surveys shall be borne by the contractor

Nature of ground

NATURE OF GROUND

The Tenderer must acquaint himself with the nature of the material to be excavated.

Subterranean water

User note: *Choose one of the following typical examples:*

No subterranean water is expected

or

The water table is expected to vary between approximately 2m and 3m below natural ground level. The removal of subterranean water is given separately

or

The trial holes indicate that the water table is at a maximum depth of approximately 1m. The removal of subterranean water is given separately

Carried to Collection R

Material of a more difficult character

Should the contractor consider that any of the excavations are more difficult in character than excavations in "earth" he shall immediately notify the principal agent in writing. Failing such notification the excavations shall be deemed to be in "earth" and shall be measured and valued accordingly. The contractor may use any method he chooses to excavate any class of material, but his chosen method of excavation shall not determine the classification of the material excavated

Disposal of excavated material

All excavations shall be deemed to include disposal of excavated material by setting aside for use as filling or depositing on site within 100m of the perimeter of the building and spreading and levelling

Carting away of excavated material

Descriptions of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stock piles situated on the building site

Working space

Working space for formwork to sides of bases, ground beams, etc is measured with the assumption that it will be required by the principal agent in certain cases. If it is not required, it will be adjusted as such in the final account

Working space for formwork to sides of all concrete, except columns, has been measured only where the concrete face is less than 600mm from the face of the measured excavation

Working space for formwork to sides of columns has been measured for the width of the column face only where both: - the top of the column base is more than 1.5m below the commencing level of the excavations and - the column face is less than 600mm from the face of the measured excavations

No claim will be considered for any working space for formwork to concrete other than as above described or for working space beyond the sides of trench excavations for the building of masonry walls

Excavation for working space in rock

Excavation for working space in rock will be measured in cubic metres to the extent executed and given as "extra over" bulk excavation or trench and hole excavation as the case may be

Filling

Prices for filling and backfilling shall include for all selection and any multiple handling of material

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BILL NO 1
EARTHWORKS
Robertson Fire Station

Filling and layer work materials

References such as "G1", "G2", etc and "C1", "C2", etc in descriptions of filling and layer work materials refer to corresponding references in the document "Guidelines for Road Construction Materials. TRH 14 : 1985" compiled by the Committee of State Road Authorities and the properties set out therein for each kind shall be applicable to the respective materials described hereinafter

User note: *When no information regarding density and other tests is available the following preamble in respect of testing may be inserted*

Testing

Prices for filling are to include for all necessary density and other tests

SITE CLEARANCE, ETC

User note: *Where the value is of significance, the removal of hedges etc shall be given separately in meters or in number*

Site clearance

1	Digging up and removing rubbish, debris, vegetation, hedges, shrubs and trees not exceeding 200mm girth, bush, etc	m2			

REMOVAL OF TREES, ETC

Take out and remove, grub up roots and fill in holes compacted in not exceeding 300mm layers to 98% modified AASHTO density

2	Tree stump exceeding 200mm and not exceeding 500mm girth	No			
3	Tree stump exceeding 500mm and not exceeding 1000mm girth	No			
4	Tree stump exceeding 1000mm and not exceeding 1500mm girth	No			

Cut down and remove, grub up roots and fill in holes compacted in not exceeding 300mm layers to 90% modified AASHTO density

5	Hedge not exceeding 2000mm high	m			
6	Hedge exceeding 2000mm and not exceeding 3000mm high	m			

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BILL NO 1
EARTHWORKS
Robertson Fire Station

	BULK EXCAVATION				
	Excavations in earth over sloping site				
7	Cut to fill in one operation not exceeding 2m deep including levelling, watering, etc, in layers not exceeding 150mm thick compacted to 95% Mod AASHTO density	m3			
8	Cut to spoil in one operation including carting to site located by the contractor	m3			
9	Cut to stockpile on site in one operation not exceeding 2m deep	m3			
10	Stripping average 100mm thick layer of top soil and stockpiling on site	m2			
	BULK FILLING				
11	Earth filling supplied by the contractor compacted to 98% Mod AASHTO density spread and levelled over site to form platforms	m3			
12	G5 hardcore filling supplied by the contractor compacted to 98% Mod AASHTO density spread and over site to form platforms	m3			
	EXCAVATIONS OTHER THAN BULK				
	Excavations in earth not exceeding 2m deep				
13	Under floors to reduce levels	m3			
14	Trenches	m3			
15	Holes, including working around piles	m3			
	EXCAVATIONS IN STRATA OF A MORE DIFFICULT CHARACTER (PROVISIONAL)				
	Extra over bulk excavations in earth for excavations in				
16	Soft rock	m3			
17	Hard rock	m3			
	Extra over trench and hole excavations in earth for excavations in				
18	Soft rock	m3			
19	Hard rock	m3			
	Carried to Collection			R	

BILL NO 1
EARTHWORKS
Robertson Fire Station

	CARTING AWAY				
	Extra over all excavations for carting away				
20	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor (Contractor must allow for bulking)	m3			
	RISK OF COLLAPSE				
	Risk of collapse of excavations				
21	Sides of bulk excavations not exceeding 1.5m deep	m2			
22	Sides of bulk excavations exceeding 1.5m deep	m2			
23	Sides of trench and hole excavations not exceeding 1.5m deep	m2			
24	Sides of trench and hole excavations exceeding 1.5m deep	m2			
	WORKING SPACE				
	Back excavations of vertical sides of excavations in earth not exceeding 500mm deep for working space, including backfilling compacted in not exceeding 200mm layers to 98% modified AASHTO density				
25	For placing and removing formwork to sides 300mm away from excavated faces	m2			
	Back excavations of vertical sides of excavations in earth exceeding 500mm and not exceeding 1.5m deep for working space, including backfilling compacted in not exceeding 200mm layers to 98% modified AASHTO density				
26	For placing and removing formwork to sides 300mm away from excavated faces	m2			
	SUNDRIES				
	Keeping excavations free of water				
27	Keeping excavations free of all water other than subterranean water		Item		
	Dewatering				
28	Allow for a dewatering system for removal of seepage water and water from other subterranean sources in the excavations designed and executed by the contractor		Item		
	Carried to Collection			R	

FILLING, ETC

Earth filling obtained from the excavations and/or prescribed stock piles on site, including haulage exceeding 100m and not exceeding 200m from perimeter of excavations or stock piles, compacted in not exceeding 200mm layers to 98% modified AASHTO density

29	Over site	m3			
30	Under floors, steps, etc	m3			
31	Backfilling to trenches, holes, etc	m3			

Earth filling supplied by the contractor, compacted in not exceeding 200mm layers to 98% modified AASHTO density

32	Over site	m3			
33	Under floors, steps, pavings, etc	m3			
34	Backfilling to trenches, holes, etc	m3			

Imported G7 clean sand from commercial source in 150mm layers, carted on by contractor, in accordance with SABS 1200 DM compacted to 98% Mod AASHTO density

35	To trenches	m3			
36	Under surface beds	m3			

Sand filling supplied by the contractor, compacted in not exceeding 200mm layers to 100% modified AASHTO density

37	Under floors, steps, etc	m3			
38	Backfilling behind retaining walls	m3			
39	In floor ducts	m3			

Topsoil filling obtained from the excavations and/or prescribed stock piles on site

40	Over site	m3			

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BILL NO 1
EARTHWORKS
Robertson Fire Station

	LAYER WORK				
	Layer work supplied by the contractor				
41	Subbase course over site to form platform of G5 material in accordance with SANS 1200 ME compacted to 98% modified AASHTO density	m3			
42	Base course over site to form platform of G4 material in accordance with SANS 1200 MF and compacted to 98% modified AASHTO density	m3			
43	Extra over for stabilisation with and including 4% Portland Blast Furnace cement	m3			
	COMPACTION				
	Compaction of surfaces				
44	Compaction of ground surface over site for platform by wetting and compacting with 4 passes of a 10 ton vibratory roller	m2			
45	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 98% modified AASHTO density	m2			
	WEED KILLERS, INSECTICIDES, ETC				
	Approved brand weedkiller mixed with water and applied at a rate of 100grams/m2				
46	Under paving etc	m2			
	Insecticides				
47	Under floors, etc, including forming and poisoning V-grooves along foundation walls, etc, filling in and ramming	m2			
48	To bottoms and sides of trenches, etc	m2			
	TESTS				
	Prescribed density tests on filling				
49	Modified AASHTO density test	No			
50	Natural California bearing ratio test	No			
51	Road indicator test	No			
52	Field density test, including optimum moisture content (four readings per test)	No			
	Carried to Collection			R	

53	Troxler tests from a SANS accredited soil test laboratory and a report indicating the MOD AASHTO of the clean sand backfill before casting surface beds for the approval by the engineer	No				
54	DCP Tests	No				
	Carried to Collection			R		

BILL NO 1
EARTHWORKS
Robertson Fire Station

BILL NO 1

EARTHWORKS

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
Carried to Summary		R	

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Robertson Fire Station

Item No		Quantity	Rate	Amount

BILL NO 2

CONCRETE, FORMWORK AND REINFORCEMENT

For preambles see "Model Preambles for Trades"

SUPPLEMENTARY PREAMBLES

Breeze concrete

Breeze concrete shall consist of twelve parts clean dry furnace ash, free from coal or other foreign matter, to one part cement (12:1). The ash graded up to particles which will pass a 16.5mm ring from a minimum which fails to pass a 4.75mm mesh. The finer materials from the screening are to be first mixed with the cement into a mortar and the ash added afterwards and thoroughly incorporated

Cost of tests

The costs of making, storing and testing of concrete test cubes as required under clause 7 "Tests" of SANS 1200 G shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the principal agent. The testing shall be undertaken by an independent firm or institution nominated by the contractor to the approval of the principal agent. (Test cubes are measured separately)

Formwork

Description of formwork shall be deemed to include use and waste only (except where described as "left in" or "permanent"), for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for reconditioning as necessary before re-use

The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself

Formwork to soffits of solid slabs shall be deemed to be for slabs not exceeding 250mm thick unless otherwise described

Formwork to soffits of slabs, beams, etc shall be deemed to be propped up exceeding 1.5m and not exceeding 3.5m high unless otherwise described

	Carried to Collection		R	

Formwork to sides of bases, pile caps, ground beams, etc will only be measured where it is prescribed for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in "Earthworks"

Forming of concrete by sliding / climbing formwork

The unit of measurement shall be the square metre area of walls formed by sliding / climbing formwork (openings not deducted). The quantity measured shall be the perimeter of walls, inside and outside, multiplied by the actual height of each structure formed by the sliding / climbing technique. Rates are to include for all rounded corners, angles, etc as detailed on the drawings

The tendered rate shall include full compensation for the forming of concrete by sliding / climbing formwork, complete as specified and for the remedial treatment of concrete surfaces. The rate shall also include jacking rods and spacer ladders as deemed to be necessary to complete the complete sliding / climbing construction

The tendered rate shall include full compensation for all cost involved in erecting, sliding / climbing and dismantling of the complete sliding / climbing formwork assembly

Carried to Collection R

BILL NO 2
CONCRETE, FORMWORK AND REINFORCEMENT
Robertson Fire Station

	MASS CONCRETE				
	15MPa/13mm concrete				
1	Mass concrete in cavity walls	m3			
	20MPa/19mm concrete				
2	Mass Concrete	m3			
	REINFORNCED CONCRETE CAST AGAINST EXCAVATED SURFACES				
	30MPa/19mm concrete				
3	Strip footings	m3			
4	Bases	m3			
	REINFORCED CONCRETE CAST IN FORMWORK				
	30MPa/19mm concrete				
5	Strip footings	m3			
6	Bases	m3			
7	Surface beds cast in panels on waterproofing	m3			
8	Ramps on waterproofing	m3			
9	Isolated beams	m3			
	CONCRETE SUNDRIES				
	Curing surfaces of concrete with approved curing compound				
10	Horizontal surfaces	m2			
11	Vertical surfaces	m2			
	Powerfloat surface treatment to finished face of concrete as per Architects finishing schedule on drawing RFS/21 602 TEN				
12	Surface beds, slabs, etc	m2			
13	Surface beds, slabs, etc to falls	m2			
14	Tops of beams, walls, etc	m2			
	Carried to Collection			R	

BILL NO 2
CONCRETE, FORMWORK AND REINFORCEMENT
Robertson Fire Station

15	Pavings to falls	m2				
	Wood float surface treatment to finished face of concrete					
16	Pavings to falls	m2				
17	Tops of beams, walls, etc	m2				
18	Sloping and splayed tops of beams, walls, etc	m2				
19	Ramps to falls	m2				
	Exposed aggregate surface treatment to finished face of concrete					
20	Ramps	m2				
	"Sika Grout 212" non-shrink grout					
21	Bedding approximately 30mm thick under not exceeding 0.20m2 base plate	No				
	Diamond polished and grinded level 2 concrete floor with 35Mpa/40Mpa mix with 600g per m3 of micro fibre. Mesh and saw cuts to be installed over larger floor areas. Floors to receive waterproofing. Finish levels to installers/manufacturers specification and Architect's approval (external)					
22	Grinding and polishing concrete including any additional layer of concrete (To appropriate thickness and approved by the engineer) to surface beds, ramps, slabs, etc. including densifyer and penetrating sealer	m2				
23	Grinding and polishing concrete including any additional layer of concrete (To appropriate thickness and approved by the engineer) to surface beds, ramps, slabs, etc. including densifyer and penetrating sealer (Narrow)	m2				
	Diamond polished and grinded level 2 concrete floor with 35Mpa/40Mpa mix with 600g per m3 of micro fibre. Mesh and saw cuts to be installed over larger floor areas. Finish levels to installers/manufacturers specification and Architect's approval (Internal)					
24	Grinding and polishing concrete including any additional layer of concrete (To appropriate thickness and approved by the engineer) to surface beds, ramps, slabs, etc. including densifyer and penetrating sealer	m2				
	Carried to Collection			R		

BILL NO 2
CONCRETE, FORMWORK AND REINFORCEMENT
Robertson Fire Station

25	Grinding and polishing concrete including any additional layer of concrete (To appropriate thickness and approved by the engineer) to surface beds, ramps, slabs, etc. including densifyer and penetrating sealer (Narrow)	m2				
	TEST CUBES					
26	Making and testing 150 x 150 x 150mm concrete strength test cubes (Provisional)	No				
	Carried to Collection			R		

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CONCRETE, FORMWORK AND REINFORCEMENT
Robertson Fire Station

	ROUGH FORMWORK				
	Rough formwork to sides				
27	Bases	m2			
28	Strip footings	m2			
	SMOOTH FORMWORK				
	Smooth formwork to sides				
29	Edges, risers, ends and reveals not exceeding 300mm high or wide	m			
	Supporting bearers to prefabricated beams				
30	Bearers	m			
	Smooth formwork to sides and soffits				
31	Beams	m2			
32	Beams at edges of post-tensioning slabs	m2			
33	Beams propped up exceeding 3.5m and not exceeding 5m high	m2			
34	Sloping beams	m2			
	MOVEMENT JOINTS, ETC				
	Two layers of 375 micron "Gundle Brikgrip DPC" in slip joints between horizontal concrete and masonry surfaces, including cement mortar bed				
35	Exceeding 300mm wide	m2			
36	Not exceeding 300mm wide	m			
	Movement joints with "Jointex" between vertical concrete and masonry surfaces				
37	10mm Joints exceeding 300mm high or wide	m2			
38	10mm Joints not exceeding 300mm high or wide	m			
	Jointex or other approved closed cell expanded polyethylene pre-formed filler including necessary blocking piece for tearing out later				
39	10mm Thick between brickwork and concrete not exceeding 300mm high or wide	m			
	Carried to Collection			R	

40	10mm Joints exceeding 300mm high or wide	m2				
41	10mm Joints not exceeding 300mm high or wide	m				
	2 Layers 3 Ply Malthoid between					
42	Concrete and brickwork not exceeding 300mm wide	m				
	Saw cut joints					
43	3 x 50mm Joints in top of concrete, reamed to 10x10mm and sealed with approved joint sealant including backing cord and bond breaker strip as per engineers specifications on drawing PS2006_21 201 B	m				
	Joggle construction joints through concrete, including 10mm jointex, sealant, bond breaking compound, 20mm dowel bars 350mm long at 300mm c/c with expansion caps etc.complete as per engineers detail on drawing no PS2006_21 201 B (CJ)					
44	Surface beds not exceeding 300mmm thick	m				
	REINFORCEMENT (PROVISIONAL)					
	Mild steel reinforcement to structural concrete work					
45	Various diameter bars	t				
	High tensile steel reinforcement to structural concrete work					
46	Various diameter bars	t				
	Fabric reinforcement					
47	Type 193 in concrete surface beds, slabs, etc	m2				
48	Type 245 in concrete surface beds, slabs, etc	m2				
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BILL NO 2
CONCRETE, FORMWORK AND REINFORCEMENT
Robertson Fire Station

BILL NO 2

CONCRETE, FORMWORK AND REINFORCEMENT

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BILL NO 2
CONCRETE, FORMWORK AND REINFORCEMENT
Robertson Fire Station

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	BILL NO 3				
	PRECAST CONCRETE				
	For preambles see "Model Preambles for Trades"				
	SUPPLEMENTARY PREAMBLES				
	Sizes				
	Blocks, sills, etc measured linear shall be made in suitable lengths. Large size setting out drawings shall be prepared where necessary and submitted to the principal agent for approval before moulds are made				
	General				
	Where kerbstones, blocks, etc are laid in ground, descriptions shall be deemed to include necessary excavation, filling in and ramming				
	PRECAST CONCRETE SLABS				
	Precast concrete slabs				
1	Precast hollow core concrete slab designed and supplied as per engineer specifications complete as per drawing PS2006_21 102 by specialist	No			
	PRECAST CONCRETE STAIRS				
	Precast concrete stairs				
2	Precast concrete stairs designed and supplied as per engineer specifications complete as per drawing PS2006_21 102 by specialist	No			
	COPINGS, SILLS, ETC				
	"OLD WORLD CONCRETE" similar approved				
3	Coping "Driptsone 270 B" 310mm wide and 100mm high overall sloping to one side complete	m			
	JOINT SEALANTS, JOINTING STRIPS, ETC				
	Joint sealants				
4	Polyurethane sealing compound in 12mm wide joints between units, including backing cords, bond breaker, primer, etc	m			
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Item No		Quantity	Rate	Amount

BILL NO 4

MASONRY

For preambles see "Model Preambles for Trades"

SUPPLEMENTARY PREAMBLES

BRICKWORK

NOTE

Loadbearing brick and blockwork: minimum crushing strength = 14 MPa unless otherwise shown. All other brickwork & blockwork: minimum crushing strength = 7 MPa

Hollow walls

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

Lintels

Lintels shall bear at least 250mm onto adjacent walling. Where such bearing cannot be obtained due to the proximity of adjacent openings the lintel shall be continuous

Pointing

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

FACE BRICKWORK

General

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

Pointing

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

Carried to Collection R

BLOCKWORK

Blockwork

Surfaces to be plastered shall have joints raked out to a depth of at least 10mm to provide a key. Cavities of hollow walls shall be kept free of mortar droppings or other undesirable matter. Every second perpend of the bottom course and above lintels of the external skin of hollow walls shall be left open as a weep hole

Standard complementary blocks

Descriptions of blockwork shall be deemed to include standard complementary blocks such as corner, three-quarter, half and quarter blocks required in the construction of corners, reveals, jambs, ends, etc to solid and hollow walls and for bonding as necessary

Linings to concrete

Descriptions of linings to concrete, unless otherwise described, shall be deemed to include single wire type wall ties

Wall ties for blockwork

Wall ties shall be polypropylene "Permaties" complying with BS 76377. Ties for hollow walls shall be deemed to be included in the descriptions of hollow walls and shall be of sufficient length to allow not less than 75mm of each end to be built into the blockwork. Ties shall be spaced at intervals of not more than 1m in the horizontal direction and not more than 400mm staggered in the vertical direction except at openings, vertical joints or ends of walls where they are to be placed vertically above each other

Pointing

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

SAMPLES

Samples of all masonry building units, except those for walls described as "load bearing", shall consist of a minimum of 6 units. Samples of building units to be used in walls described as "load bearing" shall consist of 30 units from every 30 000 units delivered to site

Carried to Collection R

BILL NO 4
MASONRY
Robertson Fire Station

MISCELLANEOUS

Bagging of masonry surfaces

Bagging of masonry surfaces shall be of the mortar as described rubbed onto surfaces with hessian cloth to provide a fair finish. The finished surface shall be free of penetrations or pitted openings or large protruding lumps of mortar. The finish shall be to the principal agent's approval

Decorative blocks

Blocks shall be of approved manufacture, sound, well burnt or cured and uniform and true in size, shape and colour

"Winblok" modular precast concrete window surrounds

Window surrounds shall be built into masonry walls and pointed all round on both sides with 10 x 10mm square recessed joints. Prices shall include for building in as single units or combinations in patterns of two or more window units and for bedding solid all round in mortar and pointing. **Note** : Aluminium infill windows, glazing and pointing with sealing compound are measured elsewhere

MASS BRICKWORK

MASS BRICKWORK IN FOUNDATIONS

1	Piers	m3			

BRICKWORK

FOUNDATIONS

Load bearing Brickwork of extra hard burnt clay bricks in class I mortar

2	230mm One brick walls in foundations	m2			
3	280mm Hollow walls of two 110mm skins in foundations	m2			

SUPERSTRUCTURE

Brickwork of common clay bricks

4	Mass brickwork	m3			
5	L-shaped piers	m3			
6	T-shaped piers	m3			
7	110mm Walls	m2			

Carried to Collection R

BILL NO 4
MASONRY
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8	110mm Walls in beamfilling	m2				
9	110mm Linings to concrete	m2				
10	110mm Linings 50mm away from concrete	m2				
11	280mm Hollow walls of two 110mm skins	m2				
	Hit and miss brick screens					
12	110mm wide "Hit and miss" brickwork including high water resistant bricks, all to architect's approval.	m2				
	Brickwork of extra hard burnt clay bricks in class I mortar in loadbearing walls					
13	110mm Walls	m2				
14	230mm Walls	m2				
15	280mm Hollow walls of two 110mm skins	m2				
	BRICKWORK SUNDRIES					
	Sundries					
16	110mm brick on end	m				
17	300 x 300mm Vertical flues in brickwork, including rendering smooth in mortar	m				
18	300 x 300mm Raking flues in brickwork, including rendering smooth in mortar	m				
19	Splayed mortar fillets one course high in 60mm cavities	m				
20	Splayed mortar fillets two courses high in 60mm cavities	m				
21	Closing 60mm cavities of hollow walls vertically with brickwork 110mm wide	m				
22	Closing 60mm cavities of hollow walls horizontally with one course of brickwork	m				
23	Closing 60mm cavities of hollow walls horizontally with two courses of brickwork	m				
24	Closing 60mm cavities at raking tops of hollow walls with two courses of brickwork	m				
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MASONRY
Robertson Fire Station

	Extra over normal brickwork for fair face finish in horizontal stretcher bond pointing, jointing etc. complete as per Architect's specifications				
25	To walls	m2			
26	110mm Walls faced both sides	m2			
	Joint forming material in movement joints, etc				
27	12mm Bitumen impregnated fibre board between skins	m2			
28	10mm Expanded polystyrene (density 16kg/m3) between skins	m2			
29	50mm Expanded polystyrene (density 16kg/m3) between skins	m2			
30	12mm Bitumen impregnated fibre board 110mm wide in walls	m			
31	10mm Expanded polystyrene (density 16kg/m3) 110mm wide in walls	m			
32	10mm "Jointex" 110mm wide with one tear-off strip in walls	m			
33	10mm "Jointex" 230mm wide with one tear-off strip in walls	m			
	Galvanized brickwork reinforcement				
34	75mm Wide reinforcement built in horizontally	m			
35	150mm Wide reinforcement built in horizontally	m			
	Prestressed concrete fabricated lintels				
36	110 x 70mm Lintels in lengths not exceeding 3m	m			
37	110 x 70mm Lintels in lengths exceeding 3m and not exceeding 4.5m	m			
38	150 x 70mm Lintels in lengths not exceeding 3m	m			
39	150 x 70mm Lintels in lengths exceeding 3m and not exceeding 4.5m	m			
40	110mm Wide turning pieces to lintels	m			
	Turning pieces				
41	230mm Wide turning pieces to lintels	m			
	MISCELLANEOUS				
	BAGGING				
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BILL NO 4
MASONRY
Robertson Fire Station

	Bagging of masonry surfaces with 1:3 cement and sand mixture				
42	On walls	m2			
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BILL NO 4
MASONRY
Robertson Fire Station

	SILLS, COPINGS, ETC				
	Brick Sills				
43	Single cant brick on end sill pointed on all exposed surfaces	m			
	"Nutec" natural grey sills in single lengths bedded in class I mortar, including metal fixing lugs, etc				
44	150 x 15mm Wide sills set flat and slightly projecting	m			
45	175 x 15mm Wide sills set sloping and slightly projecting	m			
	SUNDRIES				
	Galvanised wire ties				
46	4mm Diameter roof tie 2m girth bent double with one end built into brickwork and other end fixed to timber	No			
47	4mm Diameter roof tie 2m girth bent double with one end cast into concrete and other end fixed to timber	No			
	Galvanised hoop iron cramps, ties, etc				
48	40 x 1.6mm "Tibond" wall tie strips shot pinned to concrete and with ties bent out and built into masonry	m			
49	30 x 1.6mm Cramp 500mm long with one end fixed to wood and other end built into masonry	No			
50	30 x 1.6mm Wall tie 500mm long with one end shot pinned to concrete, masonry or steel and other end built into masonry	No			
51	30 x 1.6mm Roof tie 1.5m long with one end built into masonry and other end fixed to timber	No			
52	30 x 1.6mm Roof tie 1.5m long with one end cast into concrete and other end fixed to timber	No			
53	32 x 1.6mm Roof tie 1.5m long with one end cast into concrete and other end fixed to timber	No			
54	30 x 1.6mm Ceiling hanger 1m long with one end shot pinned to concrete or steel and other end fixed to timber	No			
	Wall bonding ties				
55	70mm Wide "Mentis Mentex 130" expanded metal wall bonding tie 700mm girth built horizontally into masonry at wall intersections, construction joints, etc, with ends bent up	No			
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MASONRY
Robertson Fire Station

BILL NO 4

MASONRY

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Item No			Quantity	Rate	Amount
	BILL NO 5				
	WATERPROOFING				
	For preambles see "Model Preambles for Trades"				
	SUPPLEMENTARY PREAMBLES				
	Waterproofing				
	Waterproofing of roofs, basements, etc shall be laid under a ten year guarantee by an approved applicator all in accordance with the manufacturer's specifications. Waterproofing to floors, roofs, etc shall be laid to even falls to outlets, etc with necessary ridges, hips and valleys. Descriptions of sheet or membrane waterproofing shall be deemed to include additional labour to turn-ups and turn-downs				
	DAMPPROOFING OF WALLS AND FLOORS				
	One layer 375 micron approved embossed damp proof course				
1	In walls	m2			
	One layer 250 micron approved waterproof sheeting sealed at laps				
2	Under surface beds	m2			
3	Vertically between walls	m2			
	Two coats "Flintkote Type 5" bitumen emulsion waterproof coating to				
4	Concrete floors	m2			
5	Masonry walls	m2			
6	Bagged walls	m2			
	Two coats "Brixeal" bitumen emulsion waterproof coating to				
7	Concrete floors	m2			
8	Concrete walls, columns and beams	m2			
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9	Masonry walls	m2				
10	Bagged walls	m2				
	<u>One primer coat and one coat Cemflex with waterproofing membrane as per manufacturer's specification</u>					
11	On shower walls and floors	m2				
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<u>BILL NO 5</u>
<u>WATERPROOFING</u>
<u>Robertson Fire Station</u>

BILL NO 5

WATERPROOFING

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WATERPROOFING
Robertson Fire Station

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BILL NO 6

ROOF COVERINGS, CLADDINGS, ETC

For preambles see "Model Preambles for Trades"

SUPPLEMENTARY PREAMBLES

Straight cutting

Descriptions of all roof coverings shall be deemed to include for all straight cutting

Profiled metal, fibre-cement, etc sheeting and accessories

Profiled metal, fibre-cement, etc sheeting and accessories shall be fixed strictly in accordance with the manufacturer's instructions

Profiled fibre-cement sheeting and accessories

Sheeting and accessories shall be secured to wood purlins with 6mm galvanised drive screws of appropriate length and to steel purlins with 6mm galvanised hook bolts of appropriate length and nuts. Each fixing screw or bolt shall be fitted with one "Everseal" combination steel cup and PVC washer system

Carried to Collection R

PROFILED METAL SHEETING AND ACCESSORIES

0.58mm "Klip-Lok 700" approved galvanised ribbed sheeting in single lengths and 0.8mm galvanised accessories, both with clean "Colorbond" finish of approved standard colour on one side and standard grey backing finish on reverse side, fixed to steel purlins or rails

1	Roof coverings with pitches not exceeding 25 degrees	m2			
2	Side claddings	m2			
3	Roof coverings and side and soffit claddings to dormers, turrets, etc	m2			
4	Extra over side claddings for 1.25mm "Modek" clear polycarbonate translucent panels	m2			
5	Side wall flashings 350mm girth	m			
6	Side wall flashings 408mm girth	m			
7	Head wall flashings 350mm girth	m			
8	Head wall flashings 375mm girth one edge notched on site	m			
9	Ridge coverings 462mm girth	m			
10	Ridge coverings 550mm girth both edges notched on site	m			
11	Hip coverings 550mm girth both edges notched on site	m			

0.58mm "Klip-Lok 700" galvanised ribbed sheeting in single lengths exceeding 13m and 0.8mm galvanised accessories, both with clean "Colorbond" finish of approved standard colour on one side and standard grey backing finish on reverse side, fixed to steel purlins or rails

12	Roof coverings with pitches not exceeding 25 degrees	m2			

ROOF AND WALL INSULATION

Sisalation FR405 light industrial double sided reflective foil laminate membrane

13	Insulation laid taut over rafters (at approximately 0.70m centres) and fixed concurrent with tiling battens, purlins, etc, including 100mm taped laps	m2			

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BILL NO 6
ROOF COVERINGS, CLADDINGS, ETC
Robertson Fire Station

	"AEROLITE" thermal membrane					
14	Insulation 135mm thick laid over purlins (elsewhere)	m2				
	"Isoboard" high density rigid extruded polystyrene closed cell insulation boards with brown paper and polyethylene laminate slip sheet factory applied to upper surface, with tongue and groove joints					
15	25mm Insulation boards in 0.60m widths laid over girts (at approximately 1.50m centres) and fixed concurrent with side cladding, including holes through boards, etc	m2				
16	50mm Insulation boards in 0.60m widths laid over purlins (at approximately 1.50m centres) and fixed concurrent with roof covering, including holes through boards, nylon supporting straining wires, etc	m2				
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BILL NO 6
ROOF COVERINGS, CLADDINGS, ETC
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ROOF COVERINGS, CLADDINGS, ETC

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ROOF COVERINGS, CLADDINGS, ETC
Robertson Fire Station

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BILL NO 7

CARPENTRY AND JOINERY

For preambles see "Model Preambles for Trades"

SUPPLEMENTARY PREAMBLES

Plate nailed timber roof truss construction

The following is applicable in respect of roof trusses:

Trusses are at maximum 1.20m centres. Roof covering is 0.6mm IBR profile sheeting on 50 x 75mm purlins. Ceilings are 6.4mm skimmed gypsum plasterboard sheeting on 38 x 38mm brandering. The references given in the descriptions are to the respective types of trusses detailed on the principal agent's drawing numbered H100/015 accompanying this document. The dimensions in the descriptions of the trusses are nominal and actual measurements shall be obtained from the principal agent and/or the site before design or fabrication commences

Pre-fabricated roof trusses

Pre-fabricated roof trusses shall comply with the design requirements of SABS Specification No 0160 and 0163 for coastal conditions and shall be designed by a registered Engineer and manufactured by Gangnail or other approved licenced manufacturer, all in strict accordance with the manufacturers instructions and to the approval of the Principal Agent.

Rates are to include for the supply, erection and fixing into position and are to cover the cost of inspection and approval by an Engineer from the 'Institute for Timber Construction' and present an A19 certificate

Shop drawings

The truss fabricator must submit working drawings of the final truss design to the consulting Engineer for approval before fabrication. Rates must include for all working drawings as required.

Straight cutting

Descriptions of all boarding, etc shall be deemed to include for all straight cutting

Carried to Collection R

Joinery

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

Descriptions of hardwood joinery shall be deemed to include pelleting of bolt holes

Fixing

Items described as "nailed" shall be deemed to be fixed with hardened steel nails or shot pins to masonry or concrete

Decorative laminate finish

Laminate finish shall be glued under pressure. Edge strips shall be butt jointed at junctions with adjacent similar finish

STRUCTURAL TIMBERWORK ETC

Design & Supply timber roof

1	Timber roof as per engineers specification on drawing PS2006_21 103 by specialist (Also refer to complete set of architect drawings)	No			

Sawn softwood grade 5

2	38 x 38mm Hangers	m			
3	38 x 114mm Wall plates	m			
4	38 x 114mm Wall plates, bolted	m			
5	38 x 114mm Bracing	m			
6	38 x 114mm Trimmers	m			
7	38 x 114mm Sprockets	m			
8	38 x 114mm Bearers, bolted	m			
9	38 x 114mm Ceiling joists in lengths not exceeding 2.4m	m			
10	38 x 114mm Ceiling joists in lengths exceeding 2.4m and not exceeding 3.9m	m			
11	38 x 114mm Rafters in lengths not exceeding 2.4m	m			
12	38 x 114mm Rafters in lengths exceeding 2.4m and not exceeding 3.9m	m			
13	38 x 152mm Rafters in lengths exceeding 3.9m and not exceeding 6.6m	m			

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CARPENTRY AND JOINERY
Robertson Fire Station

14	38 x 228mm Rafters in lengths exceeding 6.6m	m			
15	38 x 114mm Bearers in lengths exceeding 2.4m and not exceeding 3.9m	m			
16	38 x 152mm Bearers in lengths exceeding 3.9m and not exceeding 6.6m	m			
17	38 x 228mm Bearers in lengths exceeding 6.6m	m			
18	38 x 114mm Bolted roof truss members in lengths not exceeding 2.4m	m			
19	38 x 114mm Bolted roof truss members in lengths exceeding 2.4m and not exceeding 3.9m	m			
20	38 x 152mm Bolted roof truss members in lengths exceeding 3.9m and not exceeding 6.6m	m			
21	38 x 228mm Bolted roof truss members in lengths exceeding 6.6m	m			
22	50 x 75mm Runners	m			
23	50 x 75mm Purlins	m			
24	50 x 75mm Purlins, bolted	m			
25	75 x 75mm Splayed purlins	m			
26	38 x 228mm Blocking piece 400mm long	No			
	EAVES, VERGES, ETC				
	"Nutec" medium density plain sheets				
27	12 x 225mm Fascias and barge boards, including H-profile plastic jointing strips	m			
28	32 x 219mm Fascias and barge boards	m			
	SKIRTINGS				
	Supawood				
29	18 x 100mm Skirtings nailed	m			
30	18 x 100mm Skirtings, stepped over treads and risers, nailed	m			
	CILLS				
	Supawood				
31	18 x 100mm window cills	m			
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CARPENTRY AND JOINERY
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DOORS, ETC

Semi-solid flush doors with commercial veneer on both sides hung to steel frames

32	40mm Door 0.81 x 2.08m high (D05)	No			
33	40mm Door 1.0 x 2.08m high (D06)	No			
34	40mm Double door 1.21 x 2.08m high (D15)	No			
35	40mm Double door 1.2 x 1.185m high (D16)	No			

Semi-solid flush doors with commercial veneer on both sides hung to slide

36	40mm Door 1.1 x 2.08m high (D08)	No			

"Swartland" cross braced batten doors or similar approved

37	Single framed door 0.81 x 2.08m high (D07)	No			
38	Double framed door 1.61 x 2.08m high (D09)	No			
39	Double framed door 1.21 x 2.08m high (D10)	No			
40	Double framed door 1.21 x 1.2m high (D10)	No			

JOINERY FITTINGS

General

The following joinery fittings are measured as complete units i.e. the components of the units are not separately measured. The descriptions, therefore, of such units shall be deemed to include all components, assembling, housing, notching, glueing, blocking, planting on and screwing with countersunk screws, edge strips, decorative laminates, silicone pointing against adjacent surfaces, ironmongery, metalwork, glass, paint or varnish finishes, etc

The references given in the descriptions refer to the respective types of joinery fittings detailed on the architect's drawings annexed at the back of this document

Shelving

41	Adjustable shelving 2180mm high made up of 5 horizontal shelves, each of 600 x 20mm selected laminated timber shelving. Including vertical uprights at max 420mm centres. Shelving to be Shelves to be fixed on steel wall brackets double slots including bolts. Double slot steel wall band for adjustable shelving fixed to wall including drilling, bolts etc. complete as per Architects drawing RFS/21 516 A	m			

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BILL NO 7
CARPENTRY AND JOINERY
Robertson Fire Station

42	Extra over for corners of shelving	m				
	Kitchen cupboards					
43	L-shaped Sink and oven cupboard 945 / 3095 x 600 x 900mm high with melamine carcass and internals, sides, bottom, divisions, shelf, back, 4 no double hinged doors and 4 no drawers, complete with ironmongeries (sink elsewhere measured) as per manufactures specifications and Architect's drawing RFS/21 518 A	No				
44	L-shaped cupboard 345 / 1075 x 600 x 900mm high with melamine carcass and internals, sides, bottom, divisions, shelf, back, 3 no double hinged doors and 4 no drawers, complete with ironmongeries as per manufactures specifications and Architect's drawing RFS/21 518 A	No				
45	Cupboard with counter top 3095 x 600 x 900 / 1250mm high with melamine carcass and internals, sides, bottom, divisions, shelf, back, 4 no double hinged, doors and 4 no drawers, 1 no under counter bin store complete with ironmongeries as per manufactures specifications and Architect's drawing RFS/21 518 A	No				
46	Top shelves 3095 x 369 x 1340mm high with melamine carcass and internals, sides, bottom, divisions, shelf, back, 4 no double hinged, doors, complete with ironmongeries as per manufactures specifications and Architect's drawing RFS/21 518 A	No				
47	Top shelve microwave holder 600 x 400 x 400mm high with melamine carcass and internals, sides, bottom, divisions, shelf, back, complete with ironmongeries as per manufactures specifications and Architect's drawing RFS/21 518 A	No				
	Bedroom cupboards					
48	Built in cupboard 1800 x 3000 x 600mm complete as per room detail layout RFS/21 506 A	No				
49	Built in cupboard 1800 x 3000 x 600mm complete as per room detail layout RFS/21 507	No				
50	Built in cupboard 1800 x 3000 x 600mm complete as per room detail layout RFS/21 508	No				
51	Built in cupboard 1800 x 3000 x 600mm complete as per room detail layout RFS/21 509	No				
52	Built in cupboard 1170 x 3000 x 600mm complete as per room detail layout RFS/21 510	No				
	Desks					
53	Built in desk 30 x 800 x 429mm complete as per room detail layout RFS/21 510	No				
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54	L shaped receptionist desk 700 x 20mm thick including 2 no fixed drawers 750 x 650 x 450mm complete as per room detail layout RFS/21 511 A	No				
	Benches					
55	Shower bench 20 x 30 x 900mm treated SA Pine timber slatted seat attached by 10 x 60mm Steel Bracket Painted 1x undercoat 2x Red Paint complete as per room detail layout RFS/21 501 A	No				
56	Bench 20 x 30 x 900mm treated SA Pine timber slatted seat attached by 10 x 60mm Steel Bracket Painted 1x undercoat 2x Red Paint complete as per room detail layout RFS/21 501 A	No				
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CARPENTRY AND JOINERY

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BILL NO 8

CEILINGS, PARTITIONS AND ACCESS FLOORING

For preambles see "Model Preambles for Trades"

SUPPLEMENTARY PREAMBLES

Descriptions

Items described as "nailed" shall be deemed to be fixed with hardened steel nails or pins or shot pinned to masonry or concrete

Items described as "plugged" shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 600mm centres, and where described as "bolted", the bolts are measured elsewhere

Sub-grids

Sub-grids for suspended ceilings shall be deemed to include for the design, supply and erecting of a stable horizontal gridwork of galvanised steel "Burgess" channels at centres suitable to carry the ceilings and for positive fixing thereof to structural steel members at not exceeding 5.00m centres and exceeding 3m and not exceeding 4m below the steel members

Proprietary suspended ceilings

Hangers, suspension grids, "lay-in" panels, etc are to be in accordance with the manufacturers' recommendations

Electrical light fittings, diffusers, panels etc are generally "lay-in" units of the same dimensions as the suspension grid described and allowance must be made in the rates accordingly for their support inclusive of any flexibility in setting out that may be required (ceiling panels have not been deducted and pricing is to take cognisance thereof)

Flush plastered gypsum plasterboard suspended ceilings

Ceilings shall comprise screw-up galvanised steel suspension grid consisting of main tees at 1.20m centres, cross tees at centres to suit the thickness of the boards and covered as described with plasterboard screwed to grid with 25mm "Drywall" screws at maximum 220mm centres. Boards shall be butt jointed and finished with tape and jointing compound and the whole finished with gypsum plaster trowelled to a smooth polished surface to the thickness recommended by the manufacturer

Carried to Collection R

The grid shall be suspended by means of galvanised steel angle hangers at suitable centres, securely shot pinned or screwed to concrete, steel or wood

Flush plastered gypsum plasterboard suspended bulkheads

Bulkheads shall comprise galvanised steel studding of 63.5mm top and bottom tracks with vertical studs at maximum 400mm centres, pop riveted to the top and bottom tracks with similar additional vertical studs as necessary at abutments, ends, etc and covered as described with plasterboard screwed to studding with 25mm "Drywall" screws at maximum 220mm centres. Boards shall be butt jointed and finished with tape and jointing compound and the whole finished with gypsum plaster trowelled to a smooth polished surface to the thickness recommended by the manufacturer

Descriptions shall be deemed to include any additional studs at ends and intersections, corner beads, cornices at junctions with ceilings, jointing compound, tape, etc

Fire barriers

Fire barriers are to be constructed with the type and thickness of boards and the number of layers and insulation (if necessary) to comply with the specified fire rating all in accordance with the manufacturer's recommendations. Top and bottom edges, abutments, openings, etc are to be sealed to maintain the fire rating specified

"Saint-Gobain GypRoc" partition systems

"GypWall" drywall partitioning shall comprise of 63.5mm galvanised steel top and bottom tracks with 63.5mm galvanised steel vertical studs at maximum 600mm centres, friction fitted or pop riveted to the top and bottom tracks with similar additional vertical studs as necessary at abutments, ends, etc and covered as described with taper edged "Rhino" board screwed to studding with 25mm "Drywall" screws at maximum 220mm centres. Boards are to be butt jointed and taped and jointed all in accordance with the manufacturer's instructions. Intersections and abutments are measured separately and descriptions shall be deemed to include any additional studs, corner beads, jointing compound, tape, etc

Note: Wall paper and/or paint and varnish finishes are measured elsewhere

"GypWall LC Crusader" partition systems

Demountable partitions are to be "GypWall LC Crusader" comprising galvanised steel tracks and studs with one layer of 12.5mm gypsum plasterboard in 1.20m modules on both sides, flat aluminium skirtings and aluminium angle trim cornices. The panels are to be covered with "DonnClad" paper backed vinyl wall cladding wrapped around edges. Aluminium door frames and glazing sections, skirtings, cornices, etc shall be natural anodised aluminium

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CEILING TIMBERS, BEADS, INSULATION, ETC

Sawn softwood

1	38 x 38mm Branders	m			
2	38 x 38mm Branders, nailed	m			
3	38 x 38mm Branders, plugged	m			
4	38 x 38mm Branders wrought on one face, plugged	m			
5	38 x 38mm Hangers	m			
6	38 x 114mm Ceiling joists	m			
7	50 x 76mm Runners	m			

Sandra

8	70 x 20mm Cornices, nailed	m			
9	70 x 20mm Cornices, plugged	m			

NAILED-UP CEILINGS

9.5mm approved gypsum plasterboard with plastic M-Strip jointing strips

10	Horizontal ceilings, including 38 x 38mm sawn softwood brandering at 150mm centres	m2			
11	Sloping ceilings, including 38 x 38mm sawn softwood brandering at 150mm centres	m2			
12	Vertical ceilings, including 38 x 38mm sawn softwood brandering at 150mm centres	m2			

9.5mm approved gypsum plasterboard with 63mm wide strips of mesh scrim nailed over joints and the whole finished with gypsum skim plaster trowelled to a smooth polished surface

13	Horizontal ceilings, including 38 x 38mm sawn softwood brandering at 150mm centres	m2			
14	Sloping ceilings, including 38 x 38mm sawn softwood brandering at 150mm centres	m2			
15	Vertical ceilings, including 38 x 38mm sawn softwood brandering at 150mm centres	m2			

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16	Circular cutting	m				
17	Vertical bulkheads between nailed-up ceilings, formed of one 300mm element, including 38 x 38mm sawn softwood brandering at 150mm centres	m				
18	L-shaped bulkheads between nailed up ceilings and walls 600mm girth, formed of one 300mm horizontal element and one 300mm vertical element, including 38 x 38mm sawn softwood brandering at 300mm centres	m				
19	U-shaped bulkheads between nailed-up ceilings 700mm girth, formed of one 100mm horizontal element, one 200mm and one 400mm vertical elements, including 38 x 38mm sawn softwood brandering at 300mm centres	m				
20	Extra over ceilings for opening for sprinkler head	No				
21	Extra over ceilings for opening for 150mm diameter downlighter	No				
	"Rhino" gypsum plasterboard cornices					
22	75mm Coved cornices, nailed	m				
	PARTITIONS, ETC					
	Approved drywall system with one layer of 12.5mm boards on both sides					
23	Partitions 1.80m high with bottom track nailed and top track fitted with standard aluminium channel cappings	m				
24	Partitions 2.60m high with bottom track nailed and top track fitted with standard aluminium channel cappings and fixed to suspended ceiling tees	m				
25	Extra over partitions 1.80m high for vertical abutment against structure	No				
26	Extra over partitions for creating opening for door (elsewhere) including aluminium frame etc. 0.813 x 2.085m high (D05)	No				
27	Extra over partitions for creating opening for door (elsewhere) including aluminium frame etc. 1.00 x 2.085m high (D06)	No				
28	Extra over partitions for creating opening for door (elsewhere) including aluminium frame etc. 1.22 x 2.085m high (D15)	No				
29	Extra over partitions 2.60m high for vertical abutment against structure	No				
30	Extra over partitions 1.80m high for corner	No				
31	Extra over partitions 2.60m high for corner	No				
32	Extra over partitions 1.80m high for T-intersection	No				
	Carried to Collection				R	

33	Extra over partitions 2.60m high for T-intersection	No			
34	Extra over partitions 1.80m high for fair end, including fitted with standard aluminium channel capping	No			
35	Extra over partitions 2.60m high for fair end	No			
	Carried to Collection			R	

BILL NO 8
CEILINGS, PARTITIONS AND ACCESS FLOORING
Robertson Fire Station

BILL NO 8

CEILINGS, PARTITIONS AND ACCESS FLOORING

COLLECTION

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BILL NO 8
CEILINGS, PARTITIONS AND ACCESS FLOORING
Robertson Fire Station

Item No			Quantity	Rate	Amount
	BILL NO 9				
	FLOOR COVERINGS, WALL LININGS, ETC				
	For preambles see "Model Preambles for Trades"				
	SUPPLEMENTARY PREAMBLES				
	Fixing				
	Floor coverings, wall linings, etc shall, where applicable, be fixed with adhesive as recommended by the manufacturers				
	FLOOR COVERINGS				
	Supply and fix 2.0mm/2.5mm thick x 1.2m wide Superflex fully flexible vinyl sheeting, manufactured in accordance with SANS 786 and to FLOORWORX's suggested installation. The sheeting must be rolled in both directions with an articulated 68kg three-sectional roller immediately after it had been laid into the adhesive. Joints must be butted, grooved and heat welded				
1	Floors	m2			
2	Circular cutting	m			
3	Floors in insets 100mm wide of differing colour	m			
4	Floors in margins and borders not exceeding 500mm wide	m			
5	Turn-ups over coves and up against walls not exceeding 500mm girth	m			
	POLISH, SEALERS, ETC				
	Three coats wax polish on				
6	Vinyl floors	m2			
	Scrub with "Wetrok Resal" neutral cleaner, rinse with clean water, dry with a wet vac and apply three coats "Wetrok Mepol HM" satin/matt sealer to				
7	Vinyl floors	m2			
	Carried to Summary			R	

Item No			Quantity	Rate	Amount
	BILL NO 10				
	IRONMONGERY				
	For preambles see "Model Preambles for Trades"				
	SUPPLEMENTARY PREAMBLES				
	User note				
	The following preamble is a deviation from the Standard System and maybe considered in which case all references to fixing maybe omitted				
	Fixing				
	Ironmongery shall be deemed to include for fixing to wood, metal, masonry or concrete with stainless steel screws or bolts, including drilling and fibre, plastic or metal plugs where applicable				
	Finishes to ironmongery				
	Where applicable finishes to ironmongery are indicated in accordance with the following list: BS Satin bronze lacquered CH Chromium plated SC Satin chromium plated SE Silver enamelled GE Grey enamelled AS Anodised silver AB Anodised bronze AG Anodised gold ABL Anodised black PB Brass PL Polished brass PT Epoxy coated SD Sanded SS Stainless steel				
	HINGES, BOLTS, ETC				
	Approved				
1	Ironware 3 x 100mm 2BB sinkless hinge ss product code IW3043SS	Pairs			
2	150mm flush lever bolt sc product code DFB-SC-180	No			
3	Ironware 150mm flush lever bolt product code IW4123SS	No			
	Carried to Collection			R	

LOCKS

"Ironware" locks

4	35mm cylinder dead lock product code IW2013SS	No			
5	35mm cylinder sash lock product code IW2001SS	No			
6	Commercial cylinder dead lock product code IW2207SS	No			
7	Commercial cylinder dead lock product code IW2219SS including rebate kit for IW2219 lock	No			
8	Commercial cylinder sash lock product code IW2207SS	No			
9	WC dead lock with 8mm follower product code IW2031	No			
10	60mm cylinder hook lock product code IW2040SS	No			
11	50mm cylinder dead lock with adjustable roller catch product code IW2026SS	No			

"Ironware" rebate kits

12	Rebate kit for IW2207 / IW2219 lock product code IW2140SS	No			
13	Rebate conversion set (long) np product code 521RN	No			

LOCKS SUITABLE FOR MASTER KEY OPERATION

Master key locks

14	43mm single cylinder - master keyed product code IWI2081NPMK	No			
15	66mm double cylinder - master keyed product code IWI2051NPMK	No			

HANDLES

"CALINI"

16	25 x 450 x 300mm c/c p/handle offset product code IW1331/25/450	No			
17	Round pull handle: length = 170mm / ctc = 150mm / post = 19mm / ss product code IW1320/170	No			
18	Lever handle on screw type rosette ss product code IW1008H	No			
19	Round pull handle: length = 625mm & 325mm / ctc = 600mm & 300mm / post = 25mm / ss product code IW1321	No			
20	40x20 oval flush pull handle product code IW1482SS	No			

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BILL NO 10
IRONMONGERY
Robertson Fire Station

21	22mm pull handle back to back fixing set with rosette for: IW1330 - 25mm dia / ss product code IWFSBTB22	Pairs			
22	19mm pull handle back to back fixing set with rosette for: IW1306 - 22mm dia / ss product code IWFSBTB19	Pairs			
	"Ironware"				
23	63 x 44mm flush ring pull handle product code IW1485SS	No			
	LOCK BACK PLATE				
	Lock back plate				
24	Calini 285 x 28mm sqaure cylinder back plate ctc = 85mm product code IWSBP5CYLSS	No			
	DOOR CLOSERS				
	Door closers				
25	EN2-4 slide channel door closer push sid product code IS115RV	No			
26	Slide channel door en 2-3 silver product code IS115	No			
27	QS700DA/1 delayed action with arm 2-3 product code QS700DA/1	No			
28	Ironware adjustable roller catch ss product code IW5054SS	No			
	DOOR COORDINATORS				
	Door coordinators				
29	QS762 fire door coordinator 42"	No			
	DOOR ESCUTCHEON				
	Door escutcheon				
30	Calini narrow style cylinder escutcheon ss product code IW1903CYLSS	No			
31	Calini round screw type escutcheon ss product code IW1904CYLSS	No			
	DOOR STOPS				
	Door stops				
32	Ironware round door stop product code IW5001SC	No			
33	Ironware magnetic floor door stop/holder product code IW5009SC	No			
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BILL NO 10
IRONMONGERY
Robertson Fire Station

DOOR INDICATORS

Door Indicators

34	Ironware WC Indicator set product code IW1926	No			
35	Ironware 50mm round WC Indicator set product code IW1921	No			

DOOR ACCESSORIES

Door accessories

36	Ironware hook and buffer product code IW5034	No			
37	Ironware dust excluding socket product code IW4060SS	No			

Straightaway

38	Straightaway 100A sliding gear set for single timber door with aluminium track for side fixing, including brackets, stainless steel hangers, rollers etc. product code ST100A	No			

PUSH AND KICKING PLATES

1.2mm stainless steel plates counter sunk screwed along edges at not exceeding 850mm centres

39	150 x 850mm product code KP1.2*15*85	No			

SIGNAGE

Ironware bathroom signage male and female, mounted to walls, doors, backing plates, etc

40	150 x 150mm outline engraved ss male and female product code IW6002SS	No			
41	150 x 150mm outline engraved ss disabled product code IW6005SS	No			

SUNDRIES

Approved

42	10mm Diameter steel dowel 75mm long in and including mortice in timber and brickwork or concrete	No			
43	38mm Diameter rubber door stop	No			
44	38mm Diameter rubber door stop, plugged	No			

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IRONMONGERY
Robertson Fire Station

	"Union Assa Abloy"				
45	9002AS door stop, plugged	No			
46	AL8721AS hat and coat hook, plugged	No			
47	AL8722AS hat and coat hook with rubber buffer	No			
	"Raven"				
48	RP10 sealing strip fixed to top and edges of frame for 0,81 x 2,03m high single door	No			
49	RP3 sealing strip fixed to bottom of 813mm wide single door	No			
	"Decramat" door and entrance mats				
50	10mm "Triple Active" mat size 0.90 x 0.60m laid loose in mat surround	No			
51	10mm "Mat-lok Aluguard Passive Scraper" mat size 4.00 x 1.60m laid in and including a AMF31/31 recess frame mat surround screeded in	No			
	BATHROOM FITTINGS				
	Toilet roll holder				
52	4600 Series Type 1 polished stainless steel toilet roll holder product code BUT-BAAC4601POLS	No			
	Shower rack				
53	4600 Series 330mm polished stainless steel shower rack product code BUT-BAAC4620POLS	No			
	Robe/towel hook				
54	4600 Series single brushed stainless steel robe hook product code BUT-BAAC4610BRSH	No			
	Single towl rail				
55	Single Towel Rail 4800 product code BUT-BAAC4870POLS	No			
	Grab rail				
56	32mm diameter stainless steel rear grab rail, in satin finish complete with SS fixing screws and plastic wall plugs	No			
57	32mm diameter stainless steel 300 x 300 x 300mm right hand side grab rail, in satin finish complete with SS fixing screws and plastic wall plugs	No			
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	SHELVES, ETC				
	"Shelco" with standard epoxy powder coated finish				
58	WB7 double slot wall bands, plugged	m			
59	BR12 shelf bracket	No			
60	BR18 shelf bracket	No			
61	SS12 shelf 914mm long	No			
62	SS18 shelf 914mm long	No			
	"Shelco" free standing steel shelving units with standard epoxy powder coated finish, including heavy duty uprights, open base adjustable foot pieces, shelf brackets, shelves, spacers, top rails, top and end covers				
63	Type FSSA reference M double shelving unit 2.74 x 1.08 x 1.52m high in three bays with four uprights, each bay 914mm wide with four SS15 shelves, four SS18 shelves and two SS21 shelves	No			
	STEEL LOCKERS				
	"Greenfield Guardman" economy steel lockers with epoxy powder finish				
64	GB006 locker 0.45 x 0.45 x 1.80m high, plugged	No			
65	Bank of 8 x GB006 lockers each 0.45 x 0.45 x 1.80m high bolted together, plugged	No			
	PINNING BOARDS, WRITING BOARDS, PROJECTION SCREENS, ETC				
	"Vitrex"				
66	Code 2310 pinning board 3.00 x 1.20m high, plugged	No			
67	Code 2210 white writing board 3.00 x 1.20m high with pen rail, plugged	No			
68	Code 2402 green folding type writing board, with wall mounted centre board 2.00 x 1.20m high with chalk rail and two swing leaves each 1.00 x 1.20m high, plugged	No			
69	Code 2502 column mounted vertical sliding type green writing board with two boards each 2.50 x 1.00m high with chalk rail and pair of columns 2.90m high, plugged	No			
70	Code 2704 tilting wall mounted projection screen 1.50 x 1.50m high, plugged	No			
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IRONMONGERY

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IRONMONGERY
Robertson Fire Station

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BILL NO 11

STRUCTURAL STEELWORK

For preambles see "Model Preambles for Trades"

SUPPLEMENTARY PREAMBLES

SANS 1200HA

Clause 5.3.6 (Repairs to paint and site painting) shall be applicable

Descriptions

Black bolts shall be deemed to include class 4.8 bolts, galvanised or otherwise finished

Descriptions of structural steelwork shall be deemed to include for welding, holes, nuts, washers, rivets, bolting and riveting

Descriptions of L-shaped and U-shaped anchor bolts shall be deemed to include bending, threading, nuts and washers and embedding in top of concrete

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

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

Steelwork described as "galvanised" shall be galvanised by means of the hot-dip process after fabrication. Where welding on site is unavoidable, such welded joints shall be cleaned down and cold galvanised to approval

Steelwork described under headings with " INCLUDING PAINTING" shall be deemed to include for preparation by mechanical wirebrush and painting with one coat 45 micron zinc phosphate primer and two coats 30 micron super gloss enamel applied in factory and touched up on site and prices are to include for this

Bolting of steelwork

Where steelwork is described as "bolted" to wood, masonry, concrete, etc the bolts are measured elsewhere

Carried to Collection R

	GALVANISED STEEL COLUMNS AND BEAMS				
	Welded columns in single lengths with flat base, top, bearer and connection plates, bolted to concrete				
1	203 x 203mm x 46kg/m H-section columns	t			
2	254 x 146mm x 31kg/m I-section columns in lengths not exceeding 13m	t			
3	553 x 210mm x 101.0kg/m I-section columns in lengths exceeding 18m and not exceeding 19m	t			
	Welded lattice columns formed of 100 x 100 x 10mm, 70 x 70 x 8mm and 50 x 50 x 6mm angle framework and bracing, with flat base, top, bearer, gusset and connection plates, bolted to concrete				
4	300 x 600mm Lattice columns 10.00m high	t			
5	600 x 900mm Lattice columns in heights varying from 5.00m to 10.00m	t			
	Welded lattice beams formed of 100 x 100 x 10mm, 70 x 70 x 8mm and 50 x 50 x 6mm angle framework and bracing, with flat bearer, gusset and connection plates, bolted to steel				
6	300 x 600mm High lattice beams 20.00m long	t			
7	600 x 900mm High lattice beams in lengths varying from 10.00m to 15.00m	t			
	Bolts and baseplates to columns, etc				
8	Hot dip galvanised M16 (8.8) Ø u-bolts cast into concrete stub columns as per engineers drawings PS2006_21 201 B	No			
9	360 x 360 x 12mm Thick flat section baseplate, four times holed for u-bolts (Bolts elsewhere)	No			
	STEEL TRUSSES				
	Welded roof trusses of angle rafters, tie beams, struts, braces, cleats, etc and flat bearer, gusset and connection plates, bolted to steel PS2006_21 200 B				
10	60 x 60 x 6mm Angle	t			
11	203 x 133 x 25 T section (type A)	t			
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STRUCTURAL STEELWORK
Robertson Fire Station

	Welded roof girder of angle rafters, tie beams, struts, braces, cleats, etc and flat bearer, gusset and connection plates, bolted to steel as per engineers drawing PS2006_21 200 B				
12	30 x 30 x 5mm thick angle	t			
13	70 x 70 x 8mm thick angle	t			
14	305x156x40 T section (type D)	t			
	Welded roof trusses of angle top and bottom chords, struts, braces, etc and flat bearer, gusset and connection plates, bolted to concrete				
15	Lattice trusses 30.00 x 2.00m high extreme	t			
16	Lattice trusses in two sections bolted together, 30.00 x 2.00m high extreme	t			
	GALVANISED STEEL PURLINS, GIRTS, BRACING, ETC				
	Purlins and girts, bolted to steel				
17	150 x 65 x 20 x 3.0mm x 7.48kg/m Cold-formed lipped channel purlins	t			
18	150 x 65 x 20 x 3.0mm x 7.48kg/m Cold-formed side rails	t			
	Welded box gutter bearers with flat cleats, bolted to steel				
19	50 x 50 x 5mm x 3.77kg/m Angle longitudinal bearers	t			
20	50 x 5mm x 1.96kg/m Flat cross bearers	t			
	BOLTS ETC.				
21	"Hilti" HLC M12 expansion anchor and bolt including injection mortar	No			
22	"Hilti" HLC M16 expansion anchor and bolt including injection mortar	No			
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BILL NO 11
STRUCTURAL STEELWORK
Robertson Fire Station

PAINT TO STRUCTURAL STEEL

PAINT SPECIFICATION

VISIBLE AND NON-VISIBLE AREAS

1. Blast clean all structural steel work to SA2.5 of SIS 05-09-00 to 50-75 micron blast profile.

2. Primer:

Apply once coat Plascon Zinc Phosphate (code UC 170) or similar approved primer(50um) to manufacturer's specification (applied 4hours of surface treatment)

3. Finishing Coat:

Apply two coats(each 30um) high-gloss enamel (code G range) to manufacturer's specification. colour by Architect

Any damaged areas must be repaired with Primer and Topcoat, to the laid down total Dry Film Thickness.

After erection repair all damaged areas as above.

Contractor to supply a written guarantee for paint and finishing specification.

Non-visible areas to receive primer only Visible areas to receive primer and finishing coat.

23	Painting to visible areas as described	m2			

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STRUCTURAL STEELWORK
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STRUCTURAL STEELWORK

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	BILL NO 12				
	METALWORK				
	For preambles see "Model Preambles for Trades"				
	SUPPLEMENTARY PREAMBLES				
	Descriptions				
	Descriptions of bolts shall be deemed to include nuts and washers				
	Unless where otherwise indicated, descriptions of galvanised wire fencing shall comply with SANS 675 coating thickness				
	Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in masonry or concrete				
	Metalwork described as "holed for bolt(s)" shall be deemed to exclude the bolts unless otherwise described				
	Aluminium windows, doors, etc				
	The contractor is referred to the drawings annexed at the back of this document for general requirements, scope and construction details of the work to be carried out under this heading. The reference numbers shown in brackets are taken from the drawings				
	The work includes for the supply, setting up, fixing in position of windows, doors, etc to masonry or concrete, ironmongery, polyurethane sealant all round on both sides and for glazing as described				
	Detailed shopdrawings will be required indicating layout elevations, profile sections, profile connections, ironmongery and waterproofing details on all windows, doors, etc				
	GALVANISED STEEL HANDRAILS, BALUSTRADING, ETC				
	Welded and bolted handrails				
1	50 x 2.0mm hollow section continuous rails including fixing to wall at 1460mm c/c as necessary	m			
2	Extra over for stopped end	No			
	Carried to Collection			R	

	Balustrading				
3	50mm dia satin chrome stainless steel balustrade frame with 2 x 25mm galvanized powder coated welded mesh infill complete as per Architects drawing RFS/21 603 TEN	m			
4	Extra over for stopped end	No			
5	Extra over for corners	No			
	GALVANISED PRESSED STEEL DOOR FRAMES				
	1,2mm Rebated frames				
6	Frame for door size 1 219 x 2 085mm high for 110mm walls	No			
7	Ditto, but for 230mm walls	No			
8	Ditto, but for 280mm cavity walls	No			
9	Frame for door size 1 613 x 2 052mm high for 110mm walls	No			
10	Ditto, but for 230mm walls	No			
11	Ditto, but for 280mm cavity walls	No			
	ALUMINIUM (WG 140)				
	GENERAL				
	This specification must be read in conjunction with the drawings annexed to these Bills of Quantities.				
	The drawings relating to this part of the document indicate the general requirements and dimensions of the aluminium windows, glass, louvres, etc.				
	No deviations may be made from the general requirements and dimensions but improvements in design affecting neatness, strength, durability or efficient work may be introduced. The Contractor will be held responsible for satisfactory performance of the aluminium windows, glass, etc, with regard to structural strength, allowance for thermal movement, expansion and contraction, resistance to wind pressure, resistance to air and water penetration and methods of fixing, bearing in mind that this is a building totalling approximately 4 metres overall in height.				
	Window construction to comply with AAMSA guides and SABS codes as well as the National Building Regulations.				
	Materials and workmanship are without exception to be to the approval of the Architect.				
	Carried to Collection			R	

Scope of the Works

The work includes, but is not restricted to the following major items of work and any work shown on the drawings but not specifically mentioned herein shall be included:

Aluminium windows, etc, and set up complete.

Glass and glazing all as indicated on the drawings or as described in this specification.

All aluminium waterstops.

All protection and maintenance of protection.

All fixing.

All sealing between adjoining and/or coupled units, including the sealing between the window units, etc, and the building fabric as indicated on the drawings.

All timber filler pieces.

All samples.

All removal of protection and final cleaning down of all exposed surfaces prior to handover.

Shop Drawings

The appointed Sub-Contractor will be required to prepare the necessary shop drawings showing all component parts, their location, method of assembly and fixing. These drawings must also show the relationship with adjacent finishes.

Two paper copies of each shop drawing, free of any charge, are to be submitted timeously by the Sub-Contractor to the Architect for approval. No fabrication is to commence prior to the Sub-Contractor's receipt of an approved in principle copy of a shop drawing endorsed by the Architect.

Approval in principle of the shop drawings by the Architect will not relieve the sub-contractor from the responsibility of fulfilling the requirements of the Architect's drawings, specification and performance criteria, nor from the responsibility to the Main Contractor for programming attendance, etc.

All such drawings shall be submitted in sufficient time to allow for comment, correction and eventual acceptance for general issue having regard to the main contract and sub-contract programme.

The Architects may make minor changes in the shapes of the members before final approval of the shop drawings.

Carried to Collection R

BILL NO 12
METALWORK
Robertson Fire Station

The Sub-Contractor shall submit for the Architects' approval a sample of the glazing system and peripheral sealant materials proposed for the window construction and installation.

Protection

All work must be protected by covering up with temporary casings or tape against damage, droppings, varnish, wax, paint, etc, all to the entire satisfaction of the Architect.

All work damaged, deteriorated or discoloured must be replaced at the contractor's expense to the entire satisfaction of the Architect.

Special consideration must be given to watertight joint connections between the whole works and the building structure into which the works are to be built.

Rates for windows, louvres, etc, should include for glass, gaskets, sealants, fixing lugs, timber filler pieces, waterstops, protection and removal thereof, samples, etc.

Reference

Windows, doors, shopfronts, etc, are not described in detail. The Contractor is referred to the schedules which must be read in conjunction with these Bills of Quantities (See drawings annexed to these Bills of Quantities).

Mullions, etc

Mullion profiles must be to Aluminium City standards or other approved. Vertical and horizontal mullions fixed to walls must be 76 x 32mm Code 26B LL. Stand alone vertical and horizontal mullions must be 76 x 32mm Code 26 LL.

Glazing, etc

Unless otherwise described Fadeban laminated safety glass to be used for shopfront glazing in accordance with National Building Regulations SABS 400-1990 Part N, NN 2.1 Table 1 - Glass Dimensions.

For pane sizes not exceeding 1m2, 6mm NS glazing must be used and for pane sizes exceeding 1m2, 8,5mm HPR glazing must be used.

Glazing must be fixed with double sided adhesive tape and silicone sealant to glazing in spacers and setting blocks.

12 x 15mm Clip-on glazing bead Code AP 104 to be used.

Butt glazing to be formed with 12mm thick monolithic glass fin 200mm wide with polished edges and fixed with clear silicone Code DC 785.

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METALWORK
Robertson Fire Station

ALUMINIUM WINDOWS, DOORS, SHOPFRONTS, ETC

This specification must be read in conjunction with the Architect's drawings i.e:

RFS/21 600 TEN
RFS/21 601 TEN

Powder coated aluminium frame sectional overhead automated roller shutter door with panoramic glass panels to SANS 10400 requirements, colour tbc as per Architects specifications

12	Roller Shutter door 4.2 x 3.95 m high (D01)	No			

Powder coated aluminium frame sectional overhead automated roller shutter door with vision glass panels to SANS 10400 requirements, colour tbc as per Architects specifications

13	Roller Shutter door 4.2 x 3.95 m high (D02)	No			

Powder coated aluminum frame with low E safety glass panels, to SANS 10400 requirements with opening sensors - colour tbc by Architect

14	Double sliding automated door 2.5 x 2.08 m high (D03)	No			

Powder coated aluminum frame with low E safety glass panels, to SANS 10400 requirements - colour tbc by Architecht

15	Single door 0.87 x 2.08 m high (D12)	No			
16	Single door 0.60 x 1.54 m high (D14)	No			
17	Double door 1.21 x 2.08 m high (D04)	No			
18	Double door 1.61 x 2.08 m high (D11)	No			

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	Frames are to be powder coated aluminium sections, constructed and installed according to the guidelines of The Association of Architectural Aluminium Manufactures of South Africa (AAASA). Glazing is to be carried out in strict accordance with the SABS 0137/2000 Code of Practice: "The Installation of Glazing in Buildings" and where required, safety glazing materials must conform to SABS 1263. colour tbc by Architecht				
19	Window 0.51 x 2.08 m high (W01)	No			
20	Window 0.9 x 1.8 m high (W02)	No			
21	Window 1.2 x 1.8 m high (W03)	No			
22	Window 0.6 x 0.9 m high (W04)	No			
23	Window 0.6 x 0.6 m high (W05)	No			
24	Window 3.72 x 1.2 m high (W06)	No			
25	Window 1.92 x 2.08 m high (W07)	No			
26	Window 0.4 x 4.80 m high (W08)	No			
27	Window 4.32 x 1.16 m high (W09)	No			
28	Window 1.86 x 1.2 m high (W10)	No			
29	Window 1.8 x 0.6 m high (W11)	No			
30	Window 0.95 x 2.22 m high (W12)	No			
31	Window 0.4 x 2.22 m high (W13)	No			
32	Window 4.2 x 0.84 m high (W15)	No			
33	Window 1.8 x 0.6 m high (W16)	No			
34	Window 0.9 x 1.2 m high (W17)	No			
35	Triangular Window 6.99 x 1.29 m high with 10° angle (W14)	No			
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METALWORK

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BILL NO 13

PLASTERING

For preambles see "Model Preambles for Trades"

SUPPLEMENTARY PREAMBLES

GRANOLITHIC

Method

The method to be used shall be either the monolithic or 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 shall then be applied immediately afterwards. 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 finish

Mix

Granolithic shall attain a compressive strength of at least 41MPa. The coarse aggregate shall comply with SANS 1083 and 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

Panels

Granolithic shall be laid in panels not exceeding 14m2 for granolithic finishes, not exceeding 9.5m2 for bonded finishes and not exceeding 6m2 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. Joints between panels shall be positioned, where possible, 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 small V-joints

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Laying

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, 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

Curing, seasoning and protection

Granolithic shall be covered with clean hessian with waterproof building foil over and kept wet for at least seven days after laying

Colour

Coloured granolithic shall be tinted with an approved colouring pigment mixed into a true and even colour

PLASTER

Finish

Internal plaster shall be finished with a steel trowel and external plaster with a wooden float

SPECIALIST PLASTER TYPE COATINGS

All specialist plaster type wall and floor coatings are to be executed in strict accordance with the manufacturer's instructions by an approved applicator

SCREEDS

Screeds steel trowelled on concrete

1	40mm Thick on floors and landings	m2			
2	40mm Thick on narrow widths	m2			

Prime sub-floor and apply "Ardex K15" or similar approved self-levelling compound and finish smooth, all in accordance with manufacturer's instructions:

3	3mm thick on concrete floors	m2			

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	GRANOLITHIC				
	40mm thick untinted Granolithic finish composed of one part cement, one part fine sand, two parts coarse sand and one part 5mm exposed granite particles, laid by specialist in panels not exceeding 10m2. incl approved brass dividing strips, Floated with a steel trowel to perfectly smooth surface, free from bumps and scratches, and sealed with approved durable surface coat.				
4	30mm Thick on floors and landings	m2			
5	30mm Thick on treads and risers of stairs, including reedings	m2			
6	30mm Thick on narrow widths	m2			
7	Forming 100mm wide x 30mm deep segmental channels	m			
8	Skirtings 75mm high	m			
9	Skirtings 75mm high stepped over treads and risers	m			
10	Raking skirtings average 200mm high stepped over treads and risers	m			
	INTERNAL PLASTER				
	Cement plaster class II on masonry				
11	Walls	m2			
12	Narrow widths	m2			
	Cement plaster class II on concrete				
13	Columns	m2			
14	Ceilings	m2			
15	Beams	m2			
16	Narrow widths	m2			
17	Tops, edges and projecting soffits of nibs 300mm girth	m			
18	Single plaster band 12mm thick	m2			
	Gypsum skim plaster on concrete				
19	Ceilings	m2			
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20	Narrow widths	m2			
	EXTERNAL PLASTER				
	Cement plaster class II on masonry				
21	Walls	m2			
22	Columns	m2			
23	Narrow widths	m2			
24	Sills 330mm girth with sloping tops, edges and projecting soffits	m			
25	Single plaster band 12mm thick	m2			
	Cement plaster class II on concrete				
26	Columns	m2			
27	Columns and beams flush with facings	m2			
28	Ceilings	m2			
29	Beams	m2			
30	Narrow widths	m2			
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PLASTERING

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	BILL NO 14				
	TILING				
	For preambles see "Model Preambles for Trades"				
	SUPPLEMENTARY PREAMBLES				
	Fixing				
	Tiling described as "fixed with adhesive on power floated concrete" shall be deemed to include for approved tiling key-coat				
	Ceramic, porcelain, marble and granite tiles are to be fixed and grouted with suitable adhesives and grouts as recommended by the manufacturer of the tiles				
	Descriptions				
	Descriptions of tiling shall be deemed to include for symmetrical arrangement of tiling with cutting along both sides of panels and for all straight cutting				
	Descriptions of tiling shall be deemed to include for cutting and fitting around all sanitary ware and pipes, etc not exceeding 150mm diameter				
	Descriptions of tiling shall be deemed to include for soft grouted joints at positions of joints in the substructure or at centres in both directions as recommended by the tile manufacturers or which represents good practice				
	WALL TILING				
	Half body 300x300mm porcelain tiles laid in true straight, vertical and horizontal 2mm joints, including patent stainless steel corner strips; in approved tile bedding adhesive in accordance with PW 371-A 12.1 (n and o). Finish off joints with grout in accordance with PW 371-A 12.1 (p and q) and SANS 10107. Colour to architects' approval.				
1	Walls	m2			
2	Narrow widths	m2			
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	FLOOR TILING				
	300x300x8mm NON-SLIP full body matt porcelain floor tiles with 2mm joints on full tile cement bedding, in accordance with PW371-A and SANS 13006 group B1a water absorption equal or grater than 0.5%. Grout joints as per BS EN 13006 (PW371) 12.1 (p). 6mm wide movement joints to be observed with patent stainless steel expansion joint strips consisting of synthetic fibre inserts installed to manufacturer's instruction and as marked in the construction drawings.				
3	Floors and landings	m2			
4	Narrow widths	m2			
5	100mm High skirtings of cut tiles	m			
6	Supply only attic stock (number of boxes)	No			
	EDGE TRIMS, NOSINGS, ETC				
	"M-Trim"				
7	7mm "PRE070.01" PVC round edge trims	m			
8	10mm "ASE100.NA" aluminium straight edge trims	m			
9	10mm "AFE100.NA" aluminium formable straight edge trims	m			
10	25 x 10mm "ATIN100.NA" aluminium tile-in stair nosings	m			
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BILL NO 14

TILING

COLLECTION

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BILL NO 14
TILING
Robertson Fire Station

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BILL NO 15

PLUMBING AND DRAINAGE

For preambles see "Model Preambles for Trades"

SUPPLEMENTARY PREAMBLES

Wire gratings

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

Rock excavations

No claim for rock excavation will be entertained unless the contractor has timeously notified the principal agent thereof prior to backfilling

"Soft rock" and "hard rock" shall be as defined in "Earthworks"

Laying, backfilling, bedding, etc of pipes

Pipes shall be laid and bedded and trenches shall be carefully backfilled in accordance with manufacturers' instructions

Where no manufacturers' instructions exist pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following:

SANS 1200 L : Medium-pressure pipelines, SANS 1200 LD : Sewers and SANS 1200 LE : Stormwater drainage

Pipe trenches, etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SANS 1200 DB : Earthworks (Pipe trenches)

Pipes shall be bedded in accordance with clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SANS 1200 LB : Bedding (Pipes). Unless otherwise described bedding of rigid pipes shall be class B bedding

Concrete pipes

Pipes shall be jointed with ogee joints with rubber collars or socket and spigot joints with rubber rings

Carried to Collection R

uPVC pipes and fittings

Drainage pipes and fittings shall be jointed and sealed with butyl rubber rings

Sanitary plumbing pipes and fittings shall be solvent weld jointed or sealed with butyl rubber rings

"Geberit" HDPE (high density polyethylene) drainage and sanitary plumbing pipes and fittings

Pipes and fittings shall be installed in accordance with Geberit's installation recommendations and jointed with ring seal socket joints

Gratings, covers, etc

Gratings, covers, etc shall be as manufactured by "Saint-Gobain", unless otherwise described

French drains

Descriptions of french drains shall be deemed to include for battered sides and sloping bottoms with inlet chamber size 300 x 300mm internally under inlet pipe, from bottom of drain to top of pipe, formed of loosely packed, rough, hard stone walls and covered with precast concrete slab size 600 x 600 x 100mm thick and the rest of the drain filled in to the same height with similar stone graded from 300mm diameter at bottom to 50mm diameter at top, covered with galvanised corrugated iron sheets treated on both sides with bituminous paint and 300mm earthfilling over

Septic tanks

Descriptions of septic tanks shall be deemed to include concrete base slabs, jointing to drains, etc

uPVC pressure pipes and fittings

Pipes for water supply shall be of the class described

Pipes of 42mm diameter and smaller shall be plain ended with solvent welded uPVC loose sockets and fittings

Pipes of 50mm 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

HDPE (high density polyethylene) pipes and fittings

Pipes shall be type 4 and of the class specified with "Plasson" or "Alprene" compression fittings

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PLUMBING AND DRAINAGE
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"Polycop" polypropylene pipes

Polypropylene pipes of 54mm diameter and smaller shall be seamless copper coloured class 16 pipes jointed with "Fast-fuse" heat welded thermoplastic or brass compression fittings as designed for use with copper pipes, as described

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

All pipe diameters are nominal external

Copper pipes

Pipes shall be hard drawn and half-hard 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 "Cobra Watertech" type. Capillary solder fittings shall comply with ISO 2016

"Geberit Mepla" multilayer pipes

"Mepla" pipes of 16mm to 75mm diameters are made of inner layer of cross linked polyethylene (PE-Xb), covered with a butt welded aluminium supporting pipe and outer layer of a protective UV stabilised polyethylene (PE-HD) coating. The pipes are jointed lengthways or to fittings by non-positive connection through direct pressing of pipes onto fittings without sleeves and hygienically sealed

"Mepla" fittings are either polyvinylidene fluoride fittings (PVDF) or gunmetal fittings for threaded connections

Pipes shall be firmly fixed to walls, etc with “Geberit” clamps and clips with provision for accommodating thermal movement and jointed and fixed

All pipe diameters are nominal external

Fixing of pipes

Unless specifically otherwise stated, descriptions of pipes shall be deemed to include for :
- casting in, building in, chasing in and fixing to walls, etc, including chasing; or
- placing in ground or filling under solid floors, including necessary excavation, backfilling and ramming; or
- suspending not exceeding 1m below suspension level

Disinfection of potable water pipelines

Descriptions of all potable water pipelines shall be deemed to include for disinfection in accordance with 5.10 of SANS 1200 L

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PLUMBING AND DRAINAGE
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Reducing fittings

Where fittings have reducing ends or branches they are described as "reducing". In the case of pipes with diameters not exceeding 60mm, 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. In the case of pipes with diameters exceeding 60mm, all sizes are given and no claim for extra bushes, reducers, etc will be entertained

Paper wrapping to pipes

Pipes chased into masonry must be wrapped with two layers of stout brown paper tied with wire. Prices for wrapping of pipes shall include for all work to couplings and fittings

"Densyl" petrolatum anti-corrosion tape as manufactured by Denso SA (Pty) Ltd

Pipes to be taped shall be coated with the appropriate primer and the tape shall be applied in the appropriate widths and with relevant overlaps for specific diameters of pipes. Prices for wrapping of pipes shall include for all work to couplings and fittings

Stainless steel basins, sinks, wash troughs, urinals, etc

Stainless steel for economy basins, domestic sinks, worktops and wash troughs 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

Flush pans

Flush pans shall have straight or side outlets and "P" or "S" traps as necessary

Steel sectional water tanks

Tanks shall comply with CKS 114

Geyser installations

Geyser installations shall comply with SANS 10254

General

Descriptions of ductile iron roof outlets shall be deemed to include joints to pipes and casting into concrete

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PLUMBING AND DRAINAGE
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Descriptions of pipes laid in and including trenches, sumps, catchpits, junction boxes, inspection chambers, french drains, septic tanks and the like shall be deemed to include for excavations, bedding of pipes, risk of collapse, keeping free of water, a dewatering system for removal of seepage water and water from other subterranean sources in the excavations designed and executed by the contractor, backfilling, compaction to a minimum of 93% modified AASHTO density and disposal of surplus material

Descriptions of sumps, catchpits, junction boxes, inspection chambers and the like shall be deemed to include reinforcement, step irons and channels where applicable

Descriptions for jointing of new to existing pipes shall be deemed to include searching for the existing pipe, exposing if necessary, cutting into, jointing and necessary fittings

Descriptions of washdown pans, slop hoppers, grease traps, septic tanks, etc shall be deemed to include for joints to soil pipes (pan connectors measured separately)

Descriptions of all sanitary fittings shall be deemed to include for silicone sealant pointing between the fittings and finished wall surfaces

Descriptions of copper service pipes and flexible connecting pipes shall be deemed to include connections to taps, cisterns, etc and to pipes

Descriptions of overflow pipes where measured in number, shall be deemed to include joints to cisterns and splay cut ends

Remeasurement

The contractor's attention is specifically drawn to the fact that the work in this bill has not been measured provisionally but measured from the drawings and will under no circumstances be remeasured

If during the execution of the contract the contractor finds that there are quantities which deviate from those in this bill of quantities, he must inform the principal agent and request that a contract instruction to this effect be issued to cover the cost thereof

Claims submitted late will not be accepted for inclusion in the final account

Design and supply

The contractor's attention is specifically drawn to the fact that the work in this bill has been measured provisionally and it is expected of the contractor to design the complete system and within one month, after appointment and in consultation with the principal agent, lodge his final measurement and subcontract value to the principal agent for acceptance, after which the whole installation will under no circumstances be remeasured or revalued

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BILL NO 15
PLUMBING AND DRAINAGE
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	RAINWATER DISPOSAL				
	"Marley Vynadeep" uPVC				
1	125mm Half round eaves gutters	m			
2	Extra over for stopped end	No			
3	Extra over for angle	No			
4	Extra over for outlet for 80mm diameter pipe	No			
5	80mm Diameter rainwater pipes	m			
6	Extra over for bend	No			
7	Extra over for shoe	No			
8	Spreader 250mm long for 80mm pipe	No			
9	300 x 200 x 200mm Deep rainwater head with outlet for 80mm pipe	No			
	"Watertite" uPVC				
10	100mm Diameter rainwater pipes	m			
11	160mm Diameter rainwater pipes	m			
12	Extra over for bend	No			
13	Extra over for shoe	No			
14	Extra over for eaves or plinth offset	No			
	"Watertite" aluminium				
15	125 x 85mm Domestic ogee eaves gutters	m			
16	Extra over for stopped end	No			
17	Extra over for angle	No			
18	Extra over for outlet for 75 x 50mm pipe	No			
19	150 x 125mm Industrial ogee eaves gutters	m			
20	Extra over for stopped end	No			
21	Extra over for angle	No			
22	Extra over for outlet for 100 x 75mm pipe	No			
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23	140 x 150mm Industrial square eaves gutters	m				
24	Extra over for stopped end	No				
25	Extra over for angle	No				
26	Extra over for outlet for 100mm diameter pipe	No				
27	75 x 50mm Rainwater pipes	m				
28	Extra over for bend	No				
29	Extra over for shoe	No				
30	Extra over for eaves or plinth offset	No				
31	100 x 75mm Rainwater pipes	m				
32	Extra over for bend	No				
33	Extra over for shoe	No				
34	Extra over for eaves or plinth offset	No				
35	101mm Diameter rainwater pipes	m				
36	Extra over for bend	No				
37	Extra over for shoe	No				
38	Extra over for eaves or plinth offset	No				
39	T-shaped spreader 500mm long for 101mm diameter pipe with half closed ends and 20mm holes at 70mm centres	No				
40	500 x 300 x 300mm Deep rainwater head with outlet for 101mm diameter pipe	No				
	SLEEVES FOR ELECTRICAL AND TELEPHONE CABLES					
	Class 6 modified uPVC pipes, including 1.6mm galvanised steel draw wires					
41	110mm Pipes laid in and including trenches not exceeding 1m deep	m				
42	Set of two 110mm pipes laid in and including trenches not exceeding 1m deep	m				
43	Set of three 110mm pipes laid in and including trenches not exceeding 1m deep	m				
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PLUMBING AND DRAINAGE
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44	Set of six 110mm pipes in two tiers, one on top of the other, laid in and including trenches not exceeding 1m deep	m				
	Extra over class 6 modified uPVC pipes for modified uPVC fittings					
45	110mm 45 Degree bend	No				
46	110mm 90 Degree bend	No				
	Inspection chambers (covers elsewhere)					
47	Inspection chamber 900 x 900mm and not exceeding 0.75m deep internally	No				
	Cast iron covers					
48	600 x 600mm x 82kg Type 9B single seal cover and frame	No				
	SOIL DRAINAGE					
	Existing services					
49	Existing sewer manhole to be removed	No				
50	Closing of existing sewer line, 110mm uPVC, and reconnect with new sewer line, including pipe, fittings, bedding etc. complete as necessary	No				
	Class 34 uPVC pipes					
51	110mm Pipes vertically or ramped to rodding eyes, etc (no excavations)	m				
52	160mm Pipes vertically or ramped to rodding eyes, etc (no excavations)	m				
53	110mm Pipes laid in and including trenches not exceeding 1m deep	m				
54	160mm Pipes laid in and including trenches not exceeding 1m deep	m				
55	110mm Pipes laid in and including trenches exceeding 1m and not exceeding 2m deep	m				
56	160mm Pipes laid in and including trenches exceeding 1m and not exceeding 2m deep	m				
	Extra over class 34 uPVC pipes for uPVC fittings					
57	160 x 110mm Taper pipe	No				
58	110mm Bend	No				
59	160mm Bend	No				
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60	110mm Junction	No			
61	160mm Junction	No			
62	160 x 110mm Reducing junction	No			
63	110mm Access pipe	No			
64	110mm Access bend	No			
65	160mm Access junction	No			
66	160 x 110mm Access reducing junction	No			
67	110mm Access double junction	No			
68	110mm Rodding eye	No			
	"Geberit" HDPE pipes				
69	110mm Pipes vertically or ramped to rodding eyes, etc (no excavations)	m			
70	110mm Pipes laid in and including trenches not exceeding 1m deep	m			
71	160mm Pipes laid in and including trenches not exceeding 1m deep	m			
72	110mm Pipes laid in and including trenches exceeding 1m and not exceeding 2m deep	m			
73	160mm Pipes laid in and including trenches exceeding 1m and not exceeding 2m deep	m			
	Extra over "Geberit" HDPE pipes for HDPE fittings				
74	110mm 45 Degree bend	No			
75	160mm 90 Degree long bend	No			
76	110 x 110mm 45 Degree Y-branch	No			
77	160 x 160mm 45 Degree Y-branch	No			
78	160 x 110mm 45 Degree reducing Y-branch	No			
79	110 x 110mm 45 Degree access pipe with round access cover	No			
	uPVC gulleys				
80	110mm Gulley not exceeding 0.75m deep	No			
81	110mm Dished gulley not exceeding 0.75m deep	No			
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	Inspection chambers (covers elsewhere)				
82	Inspection chamber 450 x 600mm and not exceeding 0.75m deep internally	No			
83	Inspection chamber 450 x 600mm and exceeding 0.75m and not exceeding 1.00m deep internally	No			
84	Inspection chamber 450 x 600mm and exceeding 2.50m and not exceeding 2.75m deep internally with the lower 1.50m depth increased to 600 x 750mm internally and 150mm precast concrete reducer slab over enlarged bottom portion	No			
	Precast concrete circular inspection chambers (covers elsewhere)				
85	Inspection chamber 1.00m diameter and not exceeding 0.75m deep internally	No			
86	Inspection chamber 1.00m diameter and exceeding 0.75m and not exceeding 1.00m deep internally	No			
87	Inspection chamber 1.00m diameter and exceeding 2.50m and not exceeding 2.75m deep internally with the lower 1.50m depth increased to 1.25m diameter and 150mm precast concrete reducer slab over enlarged bottom portion	No			
	"Cape Concrete" precast concrete covers				
88	675mm Diameter x 150mm thick cover and frame	No			
	"National Manhole Covers" polymer concrete covers				
89	450 x 600mm x 63kg Heavy duty cover and frame	No			
90	535mm Diameter x 86kg Type 2A heavy duty cover and frame	No			
	Cast iron covers				
91	450 x 600mm x 72kg Type 8A double seal manhole cover and frame	No			
92	550mm Diameter x 176kg Type 2A non-ventilated cover and frame	No			
	Sundries				
93	Excavate for, locate, take up and remove 110mm soil drain pipes not exceeding 1m deep, including backfilling, ramming, etc	m			
94	Concrete encasing to 110mm horizontal pipes	m			
95	Concrete encasing to 110mm vertical pipes	m			
96	250 x 250 x 40mm Precast concrete inspection eye marker slab set in ground	No			
	Carried to Collection			R	

BILL NO 15
PLUMBING AND DRAINAGE
Robertson Fire Station

97	110mm uPVC "ABC" cleaning eye	No				
98	100mm Cast iron "ABC" cleaning eye	No				
99	Jointing of new 110mm with existing 110mm uPVC pipe	No				
100	Cut into side of existing inspection chamber for and connect 110mm pipe, including inserting 110mm channel junction and making good concrete benching	No				
101	Testing soil drainage system		Item			
	SANITARY PLUMBING					
	uPVC pipes					
102	40mm Pipes	m				
103	50mm Pipes	m				
104	110mm Pipes	m				
105	110mm Pipes exceeding 1m and not exceeding 2m below suspension level	m				
106	160mm Pipes	m				
	Extra over uPVC pipes for fittings					
107	50mm Stop end	No				
108	50 x 32mm BSP adaptor	No				
109	50 x 38mm BSP adaptor	No				
110	110 x 50mm Eccentric reducer	No				
111	40mm Bend	No				
112	50mm Bend	No				
113	110mm Bend	No				
114	160mm Bend	No				
115	40mm Junction	No				
116	50mm Junction	No				
117	110mm Junction	No				
118	110 x 50mm Reducing junction	No				
	Carried to Collection				R	

119	50mm Double junction	No				
120	110mm Double junction	No				
121	110 x 50 x 50mm Reducing double junction	No				
122	110mm Pan connector	No				
123	110mm Bent pan connector	No				
124	110mm Access bent pan connector	No				
125	110mm Inspection pipe	No				
126	40mm Access bend	No				
127	50mm Access bend	No				
128	110mm Access bend	No				
129	160mm Access bend	No				
130	110mm Access bend with vent horn	No				
131	40mm Access junction	No				
132	50mm Access junction	No				
133	110mm Access junction	No				
134	110 x 50mm Access reducing junction	No				
135	110mm Access double junction	No				
136	110 x 50 x 50mm Access reducing double junction	No				
137	50mm One way vent valve	No				
138	50mm Two way vent valve	No				
139	110mm Two way vent valve	No				
140	50mm Vent cowl	No				
141	110mm Vent cowl	No				
	"Geberit" HDPE pipes					
142	40mm Pipes	m				
143	50mm Pipes	m				
	Carried to Collection			R		

BILL NO 15
PLUMBING AND DRAINAGE
Robertson Fire Station

144	110mm Pipes	m			
	Extra over "Geberit" HDPE pipes for fittings				
145	50mm Threaded connector end with screw cap	No			
146	50 x 32mm Adaptor with male thread	No			
147	50 x 38mm Adaptor with male thread	No			
148	110 x 50mm Eccentric reducer	No			
149	40mm 90 Degree long bend	No			
150	50mm 90 Degree long bend	No			
151	110mm 90 Degree long bend	No			
152	40 x 40mm 45 Degree Y-branch	No			
153	50 x 50mm 45 Degree Y-branch	No			
154	110 x 110mm 45 Degree Y-branch	No			
155	110 x 50mm 45 Degree reducing Y-branch	No			
156	110mm Straight WC pan connector	No			
157	110 x 110mm 90 Degree bent WC pan connector	No			
158	110 x 110mm 90 Degree access pipe with round access cover	No			
159	50mm Admittance valve	No			
	Sundries				
160	Testing sanitary plumbing pipe system		Item		
	WATER SUPPLIES				
	Design, supply and install water supply, including pipework, pipe fittings, chasing, municpal connection etc and testing thereof, complete as per architecht's drawings complete etc all to satisfaction of the relevant consultant				
161	Cold water supply		Item		
162	Hot water supply		Item		
	Carried to Collection			R	

BILL NO 15
PLUMBING AND DRAINAGE
Robertson Fire Station

	Sundries				
163	Unreinforced concrete thrust blocks at bends, tees, etc, including necessary extra excavation, formwork, etc	m3			
164	150 x 150mm Type 11A cast iron stopcock box, including brick chamber below not exceeding 0.50m deep internally	No			
165	300 x 200mm Type 10A cast iron meter box, including brick chamber below not exceeding 0.50m deep internally	No			
166	450 x 450mm Valve chamber not exceeding 0.75m deep internally (cover and frame elsewhere)	No			
167	450 x 450 x 28.5kg Type 14B cast iron cover and frame	No			
168	Testing water pipe system		Item		
	WATER SUPPLIES TO FIRE APPLIANCES				
	Class 16 modified uPVC pipes				
169	90mm Pipes laid in and including trenches	m			
170	110mm Pipes laid in and including trenches	m			
	Extra over class 16 modified uPVC pipes for modified uPVC fittings				
171	90mm 90 Degree bend	No			
172	110mm 90 Degree bend	No			
	Extra over class 16 modified uPVC pipes for SG iron fittings				
173	90mm End cap	No			
174	110mm End cap	No			
175	90 x 63mm Female reducer	No			
176	110 x 90mm Female reducer	No			
177	90 x 63mm Male/female reducer	No			
178	90 x 75mm Male/female reducer	No			
179	110 x 90mm Male/female reducer	No			
180	90mm Flange adaptor drilled to table 16, including connecting bolts, gaskets, etc	No			
	Carried to Collection			R	

181	110mm Flange adaptor drilled to table 16, including connecting bolts, gaskets, etc	No				
182	90mm Saddle for 25mm branch, including nuts and bolts	No				
183	110mm Saddle for 25mm branch, including nuts and bolts	No				
184	90mm Equal tee	No				
185	110mm Equal tee	No				
186	90 x 75mm Reducing tee	No				
187	110 x 63mm Reducing tee	No				
188	110 x 75mm Reducing tee	No				
189	90mm Hydrant tee drilled to table 16, including connecting bolts, gaskets, etc	No				
190	110mm Hydrant tee drilled to table 16, including connecting bolts, gaskets, etc	No				
191	110mm Scour tee drilled to table 16, including connection bolts, gaskets, etc	No				
	Class 1 copper pipes					
192	28mm Pipes	m				
193	35mm Pipes	m				
194	42mm Pipes laid in and including trenches	m				
	Extra over class 1 copper pipes for capillary fittings					
195	28mm Fittings	No				
196	35mm Elbow	No				
197	35mm Tee	No				
198	35mm Reducing tee	No				
199	35mm Threaded adaptor	No				
200	35mm Threaded bent adaptor	No				
	Extra over class 1 copper pipes for brass compression fittings					
201	28mm Fittings	No				
	Carried to Collection			R		

BILL NO 15
PLUMBING AND DRAINAGE
Robertson Fire Station

202	42mm Reducer	No				
203	35mm Elbow	No				
204	42mm Elbow	No				
205	35mm Tee	No				
206	42mm Tee	No				
	Sundries					
207	Unreinforced concrete thrust blocks at bends, tees, etc, including necessary extra excavation, formwork, etc	m3				
208	225 x 225mm Type 11B cast iron stopcock box, including brick chamber below not exceeding 0.50m deep internally	No				
209	375 x 300mm Type 10C cast iron meter box, including brick chamber below not exceeding 0.50m deep internally	No				
210	450 x 450mm Valve chamber not exceeding 0.75m deep internally (cover and frame elsewhere)	No				
211	450 x 450mm x 28.5kg Type 14B cast iron cover and frame	No				
212	Testing fire water pipe system		Item			
	PIPE INSULATION					
	15mm thick "Sagex Megaphen" insulation closely fitted to pipes, etc with joints and ends butted firmly together and strapped securely into position to					
213	22mm Pipes, including couplings	m				
214	28mm Pipes, including couplings	m				
215	35mm Pipes, including couplings	m				
216	Extra over for working around 22mm fittings	No				
217	Extra over for working around 28mm fittings	No				
218	Extra over for working around 35mm elbow	No				
219	Extra over for working around 35mm tee	No				
220	Extra over for working around 35mm valve	No				
	Carried to Collection				R	

BILL NO 15
PLUMBING AND DRAINAGE
Robertson Fire Station

	15mm Thick "Isover Snap On" plain glasswool insulation closely fitted to pipes, etc with joints and ends butted firmly together and strapped securely into position to				
221	22mm Pipes, including couplings	m			
222	28mm Pipes, including couplings	m			
223	35mm Pipes, including couplings	m			
224	Extra over for working around 22mm fittings	No			
225	Extra over for working around 28mm fittings	No			
226	Extra over for working around 35mm elbow	No			
227	Extra over for working around 35mm tee	No			
228	Extra over for working around 35mm valve	No			
	Carried to Collection			R	

BILL NO 15
PLUMBING AND DRAINAGE
Robertson Fire Station

	PIPE PROTECTION				
	Two layers of stout brown paper lagging tightly wrapped around pipes, etc and tied with wire prior to building in to				
229	15mm Pipes, including couplings, fittings, etc	m			
230	22mm Pipes, including couplings, fittings, etc	m			
231	28mm Pipes, including couplings, fittings, etc	m			
	SANITARY FITTINGS				
	"Franke" stainless steel				
232	"CASCADE CDX621-120" Stainless steel 1200x500mm inset double end bowl sink	No			
233	SIRX342 Washtrough, (product code 2560003), 500x450x240mm deep wash trough	No			
	"Vaal"				
234	Standard toilet pan of vitreous china "TUSCANY" or similar approved - product code 772863	No			
235	Paraplegic toilet pan of vitreous china "PEARL PARAPLEGIC" (or similar approved - product code 7300SC	No			
	"Cobra"				
236	Round wall hung basin or similar approved. 495mm long x 430mm wide	No			
237	Small round wall hung basin or similar approved. 400mm long x 320mm wide	No			
238	Paraplegic round wall hung basin or similar approved. 495mm long X 430mm wide	No			
	"Kwikot"				
239	150 Litre "600 Dual" standard floor/wall mounted electric water heater	No			
240	"Kwiktray" horizontal polyethylene drip tray for 150 litre geyser with outlet, including timber bearers	No			
241	Kwikot 4kW heatpump complete, mounted on heavy duty wall brackets	No			
242	Kwikot 10kW heatpump complete, mounted on heavy duty wall brackets	No			
	Carried to Collection			R	

BILL NO 15
PLUMBING AND DRAINAGE
Robertson Fire Station

	"Sirac"				
243	Heat Pump, model IHP200 complete	No			
244	Heat Pump, model IHP300 complete	No			
	TAPS, VALVES, ETC				
	"Franke"				
245	PROJECTLINE swivel chrome kitchen sink mixer product code 1150021	No			
	"Cobra"				
246	Single-lever mixer product code FSWM1CNI-0GT0426	No			
247	Standard single-lever basin mixer tap product code FBN1D1AM-0GT0427	No			
248	Triangular shower head 76mm product code FSWHT1GN-0GT0156	m			
249	Standard hose bib trap, brass - product code FBBHN1CD-7FT01	No			
	WASTE UNIONS, ETC				
	"Cobra Watertech"				
250	32mm 320CP bath overflow union	No			
251	32mm 301CP basin waste union	No			
252	32mm 303CP basin waste union with 309-32CP anti-theft plug	No			
253	40mm 316CP bath or sink waste union	No			
	TRAPS, ETC				
	"Flexitrap" rubber				
254	32mm Plain "P" or "S" trap	No			
255	40mm Plain "P" or "S" trap	No			
256	40mm Plain bath combination trap with overflow outlet and pipe	No			
257	40 x 300mm Double bowl wash trough or sink combination with "P" trap	No			
	Carried to Collection			R	

BILL NO 15
PLUMBING AND DRAINAGE
Robertson Fire Station

	"Cobra Watertech"				
258	75mm VA3.113CP urinal domical grating	No			
259	40mm 373RB shower trap with CP grating	No			
260	50mm VA2.342RB shower trap with VA3.334-4RB shower waste and CP grating	No			
261	32mm 345/40CP bottle trap	No			
262	40mm 365/40CP bottle trap	No			
	"Saint-Gobain Supercast" cast iron				
263	100mm "P" trap	No			
	FIRE APPLIANCES, ETC				
	"Chubb"				
264	"Everyway" hose reel complete with 30m hose, chromium plated stopcock, shut-off nozzle and wall bracket	No			
265	4.5kg Dry chemical powder fire extinguisher mounted on and including 450 x 600mm F24 ABS plastic chevron backing with consecutive numbering stamped on	No			
266	9kg Dry chemical powder fire extinguisher on and including a painted backing board	No			
267	2kg Carbon dioxide fire extinguisher on and including a painted backing board	No			
268	5kg Carbon dioxide fire extinguisher on and including a painted backing board	No			
269	100mm Diameter 2500 kPa pressure gauge syphon and stopcock, including tapped hole in pipe	No			
270	80 x 65mm Brass right angle hydrant valve with cap and chain	No			
271	80 x 65mm Brass double booster pump connection and Y-piece, with caps and chains	No			
	"Woodlands Fire"				
272	100mm "WHE" hydrant, including flanges, 100mm duck foot bend, bolts, gaskets, etc	No			
273	100mm "WNV" flanged non-return valve	No			
274	100mm Flanged gate valve	No			
	Carried to Collection			R	

	"Kevcor" plastic fire boxes				
275	FB9 fire extinguisher box	No			
276	HR hose reel box	No			
	Fire hydrant pedestals				
277	Unreinforced concrete hydrant pedestal 900mm high cast around vertical pipe with bottom 300mm below ground, 300 x 300mm square at base and tapering to octagonal shaped top 200 x 200mm overall, including necessary excavation, formwork and two coats paint to exposed surfaces	No			
	SLEEVES, HOLES, ETC				
	Plastic sleeves for pipes not exceeding 100mm diameter				
278	Not exceeding 250mm long	No			
279	Exceeding 250mm and not exceeding 500mm long	No			
	Plastic sleeves for pipes exceeding 100mm and not exceeding 200mm diameter				
280	Not exceeding 250mm long	No			
281	Exceeding 250mm and not exceeding 500mm long	No			
	Core drilling of holes for pipes not exceeding 50mm diameter through				
282	200mm Thick reinforced concrete component	No			
	Core drilling of holes for pipes exceeding 50mm and not exceeding 100mm diameter through				
283	200mm Thick reinforced concrete component	No			
	AS-BUILT DRAWINGS				
284	Allow for an updated set of as-built drawings to be handed to the principal agent at completion of the contract		Item		
	Carried to Collection			R	

BILL NO 15

PLUMBING AND DRAINAGE

COLLECTION

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Carried to Summary		R	

Item No		Quantity	Rate	Amount
	BILL NO 16			
	ELECTRICAL WORK			
	See Volume 2			
	ELECTRICAL INSTALLATION			
	Design, supply and install electrical installation complete, as per architect's drawings etc. complete including commissioning testing certificate of compliance (COC) complete to the satisfaction of the relevant consultant			
1	Electrical installation	Item		
	Carried to Summary		R	

Item No			Quantity	Rate	Amount
	BILL NO 17				
	GLAZING				
	For preambles see "Model Preambles for Trades"				
	GLASS TOPS, SHELVES, DOORS, MIRRORS, ETC				
	6mm Thick plate glass type mirrors fixed to wall or hardboard backing including C.P mirror screws				
1	Mirror 600 x 900 x 6mm thick Silver float glass copper backed with beveled edges	No			
	Carried to Summary			R	

Item No		Quantity	Rate	Amount

BILL NO 18

PAINTWORK

For preambles see "Model Preambles for Trades"

SUPPLEMENTARY PREAMBLES

DESCRIPTIONS

Descriptions of paintwork shall be deemed to include for all cutting in

PREPARATORY WORK TO EXISTING SURFACES

Plaster or concrete surfaces

Surfaces shall be thoroughly cleaned down by high pressure water jet and allowed to dry completely before any paint is applied. Blistered or peeling paint shall be completely removed. All existing walls to be made good where damaged by removals, furniture, etc, and all screw and nail holes and cracks shall be opened, primed with plaster primer, filled with a suitable filler and finished smooth

Metal surfaces

Surfaces shall be thoroughly rubbed and cleaned down by means of grit blasting or wire brushing. Blistered or peeling paint, including all traces of corrosion, shall be completely removed down to bare metal

Previously painted wood surfaces

Surfaces shall be thoroughly cleaned down by scraping and sanding all loose and flaking paint. All dust and surface contamination are to be removed by wiping down. All exposed nail heads are to be punched in and primed with one coat metal primer. Holes, cracks and crevices shall be primed with wood primer, filled with wood stopping and finished smooth

Previously varnished/natural wood surfaces

Surfaces shall be thoroughly cleaned down with existing coatings removed by sanding and/or using paint remover. All residual paint remover and surface contamination are to be removed by washing down, allowed to dry and sandpapered to a uniformed surface. All exposed nail heads are to be punched in and primed with one coat metal primer. Holes, cracks and crevices shall be treated with woodcare pretreatment, filled with wood stopping and finished smooth

Carried to Collection R

PAINT SPECIFICATIONS

All painting shall be done in accordance with "Plascon" specifications unless otherwise specified

COLOURS

Unless otherwise described paintwork on ceilings shall be deemed to be in the "White" colour group and paintwork on all other components shall be deemed to be in the "Pastel" colour group in accordance with the Natural Colour System (NCS) adopted by the SA National Standards

ON PLASTER, ETC

Prepare, stop and apply one coat merit plaster primer and two coats Plascon Double Velvet acrylic PVA paint for interior use to

1	Internal walls	m2			

Prepare, stop and apply one coat merit plaster primer (UC56) thinned 20% with turpentine, Painted with one coat universal undercoat and finished with two coats eggshell enamel

2	External walls	m2			

ON CONCRETE

Prepare, stop and apply one coat merit plaster primer and two coats Plascon Polvin acrylic PVA

3	Soffits	m2			

ON PLASTER BOARD

Prepare, stop and apply one coat PVA Primer (X107) and two coats Plascon Double Velvet acrylic PVA paint for interior use to

4	Ceilings, cornices, bulkhead and partitioning	m2			

ON METAL

Wash down thoroughly with degreaser and rinse with water removing all traces of degreaser. Allow to dry and prime with one coat primer and two coats polyurethane enamel paint on steel:

5	On door frames	m2			

Carried to Collection R

BILL NO 18
PAINTWORK
Robertson Fire Station

	ON WOOD				
	Prepare, stop and apply one coat timber undercoat and two coats Plascon Double Velvet acrylic PVA paint				
6	Back of frames, skirtings, etc	m			
	Prepare, stop and paint one coat wood primer (UC2), stop with 'Mendall 90', one Plascon Merit universal undercoat (UC1) and two coats Plascon Velvaglo enamel paint to				
7	General surfaces of doors	m2			
8	General surfaces of door frames	m2			
9	General surfaces of skirtings	m2			
	Prepare, stop and paint one coat wood primer (UC2), stop with 'Mendall 90', one Plascon Merit universal undercoat (UC1) and two coats Plascon Velvaglo U84-3 enamel paint to				
10	General surfaces of doors	m2			
11	General surfaces of door frames	m2			
12	General surfaces of timber trusses	m2			
	Prepare, stop and paint one coat wood primer (UC2), stop with 'Mendall 90', one Plascon Merit universal undercoat (UC1) and two coats Plascon Velvaglo 160 enamel paint to				
13	General surfaces of doors	m2			
14	General surfaces of door frames	m2			
	Prepare, stop and paint three coats approved polyurethane varnish to				
15	General surfaces of slatted benches (both sides measured over the full flat area)	m2			
16	General surfaces of slatted gates (both sides measured over the full flat area)	m2			
17	General surfaces of doors	m2			
	One coat Plascon Timesaver primer (X345) and two coats Plascon Polvin Super Acrylic PVA				
18	On fascias and barge boards	m2			
	Carried to Collection			R	

BILL NO 18

PAINTWORK

COLLECTION

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PAINTWORK
Robertson Fire Station

Item No		Quantity	Rate	Amount

BILL NO 19

EXTERNAL WORK

For preambles see "Model Preambles for Trades"

SUPPLEMENTARY PREAMBLES

Landscaping specification

Refer to the landscape architect's specification annexed to these bills of quantities which is supplementary to and shall take precedence over the "Model Preambles for Trades 2008 published by the Association of South African Quantity Surveyors"

Filling and layer work materials

References such as "G1", "G2", etc and "C1", "C2", etc in descriptions of filling and layer work materials refer to corresponding references in the document "Guidelines for Road Construction Materials. TRH 14 : 1985" compiled by the Committee of State Road Authorities and the properties set out therein for each kind shall be applicable to the respective materials described hereinafter

User note: *When no information regarding density and other tests is available the following preamble in respect of testing may be inserted*

Testing of material and filling

Descriptions of earth filling, compaction, etc shall be deemed to include for all necessary testing required in accordance with the relevant SANS 1200 specification

Cutting

Where an item for filling of gaps with concrete against edge restraints is not measured, then descriptions of block pavings shall be deemed to include for straight cutting

Descriptions of block pavings shall be deemed to include for circular cutting around pipes, etc not exceeding 150mm diameter

Stormwater channels

Descriptions of channels shall be deemed to include all necessary excavation and disposal of surplus material

Carried to Collection R

	ROADWORK AND PARKING				
	Site clearance				
1	Digging up and removing rubbish, debris, vegetation, hedges, shrubs and trees not exceeding 200mm girth, bush, etc	m2			
	Open face excavations in earth over sloping site				
2	Open face excavations to form platform and depositing excavated material on site, including haulage not exceeding 1km from perimeter of excavations	m3			
	Excavations in earth not exceeding 2m deep				
3	Over site between buildings, retaining walls, etc to reduce levels and depositing excavated material in prescribed stock piles on site	m3			
4	150mm Deep over site between buildings, retaining walls, etc to remove top soil and depositing excavated material in prescribed stock piles on site	m3			
	Extra over bulk excavation in earth for excavation in (Provisional)				
5	Soft rock	m3			
6	Hard rock	m3			
	Extra over bulk excavation in earth for breaking up and removing (Provisional)				
7	Brickwork	m3			
8	Unreinforced concrete	m3			
9	Reinforced concrete	m3			
	Extra over all excavations for carting away				
10	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor	m3			
	Keeping excavations free of water				
11	Keeping excavations free of water other than subterranean water		Item		
	Dewatering				
12	Allow for a dewatering system for removal of seepage water and water from other subterranean sources in the excavations designed and executed by the contractor		Item		
	Carried to Collection			R	

	Earth filling obtained from the excavations and/or prescribed stock piles on site, including haulage exceeding 100m and not exceeding 200m from perimeter of excavations or stock piles				
13	Over site compacted to 95% modified AASHTO density	m3			
14	Subbase course over site compacted to 98% modified AASHTO density	m3			
15	Base course over site stabilised with 4% cement and compacted to 98% modified AASHTO density	m3			
	Earth filling supplied by the contractor				
16	Under roadways, etc of G7 material in accordance with SANS 1200 DM compacted to 93% modified AASHTO density	m3			
17	Subbase course under roadways, etc of G5 material in accordance with SANS 1200 ME compacted to 98% modified AASHTO density	m3			
18	Base course under roadways, etc of G4 material in accordance with SANS 1200 MF, stabilised with 4% cement and compacted to 97% modified AASHTO density	m3			
	Preparation of sub-grade				
19	Compaction of ground surface under roadways, etc by wetting and compacting with 40 passes of a 3-sided 25 kilo Joule high energy impact compactor	m2			
20	Compaction of ground surface under roadways, etc, including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 93% modified AASHTO density	m2			
	Additional tests required by the principal agent				
21	In-situ dry density test in accordance with method A10(b) of TMH 1	No			
22	Maximum dry density and optimum moisture content test in accordance with method A7 of TMH 1	No			
23	Atterberg limits test in accordance with methods A2 to A4 of TMH1	No			
24	CBR test in accordance with method A8 of TMH1	No			
25	UCS test in accordance with method A14 of TMH1	No			
	Bituminous premix road surfacing in accordance with SANS 1200 MG				
26	MC-30 Cutback bitumen primer to roadways, etc	m2			
	Carried to Collection			R	

BILL NO 19
EXTERNAL WORK
Robertson Fire Station

27	30mm Pavings to roadways, etc	m2				
28	Extra over for speed hump 1.50m wide x 8.00m long (road markings elsewhere)	No				
	Asphalt premix road surfacing in accordance with SANS 1200 MH					
29	MC-30 Cutback bitumen primer to roadways, etc	m2				
30	30mm Pavings to roadways, etc	m2				
	30MPa/19mm concrete cast against excavated/filling surfaces					
31	Roadways, etc cast in panels	m3				
32	Roadways, etc cast in panels on waterproofing	m3				
33	Sidewalks, etc cast in panels on waterproofing	m3				
34	Edge strips	m3				
	Power float surface treatment to finished face of concrete, including non-slip broom finish					
35	Roadways, etc	m2				
36	Sidewalks, etc	m2				
	Wood float surface treatment to finished face of concrete, including non-slip broom finish					
37	Edge strips	m2				
	220 x 97 x 60mm "Technicrete Double Zig-Zag" interlocking segmented block pavings in accordance with SANS 1200 MJ and including 20mm sand bed with butt joints and with a dry cement/sand mixture well rubbed into all joints, wet gently with sprinkler and all excess sand swept off					
38	Pavings to sidewalks, etc in herringbone pattern	m2				
39	Circular cutting	m				
40	Extra over paving for solid header course	m				
	Carried to Collection			R		

BILL NO 19
EXTERNAL WORK
Robertson Fire Station

	220 x 97 x 65mm "Technicrete Double Zig-Zag" interlocking segmented block pavings in accordance with SANS 1200 MJ and including 20mm sand bed with butt joints and with a dry cement/sand mixture well rubbed into all joints, wet gently with sprinkler and all excess sand swept off				
41	Pavings to sidewalks, etc in herringbone pattern	m2			
42	Circular cutting	m			
43	Extra over paving for solid header course	m			
	220 x 97 x 80mm Grey coloured "Technicrete Double Zig-Zag" interlocking segmented block pavings in accordance with SANS 1200 MJ and including 20mm sand bed with butt joints and with a dry cement/sand mixture well rubbed into all joints, wet gently with sprinkler and all excess sand swept off				
44	Pavings to roadways, etc in herringbone pattern	m2			
45	80mm Thick 30MPa Multi blend double zig-zag interlocking pavers and lay in 90° herringbone pattern on and including 20mm sand bed with butt joints and with a dry cement/sand mixture well rubbed into all joints, wet gently with sprinkler and all excess sand swept off	m2			
46	Circular cutting	m			
47	Extra over paving for solid header course	m			
	Precast concrete kerbs, channels, etc, including excavation, backfilling, bases, haunching, bedding, jointing, pointing, etc				
48	75 x 150mm High edgings (SANS 927 fig 12)	m			
49	75 x 150mm High edgings (SANS 927 fig 12) circular on plan exceeding 4m radius formed with straight edgings	m			
50	75 x 150mm High edgings (SANS 927 fig 12) circular on plan not exceeding 4m radius formed with short lengths of straight edgings	m			
51	300 x 125mm High channels (SANS 927 fig 14)	m			
52	300 x 125mm High channels (SANS 927 fig 14) circular on plan exceeding 4m radius formed with straight channels	m			
53	300 x 125mm High channels (SANS 927 fig 14) circular on plan not exceeding 4m radius formed with short lengths of straight channels	m			
54	150 x 250mm High kerbs (SANS 927 fig 4)	m			
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BILL NO 19
EXTERNAL WORK
Robertson Fire Station

55	150 x 250mm High kerbs (SANS 927 fig 4) circular on plan exceeding 4m radius formed with straight kerbs	m			
56	150 x 250mm High kerbs (SANS 927 fig 4) circular on plan not exceeding 4m radius formed with short lengths of straight kerbs	m			
	ROAD MARKINGS				
	Road markings on bituminous premix in accordance with clause 5.3 of SANS 1200 MM				
57	Lines 100mm wide	m			
58	Lines 300mm wide	m			
59	1.25m Diameter type GM7 stop sign (area = 1.80m²)	No			
	Thermoplastic road markings on concrete in accordance with clause 5.3 of SANS 1200 MM				
60	Lines 150mm wide	m			
61	Numeral or letter 400mm high	No			
62	4.00m Long type WM7/RM8 traffic arrow (area = 1.43m²)	No			
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	STORMWATER CHANNELS				
	"Cape Concrete" precast concrete surface water channels				
63	480 x 190mm Type W4 channels	m			
64	Extra over for angles, intersections, ends, dressing into sides of catchpits, etc	No			
	FLAG POLE				
	Flagpole including excavations, concrete, brickwork, backfill, plaster signage, etc. completel as per details on Architect's drawing RFS/21 401 TEN				
65	Entrance flag pole	No			
	CARPORTS				
	2400mm high 75mm dia galvanized steel column, with 50mm dia cross framed beams to top and covered with grey shade cloth including excavations, backfilling, concrete, leveling etc. (Section HH on Architect's drawing RFS/21 301 TEN)				
66	Shadenet carport	No			
	Carried to Collection			R	

BILL NO 19

EXTERNAL WORK

COLLECTION

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Robertson Fire Station

VOLUME 6: GEOTECHNICAL REPORT

Note: The geotechnical report are page numbered i – iv & 5 – 58 for this section

Terra Geotechnical

Where Engineering Meets Earth

Engineering Geological Report

In support of the proposed

Robertson Fire Station

Robertson

Western Cape

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The information presented in this document is based on the information supplied by the Client prior to the commencement of the investigation. All care and diligence have been taken in rendering services and preparing these documents.

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1. Introduction

A geotechnical investigation was conducted for the proposed new Robertson Fire Station. The development incorporates various low load bearing structures as well as internal roadways.

This investigation was undertaken in order to assess the engineering geological character of the area, focusing on the geotechnical properties which will affect the overall development potential of the site.

1.1. Terms of Reference

Terra Geotechnical was appointed in September 2021, by Ms Nadia Malan (representing Tusk CSS (Pty) Ltd), to conduct this geotechnical investigation. The area of investigation was defined and approved before the commencement of the investigation. The distribution of testing locations and the associated sampling were done where physically possible and to best model the geotechnical character of the site for this specific development.

Standard soils laboratory testing was conducted by Roadlab Mossel Bay. The quantity and nature of samples were governed by the nature of the proposed development and the in-situ characteristics of the material excavated across the site.

1.2. Sources of Information

The following sources of information were utilized:

Geological Map:

- 3319 Worcester; scale 1:250 000 (digital format)

Remote Sensing Information:

- Google Earth Pro TM
- Elevation Heat Map; Online Resource
- Planet GIS

Layout Map provided by the client

1.3. Objectives

The investigation had the following aims:

- identify potential **geotechnical hazards**
- to determine and evaluate the **mechanical properties of the soil** material occurring within the boundaries of the study area regarding the construction of a warehouse and associated infrastructure.
- **define the ground conditions** and classify the conditions through detailed soil profile descriptions and groundwater occurrences **within the zone of influence of foundations**
- To assess **the in-situ mechanical properties** and the **re-usability of the natural material** underlying the development in question.
- To evaluate the **excavation characteristics** across the development in question.
- To **recommend** measures to be implemented during the design and development of the area in question.

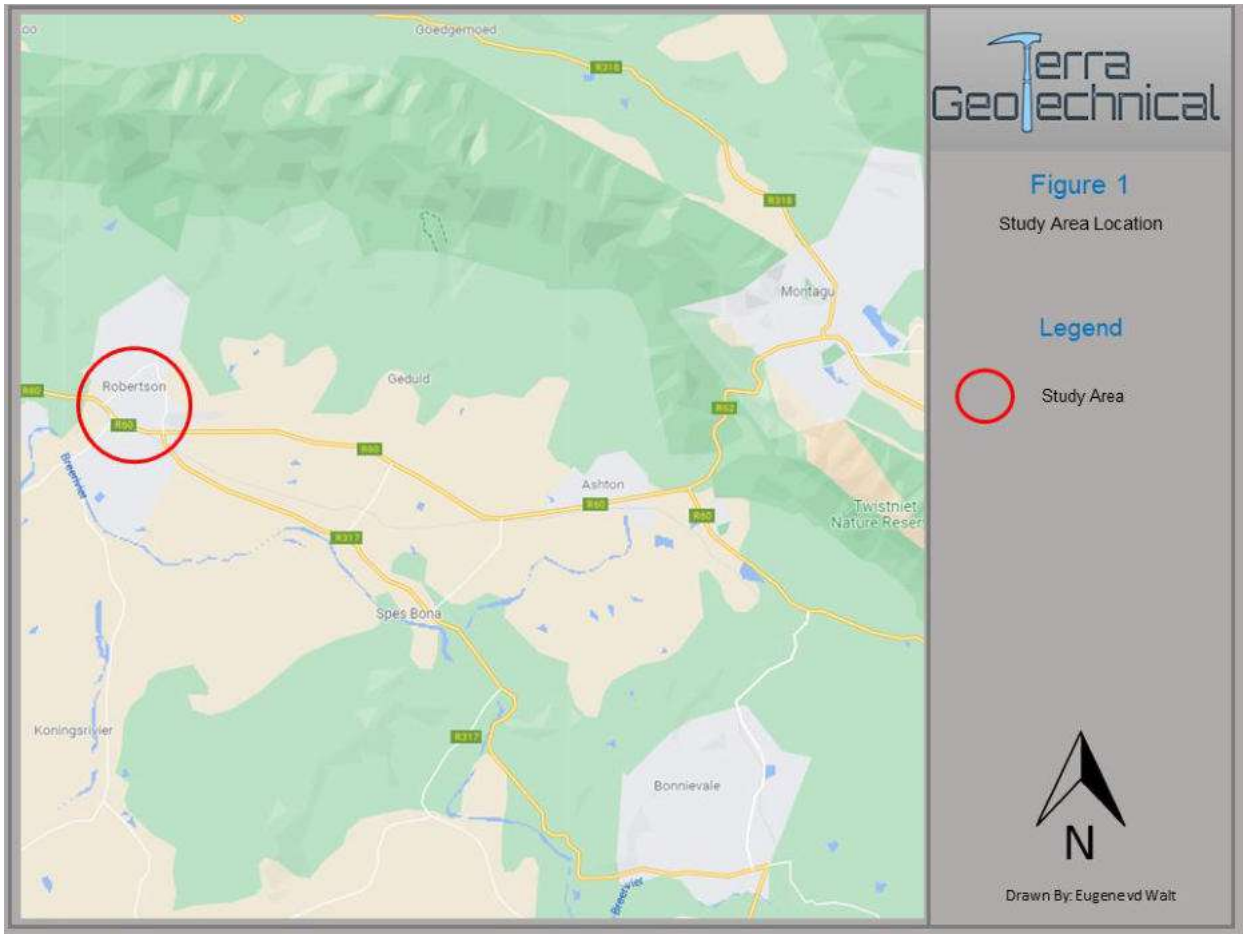
It must be noted that this investigation was conducted to assist with the design and construction phase of the development.

2. General Location and Description of Site

2.1. Location

The study area for this investigation at the southern valley floor of the Langeberg Mountains, approximately midway between Swellendam and Worcester along the Regional road 60 (R60), in the Western Cape Province. On a more localized scale site falls within the Langeberg Local Municipality and is located within the town of Robertson. The site is easily accessible through a network of sealed roads and is located just north of Kerk street.

Figure 1 below, graphically depicts the location of the study area.



The site is defined as an irregular shaped parcel of land on the western side of the Callie de Wet Sport Grounds. The site is known as erf 8250 and is approximately 0.5 ha in size. On the surface, the site hosts a single concrete and masonry infrastructural unit, whilst subsurface services (water, sewer, electricity) traverse the site.

The site is located roughly at the following coordinates:

Latitude: 33.812402° S Longitude: 19.892245° E

Figure 2 below, graphically depicts the site location

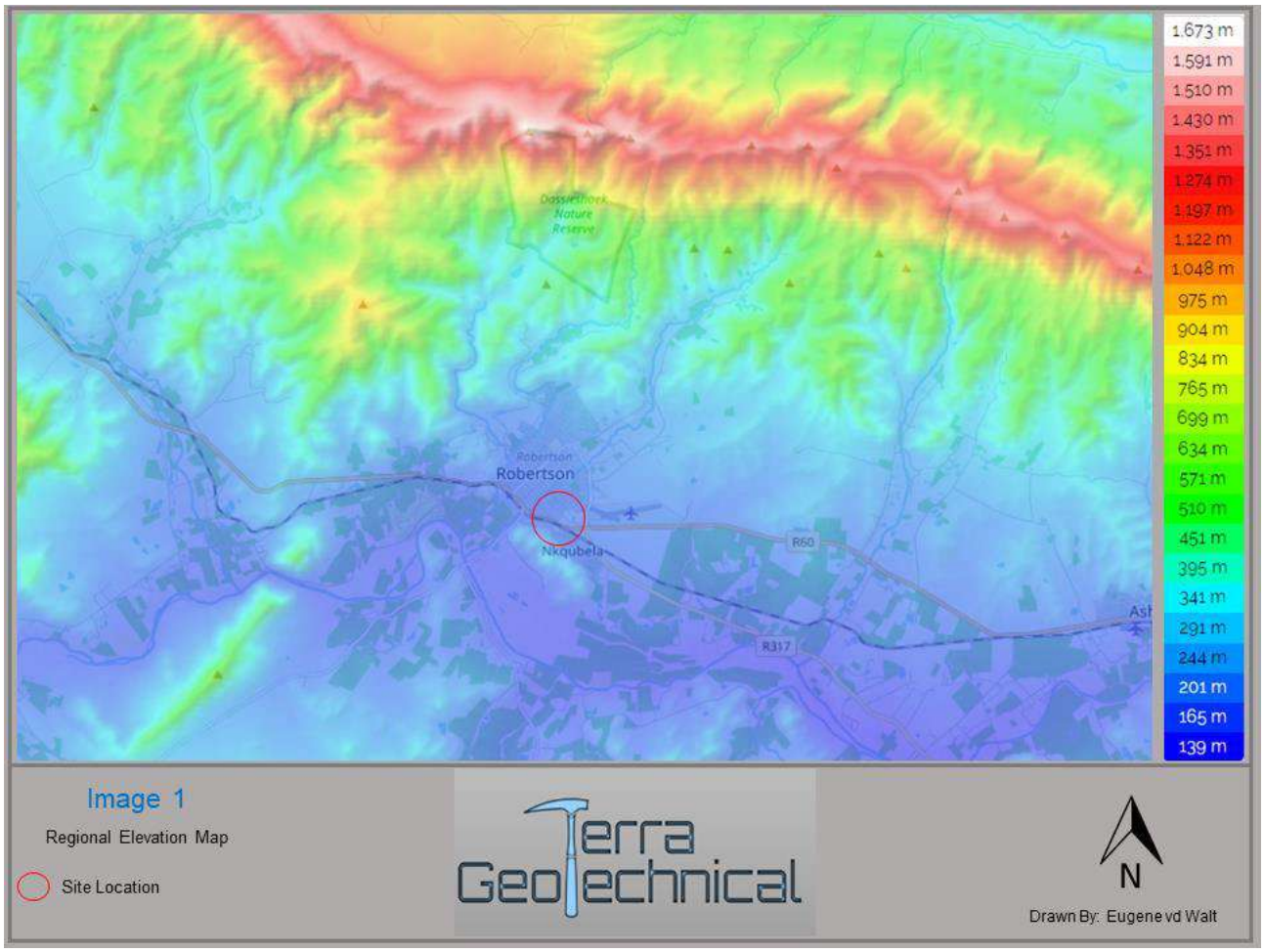


2.2. Topography

2.2.1. Regional Topography

Regionally, the study area located on the southern valley floor of the Langeberg Mountain range. The study area is generally flat with minor ridges and hills located within the valley floor and only the Langeberg Mountains providing a major change in relief to the north of the study area.

Image 1 graphically depicts the elevation and topography of the study area.



The colour coded image above clearly depicts the flat lying nature of the study area, with the **higher lying Langeberg mountains depicted by the red and yellow** and the **lower lying valley depicted by the blue colours**

The site itself, is generally flat lying with the topography having been altered slightly due to the developments within the area.

2.3. Climate

The climate in Robertson region is referred to as steppe climate. Generally little rainfall throughout the year receiving approximately 405 mm of rain per year, with most rainfall occurring during November. The average midday temperatures range from 11°C in July to 22°C in February.

Climate determines the mode and rate of weathering. The effect of climate on the weathering process (i.e. soil formation) is determined by the climatic N value defined by Weinert, 1980. The climatic N-value of the area is deemed to be less than **5;** which implies a surplus of water. The implication of the N-value in general (for an N<5 area) is that the soil profile is likely to be deep, and comprise chemically decomposed residual soils, rather than drier climates which will comprise of physically disintegrated residual soils. This mode of weathering favours deep soil formation with scattered rocky fragments occurring within the soil matrix.

3. Geological Setting

3.1. Regional Geological Setting

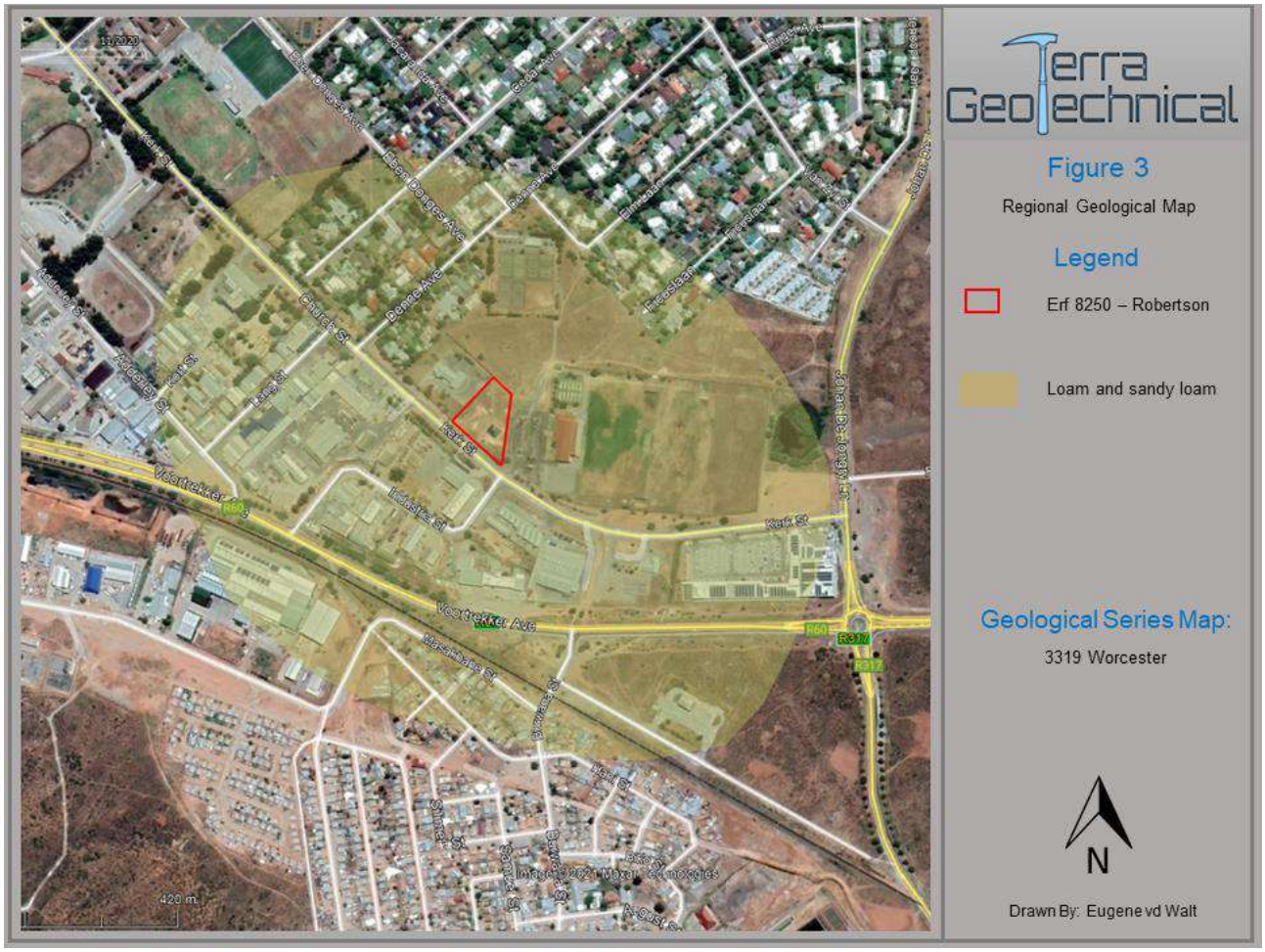
According to the available geological information (geological series map: 3319 Worcester); the study area is underlain by relatively recent transported loam and sandy loam deposits of Quaternary & Tertiary Age.

The study area does not reflect any risk for the formation of sinkholes or subsidence's caused by the presence of water-soluble rocks (dolomite or limestone), and as such is not deemed **"dolomitic land".**

The **regional geological setting** of the study area (minus the surficial soil cover) is illustrated by **Figure 3** below.

3.2. Prominent Geological Structures

The available geological information does not indicate the presence of any geologically important structures traversing the site.



4. Geotechnical Field Investigation and Laboratory Testing

4.1. Reconnaissance Study

The investigation commenced with the conducting of the following actions:

- The collation and evaluation of available geological and geotechnical information.
- The compilation of a base map showing the regional geological setting

4.2. Site Investigation

The field work phase was conducted by Terra Geotechnical during September 2021. Test pits were placed throughout the study area where deemed safe and in such a way as to accurately describe the general soil conditions occurring within the boundaries of the study area. On the clients' request, test pits only had to be excavated to a depth of 1.5m below ground level.

The succession of soil and rock layers exposed within the test pits were logged according to the industry-standard method proposed by Jennings et al (1973), and a series of detailed photographs were taken of the different soil layers, and samples were taken of the soil- and rock material deemed to be important to the proposed development.

1.5 meter DCP tests were attempted adjacent to each of the test pits. These tests were utilized to determine in-situ geotechnical material characteristics of the loadbearing substrata.

4.3. Laboratory Testing

The following tests were conducted on soil samples taken during the field work phase:

- Standard foundation indicator tests were conducted on disturbed soil samples in order to determine its composition (i.e.: the relative percentages of gravel, sand, silt and clay present within each sample), to evaluate the heave and compressibility potential of these soils, and to calculate the maximum heave and/or differential settlement that can be expected. The following tests were conducted:
  - ❖ Atterberg Limits (Liquid Limit and Plasticity Index) and Linear Shrinkage
  - ❖ Particle-size distribution
- Standard road indicator tests were conducted by on bulk soil samples in order to determine its composition, and to evaluate the suitability of the materials for use in the construction of access roads and parking areas. The following additional tests were conducted:
  - ❖ Maximum Dry Density versus Optimum Moisture Content
  - ❖ Californian Bearing Ratio versus Compaction Effort (MOD AASHTO method)

4.4. Reporting

The investigation concluded with the compilation of a technical report detailing all methodology utilised during the study and all results obtained. This report includes a detailed potential evaluation of the site in terms of the proposed development, based on the results of the geotechnical investigation, with recommendations regarding foundation design and layer works as well as construction and excavatability.

5. Geotechnical Setting

5.1. Trenching

Trenching and associated sampling were done as to best model the geotechnical and material characteristics of the site with regards to the proposed development.

5.1.1. Excavation of test pits

A total of 4 test pits, numbered TP1 to TP4 (Figure 4), were excavated, by means of a Komatsu PC70 mechanical excavator during September 2020, at which time the exposed soil layers were profiled.

The placement of test pits were influenced by the subsurface infrastructure as well as the proposed development layout.

5.1.2. Generalised engineering geological parameters

The following general engineering geological characteristics were noted:

- **Site Excavatability**

Generally, no problems are foreseen during the excavation of shallow foundation trenches or deep service trenches to a depth of 1.5 m below natural ground level, through the use of a mechanical excavator of similar size and strength to what was used during the investigation, however, localized difficulty in excavation was encountered within TP3 from a depth of 1.4 m.

Excavation type to a depth of 1.5 m below the natural ground level is deemed to be Soft Excavation, with localized Intermediate Excavation (less than 5% across the site).

- **Rock- and/or pedocrete outcrops**

Bedrock or pedocrete outcrops were not encountered within the investigated area.

- **Sidewall stability**

All the test pits excavated during the investigation proved to host stable sidewalls for a period of at least 1 hour.

- **Groundwater seepage**

No groundwater seepage was encountered in any of the test pits. The presence of localized ferruginized material as well as leached horizons are further evident of perched groundwater conditions. In general, the soil profile encountered was profiled as being moist.

5.1.3. Generalised soil profile

The results of the trenching phase indicate that the whole site is covered by a relatively homogeneous succession of soil layers. Typically, the site was covered by a boulder alluvial horizon, underlain by another alluvial horizon. This alluvial horizon is underlain by a reworked residual material horizon, which is further underlain by residual material.

- **Boulder Alluvium**

The upper boulder horizon covered the whole site. This horizon This horizon was generally present as frequent cobbles and boulders up of to 600 mm diameter contained in a slightly moist light brown, medium dense silty sandy matrix. The boulders were generally moderately densely packed.

This horizon was encountered from surface to depths of between 0.6 and 1.1 m.

Due to the abundant organic material within the upper portion of this horizon, it will be necessary to remove it before any construction work begins.

The lab tests on these materials indicate they have a moderate plasticity with a potential “low” activity.

- **Lower Alluvium**

The upper boulder horizon was underlain by another alluvial horizon. This horizon was generally showed signs of reworking through water movement and exhibited a cohesive nature. This horizon was generally present as moist, orange brown mottled red and grey clayey/silty sand, exhibiting a firm to stiff consistency. Scattered gravels and cobbles was present.

The horizon had a thickness of between 0.1 and 0.9 m and was encountered throughout the site, although it was absent in TP3.

The lab tests on these materials indicate they have a moderate plasticity with a potential “medium” activity.

Due to the medium potential activity of these soils, and the possibility that they could soften up if they become saturated, they are not considered as a suitable medium for any of the structures

- **Ferruginized Residual**

A ferruginized horizon consisting of clayey/silty sand with frequent gravels and scattered cobbles was encountered below the lower alluvium. It has undergone various degrees of ferruginization and are weakly to strongly cemented. It was difficult to discern between ferruginized transported or ferruginized residual material, although the ferruginized material was described as residual.

This horizon was encountered from depths of between 0.7 and 1.5 m

The lab tests on these materials indicate they have a moderate plasticity, but due to low clay content it classifies as a potential “low” activity.

Detailed test pit profiles are included in Appendix A.

5.2. DCP testing

A total of 5 DCP tests were carried out across the site to assess the consistency of the in-situ sub-soils and provide an indication of the founding conditions beneath the site.

4 DCP tests were attempted from surface, adjacent to each of the test pits. Due to the presence of cobbles and boulders within the soil horizons at shallow depth, the DCP tests were generally hampered with no useable results obtained.

An additional DCP test was conducted at TP1 in the soil horizon directly underlying the boulder alluvium. This test commenced from a depth of 0.6 m below ground level and was advanced a further 1.0 m before the DCP encountered penetration difficulty due to very dense soil.

The results of this DCP test (DCP1), is included in Appendix C. The test indicates that soil horizons increase in consistency with an increase in depth.

The results of the DCP test indicate that the residual material underlying the site exhibits moderate to high CBR values. The lab tests on this material however, yielded much poorer CBR results. The major contributing factor to this difference is that the DCP test is done at in-situ moisture conditions, whereas the laboratory tests are conducted at saturated moisture conditions.

6. Geotechnical Evaluation

6.1. Engineering- and material characteristics

6.1.1. Sampling

The following samples were taken:

Disturbed samples	:	1 x Boulder Alluvium
	:	1 x Lower Alluvium
	:	1 x Ferruginized Residual
Bulk Samples	:	1 x Boulder Alluvium
	:	1 x Ferruginized Residual

Detailed soil test results are included as in Appendix B.

It should be noted that when saturated and loaded, the soils will undergo loss of strength with the soil grains being forced into a denser state of packing and a reduction in void ratio (decrease in volume). Due to the fine grained nature of the lower alluvial material, the material is also deemed to be sensitive to moisture changes and will undergo heave and shrinkage with changes in moisture. The result of which is varying degrees of consolidation and heave. For this reason, the assessment and quantification of both the degree and nature of consolidation and heave, under planned foundation loads, will form the basis of the mechanical assessment of the sites' subsoils to follow.

Table 1 on the following page summarizes the material properties sampled across the site

Soil Profile Make-up and Associated Sampling		Material Characteristics- Laboratory Assessment Bulk and Disturbed samples tested by Roadlab															
Test Pit nr & Material Description	Sample Depth (mm below ground level)	Soil Composition					Fines Analysis (measured from material passing the 0.075 mm sieve)				Moisture Content	Unified Soil Classification System	Activity		Material Compaction Characteristics		
		Sieve Analysis (cumulative percentage passing)				Grading Modulus (GM)	Plasticity Index (PI)		Linear Shrinkage (LS)		In-Situ Moisture Content	USCS Symbol	Potential Expansiveness (according to van der Merwe)	Swell Percentage	COLTO Classification	Measured CBR Values (percentage compaction of MOD AASTHO; CBR of 13.344 kN)	
		2,0 mm	0,425 mm	0,075 mm	0.002 mm		Minimum	Maximum	Minimum	Maximum	%					90%	93%	95%
Natural Material (Untreated)																	
TP1 Ferruginized Residual	1000-1900	62	47	33	2,6	1,58	20		6,9		-	SC	Low	0,00%	>G9	1	2	2
TP3 Boulder Alluvium	0-700	60	50	29	5,8	1,61	8		3		-	SC	Low	0,00%	G8	8	13	17
TP4 Lower Alluvium	1100-1500	77	62	48	12,9	1,13	25		8,8		28,4	SC	Medium	2,00%	Inferred >G9	-	-	-

6.1.1. Soil Test Results: Boulder Alluvium

In the light of the soil test results and visual observations, the **Boulder Alluvium** sampled can be summarised as follows:

- The abundant boulders encountered within this horizon did not form part of the sampling process as these large particles typically get discarded during the testing process
- The material has a fines fraction (passing the 0.075mm sieve) of 29%, with the clay fraction constituting 5.8% of the sample.
- This **plasticity** of the **fines fraction** of the material is tested to **8**, with the weighted PI calculated at 4.
- According to the Unified Soil Classification the material classifies as a clayey sand **(SC)** with a **Grading Modulus** of **1.61**
- According the to the ***van der Merwe*** method of determining **Potential expansiveness**, this material classifies as a **low risk** for potential expansiveness.
- This material is deemed to be **Potentially Compressible.**

The results of road indicator tests conducted on the bulk samples of this material can be summarized as follows

- This material typically tests as a **G8-type material** according to the COLTO classification system.
- When compacted to 93% MOD AASHTO, this material provides a **bearing capacity of approximately 100 kPa**.
- Should this material be utilized for layer works during construction, the oversized cobbles and boulders need to either be crushed or removed in its entirety.

6.1.2. Soil Test Results: Lower Alluvium

In the light of the soil test results and visual observations, the **Lower Alluvium** sampled can be summarised as follows:

- The material has a fines fraction (passing the 0.075mm sieve) of 48%, with the clay fraction constituting 12.9% of the sample.
- This **plasticity** of the **fines fraction** of the material is tested to **25**, with the weighted PI calculated at 15.6.

- According to the Unified Soil Classification the material classifies as a clayey sand **(SC)** with a **Grading Modulus** of **1.13**
- According the to the ***van der Merwe*** method of determining **Potential expansiveness**, this material classifies as a **medium risk** for potential expansiveness due to moderate PI values and clay content.
- The **swell potential** of this material yielded a swell percentage of **2.0%**.
- This material is deemed to be **Potentially Compressible.**

The inferred road indicator results of this material can be summarized as follows

- Due to the moderately high PI values, this material will classify as a **worse than G9-type material** according to the COLTO classification system.
- It is not recommended that this material be used in the construction of any load bearing layer works.

6.1.3. Soil Test Results: Ferruginized Residual

In the light of the soil test results and visual observations, the **Ferruginized Residual** material sampled can be summarised as follows:

- The material has a fines fraction (passing the 0.075mm sieve) of 33%, with the clay fraction constituting 2.6% of the sample.
- This **plasticity** of the **fines fraction** of the material is tested to **20**, with the weighted PI calculated at 9.3.
- According to the Unified Soil Classification the material classifies as a clayey sand **(SC)** with a **Grading Modulus** of **1.58**
- According the to the ***van der Merwe*** method of determining **Potential expansiveness**, this material classifies as a **low risk** for potential expansiveness.
- This material is deemed to be **Potentially Compressible.**

The results of road indicator tests conducted on the bulk samples of this material can be summarized as follows

- This material typically tests as a worse than **G9-type material** according to the COLTO classification system.
- This material reacts very poorly to compaction and when compacted to 93% MOD AASHTO, this material provides a **bearing capacity of less than 30 kPa**.

- It is not recommended that this material be utilized in any load bearing layer works during construction.

The DCP test that was advanced into this horizon yielded CBR results in excess of 15, indicating a competent horizon, whereas the lab results of the compacted material only reached a CBR of 3 at a compaction effort of 100%. The major contributing factor for this large difference in strength, is that the lab sample was tested under saturated conditions and the on-site tests were conducted at natural moisture conditions. This is clear evidence that the material strength characteristics will change greatly when inundated with water.

6.1.4. Heave Characteristics of In-Situ Soils:

Soil heave is the process of the change in volume correlating to a change in moisture content. This phenomenon is prominent in soils containing a high content of active clays.

According to van der Merwe, the lower alluvial material encountered on site also classifies as a **medium potential for heave**. This correlates to a **swell percentage of at least 2%**.

This thickness of this layer varies across the site. The heave will be calculated according to the most prominent horizon encountered (0.4 m thick).

When calculating the amount of heave expected with the **generalized heave equation**, this material is deemed to undergo a minor amount of heave. The value is calculated to approximately **5 mm**.

Due to this layer being so thin, the effect of the material on the structural development is deemed to be low.

Please note, the degree of soil heave displays an inversely proportional relationship to the bearing loads, and therefore the degree of heave reduces with an increased bearing load. This is of greater concern for light structures, such as walkways, pavements, surface beds, etc**.**

6.1.5. Standard Consolidation of In-Situ Soils:

There are three components to settlement namely immediate settlement (also referred to as elastic settlement), primary consolidation settlement and secondary consolidation (also referred to as creep).

Immediate settlement takes place as a load is exerted on the soil mainly due to distortion of the soil. As pore water begins to flow out of the soil a time dependant decrease in volume occurs which is termed consolidation settlement. This settlement will continue until a condition of constant effective stress is reached. This primary consolidation settlement takes place generally in fine grained materials (high percentage of clay or silt).

Secondary consolidation settlement is not considered a concern as this type of settlement usually occurs in soft organic clays where plastic flow within the soil mass results in displacement of the soil particles.

Based on the visual observations and detailed profiling, the material is deemed to be potentially compressible with an inferred settlement of between 10 and 20 mm.

6.2. Suitability of On-Site Soils

The upper boulder alluvium reacted moderately to compaction and tested as a G8-type material (COLTO). For the material to be utilized in layer works the oversized cobbles and boulders have to be removed from the material, or alternatively crushed to be within allowable sizing limits. If the boulders and cobbles are not removed, this material is not deemed suitable for backfilling purposes against foundation walls, however it could be re-used for general landscaping.

The lower alluvial horizon is not deemed suitable for re-use during construction, due to it high PI and fines values.

The ferruginized residual material reacted poorly to compaction and tested as a worse than G9-type material (COLTO). For this reason, this material should not be used in any load bearing layers during the construction process.

6.3. Roads

For access roads and parking areas, it is recommended that an allowance is made for importation of selected subgrade layer works of two layers of G7 quality below the subbase. The recommended layers are as follows or an alternative engineered design can be followed;

Layer	Material	Thickness	Required Compaction
Pavers	Cement interlocking paving on 25 mm sand bedding	80 mm	
Subbase	Imported G4/G5 crushed rock	150 mm	95% MDD
SGG	Imported G7 gravel	300 mm	93% MDD

If the existing boulder alluvial material covering the site is not removed and replaced with competent material, differential settlements are anticipated due to its variable load transfer through the strata. This could result in maintenance to be required over short and long term periods depending on the loading.

The performance of the pavement structure is highly dependent on the subsurface groundwater conditions and maintaining the subgrade and pavement structure in a dry condition. The surface of the pavement should be properly graded to direct runoff water towards suitable drainage features. It is recommended that the lateral extent of the subbase layers not be terminated vertically immediately behind the curb/edge of pavement line but be extended beyond the curb

7. Geotechnical Considerations

7.1. General

The results of this study reveal that the site exhibits geotechnical characteristics that may require the implementation of specific design and precautionary measures to reduce the risk of structural damage due to adverse geotechnical conditions.

The upper (on average 0.9 m) horizon covering the site consists of unconsolidated boulder alluvium. These soils possess variable densities and a disturbed appearance in some areas due to previous construction activities. Based on these considerations, this horizon is deemed unsuitable in its natural state, for the support of the proposed structures or paved road/parking without any engineered reworking.

The boulder alluvium is underlain by firm moisture sensitive cohesive alluvial soils which displayed an expansive nature. This layer is at most 0.4 m thick and as such does not pose any risk for the construction in terms of heave and shrinkage. The moderately high PI and clay values makes this material unsuitable for re-use during construction

The ferruginized residual layer is deemed to deemed to exhibit a stiff to very stiff consistency and in its natural state is deemed suitable for use as load bearing founding horizon (100 kPa), provided that appropriate design precautions are implemented.

The following constraints needs to be considered;

- The results of this investigation reveal that the boulder alluvium encountered may undergo a **degree of consolidation** (i.e. loss of volume) under loading or when saturated; requiring that structures be adequately strengthened to prevent structural damage. This will be exacerbated due to **differential settlement** beneath foundations.
- The presence of ferruginized and leached material indicates the presence of a historic water table or the **movement of soil moisture** through the load bearing strata. Please note that should water move through the load bearing strata, a reduction in bearing capacity could be expected by up to 50%.
- **Very gentle slopes** that could lead to **surface water ponding.**
- **Localized difficulty in excavation** to 1.5 m (less than 5% expected)

Foundations should not be placed on the variable topsoil occurring within the upper 0.6-1.1 m of the profile.

Deep trenches excavated within this boulder zone, will be subjected to over break, as such the excavated trenches will require shuttering or the wider trenches will require more concrete.

At least 500 mm of boulders should be removed, the exposed surface compacted to densify the remaining boulders into a dense packing. Backfill with suitable G6 quality material and

compact to at least 93% MOD AASHTO (designed and approved by the design engineer). Reinforcement of the foundations are essential.

Water should not be allowed to infiltrate any of the layer works.

7.2. Site Classification

In the light of the results of this study, the site can be grouped into a SINGLE geotechnical entity/development potential zone**.**

NHBRC Site Classification	Partridge, Wood and Brink (1993) Classification	Excavation Class	Slope Stability
S1/H	2B- Fluctuating moisture conditions less than 1.5 m below ground 1C- Flow soil-heave predicted 2D- Moderate soil Compressibility 1F- Localized Difficulty in excavation to 1,5m	Soft Excavation with localized Intermediate excavation	Stable and gentle slopes

7.3. Soil Excavatability

Generally, no problems are foreseen during the excavation of shallow foundation trenches or deep service trenches to a depth of 1.5 m below natural ground level, through the use of a mechanical excavator of similar size and strength to what was used during the investigation, however, localized difficulty in excavation was encountered within TP3 from a depth of 1.4 m.

Excavation type to a depth of 1.5 m below the natural ground level is deemed to be Soft Excavation, with localized Intermediate Excavation (less than 5% across the site).

The following additional comments on excavation of service trenches apply:

- Trenches may have to be dewatered, especially after heavy precipitation events.
- The side walls of deep excavations should be shored to prevent injury or death due to side wall failure

7.4. Slope Stability

In the light of the **gentle to very gentle slopes** across the site, specialised methods for the stabilisation of cuts into the slopes **are not** deemed necessary.

7.5. Foundation recommendations and solutions

Modified normal foundations

Trim and spoil the upper 200 mm of material or at least all material with vegetation below the construction footprint.

Place foundations at depths below the boulder alluvium and lower clayey alluvium (depths of between 0.7 and 1.5m across the site). The preliminary layout of the structures and the corresponding test pits, indicate the foundations will be placed at roughly 1.0 m depth. Safe bearing pressures of 100 kPa are applicable.

Modified normal construction methods are required to withstand predicted heave and settlements. Suitable measures include reinforcing of the strip footings, reinforcement in brickwork of plinth walls, reinforcement of surface beds, articulation joints at all external doors and effective site drainage.

Below surface beds, natural boulder material will need to be over-excavated and backfilled and compacted by suitable material.

8. Good Construction Practices

An important factor in the promotion of a stable site is the control and removal of both surface and ground water from the site. It is important that the design of the storm water management system allow for the drainage of accumulated surface water.

8.1. Surface Drainage

It is recommended that an efficient surface drainage system be installed around all structures and along all roads throughout the study area in order to:

- prevent the ponding of water next to structures directly after heavy precipitation events, this may lead to differential settlement as the saturated material undergoes densification.
- prevent large-scale changes in soil moisture beneath the structures on a seasonal basis
- prevent the possible lateral movement of liquids within the upper soil horizons

The precautionary measures should ideally include:

- the sealing of open ground surfaces by means of either of the following:
- the cultivation of a natural soil cover (e.g.: grass)
- compaction of the soil surface
- bitumen or concrete paving
- the removal of surface water to a distance of at least 1 m beyond structures by means of watertight paving.
- the removal of surface run-off by means of an efficient surface drainage system.
- roads should preferably be constructed parallel to the natural surface elevation contours rather than perpendicular to it, in order to reduce run-off velocities
-
- Roads should be constructed with adequate drainage to minimize the possible effects of seasonal shallow perched ground water and surface water run-off to prevent deterioration

8.2. Earthworks

All vegetation should be cleared from the areas over which structures are to be built.

It is recommended that all earthworks be carried out in accordance with SABS 1200. The fill should be placed in layers not exceeding 200 mm loose thickness and compacted to a minimum of 93% Modified AASHTO maximum dry density. Cobbles and boulders larger than $^2/_3$ of the layer thickness and clayey or organic material must not be included in the fill material.

.

All fill operations should be observed by a competent professional and tested periodically to confirm compaction is achieved.

9. Limitations

The extent of the investigations undertaken is deemed adequate, within the time and budget constraints, to present an overview of the geotechnical conditions across the investigation site.

It must be borne in mind that the overall interpretation of geotechnical conditions is based upon point information derived from the respective test positions and that conditions intermediate to these have been inferred by interpolation, extrapolation and professional judgement

It is recommended the author be appointed to inspect the earthworks and foundation excavations during the development of the site to confirm founding depths and validate the recommendations provided in this report.

10. Bibliography

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MAPS


Goedgemoed
R318
Montagu
Robertson
R60
R90
Geduld
R62
Ashton
R60
R50
Twistniet
Nature Reser
R317
Spes Bona
Koningsrivier
Bonnievale
Breerivier
Terra
Geotechnical
Figure 1
Study Area Location
Legend
Study Area
N
Drawn By: Eugene vd Walt


Terra Geotechnical
Figure 2
Site Location
Erf 8250, Robertson
N
Drawn By: Eugene vd Walt
Church St
Denne Ave
Kerk St
Industria St
Voortrekker Ave
R60
R317
Image © 2021 Maxar Technologies

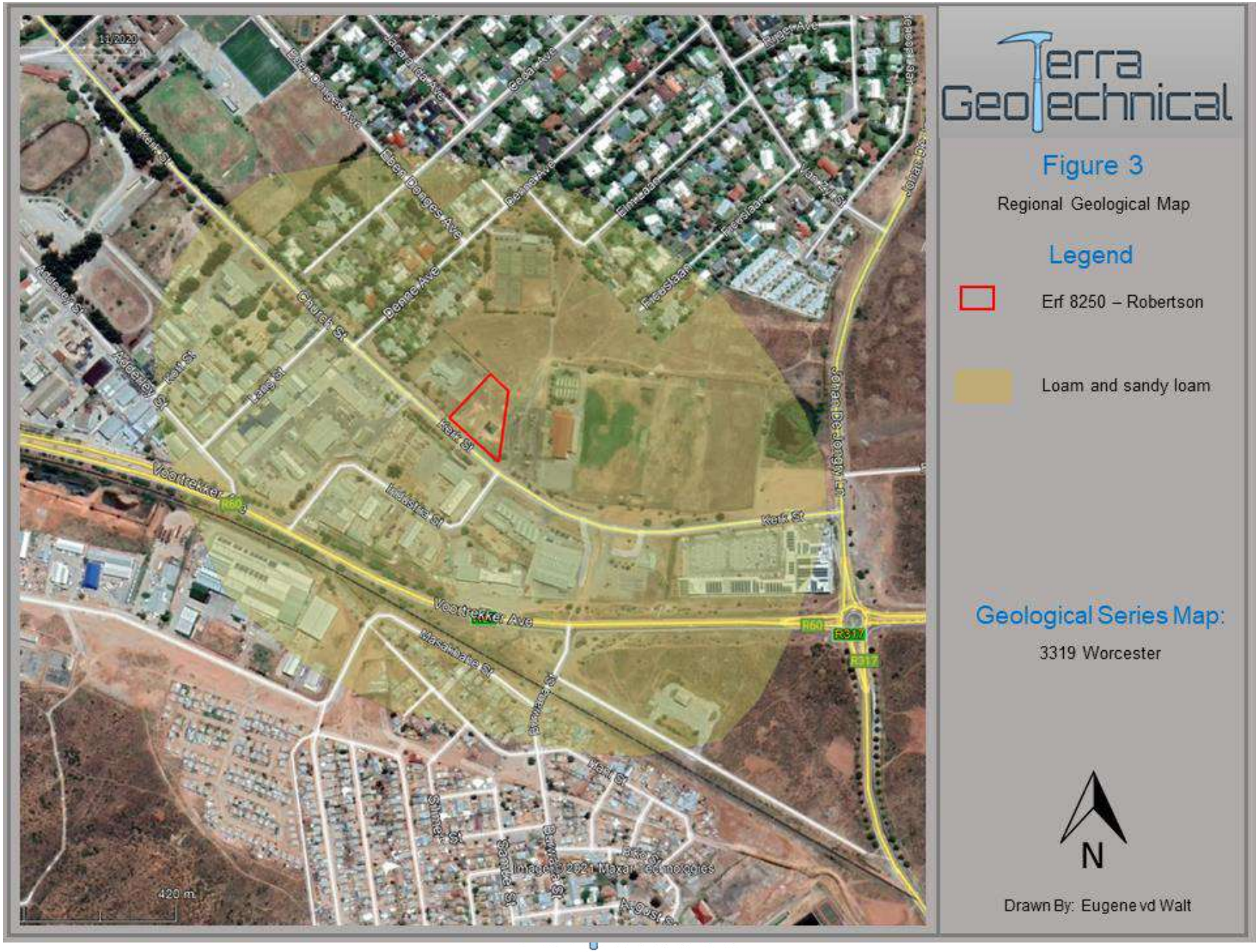

Terra Geotechnical
Figure 3
Regional Geological Map
Legend
Erf 8250 – Robertson
Loam and sandy loam
Geological Series Map:
3319 Worcester
N
Drawn By: Eugene vd Walt
Voortrekker Ave
Church St
Bester Ave
Kerk St
Indastria St
Marshlane St
Adderley St
Lang St
Shine St
Barrydale St
Joubertina St
Freesiaan
Eben Donges Ave
420 m



Figure 4

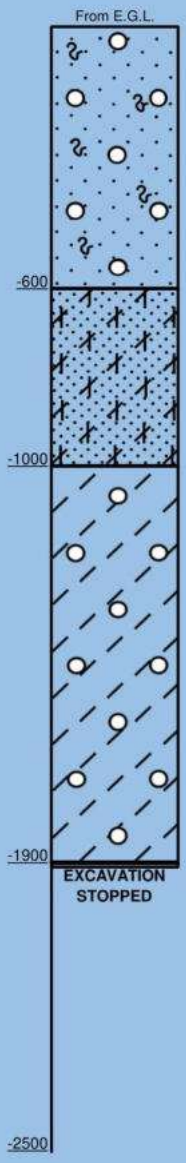
Testing Location

APPENDIX A

A.1
Test Pit Profiles

Terra Geotechnical	**Site:**	Robertson Fire Station
	Client:	Tusk Construction Support Services (Pty) Ltd

Soil Profile for Test Pit TP1



slightly moist; light brown; medium dense; intact; sitly sand with frequent sub angular gravels and rounded cobbles and boulders; Alluvium; roots; Not Sampled.

moist; reddish brown; firm; intact; clayey silty sand with scattered gravels; Alluvium; decomposted rootlets; Not Sampled.

moist; reddish brown mottled orange and grey speckled black; stiff; intact; clayey silt with frequent rounded gravels; Residual; Bulk Sample No. TP1; Disturbed Sample No. TP1.

Test Pit Notes

Coordinates:	33,812402°S 19,892245°E
Method of Excavation:	Heavy Mechanical Excavator- Komatsu PC70
Excavation Character:	Excavation Stopped as per Client request
Date Excavated:	23/09/2021
Date Profiled:	23/09/2021
Groundwater Seepage:	Not Encountered
Samples Extracted:	1 Bulk Sample, 1 Disturbed Sample
Notes:	
Profiled by:	Eugene van der Walt (Pri.Sci.Nat)

Terra Geotechnical Robertson Fire Station

Soil Profile Photo of Test Pit TP1



Terra Geotechnical Robertson Fire Station

Material Present in Test Pit TP1







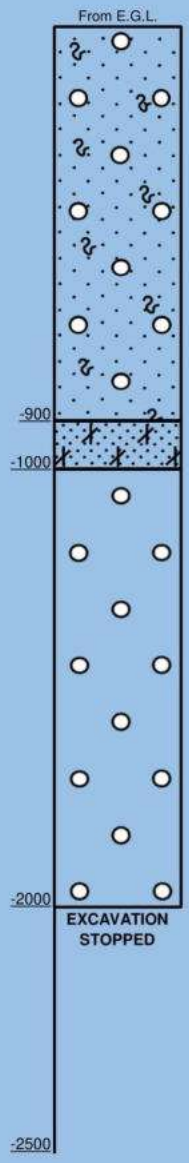
Terra Geotechnical Robertson Fire Station

Excavated Material Test Pit TP1



Terra Geotechnical	**Site:**	Robertson Fire Station
	Client:	Tusk Construction Support Services (Pty) Ltd

Soil Profile for Test Pit TP2



slightly moist; light brown; medium dense; intact; sitly sand with frequent sub angular gravels and rounded cobbles and boulders; Alluvium; roots; Not Sampled.

moist; reddish brown; firm; intact; clayey silty sand with scattered gravels; Alluvium; decomposted rootlets; Not Sampled.

moist; reddish brown mottled orange and grey speckled black; stiff; intact; clayey silt with frequent rounded gravels; Ferruginized Residual; Not Sampled.

Test Pit Notes

Coordinates:	33,812269°S 19,892086°E
Method of Excavation:	Heavy Mechanical Excavator- Komatsu PC70
Excavation Character:	Excavation Stopped as per Client request
Date Excavated:	23/09/2021
Date Profiled:	23/09/2021
Groundwater Seepage:	Not Encountered
Samples Extracted:	N/A
Notes:	
Profiled by:	Eugene van der Walt (Pri.Sci.Nat)

Terra Geotechnical Robertson Fire Station

Soil Profile Photo of Test Pit TP2



Terra Geotechnical Robertson Fire Station

Material Present in Test Pit TP2



Terra Geotechnical Robertson Fire Station

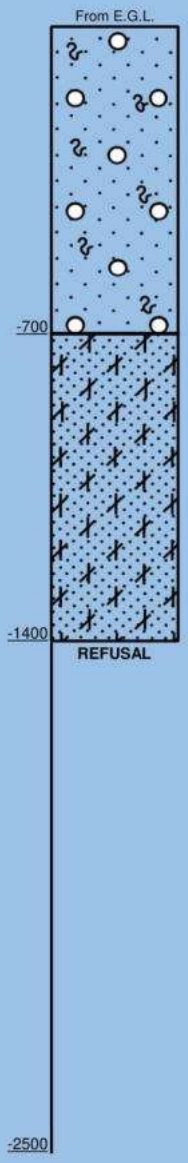
Excavated Material Test Pit TP2





Terra Geotechnical	**Site:**	Robertson Fire Station
	Client:	Tusk Construction Support Services (Pty) Ltd

Soil Profile for Test Pit TP3



slightly moist; light brown; medium dense; intact; sitly sand with frequent sub angular gravels and rounded cobbles and boulders; Alluvium; roots; Bulk Sample No. TP3; Disturbed Sample No. TP3.

slightly moist; light whitish brown mottled red and orange; stiff; intact; frequent gravels and scattered cobbles weakly cemented in a matrix of clayey/silty sand; Weakly Cemented Residual Material; Not Sampled.

Test Pit Notes

Coordinates:	33,812492°S 19,892072°E
Method of Excavation:	Heavy Mechanical Excavator- Komatsu PC70
Excavation Character:	Refusal in Weakly Cemented Residual Material at 1,4 m below existing ground level
Date Excavated:	23/09/2021
Date Profiled:	23/09/2021
Groundwater Seepage:	Not Encountered
Samples Extracted:	1 Bulk Sample, 1 Disturbed Sample
Notes:	
Profiled by:	Eugene van der Walt (Pri.Sci.Nat)

Terra Geotechnical Robertson Fire Station

Soil Profile Photo of Test Pit TP3



Terra Geotechnical Robertson Fire Station

Material Present in Test Pit TP3



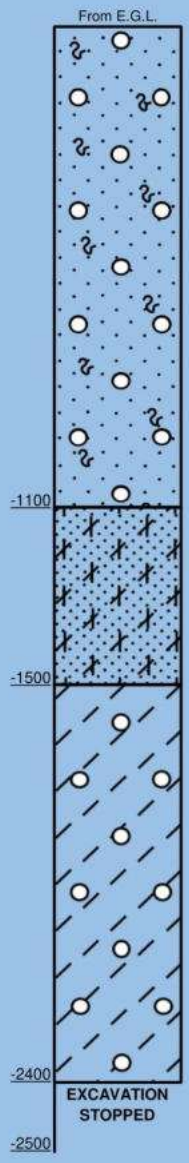
Terra Geotechnical Robertson Fire Station

Excavated Material Test Pit TP3



Terra Geotechnical	**Site:**	Robertson Fire Station
	Client:	Tusk Construction Support Services (Pty) Ltd

Soil Profile for Test Pit TP4



slightly moist; light brown; medium dense; intact; sitly sand with frequent sub angular gravels and rounded cobbles and boulders; Alluvium; roots; Not Sampled.

moist; orange brown mottled red and grey; firm to stiff; intact; clayey silty sand with scattered gravels and cobbles; Alluvium; decomposted rootlets; Disturbed Sample No. TP4.

moist; reddish brown mottled orange and grey speckled black; stiff; intact; clayey silt with frequent rounded gravels; Ferruginized Residual; Not Sampled.

Test Pit Notes

Coordinates:	33,812245°S 19,892462°E
Method of Excavation:	Heavy Mechanical Excavator- Komatsu PC70
Excavation Character:	Excavation Stopped as per Client request
Date Excavated:	23/09/2021
Date Profiled:	23/09/2021
Groundwater Seepage:	Not Encountered
Samples Extracted:	1 Disturbed Sample
Notes:	
Profiled by:	Eugene van der Walt (Pri.Sci.Nat)

Terra Geotechnical Robertson Fire Station

Soil Profile Photo of Test Pit TP4



Terra Geotechnical Robertson Fire Station

Material Present in Test Pit TP4







Terra Geotechnical Robertson Fire Station

Excavated Material Test Pit TP4



APPENDIX B

B.1 Laboratory Test Results

ROADLAB™

Roadlab Mossel Bay
7 Bally Crescent, Voorbaai
P.O. Box 35, Hartenbos
Tel: 067 418 4529
Email: Rohann@roadlab.co.za
Web: www.roadlab.co.za

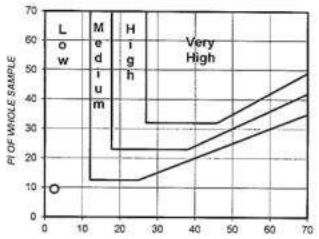
OUR REF : M14608
CLIENT : Terra Geotechnical
PROJECT : Robertson Fire Station

DATE RECEIVED : 2021.09.29
POSITION : TP1 (1000-1900mm)
LAYER : -
SAMPLE No. : 8620
SAMPLE DESCRIPTION : Dark Reddish Clayey Sandstone Gravel
Silty Gravelly Sand

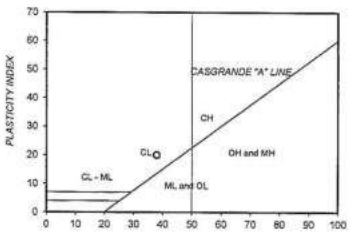
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI		**9.3**
Sieve analysis Cumulative percentage passing (mm)	100.0	100
	75.0	100
	63.0	100
	50.0	100
	37.5	100
	28.0	99
	20.0	98
	14.0	89
	5.00	70
	2.000	62
	0.425	47
	0.250	44
	0.150	39
	0.075	33
	50 µm	14
	5 µm	11
	2 µm	2.6
Soil Mortar Analysis % < 2.00mm	2.000 - 0.425	25
	0.425 - 0.250	5
	0.250 - 0.150	7
	0.150 - 0.075	10
	< 0.075	53
Effective size		0.005
Uniformity Coefficient		384.0
Curvature Coefficient		0.6
Oversize Index		0.0
Shrinkage Product		320.9
Grading Coefficient		25.9
Grading modulus		1.58
Atter-berg Limits	Liquid Limit	38
	Plasticity Index	20
	Linear Shrinkage	6.9
	PI < 0.075	-
Unified Soil Classification		SC
U.S. Highway Classification		A-2-6 (2)

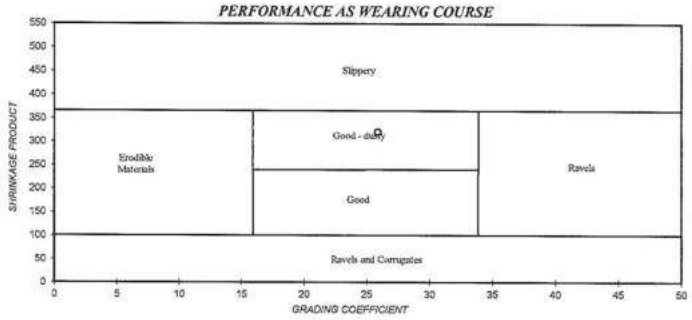
POTENTIAL EXPANSIVENES



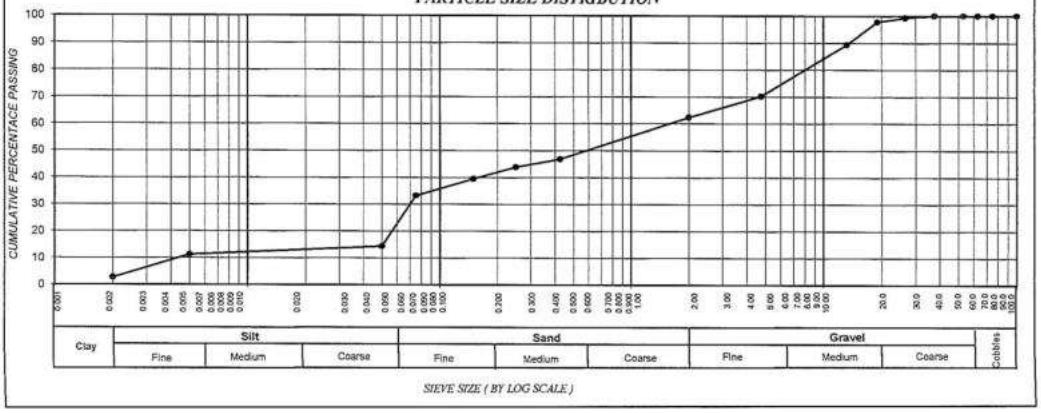
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
2.6	17.4	42.3	37.7

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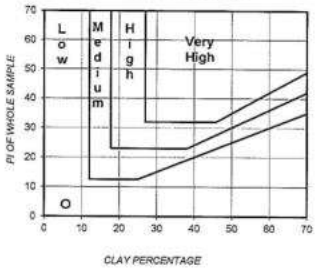
OUR REF : M14608
CLIENT : Terra Geotechnical
PROJECT : Robertson Fire Station

DATE RECEIVED : 2021.09.29
POSITION : TP3 (0-700mm)
LAYER : -
SAMPLE No. : 8619
SAMPLE DESCRIPTION : Light Brown Q/S/S + Calcrete Gravel Silty Gravelly Sand

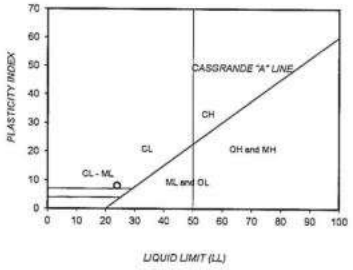
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI		**4.0**
Sieve analysis Cumulative percentage passing (mm)	100.0	100
	75.0	100
	63.0	100
	50.0	100
	37.5	100
	28.0	97
	20.0	93
	14.0	89
	5.00	68
	2.000	60
	0.425	50
	0.250	46
	0.150	39
	0.075	29
	50 µm	11
	5 µm	9
	2 µm	5.8
Soil Mortar Analysis % < 2.00mm	2.000 - 0.425	16
	0.425 - 0.250	8
	0.250 - 0.150	10
	0.150 - 0.075	17
	< 0.075	48
Effective size		0.036
Uniformity Coefficient		56.1
Curvature Coefficient		0.1
Oversize Index		0.0
Shrinkage Product		152.4
Grading Coefficient		25.2
Grading modulus		1.61
Atterberg Limits	Liquid Limit	24
	Plasticity Index	8
	Linear Shrinkage	3.0
	PI < 0.075	-
Unified Soil Classification		SC
U.S. Highway Classification		A-2-4 (0)

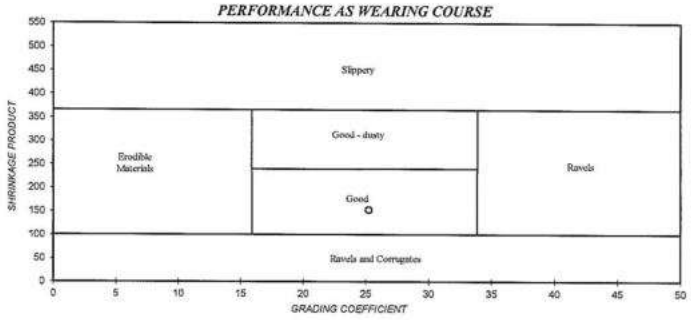
POTENTIAL EXPANSIVENES



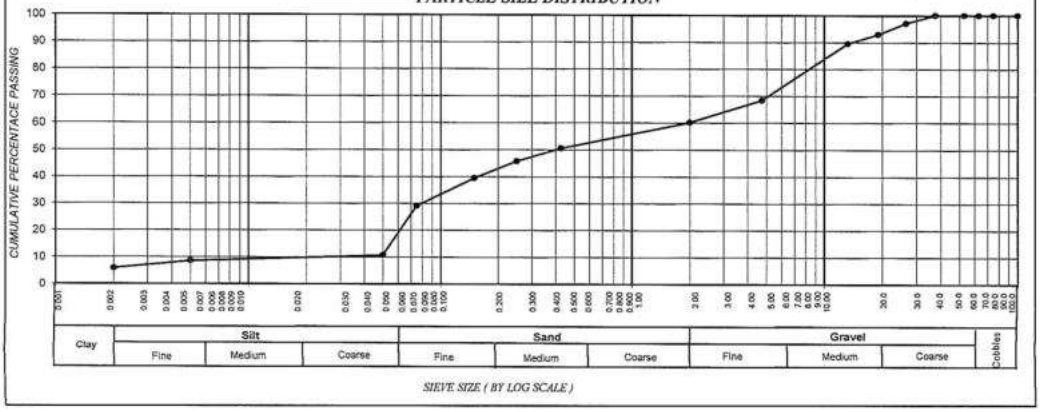
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
5.8	10.1	44.1	40.0

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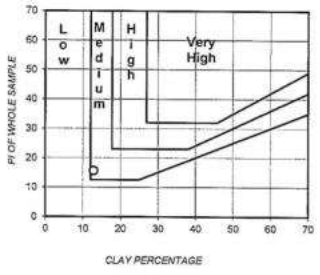
OUR REF : M14608
CLIENT : Terra Geotechnical
PROJECT : Robertson Fire Station

DATE RECEIVED : 2021.09.29
POSITION : TP4 (1100-1500mm)
LAYER : -
SAMPLE No. : 8621
SAMPLE DESCRIPTION : Dark Reddish Brown Silty Clayey + Q/S/S Pebbles Clayey Silty Gravelly Sand

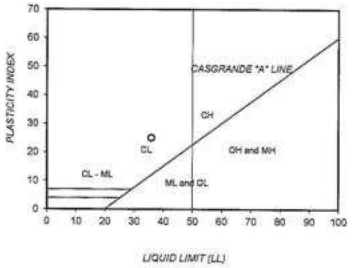
FOUNDATION INDICATOR - (SANS 3001-GR1, SANS 3001-GR10) & (ASTM Method D422)

Weighted PI		**15.6**
Sieve analysis Cumulative percentage passing (mm)	100.0	100
	75.0	100
	63.0	100
	50.0	100
	37.5	100
	28.0	96
	20.0	90
	14.0	90
	5.00	84
	2.000	77
	0.425	62
	0.250	59
	0.150	54
	0.075	48
	50 µm	20
	5 µm	17
	2 µm	12.9
Soil Mortar Analysis % < 2.00mm	2.000 - 0.425	18
	0.425 - 0.250	4
	0.250 - 0.150	6
	0.150 - 0.075	8
	< 0.075	63
Effective size		0.002
Uniformity Coefficient		150.3
Curvature Coefficient		5.8
Oversize Index		0.4
Shrinkage Product		550.9
Grading Coefficient		16.0
Grading modulus		1.13
Atter-berg Limits	Liquid Limit	36
	Plasticity Index	25
	Linear Shrinkage	8.8
	PI < 0.075	-
Unified Soil Classification		SC
U.S. Highway Classification		A-6 (7)

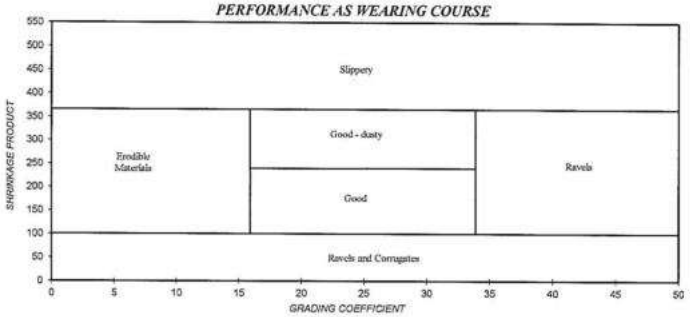
POTENTIAL EXPANSIVENES



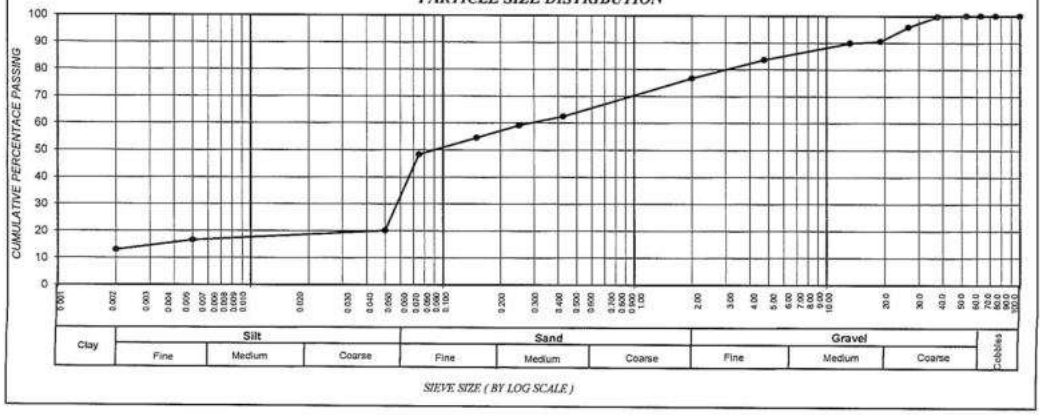
PLASTICITY CHART



PERFORMANCE AS WEARING COURSE



PARTICLE SIZE DISTRIBUTION



CLAY (%) (0.001-0.002)	SILT (%) (0.002-0.060)	SAND (%) (0.060-2.00)	GRAVEL (%) (2.00-60.0)
12.9	15.7	47.9	23.5

ROADLAB

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MOISTURE CONTENT RECORD FORM

Robertson Fire Station

Layer:

Date	Postion	Tin number	Tin weight	Wet + Tin	Dry + Tin	M% Oven
29/09/2021	TP4 (1100-1500mm)	CX26	34.1	1348.4	1057.7	28.4
					Average	28.4

Rohann Theart
Technical Signatory

ROADLAB

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Job Request No.: M14608
Terra Geotechnical
Andre Nel Building
C/O Fynbos & Perdekuil Avenue, Stilbaai
6674
Attention : Eugene Van Der Walt

Date Reported : 2021/10/11

Project : Robertson Fire Station

Full Classification SANS 3001

SAMPLE INFORMATION AND PROPERTIES

SAMPLE NO.		8619	8620		
HOLE NO./ Km / CHAINAGE					
ROAD NO./ NAME Line 1 ROAD NO./ NAME Line 2		N/P	N/P		
LAYER TESTED/SAMPLED		TP3	TP 1		
SAMPLE DEPTH		0-700mm	1000-1900mm		
DATE SAMPLED		29/09/2021	29/09/2021		
COLOUR OF SAMPLE		Light Brown	Dark Reddish		
TYPE OF SAMPLE		Q/S/S+Calcrete Gravl	Clayey Sandstone		
SIEVE ANALYSIS - % PASSING SIEVES *(SANS 3001-GR1:2010, SANS 3001-GR2:2010)					
SIEVE ANALYSIS (GR 1) % PASSING	100.0 mm				
	75.0 mm				
	63.0 mm				
	50.0 mm				
	37.5 mm	100	100		
	28.0 mm	97	99		
	20.0 mm	93	98		
	14.0 mm	89	89		
	5.0 mm	68	70		
	2.0 mm	60	62		
	0.425 mm	50	47		
	0.075 mm	29	33		
GM %		1.6	1.6		
SOIL MORTAR ANALYSIS (SANS 3001-PR5:2011)					
COARSE SAND	2.000 - 0.425	16	25		
COARSE FINE SAND	0.425 - 0.250	8	5		
MEDIUM FINE SAND	0.250 - 0.150	10	7		
FINE FINE SAND	0.150 - 0.075	17	10		
SILT CLAY	0.075	48	53		
ATTERBERG LIMITS ANALYSIS - *(SANS 3001-GR10:2010)					
ATTERBERG LIMITS (%) SANS GR10,GR11	LIQUID LIMIT	24	38		
	PLASTICITY INDEX	8	20		
	LINEAR SHRINKAGE	3.0	6.5		
CLASSIFICATION	H.R.B.	A-2-4(0)	A-2-6(2)		
	COLTO	G8	-		
	TRH 14	G9	-		
CALIFORNIA BEARING RATIO - *(SANS 3001-GR30:2010, SANS 3001-GR40:2010)					
SANS GR30 MAX. DRY DENSITY	OMC %	15.5	13.5		
	MDD (kg/m³)	1723	1868		
	COMP MC %	15.5	13.6		
SWELL % @	MOD | NRB | PRO	0.15 | 0.24 | 0.31	3.42 | 4.45 | 4.76		
C.B.R. SANS GR40	100 %	34	3		
	98 %	26	3		
	97 %	23	2		
	95 %	17	2		
	93 %	13	2		
	90 %	8	1		
STABILISER IN LAB					
TEST TYPE		CBR	CBR		
SAMPLING METHOD		TMH 5	TMH5		
WEATHER WHEN SAMPLED		Warm	Warm		

Deviation from Test Method : Samples & Delivered by Client.
Remarks and Notes : Samples & Delivered by Client.

Opinions and interpretations are not included in our schedule of accreditation. (T0947)
The samples were subjected to analysis according to (SANS)(TMH5)(DOT)(ASTM)
The test results reported relate to the samples tested.
Further use of the above information the responsibility or liability of Roadlab.
Document may only be reproduced of published in their full context.
Report compiled by : Jessica Myburgh

sanas Testing Laboratory
Accreditation No. T0947
Prog.ver 10.7 (2019/11/07)

Elizabeth Roux
Manager

2

Terra Geotechnical

APPENDIX C

C.1
DCP Test Results

Site:	Robertson Fire Station
Test:	DCP 1
Note:	Test performed from below boulder horizon - Starting depth 600 mm

