

Item No	Unit	Quantity	Rate	Amount
<u>BILL No. 1</u>				
<u>PRELIMINARIES AND GENERAL</u>				
<u>PRINCIPAL BUILDING AGREEMENT</u>				
The agreement shall be the Principal Building Agreement prepared and published by the Joint Building Contracts Committee: Edition 6.2 Code 2101, May 2018. (The JBCC® Principal Building Agreement).				
<u>PRELIMINARIES</u>				
The preliminaries shall be the JBCC General Preliminaries (JBCC Edition 6.2 May 2018) published by the JBCC for use with the said JBCC® Principal Building Agreement.				
<u>FULL INTENT AND MEANING OF CLAUSES</u>				
Tenderers shall be deemed to have referred to the aforementioned documents for the full intent and meaning of each clause. These clauses are hereinafter referred to by the heading and clause number only.				
Where standard clauses or alternatives are not entirely applicable to this contract, such modifications, corrections or supplements as are necessary are given under each relevant clause heading and such modifications, corrections or supplements shall take precedence, notwithstanding anything to the contrary contained in the above mentioned documents.				
Where an item is not relevant to this specific contract, such item is marked "NA" signifying "Not applicable".				
<u>PREAMBLES FOR TRADES</u>				
The Model Preambles for Trades (2017 edition) as published by the Association of South African Quantity Surveyors shall be deemed to be incorporated in these Bills of Quantities and no claims arising from brevity of description of items fully described in the said Model Preambles will be entertained.				
Supplementary preambles are incorporated in these Bills of Quantities where necessary to satisfy the requirements of this project. Such supplementary preambles shall take precedence over the provisions of the said Model Preambles.				
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The **contractor's** prices for all items throughout these **Bills of Quantities** must take account of and include for all of the obligations, requirements and specifications given in the said Model Preambles and in any supplementary preambles.

PRICING OF CLAUSES

Tenderers shall allow opposite each clause for any cost involved with complying with such clause. Any clauses left unpriced shall be deemed to be covered by rates and prices elsewhere incorporated throughout these **bills of quantities**.

PAYMENT CATEGORIES

Should "Option A" in terms of subclause D4.0 of the **Contract Data** be used for the adjustment of preliminaries, then each item priced is to be allocated to one or more categories by the insertion of the letter "F", "V" or "T", as the case may be, against the price in the rate column. These letters shall indicate the relevant categories as follows :

- "F" - A fixed amount, which shall not be varied
- "V" - An amount which shall be varied in proportion to the **contract value**
- "T" - An amount which shall be varied in proportion to the **construction period**.

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STRUCTURE OF THIS PRELIMINARIES BILL

Section A - JBCC Principal Building Agreement

Section B - JBCC General Preliminaries

Section C - Specific Preliminaries

Section D - SCM-F-10 - Bid Documents

Section E - Environmental Authorisation

Section F - Final Environmental Management Programme (EMPr)

Section G - Water Use License (attached)

Section H - Permit to pluck protected and unprotected flora

Section I - 23123G-02(0238-RP-Rev0)(Geotech Final Report) (1)

Section J - Local Economic Development requirements (client to confirm)

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SECTION A : JBCC PRINCIPAL BUILDING AGREEMENT

INTERPRETATION

A Definitions and Interpretation.

The following to be added to the definition "Budgetary Allowance" :

BUDGETARY ALLOWANCE: The contractor to submit three (3) quotes for approval for budgetary allowance amounts stipulated in the Bills of Quantities. In addition the contractor to price a fixed mark-up for on all budgetary allowances in the Bills of Quantities which will be added to the approved quote amount:

Add for profit and general attendance ____%

The definition for "Compensatory Interest" is deemed to be amended by the addition of the following:

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A	Law, Regulations and Notices.				
	The following new subclause is hereby added to this clause:				
	<p>2.5 Without limiting the generality of the provisions of clause 2.1 of the agreement, the contractor's attention is drawn to the provisions of the Construction Regulations, 2014 issued in terms of the Occupational Health and Safety Act, 1993. It is specifically stated that the employer shall prepare a documented health and safety specification for the works and that the employer shall ensure that the contractor has made provision for the cost of health and safety measures during the execution of the works. The contractor shall price opposite this item for compliance with the act and the regulations and the reasonable provisions of the aforementioned health and safety specifications.</p> <p>Refer Part C1.1 - Annexure B for the following documents and price against this item to comply with all the requirements in full:</p> <ul style="list-style-type: none"> - SANSA MTJ_Construction Project Baseline Risk Assessment - SANSA MTJ_Construction Project Health and Safety Specifications <p style="text-align: right;">Clause 2.0</p>		Item		
B	Offer and Acceptance.	Clause 3.0		Item	
C	Cession and Assignment.	Clause 4.0		Item	
D	Documents.				
	The following new subclauses are hereby to this clause:				
	<p>5.4 The Bills of Quantities may not be used for ordering purposes.</p> <p>The following new subclauses are hereby to this clause:</p> <p>5.6 All drawings will be issued electronically via portal by consultant to contractor.</p> <p style="text-align: right;">Clause 5.0</p>		Item		
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A	Employer's Agents.		Item		
	Clause 6.0				
B	Design Responsibility.				
	The following new subclauses is hereby added to this clause:				
7.4	Notwithstanding the provisions of 7.2, the contractor				
	shall ensure that every such domestic or nominated or				
	selected subcontractor shall simultaneously with the				
	signing of the relevant domestic or nominated or				
	selected subcontract sign and deliver to the employer				
	a Design Materials and Workmanship Warranty and				
	Undertaking in favour of the employer or a Materials				
	and Workmanship Undertaking strictly in accordance				
	with the instructions or provisions contained in the				
	tender documents for the domestic or nominated or				
	selected subcontract works .				
	The following portions of work will require design				
	responsibility from the contractor :				
	1. Aluminium Installation: Shopfronts / Doors / Windows				
	2. Balustrades				
	3. Fences and Gates				
	4. Architectural Metalwork				
	5. Joinery Fittings				
	Refer Part C1.1 - Annexure C for the Design				
	Indemnity Form documents and price against this				
	item to comply with all the requirements in full:				
	Clause 7.0		Item		

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<u>INSURANCE AND SECURITY</u>			
Work Risk.	Clause 8.0	Item	
Indemnities.	Clause 9.0	Item	
Insurances.	Clause 10.0	Item	
Security.			
Clause 11.5 is hereby deleted in it's entirety. The Employer shall not provide a payment guarantee.			
The following new subclause is hereby added to this clause:			
11.11 The contractor shall only provide security issued by a registered bank approved by the employer	Clause 11.0	Item	
<u>EXECUTION</u>			
Obligations of the Parties.	Clause 12.0	Item	
Setting Out.			
The following new subclause is hereby added to this clause:			
13.3 The contractor shall notify the principal agent if any encroachments of adjoining foundations, buildings, structures, pavements, boundaries, etc. exist in order that the necessary arrangements may be made for the rectification of any such encroachments.			
13.4 The contractor shall ensure the setting out is done by a registered surveyor, proof of which shall be issued to the principal agent	Clause 13.0	Item	
			</

A	<p>Nominated Subcontractors.</p> <p>Clause 14.0 is deemed to be amended by the addition of the following:</p> <p>14.9 Notwithstanding the provision of the contractors general attendance in accordance with the n/s agreement, general attendance shall be deemed to include for the contractor to provide free of charge to any n/s subcontractor erected scaffolding, including special scaffolding, mobile scaffolds and all façade scaffolding by the contractor (owned or hired) as may reasonably be required by such n/s subcontractor for the execution of the relevant subcontract works</p> <p style="text-align: right;">Clause 14.0</p>				
			Item		
B	<p>Selected Subcontractors.</p> <p>Clause 15.0 is deemed to be amended by the addition of the following:</p> <p>15.9 Notwithstanding the provision of the contractors general attendance in accordance with the n/s agreement, general attendance shall be deemed to include for the contractor to provide free of charge to any n/s subcontractor erected scaffolding, including special scaffolding, mobile scaffolds and all façade scaffolding by the contractor (owned or hired) as may reasonably be required by such n/s subcontractor for the execution of the relevant subcontract works</p> <p style="text-align: right;">Clause 15.0</p>				
			Item		
C	<p>Direct Contractors.</p> <p>16.4 The contractor will be liable to accommodate any direct contractors should practical completion, as per contract data, not be reached due to no fault of the employer</p> <p>The contractor to provide direct contractors with scaffolding, water and electricity, office and storage space.</p> <p><u>Direct Contractor # 1:</u></p> <p>Name of contractor: NASA Contractors' role: Tenant at MTG Ground Station under contract with SANSA Scope of works description: Oversight of NASA contractors and coordination with SANSA for interim building / site</p>				

inspections and final life safety and security review of completed facility.
Works to be executed: Periodic inspections of building progress; final inspection of completed site/building in accordance with NASA Facility Requirements Document (FRD) and NASA Authority Having Jurisdiction (AHJ) and NASA Security Officer
Duration (months contractor will require access): Duration of construction contract
Any other information: drawings of works to be done if available:

Direct Contractor # 2

Name of contractor: Peraton
Contractors' role: NASA Prime Contractor for NASA equipment installation, integration and testing.
Scope of works description: Responsible for integration, testing, and oversight of NASA technical equipment installation including tie into SANSA provided infrastructure, provided under SANSA facility contract.
Works to be executed: Pre-coordination during SANSA construction efforts, electrical and site coordination of potential concurrent work including outfitting of NASA equipment and operation rooms, telecommunication equipment racks and NASA LAN fibre networks. Participation in antenna testing and acceptance. Coordination with NASA for final inspections and approvals.
Duration (months contractor will require access): End of construction contract. Timeframe to be coordinated with SANSA and NASA AHJ and Security Officer. Do not anticipate a lot of overlap of NASA contractors and SANSA building contractors.
Any other information: drawings of works to be done if available: None at this time. Coordination/interface drawings will be developed during SANSA construction phase and interface coordinated with SANSA.

Direct Contractor # 3

Name of contractor: CPI Communication and Power Industries
– Not currently under contract for site work
Contractors' role: Antenna vendor – Subcontractor to Peraton
Scope of works description: Antenna site preparation, antenna installation and final testing
Works to be executed: antenna foundation, power and fibre connections to common site interface, final grading, antenna installation and testing/acceptance.
Duration (months contractor will require access):
Antenna currently expected to arrive November '26;
Antenna site work takes around 6 months and will precede antenna arrival – assume CPI mobilizes May '26;
Antenna installation takes 3 months – Nov '26 – Feb '27
Antenna test takes 2 months – Feb '27 to April '27
CPI demobilizes and SANSA fence contractor comes in to

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make final secure of the site
Any other information: drawings of works to be done if available: Drawings will be made available when ready.
Interface drawings to be coordinated with SANSA and SANSA's contractor(s).

Direct Contractor # 4:

Name of contractor: TBC
Contractors' role: ICT contractor to SANSA
Scope of works description: Oversight of SANSA ICT data installation.
Duration (months contractor will require access): During construction they will require to have access to site to inspect the works, and post completion will require access to building to do ICT data cabling after PC.
Any other information: drawings of works to be done if available: None at this stage.

Direct Contractor # 5:

Name of contractor: SANREN
Contractors' role: Laying of Micro ducts and fibre
Scope of works description: Oversight on behalf of SANSA as part of laying the micro ducts and fibre from the N1 to the main admin building.
Duration (months contractor will require access): During construction period of the civil road works from the N1 to the main admin building.
Any other information: drawings of works to be done if available: None at this stage

Direct Contractor # 6:

Name of contractor: TBC
Contractors' role: Construction of the Energy centre
Scope of works description: Oversight on behalf of SANSA for the development of an energy centre which will constitute of the Eskom substation, DC/Battery Plant, PV Plant, Generators and MV/LV Plantroom.
Duration (months contractor will require access): During construction period of the project.
Any other information: drawings of works to be done if available: None at this stage

Clause 16.0

Item

A Contract Instructions.

Clause 17.0

Item

COMPLETION

B Interim Completion

Clause 18.0

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A	<p>Practical completion.</p> <p>The following note is hereby added to this clause:</p> <p>The principal agent shall ensure that at practical completion minimal lists defining incomplete works and defects will be apparent and that the contractor has satisfactorily achieved this level of completion as indicated by the principal agent</p> <p>All handover certificates, manuals and other required documents shall be in place.</p> <p>In the event whereby the contractor fails to rectify snags after a second inspection The principal agent may recover the services from the consultant from the contractor as per professional bodies approved hourly rates.</p> <p style="text-align: right;">Clause 19.0</p>				
B	Completion in Sections.		Item		
C	<p>The following new subclause 20.3 is added to this clause:</p> <p><u>Practical completion to Section 1: External/Site Wide Civil works (inclusive of road network, & water, sewer, stormwater reticulation) will be defined as the following:</u></p> <p>The following shall be fully finished as per the architects and engineering drawings, requirement, specifications and manufacturers specification by the date stated in Contract Data.</p> <p>Unrestricted access from the town of Matjiesfontein to all three (3) buildings and antenna location including but not limited to: new civils infrastructure including a new gravel road network and water, sewer, and stormwater reticulation is required for completion of Section 01.</p>		Item		
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A	<p>Revision of the date for practical completion.</p> <p>A new subclause 23.1A shall be inserted after clause 23.1 as follows:</p> <p>23.1A For purposes of clause 23.1, it is agreed as follow:</p> <p>23.1A.1 The contractor shall make provision for Twenty (20) working days during the contract period for any such delays caused by one or more of the clauses as listed under 23.1.1 to 23.1.6.</p> <p>23.1A.2 The contractor becomes entitled to a revision of the date for practical completion in accordance with clause 23.1 only once the accumulated working days granted are greater than twenty (20) working days over the contract period.</p> <p style="text-align: right;">Clause 23.0</p>				
B	<p>Penalty for Late or Non-Completion.</p> <p style="text-align: right;">Clause 24.0</p>		Item		
	<p><u>PAYMENT</u></p>				
C	<p>Payment.</p> <p>Notwithstanding this or any other clause, materials and goods stored off site shall <u>not</u> be included in the amount authorised for payment.</p> <p style="text-align: right;">Clause 25.0</p>		Item		
D	<p>Adjustment of the Contract Value and Final Account.</p> <p>Notwithstanding the provisions of subclause 26.9.5 or any other clause, all fluctuations in costs shall be for the account of the contractor.</p> <p>The following new subclause 26.14 is added to this clause:</p> <p>Where prices are submitted by the contractor or n/s subcontractor during the progress of the works in respect of contract instructions or in regard to a claim under the terms of the contract and notwithstanding the fact that such prices may be used in an interim payment certificate, there is to be no presumption of acceptance. Should the principal agent wish to accept any such prices prior to the issue of the final payment certificate, it shall be in writing.</p> <p style="text-align: right;">Clause 26.0</p>		Item		
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A	Recovery of Expense and/or Loss.	Clause 27.0	Item
<u>SUSPENSION AND TERMINATION</u>			
B	Suspension by the Contractor.	Clause 28.0	Item
C	Termination.	Clause 29.0	Item
<u>DISPUTE RESOLUTION</u>			
D	Dispute Resolution.	Clause 30.0	Item
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SECTION B: JBCC GENERAL PRELIMINARIES

1.0 DEFINITIONS AND INTERPRETATION

A	Definitions.	Clause 1.1	Item
B	Interpretation.	Clause 1.2	Item

2.0 DOCUMENTS

C	Checking of documents.	Clause 2.1	Item
D	Provisional bills of quantities.	Clause 2.2	Item
E	Availability of construction documentation. The budgetary allowances and selected subcontract amounts allocated for subsequent trades included in this document will be separately procured, based on multiple procurement of selected subcontractors during the construction period .	Clause 2.3	Item
F	Ordering of materials and good.	Clause 2.4	Item

3.0 PREVIOUS WORK AND ADJOINING PROPERTIES:

G	Previous work - dimensional accuracy.	Clause 3.1	Item
H	Previous work - defects .	Clause 3.2	Item
J	Inspection of adjoining properties.	Clause 3.3	Item

4.0 THE SITE

K	Handover of site in stages.	Clause 4.1	Item
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A	Enclosure of the works.	Clause 4.2	Item		
B	Geotechnical and other investigations.	Clause 4.3	Item		
C	Enroachments.	Clause 4.4	Item		
D	Existing premises occupied.	Clause 4.5	Item		
E	Services - known.	Clause 4.6	Item		
<u>5.0 MANAGEMENT OF THE CONTRACT</u>					
F	Management of the works.	Clause 5.1	Item		
G	Progress meetings.	Clause 5.2	Item		
H	Technical meetings.	Clause 5.3	Item		
<u>6.0 SAMPLES, SHOP DRAWINGS AND MANUFACTURER'S INSTRUCTIONS</u>					
J	Samples of materials.				
	Clause 6.1 is hereby amended by the addition of the following:				
	The principal agent may reject any materials or colours not corresponding with the approved samples. The approved samples shall be kept on site until completion of the works .				
	Should any materials or items specified prove to be either unavailable, in poor supply or likely to cause delay to the works , the contractor shall notify the principal agent in sufficient time for suitable alternatives to be considered. Any claims for delays resulting from the contractor not conforming with the terms of this clause will not be entertained or allowed.				
	Clause 6.1		Item		
K	Workmanship samples.	Clause 6.2	Item		
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8.0 TEMPORARY SERVICES

A	<p>Water.</p> <p>Clause 8.1 is hereby amended by the addition of the following:</p> <p>The site will have no permanent water connection from the date of site handover. The contractor must make adequate provisions to supply all water required for construction activities, including commissioning, as well as potable water for hydration and hygienic purposes to all personal on site. This responsibility shall remain with the contractor for the duration of the project.</p> <p>No delays will be entertained due to unplanned water outages. The contractor to actively plan around these type of eventualities.</p> <p>The employer has applied for a permanent water connection to the site boundary from the local municipality. Once the permanent water connection is in place this pricing item will be reviewed.</p> <p>All Direct Contractors, as listed under clause 16.4, will be required to utilize the temporary water services provided by the contractor until the last practical completion date of the project without addition cost to the project.</p> <p style="text-align: right;">Clause 8.1</p>	Item	
B	<p>Electricity.</p> <p>Clause 8.2 is hereby amended by the addition of the following:</p> <p>The site will have no permanent power connection from the date of site handover. The contractor must make adequate provisions to supply temporary power and electricity required for all construction activities, including commissioning. This responsibility shall remain with the contractor for the duration of the project.</p> <p>No delays will be entertained due to unplanned power outages or events such as load shedding. The contractor to actively plan around these type of eventualities.</p> <p>All Direct Contractors, as listed under clause 16.4, will be required to utilize the temporary electrical services provided by the contractor until the last practical completion date of the project without addition cost to the project.</p> <p style="text-align: right;">Clause 8.2</p>	Item	
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SECTION C : SPECIFIC PRELIMINARIES

SUPPLEMENTARY DOCUMENTATION

A As-built drawings.

The position of construction breaks and the extent of individual concrete pours are to be recorded by the **contractor** on the structural engineer's drawings and are to be submitted to the **principal agent** and the structural engineer for their records.

Item

B **Site instructions.**

Contract instructions issued on site are to be recorded in triplicate in an instruction book which is to be maintained on site by the **contractor** and cost shall be agreed with project Quantity Surveyor

Item

MATERIALS AND WORKMANSHIP

Testing of windows to ensure watertightness

C As the windows are fixed they shall be glazed and prepared so that each window can be tested for watertightness with water sprayed on by means of a 20mm hosepipe using adequate pressure. If the pressure proves to be inadequate, in the opinion of the **principal agent**, then the pressure in the hosepipe shall be boosted by means of compressed air or other approved means. Each window section shall be tested under the supervision of the **principal agent** and approved before final acceptance of the fenestration.

Item

Testing of flat roof waterproofing to ensure watertightness

D As waterproofing is completed, areas shall be prepared with small sand dykes around them of a size and enclosing an area approved by the **principal agent**, flooded with water and kept "ponded" for at least 36 hours as a test to ensure the watertightness of the waterproofing concerned before any further construction work is carried out above the waterproofing.

Item

Warranties for materials and workmanship

E The **contractor** shall obtain written warranties where called for, addressed to the **employer**, from the firms supplying the materials or doing the work and deliver such guarantees to the **principal agent** on the certified completion of the **contract**.

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A	<p>The warranties shall state that workmanship, materials and installation are guaranteed for a specified period reckoned from the date of certified completion of the works and that any defects in the workmanship, materials and installation that may arise during that period shall be made good at the expense of the firm doing the work upon written notice from the principal agent or the employer to do so.</p>		Item		
	<p><u>FINANCIAL ASPECTS</u></p> <p><u>Overtime</u></p>				
B	<p>The additional costs of overtime work shall not be for the employer's account except when prior written agreement thereto is given by the principal agent.</p> <p><u>GENERAL</u></p> <p><u>Agreement</u></p>		Item		
C	<p>The contractor will allow for all costs deemed to be incurred in the fulfilment of all contractual obligations as stated in the JBCC Principal Building Agreement Contract Data.</p> <p><u>Contractor to be responsible</u></p>		Item		
D	<p>The contractor acknowledges that the principal objective of his appointment is his expert knowledge in the execution of the scope of work of this contract. The contractor shall therefore be solely responsible for all aspects of the construction of the works including but not limited to management, resourcing, programming, co-ordination, etc. all as required for the type of project described within the time limits and quality standards specified.</p> <p><u>Unauthorised persons on site</u></p>		Item		
E	<p>The contractor shall at all times strictly exclude all unauthorised persons from the works. No workmen are to be allowed to sleep on the premises.</p> <p>The principal agent to be made aware of any incidence by where unauthorised persons tried to enter the site or any such security breaches</p>		Item		
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<u>Use of site</u>					
A	The contractor shall not use the site for any purposes other than carrying out the works .	Item			
<u>Contractors site offices</u>					
B	The contractor is required to provide a site office in accordance with the minimum requirements as outlined in "Part C1.3.7 : Annexure F - Proposed Site Office Facilities". The site office must include a suitable facility for holding regular site meetings, adequately furnished and equipped to accommodate project stakeholders. All costs associated with establishing, maintaining, and operating this site office shall be included in the contractor's pricing. Price against this item comply with all the requirements in full	Item			
<u>Printer/Plotter on site</u>					
C	The contractors is to price against this item for the incorporation of the following requirements for printing / plotting drawings on site: "BIM360" or similar approved is the document control system used on this project and once any drawing/specification/contract instruction/etc are uploaded it is deemed issued. No hard copies of technical detail/construction drawings will be issued other than the drawings issued at the site handover meeting as listed in the contract data. The contractor is to make his own arrangements to print/plot electronically issued drawings, including colour copies, for construction purposes.	Item			
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Co-ordination

A The **contractor** shall be solely responsible for the co-ordination of all subcontracts, whether nominated or otherwise, into the general programme of work. He shall be required to convene meetings with subcontractors and suppliers as and when required for this purpose and must keep under constant review his own and all sub-contract labour force and supply of materials and equipment in order to adhere to the building programme.

The **contractor** is to submit a schedule of information required to all parties concerned, giving dates upon which such information and details are required on site.

Timeous advance notice is to be given by the **contractor** of information or drawings which are required on site.

The **principal agent** reserves the right to attend meetings between main contractor and subcontractors and/or suppliers.

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SECTION D : SCM-F-10 - BID DOCUMENTS

A The contractor is referred to refer to the Bid Document (SCM-F-10) forming part of this tender document, and price against this item comply with all the requirements in full

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SECTION E : ENVIRONMENTAL AUTHORISATION

- A The contractor need to refer to the Environmental Authorisation included as per "Part C1.3.4 : Annexure D - Environmental " of this tender document, and price against this item comply with all the requirements in full

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SECTION F : CONSTRUCTION ENVIRONMENTAL MANAGEMENT PROGRAMME (CEMP)

A Construction Environmental Management Programme (CEMP)

The CEMP - Construction Environmental Management Programme (refer Part C1.3.4 : Annexure D - Environmental) to guide and manage contractor and their the construction activities according to the project specific requirements.

The Contractor and all Sub-Contractors are contractually required to adhere to the CEMP.

The contractor and subcontractors are required to submit a Environmental Method Statements (EMS) for specific activities, as stipulated in the CEMP, to the ECO and the ESM for approval 20 days prior to the commencement of the activity (Annexure 1 of the CEMP). As a guide the following list is indicative (but not exhaustive) of the main activities requiring a MS:

- Construction procedures,
- Materials and equipment to be used,
- Transporting the equipment to and from site,
- How the equipment/ material will be moved while on site,
- How and where material will be stored,
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur,
- Timing and location of activities,
- Compliance/ non-compliance with the Specifications, and
- Any other information deemed necessary by the Engineer.

The contractor shall price for full compliance of the Construction Environmental Management Programme under this item provided in the bills of quantities and no additional cost will be entertained for compliance measures in addition to priced item. The contractor to actively plan around these type of eventualities

Dust Control

Refer to "*Part C1.3.4 Annexure D – Enviromental*" of the tender document.

The contractors attention is drawn to clause 5.2.16. Dust Control of the SANSA Draft EMPr Client Review 21 Oct. The contractor shall price for dust control under the item provided in the bills of quantities and no additional cost will be entertained for dust control measures in addition to priced item. The contractor to actively plan around these type of eventualities

Carried to Collection

Bill No. 1

Preliminaries

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

Item

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SECTION G : WATER USE LICENSE

- A The contractor need to refer to the Water Use License included as per "Part C1.3.4 : Annexure D - Environmental " of this tender document, and price against this item comply with all the requirements in full

Item

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Bill No. 1
Preliminaries
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
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SECTION H : PERMIT TO PLUCK PROTECTED AND UNPROTECTED FLORA

- A The contractor need to refer to the Permit to pluck protected an unprotected flora included as per "Part C1.3.4 : Annexure D - Environmental " of this tender document, and price against this item comply with all the requirements in full

Item

Carried to Collection

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Bill No. 1

Preliminaries

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
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SECTION I : GEOTECHNICAL REPORT

A The contractor need to refer to the Geotech Final Report [23123G-02(0238-RP-Rev0)] included as per "Part C1.3.4 : Annexure E - Geotech " of this tender document, and price against this item comply with all the requirements in full

Item

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Bill No. 1

Preliminaries

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

Item No	Quantity	Rate	Amount
<u>BILL No. 2</u>			
<u>EARTHWORKS</u>			
<p><u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades 2017 before pricing this bill</p>			
<u>SUPPLEMENTARY PREAMBLES</u>			
<u>Nature of the ground</u>			
<p>A geotechnical investigation has been carried out on the site by the engineer refer to "<i>Part C1.3.5 Annexure E – Geotechnical Survey</i>" of the tender document.</p> <p>All classes of excavations in accordance with South African National Standards (1990) SANS 1200 D: Earthworks and Table 4-4, Classes of Excavation according to SANS 1200D, of the <i>Geotechnical Survey</i></p>			
Carried to Collection			R
Bill No. 2 Earthworks SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES			

The Tenderer shall acquaint himself by personal examination of the nature of the ground. Descriptions of excavations shall be deemed to include all ground conditions classifiable as "earth or soft excavations" and where conditions of a more difficult character are indicated these are separately measured.

"Earth or soft excavations" shall mean all excavation in material that can be efficiently removed by a back-acting excavator of flywheel power approximately 0.10 kW per millimetre of tined-bucket width, without the use of pneumatic tools such as paving breakers for restricted excavation (e.g. trenching), and for unrestricted excavation in accordance with SANS 1200 D: Earthworks, Classes of Excavation, and shall include the following ground conditions descriptions:

- § Loose, SAND and GRAVEL
- § Loose to medium dense, SAND and GRAVEL
- § Medium dense, SAND and GRAVEL
- § Medium dense to dense, GRAVEL
- § Completely weathered, very soft rock, TILLITE
- § Highly weathered, soft rock, TILLITE

"Intermediate Excavation" shall mean all excavation in material that requires a back-acting excavator of flywheel power exceeding 0.10 kW per millimetre of tined-bucket width or the use of pneumatic tools before removal by equipment equivalent to that specified for soft excavation for restricted excavation (e.g. trenching), and for unrestricted excavation in accordance with SANS 1200 D: Earthworks, Classes of Excavation, and shall include the following ground conditions descriptions:

- § Moderately weathered, medium hard rock, TILLITE §

"Hard Excavation" shall mean hard rock excavation and shall be excavation in material (excluding boulder excavation) that cannot be efficiently removed without blasting or wedging and splitting for restricted excavation (e.g. trenching), and for unrestricted excavation in accordance with SANS 1200 D: Earthworks, Classes of Excavation.

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Bill No. 2

Earthworks

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
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Subterranean water

The contractors attention is drawn to the geotechnical investigation. The contractor shall price for dewatering of subterranean water under the item provided in the bills of quantities and no additional cost will be entertained for removal of additional subterranean water in addition to priced item. The contractor to actively plan around these type of eventualities

Bulking

No allowance is made in the measurements below for bulking

Filling

Notwithstanding the reference to prescribed multiple handling in clause 1 page 6 of the Standard System of Measuring Building Work, prices for filling and backfilling shall include for all selection and any necessary multiple handling of material

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 and carting away to a designated area within the site boundary, including spreading of the material as per the Civil Engineer's requirements

Testing

Prices for filling are to include for all necessary density tests in accordance with SANS 1200D

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Bill No. 2

Earthworks

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

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<u>EXCAVATION, FILLING, ETC OTHER THAN BULK</u>					
<u>Excavation in earth not exceeding 2m deep</u>					
A	Trenches	m3	1 206		
B	Holes	m3	273		
<u>Extra over excavations for excavations in</u>					
C	Intermediate excavation	m3	367		
D	Hard rock excavation	m3	71		
<u>Back excavation of vertical sides of excavation in earth for working space including backfilling with backfilling supplied by the contractor compacted in 250mm layers to 96% (100% for sand) Mod AASHTO density</u>					
E	Exceeding 500mm and not exceeding 1 500mm deep for placing and removing formwork to bases, foundation beams, etc against excavated face	m2	2 527		
F	Exceeding 1 500mm and not exceeding 3 000mm deep for placing and removing formwork to bases, foundation beams, etc against excavated face	m2	115		
<u>Extra over back excavation in earth for working space for excavation in "intermediate excavations"</u>					
G	Exceeding 500mm and not exceeding 1 500mm deep for placing and removing formwork to strip footings, foundations beams, bases, etc against excavated face	m2	632		
H	Exceeding 1 500mm and not exceeding 3 000mm deep for placing and removing formwork to bases, foundation beams, etc against excavated face	m2	29		
<u>Extra over back excavation in earth for working space for excavation in "hard excavations"</u>					
J	Exceeding 500mm and not exceeding 1 500mm deep for placing and removing formwork to strip footings, foundations beams, bases, etc against excavated face	m2	127		
K	Exceeding 1 500mm and not exceeding 3 000mm deep for placing and removing formwork to bases, foundation beams, etc against excavated face	m2	22		
Carried to Collection				R	
Bill No. 2					
Earthworks					
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein					
PROVISIONAL BILLS OF QUANTITIES					

FILLING, ETC

Earth filling obtained from the excavations and/or prescribed stock piles on site compacted in 250mm layers to 96% Mod AASHTO density or 100% Mod AASHTO density for sand

A	Backfilling to trenches, holes, etc	m3	698
B	Under floors, steps, pavings, etc	m3	384
<u>Sub-base filling supplied by the contractor under surface bed</u>			
C	Subbase course of G7 material in accordance with SABS 1200 DM, compacted in layers not exceeding 150mm to 97% Mod AASHTO density	m3	311
D	Subbase course of G5 material in accordance with SABS 1200 DM, compacted in layers not exceeding 150mm to 98% Mod AASHTO density	m3	114
E	Subbase course of G5 material in accordance with SABS 1200 DM, compacted in layers not exceeding 150mm to 98% Mod AASHTO density to received polished concrete surface bed (elsewhere measured) including plate testing and all in accordance with the flooring specialist requirements	m3	98
<u>Compaction of surfaces</u>			
F	Compaction of excavated ground surface under floors etc, including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to a CBR of 15 at 95% Mod AASHTO density	m2	2 563

Carried to Collection

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Bill No. 2

Earthworks

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

Item No	Unit	Quantity	Rate	Amount
<u>BILL No. 3</u>				
<u>CONCRETE, FORMWORK AND REINFORCEMENT</u>				
<p><u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades 2017 before pricing this bill</p>				
<u>SUPPLEMENTARY PREAMBLES</u>				
<p>Refer to '<i>Part C1.4: Drawings</i>' of the tender document for specifications and requirements of the reinforced concrete, etc.</p>				
<u>Cost of tests</u>				
<p>The costs of making, storing and testing of concrete test cubes as required under Clause 7 "Tests" of SABS 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 Engineer. The testing shall be undertaken by an independent firm or institution nominated by the Contractor to the approval of the Engineer (Test cubes are measured separately).</p>				
<u>Formwork</u>				
<p>Descriptions 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.</p>				
Carried to Collection				
Bill No. 3 Concrete, Formwork and Reinforcement SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES				

Formwork to soffits of solid slabs, etc shall be deemed to be to slabs not exceeding 250mm thick unless otherwise described.

Formwork has been measured to the sides of all reinforced concrete in foundations and will be remeasured according to actual usage. However, 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".

Concrete waterproofing specification

Where concrete is specified as concrete with "Penetron Admix":

"Penetron" or similar approved is to added to the reinforced concrete at dosage rate of 3kg/m³ concrete. Final design mix to be submitted by Ready Mix supplier for approval

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Bill No. 3

Concrete, Formwork and Reinforcement

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

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UNREINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES

15MPa/19mm concrete

A	Surface blinding under footings and bases	m3	69
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30MPa/19mm concrete

B	Surface beds cast in panels on waterproofing	m3	327
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30MPa/13mm (at a course aggregate volume of 420 litres/m3) strength concrete

C	Surface beds cast in panels on waterproofing (surface bed prepared and placed by the specialist flooring contractor undertaking the 7-Stage Concrete Grinding and Polishing on specified floors) all in accordance with the engineers requirements	m3	98
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UNREINFORCED CONCRETE

15MPa/13mm concrete

D	Filling to cavity of hollow walls	m3	50
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Concrete, Formwork and Reinforcement
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
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<u>REINFORCED CONCRETE</u>					
A	Strip footings	m3	324		
B	Bases	m3	153		
<u>REINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES</u>					
<u>30MPa/19mm strength concrete with "Penetron Admix" waterproofing additive as per manufactures specification</u>					
C	Walls in foundation	m3	81		
<u>30MPa/19mm concrete</u>					
D	Slabs including beams and inverted beams	m3	27		
E	Isolated beams	m3	80		
F	Stairs including landings, beams and inverted beams	m3	2		
G	Walls	m3	233		
H	Columns in foundations	m3	10		
J	Columns	m3	45		
<u>TEST BLOCKS</u>					
<u>Test blocks</u>					
K	Making and testing set of three 150 x 150 x 150mm concrete strength test cubes	No	109		
Carried to Collection				R	
Bill No. 3					
Concrete, Formwork and Reinforcement					
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein					
PROVISIONAL BILLS OF QUANTITIES					

FORMWORK

ROUGH FORMWORK (DEGREE OF ACCURACY III)

Rough formwork to sides

A	Bases	m2	363
B	Strip foundations	m2	612
C	Rectangular columns in foundations	m2	126
D	Edges of surface bed panels, ramps, etc not exceeding 300mm high or wide	m	151
E	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	95

Carried to Collection

Bill No. 3
Concrete, Formwork and Reinforcement
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<u>ROUGH FORMWORK (DEGREE OF ACCURACY II)</u>					
<u>Rough formwork to sides</u>					
A	Rectangular columns with total height not exceeding 3 500mm above bearing level	m2	228		
B	Rectangular columns with total height exceeding 3 500mm and not exceeding 5 000mm above bearing level	m2	195		
C	Rectangular columns with total height exceeding 5 000mm and not exceeding 6 500mm above bearing level	m2	152		
D	Rectangular columns with total height exceeding 6 500mm and not exceeding 8 000mm above bearing level	m2	74		
E	Upstand beams	m2	41		
F	Upstand beams over concrete	m2	41		
G	Sloping and stepped outer edges of stairs 300mm high extreme	m	9		
<u>Rough formwork to soffits</u>					
H	Stairs with sloping soffits	m2	7		
J	Slabs propped up not exceeding 3 500mm high	m2	63		
K	Slabs propped up exceeding 6 500mm not exceeding 8 000m high	m2	10		
<u>Boxing out rough formwork to form</u>					
L	15 x 15mm Vertical chamfer at corners	m	3 726		
Carried to Collection				R	
Bill No. 3 Concrete, Formwork and Reinforcement SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES					

SMOOTH FORMWORK (DEGREE OF ACCURACY II)

Smooth formwork to sides

A	Isolated beams	m2	635
B	Walls with total height not exceeding 3 500mm high above bearing level	m2	764
C	Walls with total height exceeding 3 500mm and not exceeding 5 000mm high above bearing level	m2	241
D	Walls with total height exceeding 5 000mm and not exceeding 6 500mm high above bearing level	m2	351
E	Walls slanted at 71deg with total height not exceeding 3 500mm high above bearing level	m2	280
F	Walls slanted at 71deg with total height exceeding 3 500mm and not exceeding 5 000mm high above bearing level	m2	186
G	Walls slanted at 71deg with total height exceeding 5 000mm and not exceeding 6 500mm high above bearing level	m2	10

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Bill No. 3
Concrete, Formwork and Reinforcement
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Smooth formwork to sides and soffits

A Sloping isolated beams (illustration below for more detail)



m2 49

Smooth formwork to soffits

B Isolated beams propped up not exceeding 3 500mm high

m2 147

C Isolated beams propped up exceeding 5 000mm not exceeding 6 500mm high

m2 2

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Bill No. 3

Concrete, Formwork and Reinforcement

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

MOVEMENT JOINTS, ETC

Expansion joints with "Sondor Jointex" or similar approved between horizontal concrete surfaces

A	10mm Joints not exceeding 300mm high	m	236
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Expansion joints with "Sondor Jointex" or similar approved between vertical concrete and brick surfaces

B	10mm Joints not exceeding 300mm wide	m	1 199
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Expansion joints with "Flexcell" or similar approved impregnated fibreboard between vertical concrete surfaces

C	10mm Joints not exceeding 300mm high	m	1 357
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Saw cut joints in two operations including Pu seal (Pu seal elsewhere measured)

D	6 x 50mm Saw cut joints in top of concrete	m	932
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Carried to Collection

Bill No. 3

Concrete, Formwork and Reinforcement

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
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REINFORCEMENT

Mild / High tensile steel reinforcement to structural concrete work

A	8 - 32mm Diameter bars	to	97.763	
<u>Fabric reinforcement</u>				
B	Type 245 fabric reinforcement in concrete surface beds etc.	m2	26	
C	Type 617 fabric reinforcement in concrete surface beds etc.	m2	567	

Carried to Collection

Bill No. 3
Concrete, Formwork and Reinforcement
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
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Item No		Unit	Quantity	Rate	Amount
	<u>BILL No. 4</u>				
	<u>MASONRY</u>				
	<u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades 2017 before pricing this bill				
	<u>SUPPLEMENTARY PREAMBLES</u>				
	<u>BRICKWORK</u>				
	<u>Sizes in descriptions</u>				
	Where sizes in descriptions are given in brick units, "one brick" shall represent the length and "half brick" the width of a brick				
	<u>Hollow walls, etc</u>				
	Descriptions of hollow walls shall be deemed to include leaving every fifth perpend of the bottom course of the external skin open as a weep hole				
	Walls in two skins described as "bagged and sealed" shall be deemed to include having the outer face of the inner skin bagged with 1:6 cement and sand mixture and sealed with two coats "Brixal" bitumen emulsion waterproof coating				
	Galvanized butterfly ties complying with SANS 28 or approved polypropylene ties shall be built into cavity walls (with cavities not wider than 50mm) at a rate of 4 ties per m ² minimum				
	<u>Pointing</u>				
	Descriptions of recessed pointing to fair face brickwork and face brickwork shall be deemed to include square recessed, hollow recessed, weathered pointing, etc				
	<u>Samples</u>				
	Samples of all masonry building units, except those for walls described as "load bearing", shall consist of a minimum of six units. Samples of building units to be used in walls described as "load bearing" shall consist of thirty units from every thirty thousand units delivered to site				
	Carried to Collection			R	
	Bill No. 4 Masonry SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES				

Bagged brick finish

Bagged brickwork shall be of the mortar as described rubbed onto wall 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

BLOCKWORK

Concrete masonry units

Blocks are to be either solid or hollow modular dense concrete masonry units having a compressive strength of 7MPa

Wall ties for blockwork

Wall ties shall be polypropylene ties complying with BS 76377. Ties for hollow walls shall be of sufficient length to allow not less than 75mm of each end to be built into the blockwork. Ties are to 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

Blockwork

Blockwork shall comply with SANS 10145 "Concrete Masonry Construction"

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 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

Carried to Collection

Bill No. 4

Masonry

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

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BRICKWORK IN FOUNDATIONS

Brickwork of clay "Maxi" bricks (14 MPa nominal compressive strength) in Class II mortar

A	280mm Hollow walls in foundations of two half brick skins including wire ties and concrete filling (concrete elsewhere measured)	m2	40
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Brickwork of clay "NFX" bricks (14 MPa nominal compressive strength) in Class II mortar

B	One brick walls in foundations	m2	383
C	280mm Hollow walls of two half brick skins including wire ties, etc (concrete measured elsewhere)	m2	334
D	330mm Hollow walls of two half brick skins including wire ties, etc. (concrete measured elsewhere)	m2	233

BRICKWORK IN SUPERSTRUCTURE

Brickwork of clay "Maxi" bricks (7 MPa nominal compressive strength) in Class II mortar

E	Half brick walls	m2	46
F	One brick walls	m2	27
G	280mm Hollow walls of two half brick skins including wire ties	m2	155

Brickwork of clay "NFP" bricks (7 MPa nominal compressive strength) in Class II mortar

H	Half brick walls	m2	238
J	One brick walls	m2	1 261
K	280mm Hollow walls of two half brick skins including wire ties	m2	1 436
L	330mm Hollow walls of two half brick skins including wire ties	m2	672
M	90mm Cut linings to concrete	m2	143

Carried to Collection

Bill No. 4

Masonry

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

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Item No	Unit	Quantity	Rate	Amount
<u>BILL No. 5</u>				
<u>WATERPROOFING</u>				
<u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades 2017 before pricing this bill				
<u>SUPPLEMENTARY PREAMBLES</u>				
<u>Guarantee</u>				
Waterproofing of roofs, basements, etc shall be laid under a ten year guarantee. Waterproofing to roofs 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				
<u>DAMPPROOFING OF WALLS AND FLOORS</u>				
<u>One layer 250 micron green polyethylene waterproof sheeting (SANS 952-1985 type C) sealed at laps with PVC self-adhesive tape</u>				
A Under surface beds	m2	3 075		
B On floors	m2	60		
<u>One layer 375 micron embossed polyethylene dampproof course (SANS 952-1985).</u>				
C In walls	m2	941		
Carried to Collection				R
Bill No. 5 Waterproofing SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES				

<u>WATERPROOFING TO ROOFS, BASEMENTS, ETC</u>					
	<u>Prime with one coat bitumen primer and fully bonded waterproof membrane comprising two bitumen layers reinforced with woven spunbonded polyester fabric and coated with polyethelene film for heat bonding, laid with 100mm side and 150mm end laps</u>				
A	On roofs	m2	71		
B	Additional membrane 150mm girth at internal and external angles	m	74		
C	Dressing and sealing into 110mm internal diameter outlet, including additional membrane	No	1		
<u>WATERPROOFING OF WALLS AND FLOORS</u>					
	<u>Sika BlackSeal polymer modified bitumen emulsion coating applied according to manufacturers specifications</u>				
D	On brickwork	m2	143		
	<u>Prime with one coat bitumen primer and fully bonded waterproof membrane comprising two bitumen layers reinforced with woven spunbonded polyester fabric and coated with polyethelene film for heat bonding, laid with 100mm side and 150mm end laps</u>				
E	To walls	m2	137		
	<u>Sikalastic 560 membrane reinforced cementitious waterproofing reinforced with Sikalastic Reemat. Applied according to manufacturer's specifications</u>				
F	To Showers	m2	28		
G	Walls as cover flashing strips not exceeding 300mm girth, including sealing top edges into grooves (grooves elsewhere) with mastic	m	472		
<u>PROTECTION TO WATERPROOFING</u>					
	<u>"PT115" Filter Fabric or similar approved</u>				
H	On roofs	m2	71		
Carried to Collection				R	
Bill No. 5 Waterproofing SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES					

	<u>4mm Masonite or similar approved softboard protection to waterproofing</u>				
A	Behind retaining walls to protect waterproofing during backfilling	m2	371		
	<u>PROTECTIVE STONE DRESSING</u>				
	<u>River washed, smooth, round aggregate graded 20mm to 40mm nominal diameter, free from fractures, loam, sand or other foreign substances</u>				
B	50mm Thick on waterproofing to roofs	m2	131		
	<u>JOINT SEALANTS, ETC</u>				
	<u>"Jointex" or similar approved temporary seal with 50% MAF (Jointex elsewhere measured)</u>				
C	10 x 10mm In expansion joints between walls and columns	m	1 199		
D	10 x 10mm In expansion joints in floors	m	1 714		
	<u>Sealing of the joints with Sikaflex®-11 FC polyurethane or MasterSeal HY 495, elastomeric sealant including backing cord, bond breaker, "Sika primer-3" or similar approved, etc</u>				
E	6 x 6mm wide in saw-cut joints (SCJ) in floors	m	932		
	<u>"Sikaflex pro 3I -Cure" two-part polyurethane joint sealing compound including backing cord, bond breaker, etc. applied in accordance with the manufacturers specifications</u>				
F	10 x 10mm in wall joints (WJ) in floors to be applied after one year	m	1 357		
	<u>Approved silicone pointing</u>				
G	Between sanitary fittings and walls	m	26		
	Carried to Collection				
	Bill No. 5				
	Waterproofing				
	SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein				
	PROVISIONAL BILLS OF QUANTITIES				

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Item No		Unit	Quantity	Rate	Amount
	<u>BILL No. 6</u>				
	<u>ROOF COVERINGS, CLADDING, ETC</u>				
	<u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades 2017 before pricing this bill				
	<u>SUPPLEMENTARY PREAMBLES</u>				
	<u>Guarantees</u>				
	The contractor will be required to provide a written guarantee for the roof covering as follows:				
	- Roof covering material - fifteen (15) years				
	- Workmanship - ten (10) years				
	<u>PROFILED METAL SHEETING AND ACCESSORIES</u>				
	<u>0,53mm "Saflok 700" profiled Zincalume® AZ150 or similar approved, coated steel G550 with ColorPlus Matt colour coated to one side (Color: Raincloud) with Cool Grey backing coat interlocking roof sheeting fixed to steel purlins at 2 000mm centres using "Saflok 700" clips, including all accessories for fixing complete all in accordance to manufacturer's and architects specification (Purlins and steel trusses elsewhere measured)</u>				
A	Roof coverings (measured nett on plan) with pitch not exceeding 5 degrees	m2	2 675		
B	Roof coverings (measured nett on plan) with 12 degrees pitch	m2	170		
C	Circular cutting	m	17		
D	Headwall flashing 375mm girth, two times bent along girth and notched on site to suit roof profile	m	105		
E	Ridge flashing 46mm girth, bent along girth and notched on site to suit roof profile	m	140		
F	Barge flashing 462mm girth, two times bent along girth and notched on site to suit roof profile	m	107		
	Carried to Collection				
	Bill No. 6				
	Roof Coverings, Claddings, etc				
	SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein				
	PROVISIONAL BILLS OF QUANTITIES				

A	Sidewall flashing 375mm girth, two times bent along girth and notched on site to suit roof profile	m	160
B	Counter flashing 154mm girth, two times bent along girth and notched on site to suit roof profile	m	333
C	Narrow and broad flute closers 150mm girth	m	68
D	Custom headwall flashing 805mm girth, two times bent along girth and notched on site to suit roof profile	m	68
E	Back flashing 375mm girth, two times bent along girth and notched on site to suit roof profile	m	45
F	Gutter flashings 154mm girth	m	272
	<u>Palermo Sunlok "Suntuf 10000" or similar approved Polycarbonate sheeting in colour Clear – high wind load clips to receive a saddle washer and 14 x 22mm stitching fastener including side stitching of 500mm centres all in accordance with manufacturer's instructions</u>		
G	Roof coverings (measured nett on plan) with pitch not exceeding 5 degrees	m2	36
H	Roof coverings (measured nett on plan) with 12 degrees pitch	m2	78
J	Circular cutting	m	17
	<u>Safintra Saflok 700 - 0.53mm thick ColorPlus or similar approved, colour to be "Raincloud", C.1.S finish with standard backing coat G550 interlocking roof sheeting with AZ150 spelter to both sides fixed to steel purlins at internal spans as per engineer's specifications using SAFLOK 700 clips screw fixed to steel purlins secured with Safintra approved wafer head fastener, all in accordance with manufacturer's recommendations</u>		
K	Side cladding	m2	122
	<u>Sunlok "Suntuf 10000" or similar approved Polycarbonate sheeting in colour Clear – high wind load clips to receive a saddle washer and 14 x 22mm stitching fastener including side stitching of 500mm centres all in accordance with manufacturer's instructions</u>		
L	Side cladding	m2	512
Carried to Collection			
Bill No. 6			
Roof Coverings, Claddings, etc			
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein			
PROVISIONAL BILLS OF QUANTITIES			

R

ROOF AND WALL INSULATION

"Sisalation FR405" or similar approved heavy industrial grade aluminium foil based insulation

A	Insulation laid taut over purlins (at approximately 1.80m centres) and fixed concurrent with roof covering, including taped laps and nylon straining wires	m2	2 845
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Isover "Factorylite®" or similar approved insulation foiled faced on one side (outwards) with white foiled facing laid over purlins

B	135mm Thick insulation laid taut over purlins (at approximately 1600mm centres), fixed concurrent with roof covering with and including galvanised steel straining wires at 300mm centres and tied down top and bottom (after tensioning) with galvanised hoop iron ties	m2	1 989
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"Lambdaboard" or similar approved high density insulation boards

C	60mm Insulation boards, fixed to the underside off concrete soffit not exceeding 3.5m high	m2	61
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Carried to Collection

Bill No. 6

Roof Coverings, Claddings, etc

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

SPACER SYSTEM

Purlin Spacers installed over 135mm bulk insulation to receive roof sheeting (elsewhere measured)

A	Spacer/packer cut to size installed on purlin, complete	m	2 701
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Carried to Collection

Bill No. 6
Roof Coverings, Claddings, etc
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

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Specification

The tenderer is referred to the SVA "Architectural Specification" document SMFN-SVA-A-SP-01-101 Rev C and is to ensure that all work is done in accordance to the specifications as laid out in this document.

Fire doors

Fire doors are to be in accordance with SANS 1253

Joint sealant

Contractor to allow for silicon seals in rate build up

Carried to Collection

Bill No. 7

Carpentry and Joinery

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

ROOFS, ETC

Sawn softwood - SA Pine

A	38 x 114mm Wall plates	m	8
B	50 x 152mm Bolted roof truss members in lengths exceeding 2.4m and not exceeding 3.9m	m	37
C	50 x 76mm Purlins	m	16

EAVES, VERGES, ETC

"Nutec" medium density plain sheets

D	12 x 225mm Fascias and barge boards, including H-profile plastic jointing strips	m	246
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DOORS, ETC

TIMBER DOORS

Semi-solid flush panel timber door with 0.7mm Rovere Valdweg woodgrain laminate finish and 10mm concealed hardwood edgings all round. single ledge and brace door hung to timber frames (frames elsewhere measured)

E	44mm Single door 725 x 2100mm high - D01	No	10
F	44mm Single door 1100 x 2100mm high - D02	No	1
G	44mm Single door 1015 x 2356mm high - D06	No	1
H	44mm Single door 813 x 2100mm high, including opening to take 0.6mm louvre 682 x 200mm high - D10	No	2
J	44mm Single door 813 x 2044mm high, with 44mm overcut - D17	No	7
K	44mm Single door 1100 x 2100mm high - D18	No	1
L	44mm Single door 813 x 2100mm high - D20	No	7

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Carpentry and Joinery

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

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	<u>Semi-solid flush panel timber door with 0.7mm Rovere Valdweg woodgrain laminate finish and 10mm concealed hardwood edgings all round. Hung to steel frames (frames measured elsewhere)</u>				
A	44mm Double door 1500 x 2387mm high - D03	No	1		
B	44mm Double door 1500 x 2100mm high - D07	No	2		
C	44mm Double door 1820 x 2400mm high - D11	No	3		
D	44mm Double door 1500 x 2400mm high - D14	No	1		
	<u>Semi-solid timber door with hardwood edgings all round. Door to have acoustic rating of Rw 45 dB. Facing: 0.7mmmm Rovere Valdweg woodgrain laminate. 10mm concealed hardwood edging single ledge and brace door hung to timber frames (frames elsewhere measured)</u>				
E	44mm Double door 1686 x 2476mm high acoustic door - D12	No	1		
	<u>"Varikust (VKF105)" or similar approved solid timber door. flush panel, external face to receive paint finish, internal face to receive 0.7mm Rovere Valdweg Aleve woodgrain laminate. Single ledge and brace door hung to steel frames (frames elsewhere measured)</u>				
F	44mm Single door 1100 x 2100mm high - D08	No	1		
	<u>"Swartland" Cape Culture Solid meranti frame ledge and braced timber door with rebated meeting stiles. density greater than 560kg/m². Door leaf to receive solid board infill on inside face of leaf to mid-rail height. Door hung to steel frames (frames elsewhere measured)</u>				
G	44mm Double door 1820 x 2400mm high - D13	No	1		
	<u>Solid flush panel timber door to received paint finish. Hung to steel frames (frames measured elsewhere)</u>				
H	44mm Single door 910 x 2100mm high - D15	No	2		
J	44mm Single door 813 x 2032mm high - D16	No	2		
K	44mm Single door 813 x 2032mm high - D19	No	2		
Carried to Collection					R
Bill No. 7					
Carpentry and Joinery					
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein					
PROVISIONAL BILLS OF QUANTITIES					

Hufcor Series U901 Unispan self support system for manually operated accordion partitions. Panels consisting of medium density fibreboard header side panels with mineral wool insulation for sound retardation. Facing to be fabric covered, colour: TBC.

A	Folding door 4877 x 3682mm high - FD1	No	1
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TIMBER DOOR FRAMES

44x69mm Solid light oak frame to receive oil finish (measured elsewhere) with 45 x 15mm rebates in 110mm walls

B	Frame for single door 813 x 2044mm high	No	7
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C	Frame for single door 813 x 2144mm high	No	6
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D	Frame for single door 1188 x 2144mm high	No	1
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E	Frame for single door 873 x 2130mm high	No	2
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F	Frame for double door 1774 x 2520mm high	No	1
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G	Frame for single door 1100 x 2100mm high	No	1
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44x69mm Solid light oak frame to receive oil finish (measured elsewhere) with 45 x 15mm rebates in 230mm walls

H	Frame for single door 813 x 2144mm high	No	11
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J	Frame for single door 1530x 2444mm high, to accommodate full height side glazing panel (glazing measured elsewhere).	No	1
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Carried to Collection

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Carpentry and Joinery

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

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FIRE DOORS

Fire doors complete with MDF face finish, to receive paint finish. Intumescent fire seals to suit fire ratings. Doors to be labelled, indicating manufacturers name, fire rating, reference no. and year of manufacture

- | | | | |
|---|--|----|---|
| A | Class "B" 120min fire double door 1820 x 2400mm high, including 1.6mm thick pressed steel door frame designed to achieve requisite fire rating for 230mm brick wall, with hinges as required per leaf, including preparing frame for door closer and magnetic lock - D05 | No | 1 |
|---|--|----|---|

Fire doors complete with 0.7mm Rovere Valdweg woodgrain laminate finish. Intumescent fire seals to suit fire ratings. Doors to be labelled, indicating manufacturers name, fire rating, reference no. and year of manufacture

- | | | | |
|---|---|----|---|
| B | Class "B" 120min fire single door 813 x 2032mm high, with hardwood edgings including 1.6mm thick pressed steel door frame designed to achieve requisite fire rating for 230mm brick wall, with hinges as required per leaf, including preparing frame for door closer and magnetic lock - D09 | No | 2 |
|---|---|----|---|

Fire doors complete with 0.7mm Rovere Valdweg woodgrain laminate finish to one side and paint finish to one side. Intumescent fire seals to suit fire ratings. Doors to be labelled, indicating manufacturers name, fire rating, reference no. and year of manufacture

- | | | | |
|---|--|----|---|
| C | Class "B" 120min fire double door 1500 x 2400mm high, including 1.6mm thick pressed steel door frame designed to achieve requisite fire rating for 230mm brick wall, with hinges as required per leaf, including preparing frame for door closer and magnetic lock - D04 | No | 1 |
|---|--|----|---|

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Carpentry and Joinery

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<u>JOINERY FITTINGS</u>					
	<u>Legni Woodgrains fixed to walls, 4627 Rovere Valdweg finished on 16mm chipboard substrate, all according to manufacturers specifications. Format: 3050 x 1300mm, Colour: Light Oak, Supplier: Max On Top (MOT)</u>				
A	On Walls	m2	30		
	<u>Custom made bench comprising of 44mm thick timber with 5mm radiused corner on top and bottom edges. Including subframe, supplied and installed complete. Refer to Architects Drawing A(76)1002</u>				
B	709mm Wide custom made bench	m	5		
	<u>20mm Thick Concrete cloud Phoenix Stone Engineered-quartz counter tops (Colour: Grey, Finish: Matt). Designed, supplied and installed complete as per Architects Drawing: A(76)1003 Main Building - Joinery - Details</u>				
C	600mm wide counter tops	m	15		
	<u>Cupboard carcasses consisting of 16mm Thick suitable Melamine faced chipboard with 2mm PVC edging on both sides (Colour: Grey). Refer to Architect Drawings: Main Building - Joinery - Details A(76)1003, Gatehouse - Joinery - Extents Plan A(76)1004 & Generator Building - Joinery - Extents Plan A(76)1005</u>				
D	600 x 900mm high floor units	m	15		
E	320 x 950mm high wall units	m	4		
F	320 x 514mm high wall units	m	9		
	<u>Custom made reception desk comprising of 20mm Concrete cloud Phoenix Stone Engineered -quartz (colour: grey) with oak finish timber on subframe. (Supplier: WOMAG). Designed, supplied and installed complete as per Architects Drawing: A(76)1003 Main Building - Joinery - Details & A(76)1004 Gatehouse - Joinery Extents Plan</u>				
G	Reception desk overall size 3 924 x 750 x 1 100mm high complete - Main Building	No	1		
H	Reception desk overall size 2 468 x 570 x 1 100mm high complete - Gatehouse	No	1		
Carried to Collection				R	
Bill No. 7					
Carpentry and Joinery					
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein					
PROVISIONAL BILLS OF QUANTITIES					

PERGOLAS (Footings measured under bill items)

Galvanised columns and beams in single lengths with flat base, cap, bearer and connection plates, including painting (colour to be confirmed)

A	203 x 133 x 25kg/m H	t	1.32
B	203 x 133 x 25kg/m UB	t	0.19
C	Connection plates, etc	t	0.20
D	Hot dip galvanised fixing bolts	t	0.10
<u>"Balau" or similar approved Wrought laminated timber</u>			
E	76 x 225mm Beams, pergola beams, etc, bolted	m	123

Carried to Collection

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Carpentry and Joinery
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

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Bulkheads have only been described as such where they conform to the above definition and where the horizontal or vertical dimensions do not exceed 1200mm. Where these dimensions are more than 1200mm such portions of ceilings have been included in the appropriate general items of ceilings

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

Steel Components

All steel components for ceilings, partitions, etc are to be galvanised in accordance with SANS 121

Carried to Collection

Bill No. 8

Ceilings, Partitions and Access Flooring

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

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PRICING NOTES

All ceilings are to be priced as suspended not exceeding 1m from soffits, and an additional extra over item will be measured where additional cost for higher suspension subgrid systems will be allowed for.

Bulkheads are to be measured in vertical and/or horizontal components. Where bulkheads are of irregular shape, the components should be included as either vertical or horizontal bulkheads not exceeding 1 200mm width or height, If exceeding then components would be included in ceiling quantity as stated above.

Contractors are to allow in their price for the above mentioned when pricing the nailed up ceilings section of this tender document as no claims will be entertained in this regard.

Skimmed Plaster

Where so described skimming / plastering to plasterboard as a whole (ceilings or partitions) shall be priced for a 3mm lightweight retarded semi hydrate gypsum plaster applied to the complete surface as a smooth polished application.

Skimming / Plastering deemed to be included in the rate

Carried to Collection

Bill No. 8

Ceilings, Partitions and Access Flooring

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

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SUSPENDED CEILINGS

12.5mm Thick gypsum plasterboard with 63mm wide strips of mesh scrim screwed over joints and the whole finished with and including gypsum skim plaster trowelled to a smooth polished surface to the thickness recommended by the manufacturer fixed to with and including a concealed tee suspension system including main and cross tees, necessary hangers, grids, etc

A	Ceilings suspended not exceeding 1m below steel trusses at approximately 5m centres with rigid hangers	m2	261
B	Ceilings suspended exceeding 2m and not exceeding 3m below steel trusses at approximately 5m centres with rigid hangers	m2	145
C	Sloped ceilings suspended not exceeding 1m below steel trusses at approximately 5m centres with rigid hangers (measured nett on plan)	m2	97
D	Sloped ceilings suspended exceeding 3m and not exceeding 4m below steel trusses at approximately 5m centres with rigid hangers (measured nett on plan)	m2	22
E	Vertical bulkheads between suspended ceilings, formed of one 270mm element, including 38 x 38mm sawn softwood banding at 300mm centres	m	22
F	Vertical bulkheads between suspended ceilings, formed of one 3000mm element, including 38 x 38mm sawn softwood banding at 300mm centres	m	20
G	Vertical bulkheads between suspended ceilings, formed of one 3320mm element, including 38 x 38mm sawn softwood banding at 300mm centres	m	16
H	Circular cutting	m	15

Carried to Collection

Bill No. 8

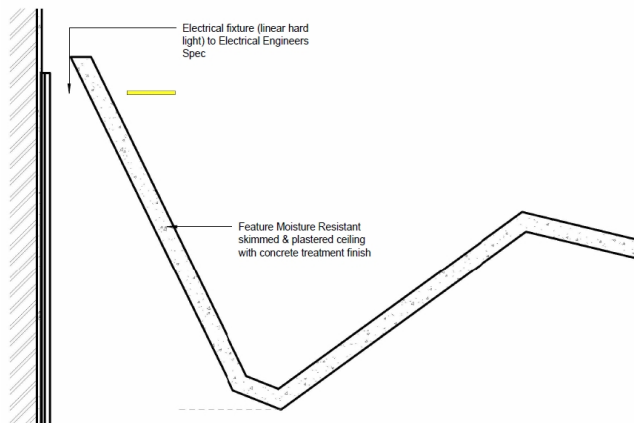
Ceilings, Partitions and Access Flooring

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

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	<u>12.5mm moisture resistant plasterboard with 63mm wide strips of mesh scrim screwed over joints and the whole finished with and including gypsum skim plaster trowelled to a smooth polished surface to the thickness recommended by the manufacturer fixed to with and including a concealed tee suspension system including main and cross tees, necessary hangers, grids, etc</u>				
A	Ceilings suspended not exceeding 1m below steel trusses at approximately 5m centres with rigid hangers	m2	71		
B	Ceilings suspended not exceeding 1m below concrete slab at approximately 5m centres with rigid hangers	m2	37		
C	Ceilings suspended exceeding 2m and not exceeding 3m below steel trusses at approximately 5m centres with rigid hangers	m2	14		
D	Vertical bulkheads between suspended ceilings, formed of one 300mm element, including 38 x 38mm sawn softwood brandering at 300mm centres	m	93		
E	Vertical bulkheads between suspended ceilings, formed of one 470mm element, including 38 x 38mm sawn softwood brandering at 300mm centres	m	11		
F	Vertical bulkheads between suspended ceilings, formed of one 590mm element, including 38 x 38mm sawn softwood brandering at 300mm centres	m	5		
G	Vertical bulkheads between suspended ceilings, formed of one 1100mm element, including 38 x 38mm sawn softwood brandering at 300mm centres	m	7		
Carried to Collection					R
Bill No. 8					
Ceilings, Partitions and Access Flooring					
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein					
PROVISIONAL BILLS OF QUANTITIES					

- A Combination bulkheads between nailed up ceilings as per detail below. Refer to Architects Drawing A(14)1001 Reflected Ceiling Plan - A. Main Building



3 Ceiling Detail - Section (Ablutions Bulkhead)
1 : 10

	<u>600 x 600 x 12mm Thick "Minerval A" or other similar approved high performance acoustic ceiling tiles including ceiling grid suspension system with main and cross tees, necessary hangers, grids, etc</u>	m	9	
B	Ceilings suspended exceeding 1m and not exceeding 2m below steel trusses at approximately 5m centres with rigid hangers	m2	639	
C	Circular cutting	m	25	
D	Vertical bulkheads between suspended ceilings, formed of one 260mm element, including 38 x 38mm sawn softwood banding at 300mm centres	m	31	
	<u>1200 x 600 x 12mm Thick "Minerval A" or other similar approved high performance acoustic lay-in grid ceiling tiles on and including grid suspension system including main and cross tees, necessary hangers, grids, etc</u>			
E	Ceilings suspended exceeding 1m and not exceeding 2m below steel trusses at approximately 5m centres with rigid hangers	m2	259	

Carried to Collection

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Bill No. 8
Ceilings, Partitions and Access Flooring
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
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A	Sloped ceilings suspended exceeding 1m and not exceeding 2m below steel trusses at approximately 5m centres with rigid hangers (measured nett on plan)	m2	16
B	Circular cutting <u>1800 x 600 x 40mm Thick "Echophon Solo Baffle" or other similar approved ceiling tiles on and including grid suspension system including main and cross tees, necessary hangers, grids, etc</u>	m	31
C	Ceiling panels suspended not exceeding 1m below steel trusses, hung from wires, all in accordance to manufacturer's specifications	No	92
D	Ceiling panels suspended exceeding 1m and not exceeding 2m below steel trusses, hung from wires, all in accordance to manufacturer's specifications <u>1195 x 595 x 4mm "Nutec" plain ceiling panels on and including "Nutec" pre-painted exposed tee suspension system, including main and cross tees, necessary hangers, grids, etc</u>	No	62
E	Ceilings suspended not exceeding 1m below steel trusses at approximately 5m centres with rigid hangers <u>Cornices to suspended ceilings</u>	m2	7
F	"DONN" SM25 or similar approved pre-painted wall angles, plugged <u>INSULATION</u> <u>"Gyrproc" glasswool insulation laid on top of ceilings</u>	m	1 017
G	50mm Thick insulation laid on top of ceilings (measured nett on plan)	m2	915

Carried to Collection

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Ceilings, Partitions and Access Flooring
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

<u>PARTITIONS</u>					
<u>"Gyproc Rhinoboard" or similar approved drywall system with one layer of 12.5mm boards on both sides</u>					
A	Slanted partitions 6560mm high with bottom track nailed and top track fitted with standard aluminium channel cappings	m	28		
B	Extra over partitions 6560mm high for vertical abutment against structure	No	9		
C	Extra over partitions 6560mm high for corner	No	9		
D	Extra over partitions 6560mm high for fair end, including fitted with standard aluminium channel capping	No	1		
<u>"Gyproc Rhinoboard" or similar approved drywall system with one layer of 12.5mm boards on both sides, including 50mm thick glasswool insulation in blanket form with a 14kg/m³ density</u>					
E	Partitions 2000mm high with bottom track nailed and top track fitted with standard aluminium channel cappings	m	2		
F	Partitions 2530mm high with bottom track nailed and top track fitted with standard aluminium channel cappings	m	5		
G	Partitions 2730mm high with bottom track nailed and top track fitted with standard aluminium channel cappings	m	5		
H	Partitions 3075mm high with bottom track nailed and top track fitted with standard aluminium channel cappings	m	10		
J	Partitions 3275mm high with bottom track nailed and top track fitted with standard aluminium channel cappings	m	6		
K	Extra over partitions 2000mm high for vertical abutment against structure	No	2		
L	Extra over partitions 2530mm high for vertical abutment against structure	No	2		
M	Extra over partitions 2730mm high for vertical abutment against structure	No	2		
N	Extra over partitions 3075mm high for vertical abutment against structure	No	4		
Carried to Collection					
Bill No. 8					
Ceilings, Partitions and Access Flooring					
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A	Extra over partitions 3275mm high for vertical abutment against structure	No	4	
B	Extra over partitions 2000mm high for corner	No	2	
C	Extra over partitions 2530mm high for corner	No	2	
D	Extra over partitions 2730mm high for corner	No	2	
E	Extra over partitions 3075mm high for corner	No	4	
F	Extra over partitions 3275mm high for corner	No	4	
G	Extra over partitions 2530mm high for fair end, including fitted with standard aluminium channel capping	No	2	
H	Extra over partitions 2730mm high for fair end, including fitted with standard aluminium channel capping	No	2	
J	Extra over partitions 3075mm high for fair end, including fitted with standard aluminium channel capping	No	4	
K	Extra over partitions 3275mm high for fair end, including fitted with standard aluminium channel capping	No	2	
Carried to Collection				
Bill No. 8 Ceilings, Partitions and Access Flooring SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES				

ACCESS FLOORING

SANS 1549 Class C Heavy duty access floor sealed at the perimeter, colour: Stipple White

A	600 x 600mm Modular and interchangeable "Solidfeel 30" or similar approved board panel access flooring including pedestals and panels finished with and including anti-static HPL including glued on with approved adhesive (access flooring to finish 500mm above concrete sub-floor)	m2	369
B	Junctions against walls and columns	m	140
C	600 x 600mm Modular and interchangeable "Solidfeel 30" or similar approved board panel access flooring including pedestals and panels finished with and including anti-static HPL including glued on with approved adhesive (access flooring to finish 600mm above concrete sub-floor)	m2	145
D	Junctions against walls and columns	m	66

Carried to Collection

Bill No. 8
Ceilings, Partitions and Access Flooring
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

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Item No	Quantity	Rate	Amount
<u>BILL No. 9</u>			
<u>FLOOR COVERINGS, WALL LININGS, ETC</u>			
<u>SUPPLEMENTARY PREAMBLES</u>			
<u>Fixing</u>			
Floor coverings, wall linings, etc shall, where applicable, be fixed with adhesive as recommended by the manufacturers of the flooring, linings, etc			
<u>Surface Preparation</u>			
New surfaces must be solid, firm and free of dust, mould oil, grease, sealers, wax polish and organic growth. Organic growth must be removed and the spores killed with an effective fungicide such as a household bleaching solution.			
Carried to Collection			R
Bill No. 9 Floor Coverings, Wall Linings, etc SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES			

FLOOR COVERINGS

500 x 500mm "Vanguard Collection" Canvas carpet tiles (Colour: Dusky Blue, Supplier: KBAC Flooring) or similar approved glue fixed carpet tiles with underlay all fixed in accordance with manufacturers specifications

A	Floors	m2	864
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SKIRTINGS

Aluminium

B	3x 38mm wide Natural anodised cover strips between carpet and tile/polished concrete fixed to concrete	m	10
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C	30 x 30 x 3mm Aluminium angle trim plugged and screwed to floor slab	m	39
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D	75 x 1.6mm Thick skirtings	m	269
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Carried to Collection

Bill No. 9

Floor Coverings, Wall Linings, etc

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

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HINGES, BOLTS, ETC

Dormakaba or similar approved

A	102x75x3mm, EN1935 Grade 13, Two ball bearing butt hinge. Fire Rated. 120kg carrying capacity per pair. Finish: Stainless Steel. Product Code: DBB-SS-009	Pairs	96.0
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LOCKS, ETC

Dormakaba or similar approved

B	Cylinder sash lock. Case dimensions: 116.5H x 78D. Forend dimensions: 168H x 22W. Backset 57mm, Centres 61mm. Finish: Stainless Steel. Product Code: D036S SS	No	8
C	63mm - 31.5+31.5mm Europrofile Nickel plated E-SP 5 Pin Double cylinder - Grand master keyed. Finish: Satin Nickel. Product Code: DDC206301 GMK	No	8
D	Single electromagnetic lock with 600 lbf (2669N) holding force, motise-mounted, lock with status sensor(29860502). Finish: Anodized aluminium. Product Code: EMC 600 AM	Sets	29.0
E	L+Z Bracket for EMC 600 ALH. Finish: Satin nickel. Product Code: L+Z Bracket 600	Sets	29.0
F	Bathroom sash lock. Case dimensions 102H x 78D. Forend dimensions 155H x 22W. Backset 57mm. Centres 57mm. Finish: Stainless steel. Product Code: D035S SS	No	14
G	Cylinder Deadlock. Case dimesions 116.5H x 78D. Forend dimensions 168H x 22W. Backset 57mm. Finish: Stainless steel. Product Code: D037D SS	No	4
H	63mm - 31.5 + 31.5mm Europrofile nickel plated E-SP 5 pin double cylinder - Grand master keyed. Finish: Satin nickel. Product Code: DDC206301 GMK	No	4
J	Round Cylinder escutcheon. Finish: Stainless steel. Product Code: DCE-002 S.S	Pairs	4.0
K	40.5 - Europrofile nickel plated E-SP 5 pin single cylinder - grand master keyed. Finish: Satin Nickel. Product Code: DSC204101 GMK	No	2

Carried to Collection

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Bill No. 10
Ironmongery
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

[illegible]

HANDLES, ETC

Dormakaba or similar approved

A	Lever handle on rose with cylinder escutcheons. Finish: Stainless Steel. Product Code: TH125 Cyl S.S	Sets	8.0
B	DPH301C Pull handle BT fixed on a 150 x 300 x 1.2mm thick Grade 304 stainless steel plate with no cylinder cutout. Stainless steel plate to have 6 countersunk holes for screw fixing. (Special order). Finish: 304 Brushed stainless steel. Product Code: DHP-304-BL-SF 150x300	No	4
C	Lever handle on rose with Bathroom/WC Furniture. Finish: Stainless Steel. Product Code: TH125 WC S.S	Sets	14.0
D	325 x 25mm Straight tubular pull handle flange fixing. Finish: Stainless Steel. Product Code: DPH301B	No	6
E	300x30mm Straight tubular pull handle BTB (BTB fixing sets included). Finish: Stainless steel. Product Code: DPH210 BTB	Pairs	33.0
F	Two pint locking panic bar - Single door - door leaf 1000mm wide x 2270mm high (2201. 2104. PHX02. PHX04). Product Code: PHA2 S SD	Sets	1.0
G	Exterior access lock with lever handle (cylinder not included). Finish: Satin Nickel. Product Code: PHT3901	No	2
H	Three point locking panic bar - double door - door leaf 1000mm wide x 2270mm high (2101. 2104. 2104. 2201. PHX02. PHX04). Finish: Stainless steel. Product Code: PHA3 S DD	Sets	1.0

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KICKPLATES, PUSHPLATES ETC

Dormakaba or similar approved

A	150 x 300 x 1.2mm Thick Grade 304 stainless steel plate. Stainless steel plate to have 6 countersunk holes for screw fixing (special order). Finish: 304 Brushed Stainless Steel. Product Code: DPP-304-BL-SF 150x300	No	4
B	600x(width of door)x1.2mm Thick Grade 304 stainless steel kick plate. Stainless steel kick plate to have 18 countersunk holes for screw fixing (special order). Finish: 304 Brushed stainless steel. Product Code: DKP-304-SF 600	No	6

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SUNDRIES, ETC

Dormakaba or similar approved

A	Floor mounted door stop. Finish: Stainless Steel. Product Code: DDS-SS-017	No	39
B	M4 Patent Male/Female fixing screw pack (2 pairs per pack)	pack	8
C	Hat and coat hook with rubber buffer. Finish: Stainless Steel. Product Code: DHC-SS-031B	No	13

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<u>SIGNAGE</u>					
	<u>Dormakaba or similar approved</u>				
A	150 x 150mm FEMALE sign. Finish: Stainless Steel. Product Code: DSS-131 F	No	1		
B	150 x 150mm MALE sign. Finish: Stainless Steel. Product Code: DSS-130 M	No	1		
C	150x150mm SHOWER sign. Finish: Stainless Steel. Product Code: DSS-139 S	No	1		
D	150 x 150mm DISABLED PERSONS sign. Finish: Stainless steel. Product Code: DSS-133 P	No	3		
E	150 x 150mm MALE/FEMALE sign. Finish: Stainless steel. Product Code: DSS-132 MF	No	2		
	<u>2mm Thick fabricated aluminium individual Lettering plate, powdercoated (colour: RAL7043), rod welded to the back of lettering chemically fixed in concrete/masonry wall as per structural engineer's specification. Refer to Architect Drawings: Main building - Signage Reference Plan (74)1000 & Gatehouse & C. Gen - Signage Reference Plan (74)1001</u>				
F	450mm high "SANSA" sign mounted to wall - S01	No	2		
	<u>3mm Thick Aluminium door sign plate powercoated, colour: RAL 7021 with white vinyl stickers for lettering as per door sign plate schedule with silicone adhesive to manufacturer's specifications Refer to Architect Drawings: Main building - Signage Reference Plan (74)1000 & Gatehouse & C. Gen - Signage Reference Plan (74)1001</u>				
G	400 x 70mm high sign mounted to door- S03	No	12		
H	400 x 70mm high sign mounted to wall - S04	No	16		
	<u>3mm Thick Aluminium door sign plate powercoated, colour: RAL 7021 with white vinyl stickers for lettering as per door sign plate schedule with silicone adhesive to manufacturer's specifications and vinyl film applied to hide residue. Refer to Architect Drawings: Main building - Signage Reference Plan (74)1000 & Gatehouse & C. Gen - Signage Reference Plan (74)1001</u>				
J	400 x 70mm high sign fixed to glazing panel - S05	No	5		
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Bill No. 10 Ironmongery SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES					

Wayfinding signs specifications. Refer to Architect Drawings:
Main building - Signage Reference Plan (74)1000 &
Gatehouse & C. Gen - Signage Reference Plan (74)1001

A	150 x 150mm high mobility impaired sign - S06	No	3
B	150 x 150mm high female sign - S07	No	6
C	150 x 150mm high male sign - S08	No	6
D	150 x 150mm high directional sign - S09	No	3

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PHOTOLUMINESCENT SIGNS

SUPPLEMENTARY PREAMBLES

Signs are to comply with SANS 1186-1 to 5 and to be to the approval of the local authority. Signs are to have anodised aluminium frames

Prices are to include for fixing by approved methods. The use of double sided tape will not be permitted. Surface mounted signs are to be concealed fixed and ceiling mounted signs are to be hung with 2mm diameter stainless steel cables

Single sided ceiling mounted signs are to have 2mm satin chrome anodised aluminium back panels

Samples, specifications, literature, etc of materials and fabricated articles the tenderer proposes to use shall be submitted with the tender

A ten year guarantee on materials and workmanship shall be submitted by the successful tenderer

Wall mounted photoluminescent statutory signs in 150 x 150mm modules

A	150 x 150mm Sign with one pictogram	No	31
B	300 x 150mm Sign with two pictograms	No	8

Ceiling mounted double sided photoluminescent statutory signs in 150 x 150mm modules

C	300 x 150mm Sign with two pictograms	No	31
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Ironmongery

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PROVISIONAL BILLS OF QUANTITIES**

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Item No	Quantity	Rate	Amount
<p><u>BILL No. 11</u></p> <p><u>STRUCTURAL STEEL</u></p> <p><u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades before pricing this bill</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Descriptions</u></p> <p>Descriptions of bolts shall be deemed to include nuts and washers</p> <p>Descriptions of L-shaped and U-shaped anchor bolts shall be deemed to include bending, threading, nuts and washers and embedding in concrete</p> <p>Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete</p> <p>Where anchor bolts are described as embedded in sides or soffits of concrete it shall be deemed to include holes through formwork</p> <p><u>General</u></p> <p>All dimensions are to be checked with engineer's drawings and any discrepancies brought to the architect's attention before any construction work commences</p> <p>Products different to those specified may be used with the engineer's prior approval</p> <p>Do not scale from engineer's drawings</p> <p><u>Structural steelwork</u></p> <p>All structural steelwork shall be fabricated and erected in accordance with the latest edition of SANS 1200H</p> <p>All dimensions shall be checked on site before shop drawings commence. Any discrepancies shall be brought to the attention of the engineer. Final dimensions and fitting of members shall remain the responsibility of the contractor</p>			
<p style="text-align: right;">Carried to Collection</p>			R
<p>Bill No. 11 Structural Steel SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES</p>			

A complete set of shop drawings shall be submitted to the Engineer for approval before fabrication commences. The contractor shall allow one week for checking and approval by the Engineer, and shall also allow for any possible changes to shop drawings

The contractor shall design all welds and, where necessary, gussets of sufficient strength, shall be approved to obtain the required weld strength

Setting out points (S.O.P's) at member centroids shall conform to those shown on general arrangement drawings. No eccentricities, except those shown on the Engineer's drawings, shall be allowed

All structural steelwork shall be S355JR and cold formed sections shall have a yield strength of 200MPa unless noted otherwise

A certificate from the steel manufacturer in which the grade of the structural steel is verified shall be handed to the Engineer for approval

Anchor bolts and structural bolts for fixing the purlins shall be Grade 4.8 galvanised. All other bolts and lugs shall be grade 8.8 galvanised unless otherwise noted and shall be deemed to be included

Chemical anchor bolts will have a minimum Grade 8.8. The preferred epoxy will be forwarded to the engineer for approval

The proposed method and sequence of erection of the structure shall be submitted to the Engineer for written approval. Such submission is to take place at time of shop drawing submittal. The contractor shall indicate the proposed method of propping to ensure stability of the structure during erection. Such stability during erection remains the contractor's responsibility. Where temporary bracing and propping is necessary, the contractor shall be responsible for the design, erection, maintenance and removal (where necessary) of such supports. Proposal of such bracing or propping shall be submitted to the engineer at an early stage for written approval

No stacking of roof sheets or other point loads shall be allowed on the structure during the construction process

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Structural Steel

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PROVISIONAL BILLS OF QUANTITIES**

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Welding to structural steelwork

Minimum weld size to be 6mm continuous fillet welds all around, unless shown otherwise. All butt welds shall be full penetration welds and be of full strength

All welds on this project shall be executed by coded welders. Proof of the relevant certificates shall be submitted to the engineer prior to fabrication of any structural steelwork

Surface preparation

Structural steel to be engineered to be smooth i.e. no welding spatter, sharp edges, slag etc. should be present prior to the application of the final painting coat

All structural steelwork will be chipped and mechanically wire brushed to standard "SD3" to remove all scale, weld slag and flux, it will then be degreased before primer coat is applied

All paint shall be applied strictly in accordance with SANS 1200 HC and the manufacturer's instructions.

The paint and application shall carry a 5 year guarantee

Repair of damaged paint and painting of site connections and connectors shall be in accordance with SANS 1200 HC and SANS 0120: Part 3 Section HC

Different paint coats to have different colours or shades for easy verification

Where applicable, non shrink grout (Sika grout 212) shall be provided under base plates before any primary loads are applied to the structure

The contractor shall, at the commencement of the project, acquaint himself with the availability and delivery time of the products and steel profiles specified on the drawings so that such material can be ordered ahead of time

The erecting and removing of scaffolding should be included in all rates applicable

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Structural Steel

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Galvanizing Specification

System no. 150 from SANS 0120: Part 3 section HC-1988 shall be used for the corrosion protection of structural steel, and is as follows:

- a) Remove all slag from welded joints to expose the steelwork
- b) Hot dip galvanized to SANS 763
- c) The galvanizer must be a member of the Hot Dipped Galvanizers Association of South Africa
- d) If hot dip fasteners are not used, paint electroplated fasteners with organic paint
- e) Contact architect for paint colours if applicable

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STEEL COLUMNS AND BEAMS

Welded columns in single lengths with flat base, cap, bearer and connection plates, bolted to concrete

A	120 x 64mm x 10.4kg/m (IPE 120) I-section beams	t	0.44
B	160 x 80 x 4.0mm x 14.64kg/m Rectangular hollow section beams	t	0.04
C	305 x 165 x 40kg/m I-section columns	t	4.17
<u>Welded beams in single lengths with flat bearer and connection plates, bolted to steel</u>			
D	305 x 165 x 40kg/m I-section beams	t	0.23
E	180 x 91mm x 18.8kg/m (IPE 180) I-section beams	t	2.13

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GALVANISED STEEL COLUMNS AND BEAMS

Welded columns in single lengths with flat base, cap, bearer and connection plates, bolted to concrete

A	60 x 60 x 4.0mm x 3.70kg/m steel angle beams	t	0.31
B	65 x 50 x 8.0mm x 6.75kg/m steel angle beams	t	0.07
C	203 x 133 x 25kg/m UB	t	0.28
D	305 x 165 x 40kg/m I-section	t	2.08

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STEEL TRUSSES, ETC.

Welded roof trusses of angle rafters, tie beams, rails, struts, braces, cleats, etc and flat bearer, gusset and connection plates, bolted to steel

A	Lattice trusses (Truss 1) 8.10m long x 1,25m high extreme (In No 8)	t	1.60
B	Lattice trusses (Truss 2) 11,13m long x 1,84m high extreme (In No 8)	t	2.49
C	Lattice trusses (Truss 3) 9.66m long x 1.84m high extreme (In No 11)	t	3.06
D	Lattice trusses (Truss 4) 13.60m long x 1.26m high extreme (In No 1)	t	0.31
E	Lattice trusses (Truss 5) 13,40m long x 1,32m high extreme (In No 1)	t	0.29
F	Lattice trusses (Truss 6) 13,00m long x 1,28m high extreme (In No 1)	t	0.28
G	Lattice trusses (Truss 7) 13,00m long x 1,20m high extreme (In No 1)	t	0.27
H	Lattice trusses (Truss 8) 12,70m long x 1,20m high extreme (In No 1)	t	0.27
J	Lattice trusses (Truss 9) 12,30m long x 1,20m high extreme (In No 1)	t	0.28
K	Lattice trusses (Truss 10) 12,00m long x 1,70m high extreme (In No 1)	t	0.26
L	Lattice trusses (Truss 11) 9,70m long x 1,85m high extreme (In No 1)	t	0.28
M	Lattice trusses (Truss 12) 9,24m long x 0,90m high extreme (In No 1)	t	0.18
N	Lattice trusses (Truss 1 Generator) 10m long x 1,20m high extreme (In No 16)	t	5.01

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PROVISIONAL BILLS OF QUANTITIES**

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Welded rafters in single lengths with flat bearer and connection
plates bolted to steel

A	PFC 180 x 70mm x 21.1kg/m	t	1.03
B	PFC 200 x 75mm x 25g/m	t	2.95

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**PRE-GALVANISED STEEL PURLINS, GIRTS,
BRACING, ETC**

Purlins and girts, bolted to steel

A	125 x 65 x 20 x 3.0mm Thick cold-formed lipped channel purlins	t	18.91
B	150 x 75 x 20 x 2.5mm Thick cold-formed lipped channel girts	t	4.06
<u>Welded bracing, anti-sag rails, etc with flat connection plates, bolted to steel</u>			
C	60 x 60 x 4mm Angle bracing	t	1.86
D	125 x 75 x 8mm Angle - Fly Brace	t	1.70
E	120 x 75 x 8mm Angle - Knee Brace	t	0.80

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**PRE-GALVANISED STEEL PURLINS, GIRTS,
BRACING, ETC TO BULKHEAD SUPPORT**

Purlins and girts, bolted to masonry / concrete

A	75 x 50 x 20 x 2,5mm Thick cold-formed lipped channel bulkhead supports	t	1.46
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Welded bracing, anti-sag rails, etc with flat connection plates,
bolted to masonry / concrete

B	Angle bracing - Ceiling Support Frame	t	1.15
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GALVANISED STEEL GUTTERS AND RAINWATER PIPES

2.5mm Welded plate gutters

A	Box gutters 725mm girth 2.5mm thick, six times bent along length including necessary collared and sealed expansion joints (bearers elsewhere) - Gutter type 4	t	0.17
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B	Box gutters 1 100mm girth 2.5mm thick, four times bent along length and necessary collared and sealed expansion joints (bearers elsewhere) Gutter type 1	t	3.73
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2.5mm Welded plate rainwater pipes, including holderbats, brackets, etc

C	110mm Internal diameter pipes	t	0.69
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D	Extra over for outlet with spout for 200mm diameter pipe, including wire balloon grating	No	21
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E	Extra over for bend	No	21
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F	Extra over for shoe	No	21
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G	400 x 400 x 500mm Deep rainwater head with overflow and outlet with spout for 200mm pipe, including wire balloon grating	No	3
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Structural Steel

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BOLTS, FASTENERS, ETC

A	Hot dip galvanised fixing bolts 4% of mass	t	2.32
B	M16 Grade 8.8 anchor bolts embedded minimum 150 deep into concrete and epoxy fixed with Hilti HIT-HY 200	No	2 080

SUNDRIES

"SIKA GROUT 212" non-shrink grout

C	Bedding approximately 25mm thick under base plate including chamfered edges all round	m2	8
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PAINTING

Prepare and apply one coat "Zinc phosphate" high build alkyd primer (DFT 60-100 micron), one coat super universal gloss enamel undercoat (DFT 25-35 micron) and one coat super universal gloss enamel (DFT 25-35 micron) finishing paint (colour: to Architect's specification) strictly in accordance with SANS 1200 HC-1988 and the manufacturer's instructions

A On structural steel columns, beams, etc t 8.05

B On structural steel lattice girders, trusses, rafters, etc t 16.97

C On structural structural steel bracing, rails, purlins, etc. t 6.97

Prepare and apply one coat "Interguard 403" primer (DFT 80-125 micron), one coat super universal gloss enamel undercoat (DFT 25-35 micron) and one coat super universal gloss enamel (DFT 25-35 micron) finishing paint (colour: to Architect's specification) strictly in accordance with SANS 1200 HC-1988 and the manufacturer's instructions

D On galvanised structural steel columns, beams, etc t 2.63

E On galvanised structural steel lattice girders, trusses, rafters, etc t 0.56

F On galvanised structural steel gutters and rainwater pipes t 4.59

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Structural Steel

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PROVISIONAL BILLS OF QUANTITIES**

Item No	Quantity	Rate	Amount
<u>BILL No. 12</u>			
<u>METALWORK</u>			
<u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades 2017 before pricing this bill			
<u>NOTE:</u> Tenderers are advised that the design, supply and installation of the aluminium windows, doors & shop fronts are to be carried out in strict accordance with the Architect's specification and all aluminum profiles, manufacturing and fixing methods are to comply with AAMSA Specifications and Installation Standards			
<u>NOTE:</u> Tenderers are advised that all aluminium profiles and glazing to comply with SABS standards and Municipal Regulations			
<u>NOTE:</u> Tenderers are to provide a design indemnity letter with reference to Part C1.3.3 Annexure C -Design Indemnity Form			
<u>NOTE:</u> Tenderers are to provide shop drawings for approval by the Architect within two weeks of acceptance of tender			
<u>NOTE:</u> Aluminium profiles and colour samples must be approved by Architect prior to manufacturing			
<u>NOTE:</u> Framework & structural support to the shop fronts to be sized by the Tenderer and be included in the shopfront drawings, with suitable thickness to comply with wind load requirements & SABS Specifications (allowances to be made for all fixings required for shopfronts)			
<u>NOTE:</u> The Tenderer to allow for / calculate tolerances for for expansion and contraction of aluminium			
<u>NOTE:</u> The Tenderer to provide waterproofing guarantess for all shopfronts and windows			
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Bill No. 12 Metalwork SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES			

NOTE: All external shopfronts to be fixed to steel beams / concrete beams / lintels

NOTE: Where shopfront a butts steel / concrete column, a 40 x 40mm angle needs to be fixed to column prior to shopfront being installed

NOTE: All dimensions to be checked on site by manufacturer before manufacturing commences. Any variations must be approved by the Architect.

NOTE: Roller shutters, hood, guide rails and protection angles to be hot dipped galvanised steel.

NOTE: Roller shutter, guide rails and protection angles to match finish

NOTE: Automation to comply with all CE safety and control standards

SUPPLEMENTARY PREAMBLES

Aluminium doors, windows, shopfronts, etc

Doors and windows shall comply with AAAMSA design criteria

The following certificates shall be provided prior to commencement of site work:

- 1 A copy of the relevant AAAMSA Performance Test Certificate from the manufacturer/contractor supplying the architectural aluminium product
- 2 A Certificate of Conformance confirming that anodising or powder coating has been processed in accordance with SANS 999 and SANS 1796 respectively

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Bill No. 12

Metalwork

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- 3 A powder guarantee of not less than 15 years issued by the powder manufacturer. The specific conditions contained in this guarantee shall form part of the powder coating process
- 4 A Certificate of Conformance confirming that glazing has been installed in accordance with SANS 0137, ensuring that safety glazing materials have been installed in the mandatory areas and that each individual pane of safety glazing materials has been permanently marked
- 5 A warranty from the manufacturer of the laminated safety glass and/or hermetically sealed glazing units guaranteeing the products against delamination and colour degradation for a period of not less than five years

Finishes

Final product shall be free from all sharp edges

Ironmongery

All ironmongery in accordance with the architects drawings, to be supplied by the Subcontractor unless otherwise specified. Subcontractors are to provide samples for approval by the Architect of these ironmongery on submission of their tenders. All ironmongery shall be approved by the Architect prior to installation

Subcontractor to supply all relevant doors, windows & shopfronts with catches, handles, hinges etc. to match shopfronts and doors, all to the Architects approval

All doors referred in the schedule as fire escape doors to include all ironmongery to be supplied by the subcontractor, including panic bars, door closers, etc.

Sliding gear

All sliding gear to sliding doors to be supplied by the subcontractor unless otherwise specified. Subcontractors are to provide samples for approval by the Architect of these sliding gear on submission of their tenders. All sliding gear shall be approved by the Architect prior to installation

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Bill No. 12

Metalwork

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Joints and Sealants

All joints in frames shall be made by mechanical means an approved silicone sealant is to be provided for both sides of all internal and external shop fronts between the aluminium frames and brick wall or concrete column and between the aluminium frame and plaster finish

Structural support

Should additional structural steelwork be necessary, it must be sized and included in the cost of the relevant doors, windows and shopfronts. No exposed structural support steelwork will be permitted and all sections must be accommodated within the aluminium profile if necessary

Protection

The subcontractor are to liaise with the main contractor to ensure that allowances are made for sufficient protection against damage, etc as required

Doors and windows shall be supplied with protective tape and plastic and shall be removed only once surrounding trades have been completed

Cleaning

The subcontractor are to liaise with the main contractor to ensure that allowances are made for sufficient cleaning as required

Electronic installation and cable routes

Subcontractors are to allow for the installation of electric shear locks

Subcontractors are to allow for cable routes in shopfronts where automatic sliding gear are to be installed

Subcontractors are to allow for cable routes in shopfronts where access control and intruder detection are to be installed

Waterproofing angle

Waterproofing angles is deemed to be included for all external doors windows and shopfronts

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Metalwork

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Glass

All glass shall comply with SANS 50572-1&2:1994, SANS 1263-1:2013 and SANS 10137.

In particular, all safety glass shall be marked in accordance with the requirements of SANS 1263 and AAAMSA.

All toughened glass shall be heat soak tested (after toughening) in accordance with DIN 18516: Part 4.

All laminated safety glass to be suitably polished on a straight line polishing machine.

Wind loading

All external facades shall be designed for an unfactored uniform wind pressure of 1.8kPa (inwards and outwards); all internal glazing shall be designed for an unfactored uniform pressure of 0.6kPa (acting both ways)

Specification

The tenderer is referred to the SVA "Architectural Specification SMFN-SVA-A-SP-01-101 and is to ensure that all work is done in accordance to the specifications as laid out in this document.

The tenderer is referred to the SVA Drawings: Main Building Shopfront Ref Plan - A(32)1000, Main Building Shopfront Elevations - A(32)1001 & A(32)1002, Gatehouse Shopfront Plan & Elevations - A(32)1003 and Generator Building Shopfront Plan & Elevations - A(32)1004 and is to ensure that all work is done in accordance to the specifications as laid out in this document.

Carried to Collection

Bill No. 12

Metalwork

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

PRESSED STEEL DOOR FRAMES

1.6mm Double rebated frames for 280mm brick walls

A	Frame for double door 1880 x 2430mm high	No	1
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GALVANIZED PRESSED MILD STEEL DOOR FRAMES

1.6mm Double rebated frames for one brick walls

B	Frame for single door 810 x 2100mm high	No	2
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C	Frame for single door 873 x 2062mm high	No	1
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D	Frame for double door 1560 x 2130mm high	No	2
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E	Frame for double door 1560 x 2430mm high	No	1
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F	Frame for double door 1880 x 2430mm high	No	3
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1.6mm Double rebated frames for 280mm brick walls

G	Frame for single door 813 x 2032mm high	No	3
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H	Frame for single door 1160 x 2130mm high	No	1
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J	Frame for double door 1560 x 2430mm high	No	1
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ROLLER SHUTTERS

"Roll-up Serrada" or equal approved motorised industrial powder coated slatted roller shutter doors including shutter box, fixing brackets, guide channels, frames, corner protectors, motor etc, all fixed to brickwork, concrete or steel beams. Colour: RAL 7021

K	Automated slatted roller shutter 3950 x 3050mm high complete as per architects drawing OPT-SVA-ADR-A(30)1014	No	1
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Carried to Collection

R

Bill No. 12

Metalwork

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

ALUMINIUM GRILLES

Natural anodised aluminium door grilles

A	682 x 200mm high door grille	No	2
B	"TroX WG" type weather louvres fixed to walls	No	1

ALUMINIUM WINDOWS

Class 2 powder coated aluminium windows (Colour: RAL 7043) as per architect's specifications including single glazed clear safety glass in accordance with AAAMSA standards, plugged to brickwork/concrete/steel beams/partitions including waterproofing angles, necessary sealants and aluminium/rubber gaskets, ironmongery, all designed in accordance with architects drawings, supplied and installed by specialist subcontractor

C	Window 340 x 2262mm high overall - W01 Gatehouse	No	4
D	Window 340 x 2738mm high overall - W02 Gatehouse	No	1
E	Window 200 x 1432mm high overall - W-01-A	No	1
F	Window 199 x 1931mm high overall - W-01-B	No	1
G	Window 200 x 2507mm high overall - W-01-C	No	1
H	Window 185 x 3448mm high overall - W-01-D	No	1
J	Window 7735 x 750mm high with 827 x 1950mm high side panel - W-02-E	No	1
K	Window 4074 x 750mm high overall - W-02-F	No	1
L	Window 3700 x 750mm high overall - W-03-G	No	1

Carried to Collection

Bill No. 12

Metalwork

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

ALUMINIUM SHOPFRONTS

Shopfront facade comprised of class 2 powder coated aluminium alloy extrusions (Colour: RAL 7043) for framing, perimeter or fully framed, fixed with required deadlock and wind load brackets, compensating channel head restraints, filled in with butt-jointed single glazed toughened PG SmartGlass: clear safety glass or similar approved in accordance with AAAMSA standards. Facade to include all fixings, anchors, bolts, cast-in channels, structural steel supports required, external - and internal corners, waterproofing angles, ironmongery, etc. , all designed in accordance with architects drawings, supplied and installed by specialist subcontractor

External

A	Shopfront 1370 x 2400mm high - SF-01-A (Gatehouse)	No	1
B	Shopfront 1406 x 6119mm high - SF-01-A and SD21 (Generator Building)	No	1
C	Shopfront 1500 x 2400mm high - SF-01-B (Gatehouse)	No	1
D	Shopfront 1510 x 2400mm high - SF-01-C (Gatehouse)	No	1
E	Shopfront 345 x 5019mm high - SF-01-E (Generator Building)	No	1
F	Shopfront 1380 x 2750mm high - SF-01-O	No	4
G	Shopfront 600 x 2750mm high - SF-01-P	No	8
H	Shopfront 700 x 2750mm high - SF-01-Q	No	2
J	Shopfront 2945 x 5799mm high - SF-01-C	No	1
K	Shopfront 12118 x 1300mm high - SF-02-K	No	1
L	Shopfront 3097 x 2400mm high - SF03-B (Generator Building)	No	1
M	Shopfront 5755 x 2740mm high and 5755 x 2186mm high - SF-03-D1 (Gatehouse)	No	1
N	Shopfront 8814 x 2750mm high - SF-03-I	No	1
P	Shopfront 5817 x 5934mm high - SF-03-R	No	1

Carried to Collection

Bill No. 12

Metalwork

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

Shopfront facade comprised of class 1 powder coated aluminium alloy extrusions (Colour: RAL7043) for framing, perimeter or fully framed, fixed with required deadlock and wind load brackets, compensating channel head restraints, filled in with butt-jointed single glazed toughened PG SmartGlass: clear safety glass or similar approved in accordance with AAAMSA standards. Facade to include all fixings, anchors, bolts, cast-in channels, structural steel supports required, external - and internal corners, waterproofing angles, ironmongery, etc. , all designed in accordance with architects drawings, supplied and installed by specialist subcontractor

Internal

A	Shopfront 600 x 2750mm high - SF-01-P	No	3
B	Shopfront 10010 x 3480mm high overall - SF-01-A	No	1
C	Shopfront 9958 x 2820mm high overall - SF-01-B	No	1
D	Shopfront 5600 x 2807mm high - SF-01-D	No	1
E	Shopfront 4600 x 2750mm high - SF-01-E	No	1
F	Shopfront 1620 x 2750mm high - SF-01-F	No	1
G	Shopfront 6274 x 2750mm high - SF-01-J	No	1
H	Shopfront 4073 x 1400mm high - SF-01-G	No	1
J	Shopfront 2034 x 1400mm high - SF-01-H	No	1
K	Shopfront 4317 x 1450mm high - SF-02-L	No	1
L	Shopfront 3651 x 1450mm high - SF-02-M	No	1
M	Shopfront 5024 x 1450mm high - SF-02-N	No	1

Carried to Collection

Bill No. 12

Metalwork

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

Bill No. 12
Metalwork
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

ALUMINIUM DOORS

Class 2 powder coated aluminium doors (Colour: RAL 7043), as per architect's specifications including single glazed clear safety glass in accordance with AAAMSA standards, plugged to brickwork/concrete/steel beams/ partitions including waterproofing angles, necessary sealants and aluminium/rubber gaskets, ironmongery, all designed in accordance with architects drawings, supplied and installed by specialist contractor

A	Door 986 x 2465mm high overall - SD1	No	4
	<u>Class 1 powder coated aluminium doors (Colour: RAL 7043), as per architect's specifications including single glazed clear safety glass in accordance with AAAMSA standards, plugged to brickwork/concrete/steel beams/ partitions including waterproofing angles, necessary sealants and aluminium/rubber gaskets, ironmongery, all designed in accordance with architects drawings, supplied and installed by specialist contractor</u>		
B	Door 986 x 2465mm high overall - SD1	No	1
C	Door 986 x 2390mm high overall - SD2	No	4
D	Door 705 x 2460mm high overall - SD3	No	2
E	Door 1630 x 2700mm high overall - SD6	No	1

Carried to Collection

Bill No. 12

Metalwork

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

SUNDRY ALUMINIUM WORK

"Dibond" or Similar approved fixed according to manufacturer's specifications. Colour: RAL 7043.

A	To walls	m2	19
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GALVANISED STEEL BOLLARDS, CAT LADDER, ETC

480mm wide cat ladder and 820mm wide cage, ladder comprising of 22mm diameter GMS guard rails spaced at 600mm cc's and welded to 38mm diameter GMS vertical members. 38mm diameter members to be welded to 90mm diameter GMS fixing plates, bolted to brickwork. 22mm diameter GMS step rails spaced 300mm cc's and welded to 38mm diameter vertical members. Including 410 x 890mm metis grid platform. All supplied and constructed as per drawings. Refer to Architects Drawing A(29)1002.

B	480 x 8000mm high Cat ladder and 820mm wide cage - Cat Ladder A	No	1
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C	480 x 8500mm high Cat ladder and 820mm wide cage - Cat ladder B	No	1
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D	480 x 8000mm high Cat ladder and 820mm wide cage - Cat Ladder C	No	1
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Bumpers as per Uni Cape Equipment (PTY) Ltd. Type MI2/4 DB402D (OEA) or similar approved, fixed vertically to manufacturer's specifications in front of loading dock @ 2300mm cc's.

E	115 x 95mm Bumpers plugged to walls	No	3
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Carried to Collection

Bill No. 12

Metalwork

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

STEEL GATES, SCREENS, ETC

MTX-01 - 103/280D Mentex by Mentis Afirca or equally approved mesh and gates to structural framing

A	Mesh covering in approximately 2750mm high panels fixed 80 x 40 x 3mm RHS posts at 2400mm spacing welded to 8 x 100 x 150mm baseplates and 80 x 40 x 3mm RHS midspan and top of vertical support members - Powder Coated, colour: 7043	m	19
B	Single gate 1180 x 2750mm high with 80 x 40 x 3mm RHS vertical members and 80 x 40 x 3mm RHS horizontal members fitted with a pair of suitable hinges welded complete prepared to receive access control (elsewhere measured) - Powder Coated, colour: 7043	No	3

Carried to Collection

Bill No. 12

Metalwork

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

Item No	Unit	Quantity	Rate	Amount
<u>BILL No. 13</u>				
<u>PLASTERING</u>				
<u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades 2017 before pricing this bill				
<u>SUPPLEMENTARY PREAMBLES</u>				
<u>GRANOLITHIC</u>				
<u>Method</u>				
The method to be used shall be either the monolithic method or the bonded method				
<u>Preparation</u>				
For granolithic applied monolithically, the concrete floor shall be swept clean after bleeding of the concrete has ceased and the slab has begun to stiffen; any remaining bleed water shall be removed and the granolithic applied immediately thereafter. For granolithic to be bonded to the floor slab after it has hardened, the slab surface shall be hacked (preferably by mechanical means) until all laitance, dirt, oil, etc is dislodged and swept clean of all loose matter. The slab shall then be wetted and kept damp for at least six hours before applying the granolithic				
<u>Mix</u>				
Granolithic shall attain a compressive strength of at least 41MPa. The coarse aggregate shall comply with SANS 1083 and shall generally be capable of passing a 10mm mesh sieve. Where the thickness of the granolithic exceeds 25mm, the size of the coarse aggregate shall be increased to the maximum size compatible with the thickness of the granolithic				
Carried to Collection				R
Bill No. 13 Plastering SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES				

Panels

Granolithic shall be laid in panels not exceeding 14m² for monolithic 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

Where possible joints between panels shall be positioned over joints in the floor slab and shall be at least 3mm wide through the full thickness of the finish, separated by strips of wood or fibreboard and finished with V-joints

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. The granolithic shall be throughly 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 the granolithic in the proportion of ? kg pigment per pocket of cement, of uniform appearance and consistent colour throughout

Carried to Collection

R

Bill No. 13

Plastering

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

INTERNAL PLASTER

Cement plaster steel trowelled, on brickwork

A	On walls	m2	3 938
B	On narrow widths	m2	111

Cement plaster wood floated for tiles, on brickwork

C	On walls	m2	141
D	On narrow widths	m2	2

EXTERNAL PLASTER

Cement plaster on brickwork

E	On walls	m2	1 235
F	On narrow widths not exceeding 300mm wide	m2	82

Cement plaster wood floated, on concrete

G	On projecting and isolated columns	m2	325
H	On projecting and isolated beams	m2	421

Carried to Collection

R

Bill No. 13

Plastering

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

Item No	Unit	Quantity	Rate	Amount
BILL No. 13				
<u>TILING</u>				
<p><u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades 2017 before pricing this bill</p>				
<u>SUPPLEMENTARY PREAMBLES</u>				
<u>Descriptions</u>				
All floor tiles are to be completely covered/backed with adhesive in order to ensure no hollow areas behind tiles.				
<u>Repairs</u>				
Repairs to damaged areas in the existing concrete surface bed or slab is to be done using "TAL Superscreed" or similar approved				
<u>Sealants, etc</u>				
Tenders should include in their price for silicone sealant between all skirting tiles and floor tiles.				
<u>Movement joints</u>				
Tenders are to include in their price for soft joint and sealants horizontally and vertically every 5m ² to floor tiling or in accordance with the manufacturer's requirements. Joints to be sealed with "Sikaflex Pro 2HP" or similar approved after priming the joint with "Sika Primer" or similar approve. Where practical the bulk of the depth of the joint can be filled with 6mm diameter closed cell polyethylene chord.				
Always provide expansion joint on wall perimeter of tiles.				
<u>Grouting joints</u>				
Joints to be 3 to 5mm maximum width				
Carried to Collection				R
Bill No. 14 Tiling SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES				

Prime Cost (PC) Sums

Prime Cost (PC) Sums means an amount of money provided in the bills of quantities for material and goods to be obtained from a supplier nominated by the architect and to be fixed by the contractor (Clause 1.1 of Principal Building Agreement) The prime cost amount shall be omitted from the contract sum and the amounts actually paid by the contractor in respect of the purchase of the nett quantity of such items including delivery to site shall be added to the contract sum. The contractor has to allow for labour, profit and waste in his rate over and above the PC amount

WALL TILING

1620 x 3240 x 6mm Porcelain wall tiles (Colour: Royal Peacock, Finish: MB20, Supplier: Artmar Natural Stone) fixed with and including "TAL Gold Star 6" or similar approved adhesive to bedding (bedding elsewhere measured) and flush pointed with and including "TAL Fine Epoxy" or similar approved grouting compound, colour: Dove Grey

A	On walls	m2	60
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1200 x 600 x 6mm Mirage Glocal Collection "Absolute GC06" porcelain wall tiles (fixed with and including "TAL Gold Star 6" or similar approved adhesive to bedding (bedding elsewhere measured) and flush pointed with and including "TAL Fine Epoxy" or similar approved grouting compound, colour: Dove Grey. Supplier: Tactile

B	On walls	m2	82
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C	On narrow widths	m2	1
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ATTIC STOCK

D	Allow the Budgetary Allowance of R 2 500.00 (Two Thousand Five Hundred Rand) for attic stock to be used as directed by the Principal Agent and deducted in whole or in part if not required	Item	2 500.00
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Carried to Collection

R

Bill No. 14

Tiling

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

Item No	Quantity	Rate	Amount
<u>BILL No. 15</u>			
<u>PLUMBING AND DRAINAGE</u>			
<p><u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades 2017 before pricing this bill</p>			
<u>SUPPLEMENTARY PREAMBLES</u>			
<u>uPVC pipes and fittings</u>			
Sewer and drainage pipes and fittings shall be jointed and sealed with butyl rubber rings Soil, waste and vent pipes and fittings shall be solvent weld jointed			
<u>uPVC pressure pipes and fittings</u>			
Pipes for water supply shall be of the class stated Pipes of 40mm 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			
<u>Copper pipes</u>			
Pipes shall be hard drawn and half-hard pipes of the class stated. 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. Only compression fittings shall be used in walls or in ground			
<u>Fixing of pipes</u>			
Unless specifically otherwise stated, descriptions of pipes shall be deemed to include fixing to walls etc, casting in, building in or suspending not exceeding 1m below suspension level			
Carried to Collection			
Bill No. 15 Plumbing and Drainage SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES			

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

Wire gratings

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

Excavations

No claim for rock excavation will be entertained unless the contractor has timeously notified the quantity surveyor 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

LD : Sewers

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

Carried to Collection

Bill No. 15

Plumbing and Drainage

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

Flush pans

Flush pans shall have straight or side outlets and "P" or "S" traps as necessary

Stainless steel basins, sinks, wash troughs, urinals, etc

Units shall have standard aprons on all exposed edges and tiling keys against walls where applicable

Waste unions

Descriptions of waste unions shall be deemed to include rubber or vulcanite plugs and chains fixed to fittings

Sealing

Prices for sanitary fittings shall include for sealing against walls with silicone sealing compound. This shall apply to all sanitary fittings with a "ABE" Dow corning acetoxy silicone sealant.

"Geberit"

All "Geberit" specified items to be supplied and installed according to "Geberit" specifications. "Geberit" conditional guarantee to be provided after installation.

"Mepla"

All "Mepla" specified items to be supplied and installed according to "Mepla" specifications. "Mepla" conditional guarantee to be provided after installation.

Guarantee

The subcontractor shall guarantee the material, apparatus and workmanship delivered by him for a period of eighteen (18) months from date of practical completion

As-built drawings

The contractor shall prepare an updated set of as-built drawings. At completion of the contract the contractor shall hand these drawings to the principal agent for reproducing onto the originals for handing over to the employer (provision for allowance of as-built drawings elsewhere)

Carried to Collection

Bill No. 15

Plumbing and Drainage

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

<u>RAINWATER DISPOSAL</u>				
	<u>"Gutterfast" or similar approved seamless aluminium prepainted gutters and rainwater pipes, all designed in accordance with architects drawings, supplied and installed by specialist subcontractor</u>			
A	140 x 120mm deep Roof gutters with beaded front edge and including integrated flashing , three times bent along length including fixing traps along the length of the gutter - Gutter type 2	m	23	
B	120 x 100mm deep Roof gutters with beaded front edge and including integrated flashing, three times bent along length including fixing traps along the length of the gutter - Gutter type 5	m	51	
C	240 x 200mm deep Roof gutters with 665mm girth, three times bent along length including fixing traps along the length of the gutter - Gutter type 3	m	14	
D	100 x 75mm Rainwater pipes	m	96	
E	Extra over for outlet with spout for 200mm diameter pipe, including wire balloon grating	No	21	
F	Extra over rainwater pipe for 100 x 75mm Shoe	No	21	
G	Extra over rainwater pipe 100 x 75mm for bend	No	21	
	<u>"Saint-Gobain" Rain-Flo 90 degree flat grate fulbore with uPVC adaptor. Including dome grate</u>			
H	110mm 90° Horizontal outlet	No	1	
	<u>uPVC class 6 pipes fixed to slab soffits including fixing to walls and columns with and including hot dipped galvanized purpose made fabricated welded and drilled brackets with flat bar bracket bent to suit pipe fitted with rawl bolts</u>			
J	110mm Diameter pipes	m	4	
	<u>Extra over uPVC Class 6 for fittings</u>			
K	110mm Bend	No	1	
L	110mm Elbow	No	1	
Carried to Collection				R
Bill No. 15				
Plumbing and Drainage				
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein				
PROVISIONAL BILLS OF QUANTITIES				

"Scupper Drain" cast in uPVC class 34 pipe

A	110mm pipe fixed to wall, with elbow and bend to surface discharge with girth not exceeding 500mm	No	3
	<u>uPVC class 34 pipes fixed to slab soffits including fixing to walls and columns with and including hot dipped galvanized purpose made fabricated welded and drilled brackets with flat bar bracket bent to suit pipe fitted with rawl bolts</u>		
B	110mm Diameter pipes	m	11
	<u>Extra over uPVC class 34 for fittings</u>		
C	110mm Bend	No	3
D	110mm Elbow	No	3

Carried to Collection

Bill No. 15
Plumbing and Drainage
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

R

<u>SANITARY FITTINGS</u>					
<u>Manufactured by "Duravit" or similar approved</u>					
A	D-Neo wall mounted pan rimless, colour: white alpin. Code: 2577090000	No	16		
B	D-Neo removable seat and cover, colour: white. Code: 0021690000	No	16		
C	Handrinse basin 36cm D-code, with right punched. Code: 07053600082. Including fixing bolts M10.	No	4		
D	Washbasin 60cm D-code Med, Code: 23116000702. Including fixing bolts set for basin	No	3		
<u>Manufactured by "Geberit" or similar approved</u>					
E	Kombifix with Sigma concealed cistern. Code: 110.798.00.1	No	19		
F	Sigma10 actuator plate. Plate and button: black, Design ring: bright chrome-plated. Code: 115.758.KM.5	No	16		
G	Sigma cover plate, colour: white. Code: 115.768.11.1	No	3		
H	Type 01 remote flush actuation remote actuator. Code: 116.045.11.1	No	3		
J	Selnova Comfort wall hung WC, barrier-free. Code: 500.693.01.2	No	3		
K	Selnova Comfort wall hung WC seat, barriers free. Code: 501.559.01.1	No	3		
L	Flush control installation set with nipple made of brass. Code: 116.004.00.1	No	4		
M	Selnova wall-hung urinal for exposed control top entry, Colour: White. Code: 500.343.01.1	No	4		
N	Outlet siphon with syphonic action horizontal outlet. Code: 0051130000.	No	4		
P	Water inlet mechanism 1/2" for urinals with back supply. Code: 6958000000.	No	4		
Carried to Collection				R	
Bill No. 15					
Plumbing and Drainage					
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein					
PROVISIONAL BILLS OF QUANTITIES					

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Plumbing and Drainage
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
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<u>WASTE UNIONS, ETC</u>					
<u>Manufactured by "Cobra" or similar approved</u>					
A	32mm Pop-up basin waste, unslotted. Code: P8640	No	16		
<u>TRAPS, ETC</u>					
<u>Manufactured by "Gio" or similar approved</u>					
B	32 x 32mm Round heavy duty bottle trap, including rubber bun. Code: A186	No	20		
<u>Manufactured by "Herbish" or similar approved</u>					
C	Floor drain with adjacent flange (vertical outlet). Code: HB125V-50	No	22		
<u>Manufactured by "TrapMate" or similar approved</u>					
D	40mm P-trap with basin and sink fittings. Code: 111214	No	3		
<u>Manufactured by "Hydrotec" or similar approved</u>					
E	Sarah-Lee horizontal (blue), complete with black grid. Code: HTSL-50/75 HB	No	5		
<u>TAPS, VALVES, ETC</u>					
<u>"Decor" or similar approved</u>					
F	Single lever basin mixer with extra long handle. Code: 31910223	No	3		
<u>"Hansgrohe" or similar approved</u>					
G	Vernis Blend overhead shower 200 1 Jet Ecosmart. Code: 26277000	No	5		
H	Vernis Blend Shower Arm 24cm. Code: 27809000	No	5		
J	Vernis blend 2 hole concealed basin mixer. Code: 71576000, including basin mixer set. Code: 13622180	No	13		
K	2-Hole concealed basin mixer set. Code: 13622180	No	17		
Carried to Collection				R	
Bill No. 15					
Plumbing and Drainage					
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein					
PROVISIONAL BILLS OF QUANTITIES					

A	Vernis blend concealed shower mixer. Code: 71649000	No	5
B	Shower basic set DN15. Code: 13620180	No	5
C	Decor single lever kitchen mixer, finish: chrome. Code: 31820223	No	3
D	Vernis blend single lever basin. Code: 71570003	No	4
	<u>"Cobra" or similar approved</u>		
E	Bibtap chrome plated with threaded nozzle hose union: 059-15. Code: 207 EC - 15	No	1
F	Bibtap chrome plated with threaded nozzle hose union: 059-15. Code: 206 EC - 15	No	1
	<u>"Geberit Mepla" Isolating valves</u>		
G	16mm Isolating ball valve	No	53
H	20mm Isolating ball valve	No	4
J	26mm Isolating ball valve	No	6
K	32mm Isolating ball valve	No	7
L	40mm Isolating ball valve	No	2
	<u>Angle valves</u>		
M	1/2" x 1/2" angle valve. Code: 5188DR	No	6

Carried to Collection

R

Bill No. 15
Plumbing and Drainage
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

VALVE BOXES, METER BOXES, ETC.

"SENSUS MEISTREAM" or similar approved

A	32mm "SYR" strainer	No	1
B	32mm Water meter including meter box	No	1
C	40mm "SYR"" strainer	No	2
D	40mm Water meter including meter box	No	2

Carried to Collection

R

Bill No. 15
Plumbing and Drainage
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

BATHROOM ACCESSORIES

Manufactured by "Franke" or similar approved

A	CNTX PAR Paraplegic grab rail. Code: 2510012	No	3
B	CNTX600 Straight grab rail. Code: 2510005	No	3
<u>Manufactured by "Franke" or similar approved</u>			
C	RODX625 Satin stainless steel electronic soap dispenser, wall mounted	No	11
D	RODX672 Double toilet roll holder, wall mounted. Code: 2120101	No	19
E	Jetstream Airtonic hand dryer 2500002, wall mounted	No	5

Carried to Collection

Bill No. 15
Plumbing and Drainage
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

R

SANITARY PLUMBING

"HDPE" pipes with butt welded joints and expansion and
electro welded couplings

A	56mm Pipes	m	14
B	63mm Pipes	m	3
C	110mm Pipes	m	47
<u>"HDPE" pipes with butt welded joints and expansion and electro welded couplings chased in walls</u>			
D	56mm Pipes	m	11
E	63mm Pipes	m	3
F	110mm Pipes	m	36

Carried to Collection

Bill No. 15
Plumbing and Drainage
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

R

Extra over "HDPE" pipes with butt welded joints and expansion and electro welded couplings for fittings

A	56mm Bend	No	29
B	56mm Junction	No	4
C	56mm Access bend	No	5
D	56mm Inspection eye	No	3
E	56mm Rodding eye	No	3
F	63mm Bend	No	3
G	63mm Junction	No	2
H	63mm Access bend	No	5
J	63mm Inspection eye	No	4
K	63 x 56mm reducing junction	No	2
L	110mm Pan connector	No	19
M	100 x 32mm reducing junction	No	1
N	110 x 56mm Reducer	No	6
P	110mm "GI One-way" vent valve	No	3
Q	110mm "GI Two-way" vent valve	No	4
R	110mm Bend	No	29
S	110mm Junction	No	17
T	110 x 56mm Reducing junction	No	10
U	110 x 63mm Reducing junction	No	1

Carried to Collection

Bill No. 15
Plumbing and Drainage
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

R

A	110mm Access bend	No	5
B	110mm Inspection eye	No	3
C	110mm Rodding eye	No	3
D	110mm Stub stack with end cap	No	3
	<u>Testing</u>		
E	Testing waste pipe system		Item

Carried to Collection

Bill No. 15
Plumbing and Drainage
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

R

HOT AND COLD WATER SUPPLY

"Geberit" or similar Multi layer pipe

A	16mm Pipes	m	51
B	20mm Pipes	m	22
C	26mm Pipes	m	28
D	32mm Pipes	m	54
E	40mm Pipes	m	4

"Geberit" or similar Multi layer pipe chased in walls

F	16mm Pipes	m	50
G	32mm Pipes in walls	m	9
H	40mm Pipes in walls	m	4

Extra over class "Geberit" or similar Multi layer pipes for fittings

J	16mm Fittings	No	94
K	20mm Fittings	No	41
L	26mm Fittings	No	10
M	32mm tee	No	6
N	32 x 16mm Reducer tee	No	3
P	32 x 20mm Reducer tee	No	5
Q	32 x 26mm Reducer tee	No	4
R	40mm Elbow	No	2
S	40 x 26mm Reducer tee	No	1

Carried to Collection

Bill No. 15
Plumbing and Drainage
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

R

LAGGING

"Insulflex" or similar approved pipe insulation

A	Insulation to 16mm pipe and couplings	m	29
B	Insulation to 20mm pipe and couplings	m	16
C	Extra for wrapping around 16mm diameter fittings	No	22
D	Extra for wrapping around 20mm diameter fittings	No	16

Testing

E	Testing water pipe system	Item	
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Carried to Collection

R

Bill No. 15
Plumbing and Drainage
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

CONDENSATE PLUMBING

"HDPE" pipes with butt welded joints and expansion and electro welded couplings

A	32mm Pipes	m	25
B	56mm Pipes	m	43
C	75mm Pipes	m	7
<u>Extra over "HDPE" pipes with butt welded joints and expansion and electro welded couplings for fittings</u>			
D	32mm Bend	No	5
E	32mm Junction	No	4
F	32mm P-trap	No	9
G	56mm Bend	No	6
H	56mm Junction	No	1
J	56mm P-trap	No	7
K	56 x 32mm reducing junction	No	4
L	75 x 50mm Reducing junction	No	1
M	75mm Bend	No	1

Carried to Collection

Bill No. 15
Plumbing and Drainage
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

R

FIREWATER SUPPLY

Steel pipes with welded joints and expansion and couplings all in accordance to SANS 62. Including Red oxide primer coat

A	100mm Pipes	m	60
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Steel pipes with welded joints and expansion and couplings all in accordance to SANS 62. Including Red oxide primer coat in walls

B	28mm Pipes in walls	m	15
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C	100mm Pipes in walls	m	8
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Extra over steel pipes for fittings

D	28mm Fittings	No	11
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E	80mm Bend	No	2
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F	100mm Bend	No	7
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G	100 x 28mm Reducer junction	No	3
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H	100 x 80m Reducer junction	No	1
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FIRE APPLIANCES, ETC

Fire hosereels

J	Fire hose reel complete with 30m hose, chromium plated stopcock, shut-off nozzle and wall bracket	No	7
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Fire Extinguishers

K	4.5kg Dry chemical powder fire extinguisher on and including a painted backing board	No	25
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L	9kg Dry chemical powder fire extinguisher on and including a painted backing board	No	4
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Fire Hydrant

M	80mm Hydrant, including flanges, 80mm duck foot bend, bolts, gaskets, etc	No	2
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Carried to Collection

Bill No. 15

Plumbing and Drainage

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

BUDGETARY ALLOWANCES

A	Allow budgetary amount of R250 000.00 (Two Hundred and Fifty Thousand RAND) for fire stopping to be used as directed by the Principal Agent and deducted in whole or in part if not required			Item	250 000.00
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ELECTRIC WATER HEATERS

"Kwikot" or similar approved

B	150 Litre standard floor mounted electric water heater	No	2		
C	Horizontal polyethylene drip tray for 150 liter geyser with outlet, including timber bearers	No	2		
D	200 Litre standard floor mounted electric water heater	No	2		
E	Horizontal polyethylene drip tray for 200 liter geyser with outlet, including timber bearers	No	2		
F	9kW Heat pump, with 230V, 50Hz electrical requirements and including electrical connection	No	1		

AS-BUILT DRAWINGS

G	Provision of as-built drawings			Item	
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Carried to Collection

R

Bill No. 15
Plumbing and Drainage
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

Item No	Quantity	Rate	Amount
<u>BILL No. 16</u>			
<u>ELECTRICAL INSTALLATION</u>			
<p><u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades before pricing this bill</p> <p><u>NOTE:</u> A complete Bill of Quantities for this trade is attached to this tender document under Part C1.2.2 - Part 1.2.6</p> <p>The Bill in Part C1.2.2 - Part 1.2.6 should be fully priced and form part of the tender returnable documentation as accompanying documentation.</p> <p>The relevant Bill total in Part C1.2.2 - Part 1.2.6 should be carried forward to this trade and builders profit and attendance should then be priced for accordingly.</p>			
<u>SUPPLEMENTARY PREAMBLES</u>			
<p>The following are for work to be carried out by selected subcontractors in terms of Clause 21 of the Principal Building Agreement prepared and published by the Joint Building Contracts Committee: Edition 5.0 Code 2101, July 2007. (The JBCC Series 2000 Principal Building Agreement).</p>			
Carried to Collection			R
<p>Bill No. 16 Electrical Installation SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES</p>			

General attendance on nominated/selected subcontractors

The item "Attendance" which follows each provisional sum for nominated/selected subcontractors' work, shall be deemed to cover all the contractor's costs incurred in providing free of charge to the nominated/selected subcontractors, the following:

1. Access to the site and places where the subcontract work is to be carried out, including the reasonable use of any temporary personnel hoists erected by the contractor
2. The provision of water and lighting and of single phase electric power to a position within 50 metres of the place where the subcontract or subcontractors work is to be carried out other than water, fuel and power for commissioning of any installation
3. The provision of an area for the subcontractor to establish temporary office accommodation and workshops and for the storage of plant and materials and goods
4. The use of erected scaffolding belonging to the contractor, in common with others having the like right, while it remains erected on the site. It is submitted that the contractor is only entitled to charge a subcontractor for the use of scaffolding if it is needed by the subcontractor for an extended period due to his own default
5. The use of ablution facilities and the like, where provided
6. The use of the site telecommunication facilities, where provided, subject to payment by the subcontractor for usage thereof
7. Making good all trades and cleaning down and removal of rubbish on completion

Special attendance on nominated/selected subcontractors

Where applicable, special attendance will be described under the relevant subcontract listed below, in accordance with Clause B8.1 of the Preliminaries

Carried to Collection

Bill No. 16

Electrical Installation

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

**ELECTRICAL INSTALLATION - LOW VOLTAGE
INSTALLATION + UPS**

A Electrical Installation - LOW VOLTAGE INSTALLATION + UPS
total value as carried over from Part C1.2.2

Item

B Add for profit

Item

C Add for general attendance on subcontractor

Item

D Add for special attendance on subcontractor

Item

Selected subcontractors name:

Carried to Collection

R

Bill No. 16

Electrical Installation

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

**ELECTRICAL INSTALLATION - INFRASTRUCTURE
INSTALLATION**

- A Electrical Installation - INFRASTRUCTURE INSTALLATION
total value as carried over from Part C1.2.3
- B Add for profit
- C Add for general attendance on subcontractor
- D Add for special attendance on subcontractor

Item

Item

Item

Item

Selected subcontractors name:

Carried to Collection

R

Bill No. 16

Electrical Installation

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

**ELECTRICAL INSTALLATION - STANDBY
GENERATOR INSTALLATION**

A	Electrical Installation - STANDBY GENERATOR INSTALLATION total value as carried over from Part C1.2.4	Item
B	Add for profit	Item
C	Add for general attendance on subcontractor	Item
D	Add for special attendance on subcontractor	Item
Selected subcontractors name:		

Carried to Collection

R

Bill No. 16
Electrical Installation
**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

**ELECTRICAL INSTALLATION - EARTHING AND
LIGHTNING PROTECTION INSTALLATION**

A Electrical Installation - EARTHING AND LIGHTNING
PROTECTION INSTALLATION total value as carried over from
Part C1.2.5

Item

B Add for profit

Item

C Add for general attendance on subcontractor

Item

D Add for special attendance on subcontractor

Item

Selected subcontractors name:

Carried to Collection

R

Bill No. 16

Electrical Installation

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

ELECTRICAL INSTALLATION - BMS INSTALLATION

- A Electrical Installation - BMS INSTALLATION total value as carried over from Part C1.2.6
- B Add for profit
- C Add for general attendance on subcontractor
- D Add for special attendance on subcontractor

Item

Item

Item

Item

Selected subcontractors name:

Carried to Collection

R

Bill No. 16
Electrical Installation
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

Item No		Quantity	Rate	Amount
	<u>BILL No. 17</u>			
	<u>ELECTRONIC INSTALLATION</u>			
	<u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades before pricing this bill			
	<u>NOTE:</u> A complete Bill of Quantities for this trade is attached to this tender document under Part C1.2.7.			
	The Bill in Part C1.2.7 should be fully priced and form part of the tender returnable documentation as accompanying documentation.			
	The relevant Bill total in Part C1.2.7 should be carried forward to this trade and builders profit and attendance should then be priced for accordingly.			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	The following are for work to be carried out by selected subcontractors in terms of Clause 21 of the Principal Building Agreement prepared and published by the Joint Building Contracts Committee: Edition 5.0 Code 2101, July 2007. (The JBCC Series 2000 Principal Building Agreement).			
	<u>General attendance on nominated/selected subcontractors</u>			
	The item "Attendance" which follows each provisional sum for nominated/selected subcontractors' work, shall be deemed to cover all the contractor's costs incurred in providing free of charge to the nominated/selected subcontractors, the following:			
	1. Access to the site and places where the subcontract work is to be carried out, including the reasonable use of any temporary personnel hoists erected by the contractor			
	2. The provision of water and lighting and of single phase electric power to a position within 50 metres of the place where the subcontract or subcontractors work is to be carried out other than water, fuel and power for commissioning of any installation			
	3. The provision of an area for the subcontractor to establish temporary office accommodation and workshops and for the storage of plant and materials and goods			
	Carried to Collection			
	Bill No. 17			
	Electronic Installation			
	SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein			
	PROVISIONAL BILLS OF QUANTITIES			
			R	

4. The use of erected scaffolding belonging to the contractor, in common with others having the like right, while it remains erected on the site. It is submitted that the contractor is only entitled to charge a subcontractor for the use of scaffolding if it is needed by the subcontractor for an extended period due to his own default

5. The use of ablution facilities and the like, where provided

6. The use of the site telecommunication facilities, where provided, subject to payment by the subcontractor for usage thereof

7. Making good all trades and cleaning down and removal of rubbish on completion

Special attendance on nominated/selected subcontractors

Where applicable, special attendance will be described under the relevant subcontract listed below, in accordance with Clause B8.1 of the Preliminaries

Carried to Collection

Bill No. 17

Electronic Installation

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

ELECTRONIC INSTALLATION

A Electronic Installation consisting of passive network - fibre reticulation and data cabling total value as carried over from Part C1.2.7

Item

B Add for profit

Item

C Add for general attendance on subcontractor

Item

D Add for special attendance on subcontractor

Item

Selected subcontractors name:

Carried to Collection

R

Bill No. 17

Electronic Installation

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

Item No	Quantity	Rate	Amount
<u>BILL No. 18</u>			
<u>MECHANICAL INSTALLATION</u>			
<p><u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades before pricing this bill</p> <p><u>NOTE:</u> A complete Bill of Quantities for this trade is attached to this tender document under Part C1.2.8.</p> <p>The Bill in Part C1.2.8 should be fully priced and form part of the tender returnable documentation as accompanying documentation.</p> <p>The relevant Bill total in Part C1.2.8 should be carried forward to this trade and builders profit and attendance should then be priced for accordingly.</p>			
<u>SUPPLEMENTARY PREAMBLES</u>			
<p>The following are for work to be carried out by selected subcontractors in terms of Clause 21 of the Principal Building Agreement prepared and published by the Joint Building Contracts Committee: Edition 5.0 Code 2101, July 2007. (The JBCC Series 2000 Principal Building Agreement).</p>			
Carried to Collection			R
<p>Bill No. 18 Mechanical Installation SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES</p>			

General attendance on nominated/selected subcontractors

The item "Attendance" which follows each provisional sum for nominated/selected subcontractors' work, shall be deemed to cover all the contractor's costs incurred in providing free of charge to the nominated/selected subcontractors, the following:

1. Access to the site and places where the subcontract work is to be carried out, including the reasonable use of any temporary personnel hoists erected by the contractor
2. The provision of water and lighting and of single phase electric power to a position within 50 metres of the place where the subcontract or subcontractors work is to be carried out other than water, fuel and power for commissioning of any installation
3. The provision of an area for the subcontractor to establish temporary office accommodation and workshops and for the storage of plant and materials and goods
4. The use of erected scaffolding belonging to the contractor, in common with others having the like right, while it remains erected on the site. It is submitted that the contractor is only entitled to charge a subcontractor for the use of scaffolding if it is needed by the subcontractor for an extended period due to his own default
5. The use of ablution facilities and the like, where provided
6. The use of the site telecommunication facilities, where provided, subject to payment by the subcontractor for usage thereof
7. Making good all trades and cleaning down and removal of rubbish on completion

Special attendance on nominated/selected subcontractors

Where applicable, special attendance will be described under the relevant subcontract listed below, in accordance with Clause B8.1 of the Preliminaries

Carried to Collection

Bill No. 18

Mechanical Installation

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

MECHANICAL INSTALLATION

- A Mechanical Installation total value as carried over from Part C1.2.8
- B Add for profit
- C Add for general attendance on subcontractor
- D Add for special attendance on subcontractor

Item

Item

Item

Item

Selected subcontractors name:

Carried to Collection

R

Bill No. 18
Mechanical Installation
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

Item No		Quantity	Rate	Amount
	<u>BILL No. 19</u>			
	<u>FIRE DETECTION INSTALLATION</u>			
	<p><u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades before pricing this bill</p> <p><u>NOTE:</u> A complete Bill of Quantities for this trade is attached to this tender document under Part C1.2.9.</p> <p>The Bill in Part C1.2.9 should be fully priced and form part of the tender returnable documentation as accompanying documentation.</p> <p>The relevant Bill total in Part C1.2.9 should be carried forward to this trade and builders profit and attendance should then be priced for accordingly.</p>			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	<p>The following are for work to be carried out by selected subcontractors in terms of Clause 21 of the Principal Building Agreement prepared and published by the Joint Building Contracts Committee: Edition 5.0 Code 2101, July 2007. (The JBCC Series 2000 Principal Building Agreement).</p> <p><u>General attendance on nominated/selected subcontractors</u></p> <p>The item "Attendance" which follows each provisional sum for nominated/selected subcontractors' work, shall be deemed to cover all the contractor's costs incurred in providing free of charge to the nominated/selected subcontractors, the following:</p> <ol style="list-style-type: none"> 1. Access to the site and places where the subcontract work is to be carried out, including the reasonable use of any temporary personnel hoists erected by the contractor 2. The provision of water and lighting and of single phase electric power to a position within 50 metres of the place where the subcontract or subcontractors work is to be carried out other than water, fuel and power for commissioning of any installation 3. The provision of an area for the subcontractor to establish temporary office accommodation and workshops and for the storage of plant and materials and goods 			
	Carried to Collection		R	
	Bill No. 19 Fire Detection Installation SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES			

4. The use of erected scaffolding belonging to the contractor, in common with others having the like right, while it remains erected on the site. It is submitted that the contractor is only entitled to charge a subcontractor for the use of scaffolding if it is needed by the subcontractor for an extended period due to his own default

5. The use of ablution facilities and the like, where provided

6. The use of the site telecommunication facilities, where provided, subject to payment by the subcontractor for usage thereof

7. Making good all trades and cleaning down and removal of rubbish on completion

Special attendance on nominated/selected subcontractors

Where applicable, special attendance will be described under the relevant subcontract listed below, in accordance with Clause B8.1 of the Preliminaries

Carried to Collection

Bill No. 19

Fire Detection Installation

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

FIRE DETECTION INSTALLATION

- A Fire Detection Installation total value as carried over from Part C1.2.9
- B Add for profit
- C Add for general attendance on subcontractor
- D Add for special attendance on subcontractor

Item

Item

Item

Item

Selected subcontractors name:

Carried to Collection

R

Bill No. 19

Fire Detection Installation

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

[illegible]

Item No	Unit	Quantity	Rate	Amount
<u>BILL No. 21</u>				
<u>PAINTWORK</u>				
<u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades 2017 before pricing this bill				
<u>SUPPLEMENTARY PREAMBLES</u>				
<u>Surface preperation</u>				
Ensure that all surfaces are clean, dry and sound in accordance to SANS ISO 1514:2004				
<u>PAINT SPECIFICATIONS</u>				
All painting shall be done in accordance with the approved specifications or similar approved unless otherwise described				
<u>COLOURS</u>				
Unless otherwise described all paintwork shall be deemed to have a colour value in excess of 7 on the Munsell system in accordance with SANS 1091				
Carried to Collection				
				R
Bill No. 21 Paintwork SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES				

<u>ON FLOATED PLASTER SURFACES</u>					
<u>Prepare and apply one coat "Amoriguard A Gain exterior filler and two coats Amoriguard A grain top coat (colour: Grey), applied as per manufacturer's specifications</u>					
A	On internal walls and columns	m2	4 082		
B	On beams	m2	339		
<u>Prepare and apply one coat "Amoriguard A Gain exterior filler and two coats Amoriguard A grain top coat (colour: Grey), applied as per manufacturer's specifications</u>					
C	On external walls and columns	m2	1 595		
D	On beams	m2	448		
<u>ON BAGGED BRICKWORK OR CONCRETE SURFACES</u>					
<u>Prepare and apply one coat alkali resistant primer and two coats superior quality acrylic emulsion paint for interior and exterior use to manufacturer's specifications</u>					
E	On walls and columns	m2	944		
<u>Prepare and apply one coat alkali resistant primer and two coats superior quality acrylic emulsion paint for interior and exterior use to manufacturer's specifications</u>					
F	On walls and columns	m2	55		
<u>ON PLASTER BOARD</u>					
<u>Prepare and apply one coat "Amoriguard A Gain" exterior filler and two coats Amoriguard A grain top coat (colour: Grey), applied as per manufacturer's specifications</u>					
G	On ceilings	m2	556		
H	On bulkheads	m2	15		
J	On Partitions	m2	260		
Carried to Collection				R	
Bill No. 21 Paintwork SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES					

One coat primer and one coat alkyd based universal undercoat and two coats "Midax" Midama 190 matt acrylic emulsion paint or similar approved

A	On ceilings and cornices	m2	123
B	On bulkheads	m2	110
C	On Partitions	m2	260

ON METAL

One coat alkyd based zinc phosphate primer and two coats premium quality polyurethane enamel paint, on steel

D	On door frames, etc	m2	26
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Carried to Collection

Bill No. 21

Paintwork

SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

R

ON WOOD

Two coats wood primer

A	On backs of frames, linings, etc not exceeding 300mm wide	m	277
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One coat "Jax Oleu" oil wood primer or similar approved,
colour: Corn Silk

B	Door frames	m2	17
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One coat primer, one coat alkyd based universal undercoat
and two coats superior quality universal enamel paint

C	On doors	m2	102
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Carried to Collection

Bill No. 21

Paintwork

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

Item No	Quantity	Rate	Amount
<u>BILL No. 22</u>			
<u>EXTERNAL WORKS</u>			
<p><u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades 2017 before pricing this bill</p>			
<u>SUPPLEMENTARY PREAMBLES</u>			
<u>Wire gratings</u>			
Descriptions of gutter outlets etc shall be deemed to include wire balloon gratings			
<u>Stormwater channels</u>			
Descriptions of channels shall be deemed to include all necessary excavation and disposal of surplus material			
<u>Nature of the ground</u>			
A geotechnical investigation has been carried out on the site by the engineer refer to " <i>Part C1.3.5 Annexure E – Geotechnical Survey</i> " of the tender document.			
All classes of excavations in accordance with South African National Standards (1990) SANS 1200 D: Earthworks and Table 4-4, Classes of Excavation according to SANS 1200D, of the <i>Geotechnical Survey</i>			
Carried to Collection			R
Bill No. 22 External Works - General Buildings SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein PROVISIONAL BILLS OF QUANTITIES			

The Tenderer shall acquaint himself by personal examination of the nature of the ground. Descriptions of excavations shall be deemed to include all ground conditions classifiable as "earth or soft excavations" and where conditions of a more difficult character are indicated these are separately measured.

"Earth or soft excavations" shall mean all excavation in material that can be efficiently removed by a back-acting excavator of flywheel power approximately 0.10 kW per millimetre of tined-bucket width, without the use of pneumatic tools such as paving breakers for restricted excavation (e.g. trenching), and for unrestricted excavation in accordance with SANS 1200 D: Earthworks, Classes of Excavation, and shall include the following ground conditions descriptions:

- § Loose, SAND and GRAVEL
- § Loose to medium dense, SAND and GRAVEL
- § Medium dense, SAND and GRAVEL
- § Medium dense to dense, GRAVEL
- § Completely weathered, very soft rock, TILLITE
- § Highly weathered, soft rock, TILLITE

"Intermediate Excavation" shall mean all excavation in material that requires a back-acting excavator of flywheel power exceeding 0.10 kW per millimetre of tined-bucket width or the use of pneumatic tools before removal by equipment equivalent to that specified for soft excavation for restricted excavation (e.g. trenching), and for unrestricted excavation in accordance with SANS 1200 D: Earthworks, Classes of Excavation, and shall include the following ground conditions descriptions:

- § Moderately weathered, medium hard rock, TILLITE §

"Hard Excavation" shall mean hard rock excavation and shall be excavation in material (excluding boulder excavation) that cannot be efficiently removed without blasting or wedging and splitting for restricted excavation (e.g. trenching), and for unrestricted excavation in accordance with SANS 1200 D: Earthworks, Classes of Excavation.

Carried to Collection

Bill No. 22

External Works - General Buildings

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

No claim for "Intermediate Excavation" or "Hard Rock Excavation" will be entertained unless the contractor has timeously notified the principal agent thereof prior to backfilling

Keeping excavations free of water

Further to clause R.18.6 of the Model Preambles for Trades, excavations for sumps, catch pits, inspection chambers, junction boxes and the like shall be deemed to include for keeping free of water

Dewatering

The contractors attention is drawn to the geotechnical investigation. The contractor shall price for dewatering of subterranean water under the item provided in the bills of quantities and no additional cost will be entertained for removal of additional subterranean water in addition to priced item. The contractor to actively plan around these type of eventualities

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:

SABS 1200L : Medium-pressure pipelines, SABS 1200LD : Sewers and SABS 1200LE : Stormwater drainage

Pipe trenches etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200DB : 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 SABS 1200LB : 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

Bill No. 22

External Works - General Buildings

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

uPVC pipes and fittings

Sewer and drainage pipes and fittings shall be jointed and sealed with butyl rubber rings

Soil, waste and vent pipes and fittings shall be solvent weld jointed or sealed with butyl rubber rings

Gratings, covers, etc

Gratings, covers, etc shall be as manufactured by "Besaans du Plessis Foundries", unless otherwise described

uPVC pressure pipes and fittings

Pipes for water supply shall be of the class described

Pipes of 40mm 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

General

Pipe trenches is measured according to Method "B" of the Standard System of Measuring Building Work 2015, 7th Edition

Excavations for sumps, catch pits, inspection chambers, junction boxes and the like shall be deemed to include for risk of collapse, keeping free of water, backfilling, compaction to a minimum of 93% Modified AASHTO density and disposal of surplus material

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 SABS 1200 series

Precast concrete block road surfacing

Paving shall be laid in accordance with SABS 1200 MJ, SANS 1058 and the Concrete Masonry Association's specifications

Carried to Collection

Bill No. 22

External Works - General Buildings

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

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Bill No. 22
External Works - General Buildings
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

R

<u>RETAINING STRUCTURES & PLINTHS</u>					
<u>Excavations in earth not exceeding 2m deep</u>					
A	Trenches	m3	25		
<u>Risk of collapse of excavations</u>					
B	Sides of trench and hole excavations not exceeding 1.5m deep	m2	68		
<u>Earth filling obtained from the excavations and/or prescribed stock piles on site, compacted in not exceeding 200mm layers to 93% modified AASHTO density</u>					
C	Behind retaining blocks	m3	65		
<u>Filling supplied by the contractor under parking areas, roadways, etc</u>					
D	Subbase course of G7 material in accordance with SABS 1200 ME, compacted in layers not exceeding 150mm to 97% Mod AASHTO density	m3	14		
<u>15MPa/19mm concrete</u>					
E	Surface blinding under footings and bases	m3	5		
<u>25MPa/19mm concrete</u>					
F	Strip footings	m3	6		
<u>30MPa/19mm concrete</u>					
G	Plinths	m3	19		
H	Plinth walls	m3	13		
<u>Rough formwork to sides</u>					
J	Walls with total height not exceeding 3 500m	m2	224		
<u>Mild / High tensile steel reinforcement to structural concrete work</u>					
K	8 - 32mm Diameter bars	to	2.424		
Carried to Collection				R	
Bill No. 22					
External Works - General Buildings					
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein					
PROVISIONAL BILLS OF QUANTITIES					

<u>Fabric reinforcement</u>		
A	Type 888 fabric reinforcement in concrete surface beds etc.	m2 70
<u>"Cordrain" or similar approved slotted uPVC flexible pipes</u>		
B	110mm Pipes laid in and including trenches not exceeding 1m deep and backfilling with riversand, including 19mm crushed stone encasing size 400 x 400mm and "Kaymat U14" geofabric filter blanket wrapped around encasing with 150mm side and 300mm end laps, including stitching	m 34
<u>"Loffelstein" or similar approved precast concrete interlocking blocks</u>		
C	Retaining walls with stepped faces and curves as required to suit slopes, of 500 x 450 x 170mm high type L300 interlocking units laid with horizontal bed joints to 70 degree slope, including backfilling not exceeding 500mm wide with earth obtained from the excavations and filling units with topsoil lightly tamped as the work proceeds	m2 130

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Bill No. 22
External Works - General Buildings
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

MARSHALLING YARD

Concrete class 30/26 (CEM III A-S cement to sand EN 197-1 and slag to SANS 1491)

A	Marshalling yard cast in 4.5 x 4.5m panels on layerworks	m3	98
	<u>Finishing top surfaces of concrete with a power float and a coarse hard grass broom. No curing compound to be used, only water and plastic (clean wrap)</u>		
B	Marshalling yard	m2	545
	<u>Rough formwork to sides</u>		
C	Edges of surface bed panels, ramps, etc not exceeding 300mm high or wide	m	126
	<u>Saw cut joints in two operations including Pu seal (Pu seal elsewhere measured)</u>		
D	6 x 50mm Saw cut joints in top of concrete	m	226
	<u>"MM80" heavy duty epoxy resin joint sealant as per manufactures specifications</u>		
E	To 50 x 6mm wide saw-cut joints (SCJ) in floors to be applied after one year	m	226

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Bill No. 22
External Works - General Buildings
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

ROADWORK, PARKING AREAS AND PAVING

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

A	Subbase course over site compacted to 95% modified AASHTO density	m3	690
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Filling supplied by the contractor under parking areas, roadways, etc

B	Subbase course of G7 material in accordance with SABS 1200 ME, compacted in layers not exceeding 150mm to 97% Mod AASHTO density	m3	149
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C	Subbase course of G5 material in accordance with SABS 1200 DM, compacted in layers not exceeding 150mm to 98% Mod AASHTO density	m3	366
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D	Subbase course of C4 material in accordance with SABS 1200 ME, compacted in layers not exceeding 150mm to 98% Mod AASHTO density	m3	394
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Additional tests required by the principal agent

E	CBR test in accordance with method A8 of TMH1	No	10
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De-watering of seepage water and water from other sub-soil sources

F	Dewatering system for removal of seepage water and water from other subterranean sources in the bulk excavations designed and executed by the contractor including all temporary pipes, drainage sumps, silt trap, connections, well points, etc.	Item	
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Keeping bulk excavations free of water

G	Keeping excavations free of all water other than subterranean water	Item	
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Carried to Collection

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External Works - General Buildings

SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein

PROVISIONAL BILLS OF QUANTITIES

	<u>220 x 110 x 50mm Thick Nougat Paver (Supplier: Corobrik, colour: Tan) or similar approved laid in herringbone pattern in accordance with SANS 1058, laid to falls on and including 25mm thick sand layer with joints filled with sand, compacted with a vibration roller</u>		
A	Paving to sidewalks, etc to falls	m2	643
B	Extra over paver for brick-on-flat header course edging units on and including 15/19mm concrete bedding	m	89
	<u>200 x 100 x 50mm Thick Bond Paver (Supplier: CEL, Colour: Grey) or similar approved laid in herringbone pattern in accordance with SANS 1058, laid to falls on and including 25mm thick sand layer with joints filled with sand, compacted with a vibration roller</u>		
C	Paving to sidewalks, etc. to falls	m2	352
D	Extra over paver for brick-on-flat header course edging units on and including 15/19mm concrete bedding	m	290
	<u>203 x 102 x 80mm Thick interlocking paving (Supplier: CEL, colour: Charcoal) or similar approved in accordance with SANS 1058, laid to falls on and including 25mm thick sand layer with joints filled in with sand, compacted with a vibration compactor</u>		
E	Paving to parking areas etc to falls, including necessary straight edge blocks	m2	3 061
F	Circular cutting	m	30
	<u>80mm Thick cobble stone in accordance with SANS 1058, laid to falls on and including 25mm thick sand layer with joints filled in with sand, compacted with a vibration compactor</u>		
G	Paving to parking areas to create parking line	m	240

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External Works - General Buildings
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

PRECAST CONCRETE

Precast concrete finished smooth on exposed surfaces, including excavation, backfilling, 50mm min. 20 MPa bedding, 20 MPa continuous backing behind kerbs, jointing and pointing etc. in accordance with SANS 927 and SANS 1200MK

A	100 x 250mm High edging (SANS 927 fig E3)	m	263
B	150 x 250mm High kerb (SANS 927 fig BK2)	m	388
C	75 x 150mm High edgings (SANS 927 fig 12) circular on plan exceeding 4m radius formed with straight edgings	m	7
D	75 x 150mm High edgings (SANS 927 fig 12) circular on plan not exceeding 4m radius formed with short lengths of straight edgings	m	22
E	Combination kerb type BK2 + C1	m	167

Carried to Collection

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External Works - General Buildings
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

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ROAD MARKINGS

Road signs with painted background and symbols and with signboard constructed from aluminium sheeting (2mm thick) complete and in accordance to class III of SANS 1519

A	Stop sign (Type R1) 600mm high octagon size including galvanized steel post 75mm diameter including concrete base with excavations, 2 500mm high	No	2
B	Yield sign (Type R2) 900mm high triangular size including galvanized steel post 75mm diameter including concrete base with excavations, 2 500mm high	No	2
C	Standard "DISABLED" sign with 50mm diameter galvanised mild steel post bedded in and including unreinforced concrete base, including any necessary excavation, paint finish, etc	No	3
	<u>Prepare and apply two coats reflective road marking paint on bituminous road surfacing, precast concrete paving blocks, etc</u>		
D	Disabled sign	No	3

Carried to Collection

Bill No. 22

External Works - General Buildings

SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

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STORMWATER DRAINAGE

Slotted uPVC geopipes type: CORFLO to SABS 1601 including 19mm crushed stone encasing size 500 x 300mm and "Polytex Wowen" Geotextile (Type PT110) filter blanket wrapped around encasing with side and end laps including stitching

A	110mm Pipes laid in trenches (trenches elsewhere measured under "Earthworks")	m	449
B	EO for 110mm Cast iron rodding eye	No	5
	<u>Heavy duty (Class 34) uPVC pipes</u>		
C	200mm Pipes laid in and including trenches not exceeding 1m deep	m	25
D	EO for rodding eye	No	5
	<u>Precast concrete, Class 100D, spigot and socket pipes</u>		
E	450mm Pipes laid in and including trenches not exceeding 1m deep	m	33
F	450mm Pipes laid in and including trenches exceeding 1m and not exceeding 2m deep	m	40
	<u>Extra over excavations for excavations in</u>		
G	Intermediate excavation	m3	15
	<u>Construct concrete headwall units</u>		
H	(W) 860 x (X) 520 x (Y)900mm Headwall complete as per typical detail, drawing No P3589-C-T-005	No	4
	<u>Precast concrete circular inspection chambers including 560mm diameter type 2A (SABS 558-1973) cover and frame</u>		
J	Manhole 1 050mm internal diameter exceeding 1 250mm and not exceeding 1 500mm deep internally	No	3

Carried to Collection

Bill No. 22

External Works - General Buildings

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

R

[illegible]

<u>FOUL SEWER</u>					
<u>Excavation in earth exceeding 2m deep and not exceeding 4m deep</u>					
A	Holes - for conservancy tanks	m3	125		
<u>Extra over excavations for excavations in</u>					
B	Intermediate excavation	m3	85		
<u>Risk of collapse of excavations</u>					
C	Sides of trench and hole excavations exceeding 1.5m deep	m2	325		
<u>Heavy duty (Class 34) uPVC pipes</u>					
D	110mm Pipes laid in and including trenches not exceeding 1m deep	m	51		
E	110mm Pipes laid in and including trenches exceeding 1m and not exceeding 2m deep	m	90		
F	110mm Pipes laid in and including trenches exceeding 2m and not exceeding 3m deep	m	52		
G	110mm Pipes vertically or ramped to rodding eyes, etc (no excavations)	m	8		
<u>Precast concrete circular inspection chambers including 560mm diameter type 2A (SABS 558-1973) cover and frame</u>					
H	Manhole 1 050mm internal diameter exceeding 1 250mm and not exceeding 1 500mm deep internally	No	2		
J	Manhole 1 050mm internal diameter exceeding 2 250mm and not exceeding 2 500mm deep internally	No	1		
<u>Conservancy tank complete with and including excavation, bedding and jointing, concrete base slabs, jointing to drains and backfilling, compaction, etc and disposal of surplus material on site all in accordance with the manufactures instructions and in accordance with the engineers drawing P3589-C-TD-002</u>					
K	6000 litre conservancy tank complete with all necessary accessories, components, etc complete	No	5		
Carried to Collection				R	
Bill No. 22					
External Works - General Buildings					
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein					
PROVISIONAL BILLS OF QUANTITIES					

<u>Testing</u>					
A	Testing foul water sewer pipe system		Item		
<u>WATER RETICULATION</u>					
<u>SECTIONAL STEEL WATER TANK</u>					
B	5.44kL Sectional steel water tank, with and including all pipework and fittings, complete (as per engineers details Wet Services P3589-W-02) concrete plinths measured elsewhere	No	2		
C	110kL Sectional steel water tank, split in two for domestic water and fire with and including all pipework and fittings, complete (as per engineers details Wet Services P3589-W-02) concrete plinths measured elsewhere	No	1		
D	Pumpset consisting of duty and standby pump at 0.9L/s @ 3.5 Bar, 25A/380V/3-Phase D-Curve breaker, including neutral and earth electrical connection	No	2		
E	Pumpset consisting of duty and standby pump at 1.5L/s @ 4.0 Bar, 25A/380V/3-Phase D-Curve breaker, including neutral and earth electrical connection	No	1		
<u>"HDPE P PN12.5" pressure pipes to SABS966</u>					
F	28mm Pipes laid in and including trenches not exceeding 1m deep	m	80		
G	32mm Pipes laid in and including trenches not exceeding 1m deep	m	3		
H	40mm Pipes laid in and including trenches not exceeding 1m deep	m	20		
J	80mm Pipes laid in and including trenches not exceeding 1m deep	m	13		
K	100mm Pipes laid in and including trenches not exceeding 1m deep	m	13		
<u>Extra over "HDPE PE100 PN12.5" pressure pipes for fittings</u>					
L	28mm Fittings	No	8		
Carried to Collection					
Bill No. 22					
External Works - General Buildings					
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein					
PROVISIONAL BILLS OF QUANTITIES					

A	32mm Bend	No	3
B	40mm Bend	No	2
C	40mm Tee	No	2
D	80mm Bend	No	3
E	100 x 50mm Reducer	No	3
F	100mm Bend	No	3

Carried to Collection

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Bill No. 22
 External Works - General Buildings
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

FENCING AND GATES

"Clearvu" Invisible wall fencing comprising of 3297 x 1800mm high density pressed mesh panels with 2 x 70mm flanges to sides and 2 x 30mm flanges to top and bottom. 65mm tapered posts reducing to 45mm complete including Marine fusion bond finish as per manufacturer's specifications

A	Perimeter fencing 1 800mm high including concrete bases to all posts	m	107
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LANDSCAPING

Grassing, ground covers, etc

B	19mm Aggregate with tumble foliage shrubbery, colour natural brown	m2	71
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C	570 x 380 x 100mm "CEL pavers" or similar approved, hard lawn concrete block allowing for water run-off and grass growth, colour standard grey colour.	m2	484
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Landscaping

D	Budgetary amount of R350 000.00 (Three Hundred and Fifty Thousand Rand) for supply and installation of landscaping to be used as directed by the Principle Agent and deducted in whole or in part if not required	Item	350 000.00
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Carried to Collection

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Bill No. 22
External Works - General Buildings
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES

Item No	Quantity	Rate	Amount
<u>BILL No. 23</u>			
<u>CIVIL WORKS - SITE WIDE INFRASTRUCTURE</u>			
<u>NOTE:</u> Tenderers are advised to study the Model Preambles for Trades 2017 before pricing this bill			
<u>SUPPLEMENTARY PREAMBLES</u>			
<u>Wire gratings</u>			
Descriptions of gutter outlets etc shall be deemed to include wire balloon gratings			
<u>Stormwater channels</u>			
Descriptions of channels shall be deemed to include all necessary excavation and disposal of surplus material			
<u>Excavations</u>			
A geotechnical investigation has been carried out on the site by the engineer refer to " <i>Part C1.3.5 Annexure E – Geotechnical Survey</i> " of the tender document.			
All classes of excavations in accordance with South African National Standards (1990) SANS 1200 D: Earthworks and Table 4-4, Classes of Excavation according to SANS 1200D, of the <i>Geotechnical Survey</i>			
Carried to Collection			R
Bill No. 23			
Civil Works - Site Wide Infrastructure			
SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein			
PROVISIONAL BILLS OF QUANTITIES			

The Tenderer shall acquaint himself by personal examination of the nature of the ground. Descriptions of excavations shall be deemed to include all ground conditions classifiable as "earth or soft excavations" and where conditions of a more difficult character are indicated these are separately measured.

"Earth or soft excavations" shall mean all excavation in material that can be efficiently removed by a back-acting excavator of flywheel power approximately 0.10 kW per millimetre of tined-bucket width, without the use of pneumatic tools such as paving breakers for restricted excavation (e.g. trenching), and for unrestricted excavation in accordance with SANS 1200 D: Earthworks, Classes of Excavation, and shall include the following ground conditions descriptions:

- § Loose, SAND and GRAVEL
- § Loose to medium dense, SAND and GRAVEL
- § Medium dense, SAND and GRAVEL
- § Medium dense to dense, GRAVEL
- § Completely weathered, very soft rock, TILLITE
- § Highly weathered, soft rock, TILLITE

"Intermediate Excavation" shall mean all excavation in material that requires a back-acting excavator of flywheel power exceeding 0.10 kW per millimetre of tined-bucket width or the use of pneumatic tools before removal by equipment equivalent to that specified for soft excavation for restricted excavation (e.g. trenching), and for unrestricted excavation in accordance with SANS 1200 D: Earthworks, Classes of Excavation, and shall include the following ground conditions descriptions:

- § Moderately weathered, medium hard rock, TILLITE §

"Hard Excavation" shall mean hard rock excavation and shall be excavation in material (excluding boulder excavation) that cannot be efficiently removed without blasting or wedging and splitting for restricted excavation (e.g. trenching), and for unrestricted excavation in accordance with SANS 1200 D: Earthworks, Classes of Excavation.

Carried to Collection

Bill No. 23

Civil Works - Site Wide Infrastructure

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

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No claim for "Intermediate Excavation" or "Hard Rock Excavation" will be entertained unless the contractor has timeously notified the principal agent thereof prior to backfilling

Once topsoil is stripped and weathering of the rock can be confirmed, suitable excavation method can be determined. If the weathering is high, excavation can be executed using dozer ripping or large excavator. If the weathering is limited and mostly bed rock, blasting will be more feasible.

Before any excavations commence, approval needs to be given by the civil engineer.

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

Keeping excavations free of water

Further to clause R.18.6 of the Model Preambles for Trades, excavations for sumps, catch pits, inspection chambers, junction boxes and the like shall be deemed to include for keeping free of water

Dewatering

The contractors attention is drawn to the geotechnical investigation. The contractor shall price for dewatering of subterranean water under the item provided in the bills of quantities and no additional cost will be entertained for removal of additional subterranean water in addition to priced item. The contractor to actively plan around these type of eventualities

Laying, backfilling, bedding, etc of pipes

Pipes shall be laid and bedded and trenches shall be carefully backfilled in accordance with manufacturers' instructions

Carried to Collection

Bill No. 23

Civil Works - Site Wide Infrastructure

**SOUTH AFRICAN NATIONAL SPACE AGENCY , Matjiesfontein
PROVISIONAL BILLS OF QUANTITIES**

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Where no manufacturers' instructions exist pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following:

SABS 1200L : Medium-pressure pipelines, SABS 1200LD : Sewers and SABS 1200LE : Stormwater drainage

Pipe trenches etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200DB : 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 SABS 1200LB : 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

uPVC pipes and fittings

Sewer and drainage pipes and fittings shall be jointed and sealed with butyl rubber rings

Soil, waste and vent pipes and fittings shall be solvent weld jointed or sealed with butyl rubber rings

Gratings, covers, etc

Gratings, covers, etc shall be as manufactured by "Besaans du Plessis Foundries", unless otherwise described

uPVC pressure pipes and fittings

Pipes for water supply shall be of the class described

Pipes of 40mm 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

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General

Pipe trenches is measured according to Method "B" of the Standard System of Measuring Building Work 2015, 7th Edition

Excavations for sumps, catch pits, inspection chambers, junction boxes and the like shall be deemed to include for risk of collapse, keeping free of water, backfilling, compaction to a minimum of 93% Modified AASHTO density and disposal of surplus material

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 SABS 1200 series

Precast concrete block road surfacing

Paving shall be laid in accordance with SABS 1200 MJ, SANS 1058 and the Concrete Masonry Association's specifications

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<u>BULK EXCAVATION, FILLING, ETC</u>				
	<u>Digging up topsoil</u>			
A	Digging up topsoil to an average depth of 220mm and preserving in stockpile as per EMP	m2	24 458	
	<u>Open face excavation in earth over sloping site</u>			
B	Open face excavation (cut)	m3	10 811	
	<u>Extra over excavations for excavations in</u>			
C	Intermediate excavation	m3	2 056	
D	Hard rock excavation	m3	1 243	
	<u>De-watering of seepage water and water from other sub-soil sources</u>			
E	Dewatering system for removal of seepage water and water from other subterranean sources in the bulk excavations designed and executed by the contractor including all temporary pipes, drainage sumps, silt trap, connections, well points, etc.		Item	
	<u>Keeping bulk excavations free of water</u>			
F	Keeping excavations free of all water other than subterranean water		Item	
	<u>Earth filling obtained from the excavations and/or prescribed stock piles on site, compacted in layers of max 250mm thick to 97% Mod AASHTO density (100% for sand)</u>			
G	Over site to make up levels (fill)	m3	7 940	
H	Extra over earth filling obtained from excavations for crushing of identified Intermediate excavation and hard rock material to meet Engineers specification	m3	3 299	
	<u>Embankment constructed from cut material generated on site including haulage exceeding 100m from perimeter of excavations or stock piles to Main Building</u>			
J	Embankments to be sloped and constructed in accordance with TRH9 (all as per civil engineers drawing P3589 - C - BE - 008)	m3	2 870	
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A	Embankments to be sloped and constructed in accordance with TRH9 (all as per civil engineers drawing P3589 - C - BE - 008) with cut material generated from foundations and civil services excavations	m3	1 947	
	<u>Embankment constructed from earth filling supplied by the contractor, compacted to 97% Mod AASHTO density</u>			
B	Embankments to be sloped and constructed in accordance with TRH9 (all as per civil engineers drawing P3589 - C - BE - 008)	m3	5 183	
	<u>BUDGETARY ALLOWANCES</u>			
	<u>Prescribed density tests on filling</u>			
C	Allow the Budgetary Allowance of R10 000.00 (Ten Thousand Rand) for prescribed density tests on filling to be used as directed by the Engineer and deducted in whole or in part if not required		Item	10 000.00
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ROADWORK, PARKING AREAS AND PAVING

Preparation of sub-grade

A	Compaction of ground surfaces under roadways, etc, including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 95% Mod AASHTO density	m2	21 896
<u>Filling supplied by the contractor under parking areas, roadways, etc</u>			
B	225mm Thick G5 wearing course with min CBR of 45 at 97% MOD AASHTO density, maximum material size 53mm	m3	1 254
C	225mm Thick road gravel wearing course with min CBR of 45 at 97% MOD AASHTO density, maximum material size 53mm	m3	3 782

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STORMWATER DRAINAGE

Shaping/finishing/trimming of side drain (bulk excavation measured elsewhere) as part of erosion protection in accordance with NOTE 5 on engineers drawing P3589-C-TD-00

Pricing Note:

Erosion protection as determined by slope:

12% - Grouted stone pitching with energy dissipation as required, to be determined and agreed on-site in liaison with the ECO.

7-12% - 100mm topsoil and ungrouted stone pitching with energy dissipation as required, to be determined and agreed on-site in liaison with the ECO.

3-7% - 100mm topsoil, energy dissipation by means of stone or similar check weirs installed at intervals to be determined and agreed on-site. Mitre drains as per table in road design report.

1-3% - 100mm topsoil and mitre drains.

A	V-Drains (Road side drains)	m	1 291
B	Mitre Drain	m	3 260
C	Cut-Off Drain	m	378

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Supply, handle, lay, bed Class 100D concrete stormwater pipes, ogee joint type with joints wrapped with a minimum of two layers of 150mm wide burlap, 340g/m², pre-impregnated with bitumen emulsion or similar approved for: (Civil Drawings - General details P3589-C-T-005)

A	450mm Diameter pipes laid in and including trenches not exceeding 1m deep	m	7
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B	750mm Diameter pipes laid in and including trenches not exceeding 1m deep	m	7
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Supply and install stormwater headwall complete as per - (Civil Drawings - General details P3589-C-T-005)

C	450mm Diameter	No	2
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D	750mm Diameter	No	2
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Supply and install stormwater drift crossing complete as per general detail: (P3589-C-T-005)

E	2% Drift crossing with and including 2No Reno Matresses, Armoflex 180 Grass blocks wired with 3.1mm Galvanised steel wire, Bidum geofabric	No	9
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WATER RETICULATION

MUNICIPAL WATER CONNECTION

A	Budgetary amount of R75 000.00 (Seventy Five Thousand Rand) for municipal water connection to be used as directed by the Principle Agent and deducted in whole or in part if not required		Item	75 000.00
	<u>HDPE PE100 PN12 pressure pipes to SABS 966</u>			
B	63mm Pipes laid in and including trenches not exceeding 1m deep	m	939	
	<u>Extra over HDPE PE100 PN12 pressure pipes to SABS 966 for fittings with solvent welded joints</u>			
C	63mm Bend	No	78	
D	63mm T-section	No	3	
	<u>Extra over Class 9 uPVC pressure pipes for cast iron pressure fittings</u>			
E	Unreinforced concrete thrust blocks around bends, tees, etc	No	78	
	<u>Sundries</u>			
F	600 x 600mm Brick valve chamber 1 000mm deep internally (cover and frame elsewhere)	No	3	
G	200 x 200mm Heavy duty cover and frame - ductile iron with chain fixed to cover and frame	No	3	
H	Gate valve to be "AVK" or similar approved of the resilient seal type, clockwise opening / left-hand closing, heavy duty class 16 with non-rising spindle	No	3	
	<u>Testing</u>			
J	Testing water pipe system		Item	
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CABLE DUCTS

SUPPLEMENTARY PREAMBLES

Pricing Note:

Trenches for cable ducts is measured according to Method "A" of the Standard System of Measuring Building Work 2015, 7th Edition

Excavation in earth not exceeding 2m deep

A	Pipe trenches	m3	1 772
	<u>Extra over excavations for excavations in</u>		
B	Intermediate excavation	m3	362
	<u>Risk of collapse of excavations</u>		
C	Sides of excavations not exceeding 1,5m deep	m2	5 838
	<u>Earth filling supplied by the contractor compacted to 90% Mod AASHTO density</u>		
D	Sand backfill	m3	800
	<u>Earth filling obtained from the excavations and/or prescribed stock piles on site compacted to 90% Mod AASHTO density</u>		
E	Backfilling to pipe trenches	m3	971
	<u>"Kabelflex" corrugated HDPE sleeves to BS EN 50086-24 laid in trenches with and including 3.2mm Class B galvanised mild steel draw wire</u>		
F	1 x 110mm Pipes laid in trenches (trenches elsewhere)	m	1 089
G	2 x 110mm Pipes laid in trenches (trenches elsewhere)	m	2 683

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<u>Electrical manhole, etc including rounded mortar capping (gratings and covers elsewhere)</u>				
A	1 000 x 1 000mm Brick inspection chamber exceeding 500mm and not exceeding 1 000mm deep internally with and including a 100mm thick 20MPa concrete foundation including excavations, backfill, etc. as per Civil Drawing P3589-C-SL-001	No	3	
<u>Covers, etc</u>				
B	600 x 600mm Medium density polymer cover and frame	No	3	
<u>Sundry</u>				
C	Danger tape with the SANS approved marking to be placed in trenches above all MV and LV electrical cables	m	6 007	
D	MV cable markers placed on top of excavations at 20m c/c	No	34	
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