

Brought Forward	R
<p>vii) The amount or the items of the Preliminaries are adjusted to take account of the theoretical financial effect which changes in time or value (or both) have on this section. Such adjustments are based on adjustments in the following categories as recorded in the Bill of Quantities:</p> <p>a) an amount which is not varied, namely Fixed</p> <p>b) an amount which is varied in proportion to the contract value, namely Value Related; and</p> <p>c) an amount which is varied in proportion to the construction period as compared to the initial construction period excluding revisions to the construction period for which the contractor is not entitled to adjustment in terms of the contract, namely Time Related.</p> <p>viii) Where no provision is made in the Bill of Quantities to indicate which of the three categories in (vii) apply or where no selection is made, the adjustments shall be based on the following breakdown:</p> <p>a) 10 percent is Fixed</p> <p>b) 15 percent is Value Related</p> <p>c) 75 percent is Time Related</p> <p>ix) The adjustment of the Preliminaries shall apply notwithstanding the actual employment of resources in the execution of the works. The contract value used for the adjustment of the Preliminaries shall exclude any contingency sum, the amount for the Preliminaries and any amount in respect of contract price adjustment provided for in the contract. Adjustments in respect of any staged or sectional completion shall be prorated to the value of each section.</p> <p>x) Items not priced in these preliminaries are deemed to be included elsewhere in this bills of quantities.</p> <p><u>SECTION A : CORE CLAUSES</u></p> <p><u>GENERAL (A1)</u></p> <p>Clause 1.0</p>	
Carried Forward	R
<p>Section No. 1 Bill No. 1 Preliminaries and General</p>	

Brought Forward		R	
<p>Clause 11.2(4) is amended by replacing it with the following:</p>			
<p>The Contract Date is the date when the contractor receives one fully completed signed copy of this document, including the schedule of deviations (if any) as contained in the Form of Offer and Acceptance</p>			
<p>1 Fixed:..... Value Related:..... Time Related:.....</p>	Item		
<p><u>THE CONTRACTOR'S MAIN RESPONSIBILITIES (A2)</u></p>			
<p>Clause 2.0</p>			
<p>The contractor must provide and keep a copy of the NEC3 Engineering and Construction Contract - Option B: Priced contract with bill of quantities applicable to this contract and a copy of the Procurement Document on the site, to which the Project Manager and Supervisor have access at all times.</p>			
<p>2 Fixed:..... Value Related:..... Time Related:.....</p>	Item		
<p><u>TIME (A3)</u></p>			
<p>Clause 3.0</p>			
<p>3 Fixed:..... Value Related:..... Time Related:.....</p>	Item		
<p><u>TESTING AND DEFECTS (A4)</u></p>			
<p>Clause 4.0</p>			
<p>4 Fixed:..... Value Related:..... Time Related:.....</p>	Item		
<p><u>PAYMENT (A5)</u></p>			
<p>Clause 5.0</p>			
<p>Clause 50.0 is amended by the addition of the following clause:</p>			
Carried Forward		R	
<p>Section No. 1 Bill No. 1 Preliminaries and General</p>			

	Brought Forward		R	
	Materials and goods stored off site are not included in the amount authorised for payment unless approved by the Employer in writing			
5	Fixed:..... Value Related:..... Time Related:.....	Item		
	<u>COMPENSATION EVENTS (A6)</u>			
	Clause 6.0			
	<u>TITLE (A7)</u>			
6	Fixed:..... Value Related:..... Time Related:.....	Item		
	<u>RISK AND INSURANCE (A8)</u>			
	Clause 8.0			
7	Fixed:..... Value Related:..... Time Related:.....	Item		
	<u>TERMINATION (A9)</u>			
	Clause 9.0			
8	Fixed:..... Value Related:..... Time Related:.....	Item		
	<u>SECTION B: MAIN OPTION CLAUSES</u>			
	<u>PRICED CONTRACT WITH BILL OF QUANTITIES (B1)</u>			
	Clause 10.0			
	The quantities in provisional bill of quantities are an indication of the works to be executed and are subject to remeasurement.			
9	Fixed:..... Value Related:..... Time Related:.....	Item		
	<u>SECTION C : DISPUTE RESOLUTION</u>			
	Carried Forward		R	
	Section No. 1			
	Bill No. 1			
	Preliminaries and General			

	Brought Forward	R	
	<u>OPTION W1 (C1)</u>		
	Clause 11.0		
10	Fixed:..... Value Related:..... Time Related:.....	Item	
	<u>SECTION D: SECONDARY OPTION CLAUSES</u>		
	<u>X1 PRICE ADJUSTMENT FOR INFLATION (D1)</u>		
	Clause 12.0		
11	Fixed:..... Value Related:..... Time Related:.....	Item	
	<u>X2 CHANGES IN THE LAW (D2)</u>		
	Clause 13.0		
12	Fixed:..... Value Related:..... Time Related:.....	Item	
	<u>X3 MULTIPLE CURRENCIES (D3)</u>		
	Clause 14.0		
13	Fixed:..... Value Related:..... Time Related:.....	Item	
	<u>X4 PARENT COMPANY GUARANTEE (D4)</u>		
	Clause 16.0		
14	Fixed:..... Value Related:..... Time Related:.....	Item	
	<u>X5 SECTIONAL COMPLETION (D5)</u>		
	Clause 16.0		
15	Fixed:..... Value Related:..... Time Related:.....	Item	
	Carried Forward	R	
	Section No. 1 Bill No. 1 Preliminaries and General		

Brought Forward			R
<u>X6 BONUS FOR EARLY COMPLETION (D6)</u>			
Clause 17.0			
16	Fixed:..... Value Related:..... Time Related:.....	Item	
<u>X7 DELAY DAMAGES (D7)</u>			
Clause 18.0			
17	Fixed:..... Value Related:..... Time Related:.....	Item	
<u>X12 PARTNERING (D8)</u>			
Clause 19.0			
18	Fixed:..... Value Related:..... Time Related:.....	Item	
<u>X13 PERFORMANCE BOND (D9)</u>			
Clause 20.0			
19	Fixed:..... Value Related:..... Time Related:.....	Item	
<u>X14 ADVANCED PAYMENT TO THE CONTRACTOR (D10)</u>			
Clause 21.0			
20	Fixed:..... Value Related:..... Time Related:.....	Item	
<u>X15 LIMITATION OF THE CONTRACTOR'S LIABILITY FOR HIS DESIGN TO REASONABLE SKILL AND CARE (D11)</u>			
Clause 22.0			
21	Fixed:..... Value Related:..... Time Related:.....	Item	
Carried Forward			R
Section No. 1 Bill No. 1 Preliminaries and General			

		Brought Forward		R	
		<u>X16 RETENTION (D12)</u>			
		Clause 23.0			
22	Fixed:..... Value Related:..... Time Related:.....		Item		
		<u>X17 LOW PERFORMANCE DAMAGES (D13)</u>			
		Clause 24.0			
23	Fixed:..... Value Related:..... Time Related:.....		Item		
		<u>X18 LIMITATION OF LIABILITY (D14)</u>			
		Clause 25.0			
24	Fixed:..... Value Related:..... Time Related:.....		Item		
		<u>X20 KEY PERFORMANCE INDICATORS (D15)</u>			
		Clause 26.0			
25	Fixed:..... Value Related:..... Time Related:.....		Item		
		<u>SECTION E : CONTRACT DATA</u>			
		<u>CONTRACT DATA (E1)</u>			
		Tenderers are referred to Part C1.2 Contract Data for variables pertaining to this contract.			
26	Fixed:..... Value Related:..... Time Related:.....		Item		
		<u>Z ADDITIONAL CONDITIONS OF CONTRACT (D16)</u>			
		Clause 27.0			
27	Fixed:..... Value Related:..... Time Related:.....		Item		
		Carried Forward		R	
		Section No. 1			
		Bill No. 1			
		Preliminaries and General			

	Brought Forward		R	
	<u>Z1.1 PHASING OF THE PROJECT</u>			
	Allow for the phasing of the project during construction			
28	Fixed:..... Value Related:..... Time Related:.....	Item		
	<u>Z1.2 NEW OCCUPATIONAL HEALTH AND SAFETY REGULATIONS</u>			
	Allow costs for complying with the Occupational Health and Safety Act (No. 85 of 1993) as ammended by the Occupational Health and Safety Amendment Act (No 181 of 1993) and the Construction regulations of 2014, paying attention in particular to medicals, induction and protective equipment with a special focus on asbestos removal as part of the project.			
29	Fixed:..... Value Related:..... Time Related:.....	Item		
	<u>Z1.4 PROVISION OF WATER</u>			
	Contractor to allow for provision of water for the works			
30	Fixed:..... Value Related:..... Time Related:.....	Item		
	<u>Z1.5 PROVISION OF ELECTRICAL POWER</u>			
	Contractor to allow for provision of electrical power for the works			
31	Fixed:..... Value Related:..... Time Related:.....	Item		
	<u>Z1.6 PROVISION OF ABLUTION FACILITIES</u>			
	Contractor to allow for provision of ablution facilities for the works			
32	Fixed:..... Value Related:..... Time Related:.....	Item		
	Carried to Final Summary		R	
	Section No. 1			
	Bill No. 1			
	Preliminaries and General			

<p style="text-align: right;">Brought Forward</p> <p><u>Old materials to be re-used:</u></p> <p>None of the old materials are to be used for new work, except where specifically described as being set aside for re-use</p> <p><u>Handing over of materials:</u></p> <p>Where certain materials or articles from demolitions or alterations are described as to be "handed over to the Employer", it shall be taken to mean "handed over by the Contractor to the Principal Agent" and such materials or articles shall be properly stored by the Contractor until handing over thereof and shall include all necessary transport</p> <p>The Contractor must obtain an official receipt from the Principal Agent listing the materials or articles and dates of handing over</p> <p>Should the Contractor fail to submit the receipt when requested to do so, it shall be deemed that the materials or articles are still in his possession and he will be held liable to the Employer for the full replacement value thereof, which amount will be deducted from any monies due to the Contractor</p> <p><u>Explosives:</u></p> <p>No explosives whatsoever may be used for demolition purposes, unless otherwise stated</p> <p><u>GENERAL</u></p> <p><u>The contractor shall carry out the whole of the work with as little mess and noise as possible and with a minimum of disturbance to adjoining premises and their tenants. He shall provide proper protection and provide and erect any temporary tarpaulins and temporary plumbing that may be necessary during the progress of the works, all to the satisfaction of the Architect, and remove when directed.</u></p> <p><u>Allow for making good all existing plastered walls where damaged by furniture, etc, and stopping up all screw and holes before painting.</u></p>		R	
<p style="text-align: right;">Carried Forward</p> <p>Section No. 2 Bill No. 1 Alterations (Provisional)</p>		R	

Brought Forward			R
<p><u>Making good finishes shall be deemed to include making good of the brick and concrete surfaces onto which new finishes are applied, where necessary.</u></p> <p><u>The contractor will be required to take all dimensions affecting existing building on the site and he will be held solely responsible for the accuracy of all such dimensions.</u></p> <p><u>REMOVAL OF EXISTING WORK</u></p> <p><u>Breaking up and removing reinforced concrete including cutting off and removing reinforcement</u></p>			
1	Surface beds, slabs, ramps	m3	52
<p><u>Breaking up and removing asphalt surface including cutting, etc., complete</u></p>			
2	Asphalt surface	m2	500
<p><u>Taking off and remove burglar screens</u></p>			
3	Burglar mesh screen, 7015 x 3500mm high	No	6
<p><u>Taking off and remove fencing and set aside for re-use by the Prasa:</u></p>			
4	Concrete fence 4000mm high	m	125
<p><u>Taking out/off and removing 4mm Bituminous waterproofing</u></p>			
5	<u>4mm Bituminous waterproofing</u>	m2	1,425
<p><u>Taking out and removing metalwork</u></p>			
6	Louvres 2000 x 1500mm high	No	4
<p>Carried Forward to Summary of Section No. 2</p> <p>Section No. 2 Bill No. 1 Alterations (Provisional)</p>			R

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 2</u>			
	<u>BILL NO. 2</u>			
	<u>EARTHWORKS (PROVISIONAL)</u>			
	<u>WORK GROUP ALLOCATION</u>			
	Unless otherwise stated, all items in this Bill will be allocated to Work Group 104 - Earthworks			
	<u>PREAMBLES</u>			
	The General Preambles for Trades (2017 edition) as published by the Association of South African Quantity Surveyors shall be deemed to be included in these bills of quantities and no claims arising from brevity of description of items fully described in the said General Preambles will be entertained			
	The following "Supplementary Preambles" are incorporated in this bill to satisfy the requirements of the project and shall take precedence over the provisions of the said General Preambles			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	<u>Nature of ground</u>			
	The nature of the ground is assumed to be loose sandy material, therefore "earth", but possibly interspersed with "hard rock" or "soft rock".			
	The nature of the ground is assumed to be gravel, therefore "earth", but possibly interspersed with "soft rock".			
	The nature of the ground is assumed to be silty clay with loose river boulders varying in size up to approximately 450mm diameter, therefore "earth", but possibly interspersed with "hard rock".			
	Carried Forward		R	
	Section No. 2 Bill No. 2 Earthworks (Provisional)			

<p style="text-align: right;">Brought Forward</p> <p>Trial holes indicate that the nature of the ground is silty clay to a depth of approximately 500mm with fine to medium loose sandy material below, therefore "earth". The trial holes also indicate that the water table is at a maximum depth of approximately 1000mm.</p> <p>A soils investigation has been carried out on site by the engineer and the report is annexed to these bills of quantities. Descriptions of excavations shall be deemed to include all ground conditions classifiable as "earth" described in the above report and where conditions of a more difficult character are indicated these are separately measured</p> <p><u>Subterranean water:</u></p> <p>No subterranean water is expected</p> <p>Should the Contractor however, encounter any subterranean water on the site, he shall immediately notify the Principal Agent thereof and submit recommendations for keeping the works free from subterranean water together with all costs involved therewith</p> <p><u>Excavation for working space in rock:</u></p> <p>Notwithstanding clause 10 measurement rule 27 of the Standard System of Measuring Building Work, excavation for working space in material of a more different character (e.g. soft or hard rock) will be measured in cubic metres to the extent executed and given as "extra over" bulk excavation or trench and hole excavation as the case may be</p> <p><u>Carting away of excavated material</u></p> <p>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</p>		R	
<p style="text-align: right;">Carried Forward</p> <p>Section No. 2 Bill No. 2 Earthworks (Provisional)</p>		R	

Brought Forward			R
<u>Filling</u>			
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 multiple handling of material			
<u>Testing:</u>			
<i>Prices for backfilling to trenches and holes only are to include for all necessary density tests in accordance with SANS 1200D</i>			
<u>EXCAVATIONS, FILLING, ETC</u>			
<u>EXCAVATIONS, ETC</u>			
<u>Excavation in earth not exceeding 2m deep:</u>			
1	Reduced levels under floors	m3	76
2	Trenches	m3	135
3	Holes	m3	18
<u>Extra over trench and hole excavations in earth for excavation in:</u>			
4	Soft rock	m3	15
5	Hard rock	m3	9
<u>Extra over all excavations for carting away:</u>			
6	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor	m3	109
<u>Risk of collapse of excavations:</u>			
7	Sides of trench and hole excavations not exceeding 1,5m deep	m2	471
<u>Keeping excavations free of water:</u>			
8	Keeping excavations free of all water other than subterranean water	Item	
Carried Forward			R
Section No. 2 Bill No. 2 Earthworks (Provisional)			

Brought Forward			R
<u>FILLING ETC</u>			
<u>Earth filling obtained from the excavations and/or prescribed stock piles on site, compacted to 93% Mod AASHTO density:</u>			
9	Backfilling to trenches, holes, etc.	m3	61
<u>G5 filling material supplied by the contractor, compacted to 93% Mod AASHTO density:</u>			
10	Under floors, steps, pavings, etc.	m3	87
11	Backfilling to trenches, holes, etc.	m3	71
<u>G7 filling material supplied by the contractor, compacted to 95% Mod AASHTO density:</u>			
12	Backfilling to trenches, holes, etc.	m3	17
13	Under floors, steps, pavings, etc.	m3	71
<u>Compaction of surfaces:</u>			
14	Compaction of ground surface under floors etc including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 91% Mod AASHTO density	m2	496
<u>Prescribed density tests on filling:</u>			
15	"Modified AASHTO Density" test	No	4
<u>SOIL POISONING</u>			
<u>Soil insecticide in accordance with SANS 5859:</u>			
16	Soil insecticide (protection against termites) applied as specified under floors, etc. including forming and poisoning shallow furrows against foundation walls, etc. filling in furrows and ramming	m2	471
17	To bottoms and sides of trenches, etc.	m2	206
Carried Forward to Summary of Section No. 2			R
Section No. 2			
Bill No. 2			
Earthworks (Provisional)			

Item No	Quantity	Rate	Amount
<u>SECTION NO. 2</u>			
<u>BILL NO. 3</u>			
<u>CONCRETE, FORMWORK AND REINFORCEMENT</u>			
<u>WORK GROUP ALLOCATION</u>			
The items in this Bill will be allocated to Work Groups as indicated in brackets at the end of headings or descriptions			
<u>PREAMBLES</u>			
The General 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 General Preambles will be entertained			
The following "Supplementary Preambles" are incorporated in this bill to satisfy the requirements of the project and shall take precedence over the provisions of the said General Preambles			
<u>SUPPLEMENTARY PREAMBLES</u>			
<u>Cost of tests:</u>			
<u>Breeze concrete:</u>			
Breeze concrete shall consist of twelve parts clean dry furnace ash, free from coal or other foreign matter, to one part cement (1:12); the ash graded up to particles which will pass a 16,5mm ring from a minimum which fails to pass a 4,75mm mesh. The finer materials from the screening are to be first mixed with the cement into a mortar and the ash added afterwards and thoroughly incorporated			
Carried Forward		R	
Section No. 2 Bill No. 3 Concrete, Formwork and Reinforcement			

<p style="text-align: right;">Brought Forward</p> <p><u>Lightweight concrete:</u></p> <p>Lightweight concrete shall have a density of 600kg/m³ for the top 50mm and 400kg/m³ for the remaining thickness. The minimum thickness at outlets, channels, etc shall be 50mm</p> <p><u>Waterproof concrete:</u></p> <p>"Waterproof concrete" shall have the same properties as normal concrete, but the following shall be modified to make the the concrete more water-tight:</p> <ol style="list-style-type: none"> 1. a cement/water ratio of minimum 1.9 and maximum 2.1 2. minimum OPC content of 300kg/m³ 3. Polypropylene micro fibres added to concrete at rate of 182 million per m³ <p><u>Formwork:</u></p> <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</p> <p>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> <p>Formwork to soffits of solid slabs, etc shall be deemed to be to slabs not exceeding 250mm thick unless otherwise described</p> <p>Formwork to soffits of slabs, beams, etc shall be deemed to be propped up exceeding 1,5m and not exceeding 3,5m high unless otherwise described</p> <p><u>UNREINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES (WORK GROUP 110)</u></p>		R	
<p style="text-align: right;">Carried Forward</p> <p>Section No. 2 Bill No. 3 Concrete, Formwork and Reinforcement</p>		R	

Brought Forward			R
<u>10MPa/15mm concrete:</u>			
1	Filling in hollow brick walls	m3	37
<u>15MPa/19mm concrete:</u>			
2	Surface blinding under footings and bases	m3	20
<u>REINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES (WORK GROUP 110)</u>			
<u>30MPa/19mm concrete:</u>			
	Surface beds on waterproofing	m3	76
<u>REINFORCED CONCRETE CAST ON/IN FORMWORK (WORK GROUP 110)</u>			
<u>30MPa/19mm concrete:</u>			
3	Slabs including beams and inverted beams	m3	51
	Strip footings	m3	21
4	Isolated beams	m3	6
5	Walls	m3	10
<u>TEST CUBES (WORK GROUP 110)</u>			
6	Making and testing sets of three 150 x 150 x 150mm concrete strength test cubes (Provisional)	Sets	9
<u>CONCRETE SUNDRIES (WORK GROUP 110)</u>			
<u>Finishing top surfaces of concrete smooth with a steel trowel:</u>			
7	Surface beds, slabs, etc.	m2	607
<u>SMOOTH FORMWORK (DEGREE OF ACCURACY II) (WORK GROUP 111)</u>			
Carried Forward			R
Section No. 2 Bill No. 3 Concrete, Formwork and Reinforcement			

Brought Forward			R
<u>Smooth formwork to sides:</u>			
8	Walls	m2	51
9	Beams	m2	60
<u>Smooth formwork to soffits:</u>			
10	Slabs	m2	146
<u>REINFORCEMENT (PROVISIONAL) (WORK GROUP 114)</u>			
<u>Mild steel reinforcement to structural concrete work:</u>			
11	Mild steel bar reinforcement (8 to 40mm diameter bars)	t	9.76
<u>High tensile steel reinforcement to structural concrete work:</u>			
12	High tensile steel bar reinforcement (8 to 40mm diameter bars)	t	22.78
<u>Fabric reinforcement:</u>			
13	Type 395 fabric reinforcement in concrete surface beds, slabs, etc.	m2	471
Carried Forward to Summary of Section No. 2			R
Section No. 2			
Bill No. 3			
Concrete, Formwork and Reinforcement			

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 2</u>			
	<u>BILL NO. 4</u>			
	<u>MASONRY</u>			
	<u>WORK GROUP ALLOCATION</u>			
	Unless otherwise stated, all items in this Bill will be allocated to Work Group 116 - Brick and Blockwork			
	<u>PREAMBLES</u>			
	The General 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 General Preambles will be entertained			
	The following "Supplementary Preambles" are incorporated in this bill to satisfy the requirements of the project and shall take precedence over the provisions of the said General Preambles			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	<u>BRICKWORK</u>			
	<u>General:</u>			
	Non-load bearing brickwork is to be built to full height less 20mm gap next to the ceiling and is to be left for 14 days before grouting up in 1:3 cement mortar.			
	<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:</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			
	Carried Forward		R	
	Section No. 2 Bill No. 4 Masonry			

<p style="text-align: right;">Brought Forward</p> <p><u>Bagged and sealed walls:</u></p> <p>Walls in two skins described as "bagged and sealed" shall be deemed to include having the outer face of the inner skin bagged with 1:6 cement and sand mixture and sealed with two coats bitumen emulsion waterproofing coating</p> <p><u>Face bricks :</u></p> <p>Bricks shall be ordered timeously to obtain uniformity in size and colour</p> <p>All face brickwork shall be regularly cleaned down as the work proceeds and shall be protected as necessary by an approved method</p> <p><u>Pointing:</u></p> <p>Descriptions of recessed pointing to fair face brickwork and face brickwork shall be deemed to include smooth floated square recessed, hollow recessed, weathered pointing, etc</p> <p><u>BLOCKWORK</u></p> <p><u>Concrete masonry units:</u></p> <p>Blocks are to be either solid or hollow modular dense concrete masonry units having a compressive strength of 7MPa</p> <p><u>Wall ties for blockwork:</u></p> <p>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</p> <p><u>Blockwork:</u></p> <p>Blockwork shall comply with SANS 10145 "Concrete Masonry Construction"</p>		R	
<p style="text-align: right;">Carried Forward</p> <p>Section No. 2 Bill No. 4 Masonry</p>		R	

Brought Forward			R
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			
<u>Standard complementary blocks:</u>			
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			
<u>DECORATIVE BLOCKS</u>			
Blocks shall be of approved manufacture, sound, well burnt or cured and uniform and true in size, shape and colour			
<u>FOUNDATIONS (PROVISIONAL)</u>			
<u>Brickwork of NFP bricks (14 MPa nominal compressive strength) in class 1 mortar:</u>			
1	One brick walls	m2	40
2	330mm Solid walls of two half brick skins including wire ties and with cavity filled solid with 15Mpa /15 mm concrete as the work proceeds	m2	155
<u>Brickwork reinforcement:</u>			
3	150mm Wide reinforcement built in horizontally	m	890
<u>SUPERSTRUCTURE</u>			
<u>Brickwork of NFP bricks in class II mortar</u>			
4	Half brick walls	m2	4
Carried Forward			R
Section No. 2 Bill No. 4 Masonry			

Brought Forward			R
<u>Brickwork of NFX bricks (14 MPa nominal compressive strength) in class II mortar in loadbearing walls etc:</u>			
5	330mm Solid walls of two half brick skins including wire ties and with cavity filled solid with 15Mpa /15 mm concrete as the work proceeds	m2	423
<u>2,5mm Brickwork reinforcement:</u>			
6	75mm Wide reinforcement built in horizontally	m	12
7	150mm Wide reinforcement built in horizontally	m	1,094
<u>Cavity closers, etc :</u>			
8	1,6mm Galvanised flat section drip plate 220mm girth, three times bent along length to form drip and built horizontally into hollow wall	m	189
Carried Forward to Summary of Section No. 2			R
Section No. 2			
Bill No. 4			
Masonry			

Brought Forward			R
	<u>One layer 250 micron green polyethylene waterproof sheeting (SANS 952-1985 type C) sealed at laps with PVC self-adhesive tape:</u>		
2	Under surface beds	m2	971
	<u>WATERPROOFING TO ROOFS, BASEMENTS, ETC</u>		
	<u>4mm "Derbigum SP" waterproofing</u>		
3	On flat floors	m2	1,571
	<u>PROTECTIVE ROOFING PAINT</u>		
	<u>Two coats "Silvakote" bituminous aluminium paint</u>		
4	On waterproofing to roofs	m2	1,571
Carried Forward to Summary of Section No. 2			R
Section No. 2			
Bill No. 5			
Waterproofing			

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 2</u>			
	<u>BILL NO. 6</u>			
	<u>CARPENTRY AND JOINERY</u>			
	<u>WORK GROUP ALLOCATION</u>			
	Unless otherwise stated, all items in this Bill will be allocated to Work Group 126 - Carpentry & Joinery			
	<u>PREAMBLES</u>			
	The General 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 General Preambles will be entertained			
	The following "Supplementary Preambles" are incorporated in this bill to satisfy the requirements of the project and shall take precedence over the provisions of the said General Preambles			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	<u>Fixing:</u>			
	Items described as "nailed" shall be deemed to be fixed with hardened steel nails or pins, or to be shot-pinned, to brickwork or concrete			
	Items described as "plugged" shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 500mm centres, and where described as "bolted", the bolts have been given separately elsewhere			
	<u>Joinery:</u>			
	Descriptions of frames shall be deemed to include frames, transomes, rails, etc			
	Descriptions of hardwood joinery shall be deemed to include sinking and pelleting heads and nuts of bolts			
	Carried Forward		R	
	Section No. 2 Bill No. 6 Carpentry and Joinery			

Brought Forward			R
<u>Particle board</u>			
All particle board shall comply with SANS 50312 having the required marking as per SANS 50312/EN 312			
<u>Decorative thermosetting plastic laminate covering:</u>			
Laminate covering shall be glued under pressure and edge strips of same shall be butt jointed at junctions with adjacent similar finish			
<u>Sizes:</u>			
Sizes are nominal and the Contractor shall make allowance in his prices for minor variances in stated finished sizes of timber doors, door members, door frames, architraves, etc			
<u>Prices</u>			
Prices for all joinery work are to include for general framing, housing and notching, arris rounded angles, glueing, blocking, planting on, screwing, adhesives, dowels, pellets, cross tongues, screws and nails and setting up complete and also for all square cutting and waste. Tops shall be secured with metal or hardwood buttons.			
<u>DOORS ETC</u>			
<u>"Bitcon Industries" fire doors with 2mm veneer</u>			
1	"Rubidor" class B fire escape door 1800 x 2032mm high including pressed steel frame for one brick wall and preparing frame for door closer and lock	No	3
Carried Forward to Summary of Section No. 2			R
Section No. 2			
Bill No. 6			
Carpentry and Joinery			

Brought Forward				R
<u>Fixing:</u>				
Unless otherwise described, descriptions of items shall be deemed to include for fixing to brickwork or concrete				
Where items are described as "bolted", the bolts are measured elsewhere as stated in clause N.7 of the Model Preambles				
<u>References:</u>				
References in descriptions of windows, doors, gates, refer to the respective types of windows, doors, etc. detailed in the Architect's window schedules bound into the back of these bills of quantities				
Tenderers are to price the following items in conjunction with the above Architect's drawings, etc. and no claim arising from brevity of descriptions in these bills of quantities, of items shown on the Architect's drawings, etc. shall be entertained				
<u>PRESSED STEEL TRANSFORMER ROOM DOORS AND FRAMES</u>				
<u>Steel doors with ventilation louvres:</u>				
1	Double door, 2000 x 2105mm high overall, each leaf with 850 x 600mm high louvred ventilation panel and with hinges, locks, etc. on and including 1,6mm standard mild steel double rebated frame suitable for one and brick wall	No	1	
<u>GALVANISED STEEL GATES, SCREENS, ETC.</u>				
2	Type RS40 Mentis Rectagrid or equivalent steel grating finished on all sides with flat plate ends, hot dipped galvanised welded onto steel angle framing including all necessary cutting, trimming, fixing, etc. to vertical panels including framing	m	85	
Carried Forward				R
Section No. 2 Bill No. 7 Metalwork				

Brought Forward

R

FENCING ABOVE HVAC ROOM

- 3 High density security galvanised mesh fence with min 3.15mm horizontal wire diameter and 4mm vertical wire diameter. Panels: appertures to be 76 x 12mm inner and panels to be reinforced with 4 x 50mm V formation horizontal recessed bands. Panel to be fixed over line wires with double and single bolt clamps using anti vandal bolts.

m2

11

Carried Forward to Summary of Section No. 2

Section No. 2
Bill No. 7
Metalwork

R

<p style="text-align: right;">Brought Forward</p> <p><u>Sample Panels</u></p> <p>A sample panel size 1m x1m, of each of the various plaster type wall and floor finishes in this contract, shall be prepared for the approval of the Project Manager and the cost of the sample panel(s) shall be deemed to be included in the overall costs of the <u>relevant</u> wall and floor finishes</p> <p><u>GRANOLITHIC</u></p> <p><u>Method:</u></p> <p>The method to be used shall be either the monolithic method or the bonded method</p> <p><u>Preparation:</u></p> <p>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</p> <p><u>Mix:</u></p> <p>Unless otherwise described, 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</p>		R	
<p style="text-align: right;">Carried Forward</p> <p>Section No. 2 Bill No. 8 Plastering</p>		R	

<p style="text-align: right;">Brought Forward</p> <p><u>Panels:</u></p> <p>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</p> <p>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</p> <p><u>Laying:</u></p> <p>Monolithic granolithic shall be applied to the partially set slab and thoroughly compacted and lightly wood floated to the required levels</p> <p>Bonded granolithic shall be applied to the slab after applying a 1:1 sand-and-cement slurry brushed over the surface and allowed to partially set before applying the granolithic. The granolithic shall be thoroughly compacted and lightly wood floated to the required levels</p> <p>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</p> <p><u>Curing, seasoning and protection:</u></p> <p>Granolithic shall be covered with clean hessian with waterproof building foil over and kept wet for at least seven days after laying</p> <p><u>Colour:</u></p> <p>Coloured granolithic shall be tinted with an approved colouring pigment mixed into a true and even colour</p>		R	
<p style="text-align: right;">Carried Forward</p> <p>Section No. 2 Bill No. 8 Plastering</p>		R	

Brought Forward			R
<u>TINTED WHITE CEMENT SCREEDS</u>			
Tinted screed shall be composed of one bag White Portland Cement and two wheelbarrows "Malmesbury" sand. Surfaces shall be finished with a steel trowel to leave a smooth finish and coated with two coats "Earthcote S.I. Floorcote" two-pack polyurethane floor sealer applied as per the manufacturer's recommendations			
NOTE: Tinted screeds are to be strengthened with "Primal Eccos" acrylic polymer (15% of the water volume is to be substituted with the acrylic polymer during the mixing process)			
Coarse sand is to be used for these screeds			
All tinting, finishing, strengthening, etc are to be mixed, applied, etc strictly in accordance with the manufacturer's instructions			
<u>CEMENT PLASTER</u>			
Unless otherwise described, cement plaster shall be taken to mean Class 1 cement plaster i.e. 1:4 cement:sand plaster (common cement)			
<u>SCREEDS</u>			
<u>3:1 Cement plaster screeds wood floated for "vinyl" or other flexible type flooring, including applying an approved self-levelling coating applied by an approved specialist, on concrete:</u>			
1	40mm Thick on floors and landings	m2	408
<u>SPECIAL FLOOR COATING</u>			
<u>5mm Thick non-slip "Polyurethane" or similar approved self-levelling epoxy floor coating applied by an approved specialist, on:</u>			
2	On floors	m2	408
<u>INTERNAL PLASTER</u>			
Carried Forward			R
Section No. 2 Bill No. 8 Plastering			

[illegible]

Brought Forward			R
<u>Previously painted wood surfaces:</u>			
Surfaces shall be thoroughly cleaned down. Blistered or peeling paint shall be completely removed and cracks and crevices shall be primed, filled with suitable filler and finished smooth			
<u>PAINT SPECIFICATIONS</u>			
All painting shall be done in accordance with "Plascon", etc specifications, unless otherwise described			
<u>COLOURS</u>			
When staining timber, the resultant colour or shade must be to the complete satisfaction of the Project Manager before any overcoating or preservative is applied			
Paintwork is classified in the following different colour groups: "White", "Pastel", "Deep" and "Transparent" in accordance with the "Natural Colour System" (NCS) adopted by the SA National Standards			
Unless otherwise described, all paintwork shall be deemed to be classified in the "White" colour group			
<u>PAINTWORK, ETC TO NEW WORK</u>			
<u>ON INTERNAL FLOATED PLASTER SURFACES</u>			
<u>One coat alkali resistant plaster primer and two coats PVA acrylic emulsion paint on</u>			
1	Walls	m2	128
<u>ON EXTERNAL FLOATED PLASTER SURFACES</u>			
<u>One coat alkali resistant primer and two coats premium quality polyurethane enamel paint, on:</u>			
2	Walls	m2	846
<u>ON SMOOTH CONCRETE SURFACES</u>			
Carried Forward			R
Section No. 2 Bill No. 9 Paintwork			

Brought Forward			R
	<u>One coat alkali resistant primer and two coats PVA emulsion paint for interior use, including stopping blowholes, on:</u>		
3	Concrete ceilings	m2	146
Carried Forward to Summary of Section No. 2			R
Section No. 2 Bill No. 9 Paintwork			

[illegible]

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 3</u>			
	<u>BILL NO. 1</u>			
	<u>EXTERNAL WORK (PROVISIONAL)</u>			
	<u>(ALL TRADES)</u>			
	<u>WORK GROUP ALLOCATION</u>			
	The items in this Bill will be allocated to Work Groups as indicated in brackets at the end of headings or descriptions			
	<u>PREAMBLES</u>			
	The Model Preambles for Trades (2008 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 General Preambles will be entertained			
	The following "Supplementary Preambles" are incorporated in this bill to satisfy the requirements of the project and shall take precedence over the provisions of the said General Preambles			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	<u>Nature of ground:</u>			
	The nature of the ground is assumed to be loose sandy material, therefore "earth", but possibly interspersed with "soft rock" or "hard rock"			
	The nature of the ground is assumed to be gravel, therefore "earth", but possibly interspersed with "soft rock" or "hard rock"			
	The nature of the ground is assumed to be silty clay with loose river boulders varying in size up to approximately 450mm diameter, all of which will be deemed as "earth", but possibly interspersed with "hard rock"			
	Carried Forward		R	
	Section No. 3			
	Bill No. 1			
	External Works (Provisional)			

<p style="text-align: center;">Brought Forward</p> <p>Trial holes indicate that the nature of the ground is silty clay to a depth of approximately 500mm with fine to medium loose sandy material below, therefore "earth"</p> <p>A soils investigation has been carried out on the site by the Engineer and the report is annexed to these bills of quantities. The soils report indicates that the ground varies between transported soils at surface comprising gravel layers of varying thickness and interspersed with clay, and weathered shales varying from very soft rock to medium hard rock consistency, all of which will be deemed as "earth". All very hard unweathered shale, ironstone, etc the removal of which necessitates the use of explosives or heavy duty hydraulic percussion hammers (peckers), will be classified as "hard rock"</p> <p>Should the Contractor encounter any "soft" or "hard" rock in the excavations, he shall immediately notify the Engineer who shall be the sole arbiter as to what constitutes "soft" or "hard" rock for final account purposes</p> <p><u>Subterranean water:</u></p> <p>No subterranean water is expected</p> <p><u>Excavation for working space in rock:</u></p> <p>Notwithstanding clause 11 of the Standard System of Measuring Building Work, excavation for working space in rock will be measured in cubic metres to the extent executed and given as "extra over" bulk excavation or trench and hole excavation as the case may be</p> <p><u>Carting away of excavated material:</u></p> <p>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</p> <p><u>Filling:</u></p> <p>Notwithstanding the reference to prescribed multiple handling in Clause 1 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</p>	<p style="text-align: center;">R</p>
<p style="text-align: center;">Carried Forward</p> <p>Section No. 3 Bill No. 1 External Works (Provisional)</p>	<p style="text-align: center;">R</p>

Brought Forward				R
<u>Testing:</u>				
<i>Prices for backfilling to trenches and holes only are to include for all necessary density tests in accordance with SANS 1200D</i>				
<u>Maintenance period:</u>				
The maintenance period to civil works such as roads, parking and related earthworks shall be twelve calendar months				
<u>SITE CLEARANCE, ETC (WORK GROUP 104)</u>				
<u>Site clearance:</u>				
1	Stripping average 150mm thick layer of top soil and depositing material in prescribed stock piles on site	m2	1,028	
<u>PAVINGS, ETC</u>				
<u>SUPPLEMENTARY PREAMBLES</u>				
<u>Testing of material and filling:</u>				
Descriptions of earth filling, compaction, etc shall be deemed to include for all necessary testing required in accordance with the SABS 1200 series				
<u>EARTHWORKS (WORK GROUP 104)</u>				
<u>Excavation in earth not exceeding 2m deep:</u>				
2	Over site between buildings, retaining walls, etc to reduce levels and dispose in prescribed stock piles on site	m3	715	
<u>Extra over all excavations for carting away:</u>				
3	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor	m3	715	
Carried Forward				R
Section No. 3 Bill No. 1 External Works (Provisional)				

Brought Forward			R
<u>Compaction of surfaces:</u>			
4	Compaction of ground surface under pavings, etc including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 98% Mod AASHTO density	m2	779
<u>Earth filling from commercial sources supplied by the Contractor under parking areas, roadways, etc:</u>			
5	Sub-base course of G5 material compacted to 95% Mod AASHTO density	m3	152
6	Sub-base course of G7 material compacted to 93% Mod AASHTO density	m3	152
<u>Weedkiller (active ingredients metalaclor 102,8 g/l, terbitilasien 248,6 g/l and atrisien 248,6 g/l) mixed in the proportion of 100 ml weedkiller to 100 l water and applied at a rate of 10 l/m2:</u>			
7	Under paving, etc	m2	660
<u>PRECAST CONCRETE (WORK GROUP 112)</u>			
<u>Paving of 200 x 100 x 80mm "Type S-A" precast concrete paving bricks with butt joints, on 20mm thick river sand bed with sand-and-cement mixture swept into joints and hosed down, including preparation of ground or filling:</u>			
8	Paving in herringbone bond pattern to falls [LI]	m2	660
<u>FENCING (WORK GROUP 136)</u>			
<u>4m HIGH, 5m WIDE CONCRETE WALL</u>			
9	Concrete Panel and Column Price per meter	m	125
<u>4m HIGH, 5m WIDE CONCRETE WALL FOUNDATIONS</u>			
10	Foundation	No	25
Carried Forward			R
Section No. 3 Bill No. 1 External Works (Provisional)			

[illegible]

Item No	Quantity	Rate	Amount
<u>SECTION NO. 4</u>			
<u>BILL NO. 1</u>			
<u>ELECTRICAL INSTALLATION</u>			
<u>ELECTRICAL SUBSTATION</u>			
<u>DISCONNECTION/ REMOVAL OF REDUNDANT ELECTRICAL EQUIPMENT</u>			
<u>The following equipment shall be isolated, disconnected, removed and handed over to the Employer:</u>			
1	Decommissioning and stripping of existing electrical installations including cables, conductors, luminaires, control devices, DB's, etc in the existing building as indicated on the drawing and scope of works. this include MV and LV installations.		SUM
<u>LOW VOLTAGE</u>			
<u>LV SWITCHGEAR</u>			
<u>DBs and LV Switchgear</u>			
<u>Manufacture, deliver to site, install, commission, test kiosks, distribution boards as per specification and single line diagram, to be housed in electrical. All electrical panels shall be stainless steel material, rates to include powder coated, busbars and drilling, busbar connections internal wiring etc. Refer to single line diagram for electrical panel colour</u>			
2	Main LV DB - Parcel S/S	No 1	
3	Main DB - Regional Office S/S	No 1	
4	DB - Plant rooms	No 4	
<u>CABLES</u>			
Carried Forward			R
Section No. 4 Bill No. 1 Electrical Installation			

	Brought Forward		R	
	<u>Supply, deliver to site cables and conductors as specified. Install, rack, strap and testing of cables as per specification including clamps, ties and cable numbering system</u>			
5	2,5mm conductors (mixed colours - live, neutral and earth)	m	1,600	
6	4,0mm conductors (mixed colours - live, neutral and earth)	m	1,200	
7	2.5 mm ² 2c 600/1000V PVC/SWA/PVC ECC Cu Cable	m	200	
8	2.5 mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	m	800	
9	4,0 mm ² 2c 600/1000V PVC/SWA/PVC ECC Cu Cable	m	400	
10	6,0 mm ² 2c 600/1000V PVC/SWA/PVC ECC Cu Cable	m	4,600	
11	10 mm ² 2c 600/1000V PVC/SWA/PVC Cu Cable	m	600	
12	10 mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	m	200	
13	16mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	m	400	
14	25mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	m	1	Rate Only
15	35mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	m	600	
16	50mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	m	1	
17	70mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	m	900	
18	95mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	m	900	
19	120mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	m	900	
20	630mm ² - 1Core unarmoured PVC insulated PVC sheathed 600/1000V cables (All colours - red, yellow/white, Blue and black)	m	3,000	
	<u>CABLE TERMINATIONS</u>			
	Carried Forward		R	
	Section No. 4 Bill No. 1 Electrical Installation			

Brought Forward				R
<u>Termination of cables shall include supply installation and testing of the glands with corrosion guard, making-off the cable, lugs, and fitting the gland to the board gland plate, switchgear or equipment and final connection of cable tails into board or terminals. Include for Reducing Glands and shrouds where applicable. NB: IP65 Glands are to be used where applicable.</u>				
21	2.5 mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	No	20	
22	4,0 mm ² 4c 600/1000V PVC/SWA/PVC Cu Cable	No	20	
23	6,0 mm ² 2c 600/1000V PVC/SWA/PVC ECC Cu Cable	No	4,096	
24	10 mm ² 2c 600/1000V PVC/SWA/PVC Cu Cable	No	120	
25	10 mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	No	120	
26	16mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	No	40	
27	25mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	No	40	
28	35mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	No	30	
29	50mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	No	30	
30	70mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	No	80	
31	95mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	No	80	
32	120mm ² 4c 600/1000V PVC/SWA/PVC ECC Cu Cable	No	100	
33	630mm ² - 1Core unarmoured PVC insulated PVC sheathed 600/1000V cables (red, white/yellow, blue and black/neutral)	No	200	
<u>CABLE TRAY, LADDER, TRUNKING, POWER SKIRTING, CONDUIT AND ACCESSORIES</u>				
Carried Forward				R
Section No. 4 Bill No. 1 Electrical Installation				

Brought Forward			R
<p><u>Supply, deliver to site unpainted hot dipped galvanised steel cable tray, cable ladder as specified heavy duty range, inclusive of all items required to install in accordance with manufacturers specification. Power skirting and shall be PVC as per line item below. Rate to include all necessary required accessories for a complete installation.</u></p> <p><u>Supply, deliver and Install hot dip galvanised heavy duty all items such as brackets, rawl bolts, splices, bonding straps etc. required to install in accordance with manufacturers specification. NB: all additional HDG steel supports to be included in the rates.</u></p>			
34	300mm wide tray - Cable ladder complete with all required accessories.	No	400
35	Cable ladder bends, 4-way (x10), 90 degree bends (x10), tee ways (x10) and accessories		SUM
36	300mm wide heavy duty tray - Cable tray complete with all required accessories.	m	400
37	Cable tray Heavy duty 4-ways complete with accessories	No	12
38	Cable tray bends Heavy duty - 90 degree bends complete with accessories	No	12
<p><u>LIGHT SWITCHES, SOCKET OUTLET, WELDING ISOLATORS AND ACCESSORIES</u></p> <p><u>Supply, deliver and installation of the following control devices and accessories as per specification. Rate must allow for the termination and connecting of the PVC conductor to the accessory, fixing to the conduit box and the fitting of the cover plate. (PVC covers)</u></p>			
39	Supply and installation of 15Amp, 1 lever, 1-way, red toggle, white coloured plate, light circuit switch complete with cover and all accessories	No	4
40	Supply and install 16A, 3pin, 2pin 230V Switched Socket Outlets, white coloured plate with red toggle	No	18
Carried Forward			R
<p>Section No. 4 Bill No. 1 Electrical Installation</p>			

	Brought Forward			R
41	Supply, deliver and installation of 400V, 63A, 4-pole IP65 rated surface mounted industrial Isolator, with red toggle / red plate coloured, complete with all necessary accessories	No	12	
42	Supply, deliver and installation of 400V, 32A, 4-pole IP65 rated surface mounted Isolator, with red toggle / red plate coloured, complete with all necessary accessories	No	12	
43	Supply and installation of 20Amp, 2-pole 230V surface mounted solator IP65 red coloured/red toggle, complete with all necessary accessories	No	32	
44	100mmX100mm hot deep galvanised draw box recessed mounted on wall	No	18	
45	100mmX50mm hot deep galvanised draw box recessed mounted on wall	No	4	
46	65 mm round PVC box, complete with cover and all necessary accessories.	No	90	
47	25mm PVC conduit, chased on wall, make good, complete with cover and all necessary accessories.	m	1,400	
48	32mm PVC conduit, chased on wall, make good, complete with cover and all necessary accessories.	m	120	
49	25mm steel conduit / bosal surface mounted complete with cover and all necessary accessories.	m	450	
<u>LUMINARIES AND CONTROL DEVICES</u>				
<u>Supply, deliver and install the following luminaires, complete with lamps and control gear as per specification. See and refer to the specification document for details of each luminaire.</u>				
50	Type A5 - IP65 Rated, 30W / +/-4440 lm LED - 4000k Surface-mounted weather-proof luminaire. Refer to specification document for detailed specification.	No	12	
51	Type A6 - same as type A5 above, this includes a back up 1 hour battery. Refer to specification document for detailed specification.	No	6	
Carried Forward				R
Section No. 4 Bill No. 1 Electrical Installation				

**PASSENGER RAIL AGENCY OF SOUTH AFRICA
PV SOLAR PLANT
DURBAN STATION**

	Brought Forward		R
52	Type A7 - IP65 Rated, 30W / +/-4440 lm LED - 4000k Surface-mounted weather-proof luminaire, zone1/21. Refer to specification document for detailed specification.	No 20	
53	Type A8 - same as type A5 above, this includes a back up 1 hour battery. Refer to specification document for detailed specification.	No 12	
54	Type B1 - IP65 Rated high-pressure die cast aluminium base and trim ring 20W/ +/-2600lm LED - 4000k bulkhead luminaire. Refer to specification document for detailed specification.	No 10	
55	Type B2 - same as type B1 above, this includes a back up 1 hour battery. Refer to specification document for detailed specification.	No 4	
56	Type C6 - 66W / +/-10000lumen LED (4000k) Floodlight, rated IP65 with powder coating. Refer to specification document for detailed specification.	No 10	
57	A 7m Pole Fibre-glass pole - Supply, deliver and installation of 7 meter fibre-glass poles. Rates to include mounting brackets for the 2xcameras	No 4	
	<u>SUNDRIES</u>		
58	Labelling of light switches, sockets and isolators outlets as per drawing pop riveted to cover plate.		SUM
59	Signs, Labels & Equipment Tags Supply and install all power, lighting, motors and earthing signs, labels and equipment tags as specified and in accordance with all Statutory requirements.		SUM
60	EARTH BAR - A 500 mm x 20mm x4mm copper earth bar with 10no. 6 mm diameter holes pre-drilled, surface fixed on insulators	No 50	
61	70mm ² PVC Green insuare Copper single core	m 7,000	
62	Supply, deliver, installation and terminate conductors of Copper earth spike 1,2m, install in ground for earthing purpose. Rate to include termination of conductors.	No 300	
	Carried Forward		R
	Section No. 4 Bill No. 1 Electrical Installation		

Brought Forward			R
<u>EXCAVATIONS</u>			
<u>Trenching shall be calculated using the formula below: (700mm deep * 0.5m wide * length)</u>			
63	Excavate in concrete/tar and hard soil, backfilling and compaction to 93% MOD AASHTO and re-instate tar / concrete	m3	420
<u>CABLE SLEEVES</u>			
<u>Supply, deliver and install the following UPVC flexible black & green ring sleeves. All material to be SABS approved as suitable for cable installation. Must have 1,5mm draw wire.</u>			
64	160 mm UPVC Flexible sleeves	m	1,200
65	110 mm UPVC Flexible sleeves	m	1,200
66	75 mm UPVC Flexible sleeves (green sleeves)	m	1
67	Construction of manholes complete with cover as per drawing	No	8
<u>PHOTOVOLTAIC SOLAR SYSTEM</u>			
<u>Supply, deliver, accept and install the following solar system equipment, complete with control gear supporting structure. Refer to the specification document for details.</u>			
68	Photovoltaic Modules / solar panels - 650W as per specification	No	1,570
69	PV Solar System Transformer complete with all necessary accessories for a complete operation. Rates to include all pre-test required.	No	2
70	DC Combiner box complete with all required accessories for complete installation and operation	No	48
71	Solar Inverters - 100kW complete with all required accessories for complete installation and operation	No	12
72	Inverter- Charger 630kW complete with all required accessories for complete installation and operation	No	2
Carried Forward			R
Section No. 4 Bill No. 1 Electrical Installation			

PASSENGER RAIL AGENCY OF SOUTH AFRICA
PV SOLAR PLANT
DURBAN STATION

	Brought Forward			R	
73	Bypass panels complete with all necessary required accessories	No	2		
74	Lithium-Ion Battery bank energy storage 4-hours (for 1MW plant - 4x250kWh batteries) backup as per specification. - TFM1			SUM	
75	Energy management system / controls including on-line monitoring platform.			SUM	
76	Digital kW meters with comm cables and CTs for all PV system plants			SUM	
77	Other - any other material and installation required and not listed above for photovoltaic solar system for a full and operational system as discussed on the scope and specification document. Breakdown to be submitted with the tender.			SUM	
78	Specialist Services - Contractor to investigate the existing roof structure, issue a detailed report indicating the structure integrity. Refer to scope and specification document for other details.	No	1		
79	Site assessment and condition assessment report. Report to include load recording results			SUM	
80	Provision for design PV solar system to meet minimum requirements. Refer to scope and specification document for details.			SUM	
81	Training of PRASA team members on operation and maintainance of the solar system and other electrical installations under this contract.			SUM	
82	The close out pack including all operational and maintenance manuals, As Built drawings, monitoring and sign off. Provide support during the defects notification period including sign off of the defects certificate, issuing the performance certificate, including the sign off.			SUM	
83	Service and Maintenance for 36 months of the entire PV Solar system and electrical infrastructure. Rates shall include all necessary costs such as travelling, labour, tools, etc as indicated on the works information document.			SUM	
	Carried Forward			R	
	Section No. 4				
	Bill No. 1				
	Electrical Installation				

**PASSENGER RAIL AGENCY OF SOUTH AFRICA
PV SOLAR PLANT
DURBAN STATION**

	Brought Forward			R	
84	Liaising with supply authority and Municipal authority approval for grid tie with the solar system			SUM	
85	Provisional sum of Five Hundred Thousand rand only (R5 000 000) for Specialist services. Amount shall be paid upon receiving quotations and or invoice			SUM	
	<u>TEST AND COMMISSIONING</u>				
	<u>Test and commission the complete electrical installation including completion of quality checksheets, Compliance Certificates & test results for the entire electrical installation and submitting them to the Employer's Representative.</u>				
86	Hot and Cold Commissioning			SUM	
87	Test and commission the complete electrical installation including Certificates of Compliance & test results to the Engineer.			SUM	
	<u>ELECTRONICS INSTALLATIONS - SECURITY SYSTEM</u>				
	<u>Supply, deliver and installation of the following electronics units for security system in the building and to include all required accessories as per specification. Rate must allow for the termination and connecting fixing testing and commissioning as indicated below. Refer to specification document for details.</u>				
88	VMA-AS3X-8P8-EU HD Video Appliance 3X 8-port 8TB, EU, Windows 10 IoT Enterprise v21H2 LTSC	No	1		
89	RM7-WKS-2MN-EU Remote Monitoring Workstation, 2 Monitors, EU	No	1		
90	MHD24-G2-EU Monitor, 24" LCD HD, WUXGA	No	2		
91	ACC7-ENT ACC 7 Enterprise camera channel	No	11		
	<u>BULLET CAMERA - OUTDOOR DOME</u>				
92	Type 1 - IR Bullet camera with analytics 3MP, 9-22mm	No	10		
93	Housing, brackets and all other required accessories	No	10		
	Carried Forward			R	
	Section No. 4 Bill No. 1 Electrical Installation				

Brought Forward			R
<u>HIGH SPEED PTZ CAMERA, EXTERNAL</u>			
94	Type 3 - 2.0C-H4IRPTZ-DP30-WP 2MP H4 IR PTZ, with Wiper 30X, Self-learning analytics, IK10, IP66, 250m IR	No 7	
95	IRPTZ-MNT-WALL1 Wall arm for use with H4 IR PTZ or H4A-MH-AD-PEND1 on H4/H5 Multisensor	No 2	
96	POE-INJ2-95W-NA Indoor single Port PoE Injector Gigabit, 95W, NA power cord, for use with H4IR PTZ - indoor installation rated. Temperature range of the PoE injector is -10C to +45C. Compatible with power cord with C13 on one side and with country specific plug on the other side.	No 8	
<u>ACCESS CONTROL</u>			
97	Face, Palm and Fingerprint recognition Terminal with Mask Detection including applicable software and software integration	No 4	
98	AC-APP-16R-PRO-6 Access Control Manager Professional 6 – Web-Based PACS Professional Appliance for 16 Readers - includes: physical appliance embedded 64 bit Linux OS & Open LDAP for configuration database Access Control Manager Security Management Software 16 Reader Count Software License One (1) ACM Verify ACC Video Integration Five (5) partitions Identities CSV export, recurring, one-time, long & short format Total reader capacity can be expanded from 16 to 32 readers with the purchase of one AC-SW-LIC-16RCU-6-P 16 Reader Count Software License Supports up to 32 controllers, 75K identities, 75M stored transactions and ten (10) simultaneous operators (via browser) Three (3) year appliance hardware warranty begins at date of shipment. to be installed on the battery container	No 2	
99	AC-MER-CONT-LP1501 Intelligent Controller, Linux Based with 1 door, 2 inputs and 2 outputs, PoE+ Support, expandable up to 17 doors. (Mercury Part #: LP1501)	No 2	
100	AC-SW-LIC-REST-6-P Access Control Manager 6 REST Connectivity Software License (per appliance)	No 2	
Carried Forward			R
Section No. 4 Bill No. 1 Electrical Installation			

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[illegible]

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 4</u>			
	<u>BILL NO. 2</u>			
	<u>GENERATOR SET</u>			
	<u>Manufacture, deliver to site, install, test and commission of a generator set 400 volts at 50Hz as per specification and single line diagram. The generator shall be open type and installed in the generator room. Rates to include for steelwork and powder coated, busbars and drilling, busbar connections internal wiring, earthing for the generator set, etc. Refer to attached single line diagram. Refer to generator specification for detailed spec. Returnable document must be completed and return with the tender document.</u>			
1	1500kVA, 400V Diesel Engine Alternator Set - open set frame. The set must be a 3CR12 and with stand coastal environment. (Generator 1&2)	No	2	
2	Duvalco Water Trap/Fuel Filter cartridge	No	2	
3	Main DB with Main breaker and New AMF panel as per single line diagram drawing	No	2	
4	New Fuel Tank of 10000litre to supply generator with valves and instruments elevated stand complete with pumping equipment to 2x generator sets	No	1	
	<u>Electrical reticulation</u>			
5	Interconnecting control & power cabling between genset and alternator and AMF panel	No	2	
6	Support & protection of exposed cabling between genset & AMF panel	No	2	
7	Electronic hooter & red flashing general alarm light mounted on the AMF panel.	No	2	
8	Remote alarm indicator panel complete the red indicator lamp and label - GENERATOR FAULT	No	2	
	Carried Forward			
	Section No. 4 Bill No. 2 Generator Set 1.5		R	

	Brought Forward			R
9	External emergency stop push button and cabling	No	2	
10	Earthing of the generator set	No	1	
	<u>Test and Commissioning for Both Sets</u>			
11	Test & commission on site with load	No	2	
12	Resistance testing of earth system	No	2	
13	Balancing of the essential loads	No	2	
14	Electrical Certification of Compliance	No	2	
	<u>Signage in generator and battery room</u>			
15	As per OHS Act - fire & resussitation etc.	No	1	
16	Generator "Manual Start/Test Procedure"	No	1	
17	Caution - This generator will start automatically. Isolate power before working on plant	No	1	
18	Electricity logo on door to AMF panel	No	2	
19	PRASA'S ID label of genset & control panel	No	2	
20	Contractors / Municipality's details - laminated plastic	No	1	
	<u>General</u>			
21	Diesel fuel for full tank 1000liters	No	1	
22	Automated pump from the diesel tank to the generator to fill up generator tank when required. Rate to included all necessary accessories required for a full operational pump.	No	2	
23	Laminated plastic framed schematic wiring diagram fixed to the inside of the enclosure adjacent the AMF panel	No	1	
24	Operational training of Employer's staff	No	1	
25	Manuals - 3 sets	No	1	
	Carried Forward			R
	Section No. 4			
	Bill No. 2			
	Generator Set 1.5			

**PASSENGER RAIL AGENCY OF SOUTH AFRICA
PV SOLAR PLANT
DURBAN STATION**

	Brought Forward			R
26	Drawings	No	1	
27	Allow for crane, rigging and installation of the generator set inside the building.	No	2	
	<u>Service</u>			
28	Inspection every quarter + new fuel filters for 1st year - Generator 1	No	4	
29	Inspection every quarter + new fuel filters for 1st year - Generator 2	No	4	
30	Full annual service + new battery for 1st year - Generator 1	No	1	
31	Full annual service + new battery for 1st year - Generator 2	No	1	
32	Service, maintenance and Inspection every quarter + new fuel filters for 3 years (4x maintenance per year). Rate to include all required materials for service and maintenance during this period - Generator 1	No	12	
33	Service, maintenance and Inspection every quarter + new fuel filters for 3 years (4x maintenance per year). Rate to include all required materials for service and maintenance during this period - Generator 2	No	12	
Carried Forward to Summary of Section No. 4				R
Section No. 4				
Bill No. 2				
Generator Set 1.5				

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 4</u>			
	<u>BILL NO. 3</u>			
	<u>GENERATOR SET</u>			
	<u>Manufacture, deliver to site, install, test and commission of a generator set 400 volts at 50Hz as per specification and single line diagram. The generator shall be open type and installed in the generator room. Rates to include for steelwork and powder coated, busbars and drilling, busbar connections internal wiring, earthing for the generator set, etc. Refer to attached single line diagram. Refer to generator specification for detailed spec. Returnable document must be completed and return with the tender document.</u>			
1	2000kVA, 400V Diesel Engine Alternator Set - open set frame. The set must be a 3CR12 and with stand coastal environment. (Generator 3 & 4)	No	2	
2	Duvalco Water Trap/Fuel Filter cartridge	No	2	
3	Main DB with Main breaker and New AMF panel as per single line diagram drawing	No	2	
4	New Fuel Tank of 10000litre to supply generator with valves and instruments elevated stand complete with pumping equipment to 2x generator sets	No	1	
	<u>Electrical reticulation</u>			
5	Interconnecting control & power cabling between genset and alternator and AMF panel	No	2	
6	Support & protection of exposed cabling between genset & AMF panel	No	2	
7	Electronic hooter & red flashing general alarm light mounted on the AMF panel.	No	2	
8	Remote alarm indicator panel complete the red indicator lamp and label - GENERATOR FAULT	No	2	
	Carried Forward			
	Section No. 4 Bill No. 3 Generator Set 2		R	

	Brought Forward			R
9	External emergency stop push button and cabling	No	2	
10	Earthing of the generator set	No	2	
	<u>Test and Commissioning for Both Sets</u>			
11	Test & commission on site with load	No	2	
12	Resistance testing of earth system	No	2	
13	Balancing of the essential loads	No	2	
14	Electrical Certification of Compliance	No	2	
	<u>Signage in generator and battery room</u>			
15	As per OHS Act - fire & resussitation etc.	No	1	
16	Generator "Manual Start/Test Procedure"	No	2	
17	Caution - This generator will start automatically. Isolate power before working on plant	No	2	
18	Electricity logo on door to AMF panel	No	2	
19	PRASA'S ID label of genset & control panel	No	2	
20	Contractors / Municipality's details - laminated plastic	No	1	
	<u>General</u>			
21	Diesel fuel for full tank 10000liters	No	1	
22	Automated pump from the diesel tank to the generator to fill up generator tank when required. Rate to included all necessary accessories required for a full operational pump.	No	2	
23	Laminated plastic framed schematic wiring diagram fixed to the inside of the enclosure adjacent the AMF panel	No	1	
24	Laminated plastic framed schematic wiring diagram fixed to the inside of the enclosure adjacent the AMF panel	No	1	
	Carried Forward			R
	Section No. 4			
	Bill No. 3			
	Generator Set 2			

**PASSENGER RAIL AGENCY OF SOUTH AFRICA
PV SOLAR PLANT
DURBAN STATION**

	Brought Forward		R
25	Manuals - 3 sets	No	1
26	Drawings	No	1
27	Allow for crane, rigging and installation of the generator set inside the building.	No	2
	<u>Service</u>		
28	Inspection every quarter + new fuel filters for 1st year - Generator 3	No	4
29	Inspection every quarter + new fuel filters for 1st year - Generator 4	No	4
30	Full annual service + new battery for 1st year - Generator 3	No	1
31	Full annual service + new battery for 1st year - Generator 4	No	1
32	Service, maintenance and Inspection every quarter + new fuel filters for 3 years (4x maintenance per year). Rate to include all required materials for service and maintenance during this period - Generator 3	No	12
33	Service, maintenance and Inspection every quarter + new fuel filters for 3 years (4x maintenance per year). Rate to include all required materials for service and maintenance during this period - Generator 4	No	12
34	Removal of 2xexisting generator set - size unknown, but could be 1,5MVA open set. The set shall be transported to PRASA workshop - 50km from site. Rates to include all necessary require tools, transport arrangement for a complete transportation of both generator set.		SUM
	Carried Forward to Summary of Section No. 4		R
	Section No. 4 Bill No. 3 Generator Set 2		

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 4</u>			
	<u>BILL NO. 4</u>			
	<u>GENERATOR SET</u>			
	<u>Manufacture, deliver to site, install, test and commission of a generator set 400 volts at 50Hz as per specification and single line diagram. The generator shall be open type and installed in the generator room. Rates to include for steelwork and powder coated, busbars and drilling, busbar connections internal wiring, earthing for the generator set, etc. Refer to attached single line diagram. Refer to generator specification for detailed spec. Returnable document must be completed and return with the tender document.</u>			
1	1000kVA, 400V Diesel Engine Alternator Set - open set frame. The set must be a 3CR12 and with stand coastal environment. (Generator 3 & 4)	No	1	
2	Duvalco Water Trap/Fuel Filter cartridge	No	1	
3	Main DB with Main breaker and New AMF panel as per single line diagram drawing	No	1	
4	New Fuel Tank of 10000litre to supply generator with valves and instruments elevated stand complete with pumping equipment to 2x generator sets	No	1	
	<u>Electrical reticulation</u>			
5	Interconnecting control & power cabling between genset and alternator and AMF panel	No	1	
6	Support & protection of exposed cabling between genset & AMF panel	No	1	
7	Electronic hooter & red flashing general alarm light mounted on the AMF panel.	No	1	
8	Remote alarm indicator panel complete the red indicator lamp and label - GENERATOR FAULT	No	1	
	Carried Forward			
	Section No. 4 Bill No. 4 Generator Set 1		R	

	Brought Forward			R
9	External emergency stop push button and cabling	No	1	
10	Earthing of the generator set	No	1	
	<u>Test and Commissioning for Both Sets</u>			
11	Test & commission on site with load	No	1	
12	Resistance testing of earth system	No	1	
13	Balancing of the essential loads	No	1	
14	Electrical Certification of Compliance	No	11	
	<u>Signage in generator and battery room</u>			
15	As per OHS Act - fire & resussitation etc.	No	1	
16	Generator "Manual Start/Test Procedure"	No	1	
17	Caution - This generator will start automatically. Isolate power before working on plant	No	1	
18	Electricity logo on door to AMF panel	No	1	
19	PRASA'S ID label of genset & control panel	No	1	
20	Contractors / Municipality's details - laminated plastic	No	1	
	<u>General</u>			
21	Diesel fuel for full tank 1000liters	No	1	
22	Automated pump from the diesel tank to the generator to fill up generator tank when required. Rate to included all necessary accessories required for a full operational pump.	No	1	
23	Laminated plastic framed schematic wiring diagram fixed to the inside of the enclosure adjacent the AMF panel	No	1	
24	Operational training of Employer's staff	No	1	
25	Manuals - 3 sets	No	1	
	Carried Forward			R
	Section No. 4			
	Bill No. 4			
	Generator Set 1			

**PASSENGER RAIL AGENCY OF SOUTH AFRICA
PV SOLAR PLANT
DURBAN STATION**

	Brought Forward			R
26	Drawings	No	1	
27	Allow for crane, rigging and installation of the generator set inside the building.	No	1	
	<u>Service</u>			
28	Inspection every quarter + new fuel filters for 1st year - Generator 5	No	4	
29	Full annual service + new battery for 1st year - Generator 5	No	1	
30	Service, maintenance and Inspection every quarter + new fuel filters for 3 years (4x maintenance per year). Rate to include all required materials for service and maintenance during this period - Generator 5	No	12	
Carried Forward to Summary of Section No. 4				R
Section No. 4				
Bill No. 4				
Generator Set 1				

Bill No	SECTION SUMMARY - Electrical Installations	Page No	Amount
1	Electrical Installation	56	
2	Generator Set 1.5	59	
3	Generator Set 2	62	
4	Generator Set 1	65	
<p style="text-align: right;">Carried to Final Summary</p> <p>Section No. 4</p>			R

Item No		Quantity	Rate	Amount
<u>SECTION NO. 5</u>				
<u>BILL NO. 1</u>				
<u>FIRE PROTECTION SYSTEMS</u>				
<u>BATTERY PLANT ROOM</u>				
The fire suppression system to be designed, supplied, installed and commissioned in accordance to the relevant parts of SANS 246:2015, SANS 14520-1/ISO 14520-1, SANS 14520-15/ISO 14520-15. The fire suppression system is to come complete with a fire detection system, control panel, manual gas release valve. Refer to the tender specification for more details.				
1	155lt cylinders c/w rack and straps Filled To 140 kg	No	3	
2	FM 200 Manual Activation/Release	No	1	
3	FM 200 Manual Abort	m	1	
4	Discharge Manifold With all Necessary Valves, Hoses and All Associated Fittings	No	3	
5	50mm Nozzle 360 Degrees	No	4	
<u>Supply and Install The Piping & Accessories - Schedule 40</u>				
6	100mm Galvanized Steel Pipe SC 40	m	7	
7	65mm Galvanized Steel Pipe SC 40	m	5	
8	50mm Galvanized Steel Pipe SC 40	m	16	
9	100mm Galvanized Steel Bend	No	2	
10	50mm Galvanized Steel Bend	No	6	
11	65mm Galvanized Steel Bend	No	1	
12	100mm Threaded Tee Joint	No	1	
Carried Forward				R
Section No. 5 Bill No. 1 Fire Protection				

**PASSENGER RAIL AGENCY OF SOUTH AFRICA
PV SOLAR PLANT
DURBAN STATION**

Brought Forward				R
13	65mm Threaded Tee Joint	No	2	
14	100mm - 65mm Threaded Reducer	No	2	
15	65mm - 50mm Threaded Reducer	No	4	
<u>Complete design, supply and installation of a smoke detection system. Smoke detection system to comply with SANS 10139. Smoke detection system to be an Conventional Extinguishing Panel Linked to the existing addressable system in the main Building</u>				
16	Fire Extinguishing Panel	No	1	
17	Combined Wall Fire Alarm Sounder & Flashing Strobe	No	1	
18	IP65 Wall Audible Visual Alarm	No	1	
19	Heat Detector 60 Deg Fixed With Bases Conventional	No	6	
20	PH30 Fire Resistant Cable	m	60	
21	25mm Bosal Conduit with all Associated Fittings	m	60	
<u>Supply, deliver and install all Fire appliances and piping with complete with all auxiliary fittings :</u>				
22	9 kg DCP fire extinguisher Mounted on a Wooden Block.	m	4	
23	Class B Double Fire Door With Self Closing Mechanism	No	2	
24	Photo luminated Signage			SUM
Carried Forward to Summary of Section No. 5				R
Section No. 5 Bill No. 1 Fire Protection				

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 5</u>			
	<u>BILL NO. 2</u>			
	<u>HEATING, VENTILATION AND AIR CONDITIONING INSTALLATION</u>			
	<u>BATTERY PLANT ROOM</u>			
	<u>Decommission and Safely Remove The Following HVAC Systems and Dispose Off-site/Store as per Client Specification</u>			
1	2000x1000mm Insulated Steel Duct With all fittings	m	2.57	
2	1500x1200mm Insulated Steel Duct With all fittings	m	60	
3	1200x1000mm Insulated Steel Duct With all fittings	m	20.22	
4	1000mm Dia Insulated Steel Duct With all fittings	m	131.14	
5	300NB Insulated Steel Pipe With All Fittings	m	138.84	
6	150NB Insulated Steel Pipe With All Fittings	m	365	
7	5.6x3.5x2.5 (lxbxh) AHU With All fittings, filters Fans and Coils	No	3	
8	1.5x0.5 lxb Air-Compressor	No	2	
	<u>Supply, Install and Commission The Following HVAC Systems as per Specification:</u>			
9	Multiple System Type Ceiling Suspended Unit (14 kW Cooling Capacity)	No	10	
10	Premium Wired Remote Controller	No	2	
11	Gas & Liquid Gas & Liquid Refrigerant copper piping, refnets joints, insulation and galvanized cable wire baskets with consumables, nitrogen, welding with consumables, refrigerant gas and general consumables.	m	50	
	Carried Forward			
	Section No. 5 Bill No. 2 HVAC Installations		R	

**PASSENGER RAIL AGENCY OF SOUTH AFRICA
PV SOLAR PLANT
DURBAN STATION**

	Brought Forward			R
12	22-50 Dia PVC Condensate Drain Piping with all associated fittings	m	40	
13	Multiple System; Energy Efficient Condensing Module With Inverter Motor- 72.8 & 81.9 kW (Cooling & Heating)	No	2	
14	1200x345 Motorized Galvanized Steel Pressure Relief Damper	No	2	
15	600x510 Motorized Gas Tight Shut-Off Damper	No	2	
16	2000x1500 Galvanized Steel Louver	No	3	
17	<u>Inline Axial Flow Fan @ 700 l/s & 300Pa</u>	No	2	
18	600x600 Filter With $\geq 55\%$ Filtration Efficiency with its Galvanized Steel Casing	No	2	
19	600x600 Galvanized Steel Supply Air Grille	No	2	
20	1000x660 Galvanized Steel Fresh Air Intake louver	No	2	
21	Galvanized Steel Reducers For the Fresh Air Supply Fan Assembly	No	6	
Carried Forward to Summary of Section No. 5				R
Section No. 5				
Bill No. 2				
HVAC Installations				

Item No		Quantity	Rate	Amount
<u>SECTION NO. 5</u>				
<u>BILL NO. 3</u>				
<u>WET SERVICES</u>				
<u>COLD WATER RETICULATION</u>				
<u>Supply install and commission the water reticulation systems with all associated fittings.</u>				
1	25mm Galvanized Steel Free Standing 1.5m high water Tap Including all Associated Fittings	No	20	
2	20mmx50m water Hose pipe with connection fittings and end nozzle	No	20	
3	<u>Free Standing PVC Water Hose Cabinet</u>	No	20	
4	Allowance For Water Reticulation Pipework and Fittings. Water Shall be connected from the nearest Connection Point on the existing Potable water reticulation network on site	m	200	
Carried Forward to Summary of Section No. 5				R
Section No. 5				
Bill No. 3				
Wet Services				

Bill No	SECTION SUMMARY - Mechanical Installations	Page No	Amount
1	Fire Protection	68	
2	HVAC Installations	70	
3	Wet Services	71	
Section No. 5		Carried to Final Summary	
		R	

Item No	Quantity	Rate	Amount
<u>SECTION NO. 6</u>			
<u>BILL NO. 1</u>			
<u>PROVISIONAL AMOUNTS</u>			
<u>PREAMBLES</u>			
<p>The Model Preambles for Trades (2008 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</p> <p>The following "Supplementary Preambles" are incorporated in this bill to satisfy the requirements of the project and shall take precedence over the provisions of the said Model Preambles</p>			
<u>SUPPLEMENTARY PREAMBLES</u>			
<u>General:</u>			
Subcontract amounts are net.			
Subcontract amounts are for material and equipment supplied and installed complete by firms of specialists			
Each subcontract amount may comprise more than one element of work. Therefore, each subcontract amount may include for work to be carried out by more than one subcontractor			
<u>Profit:</u>			
Where stated, the contractor may allow for profit if required			
Carried Forward			R
Section No. 6 Bill No. 1 Provisional Sums, ETC			

<p style="text-align: right;">Brought Forward</p> <p><u>General attendance on nominated/selected subcontractors:</u></p> <p>The item "General Attendance" which follows each subcontract amount 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 work is to be carried out but excluding 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 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 5. The use, at reasonable times by arrangement of the contractor's erected hoisting equipment 6. Making good in all trades and cleaning down and removal of rubbish on completion <p><u>Special attendance on nominated/selected subcontractors:</u></p> <p>Where stated, special attendance as set out in clause 8.1 of section B of the Preliminaries will be described in detail in this bill</p> <p><u>Builder's work:</u></p> <p>Builder's work in connection with specialist services is given elsewhere in these bills of quantities</p>		R	
<p style="text-align: right;">Carried Forward</p> <p>Section No. 6 Bill No. 1 Provisional Sums, ETC</p>		R	

**PASSENGER RAIL AGENCY OF SOUTH AFRICA
PV SOLAR PLANT
DURBAN STATION**

Brought Forward			R
<u>MOCK-UPS AND SAMPLES</u>			
1	Budgetary Allowance of Fifty Thousand Rand for mock-ups and samples	Item	50,000.00
2	Profit (.....%)	%	
3	General attendance (.....%)	%	
<u>COMMUNITY LIAISON OFFICER</u>			
4	Subcontract amount of one One Hundred and Fifty Thousand Rand for Community Liaison Officer	Item	150,000.00
5	Profit (.....%)	%	
6	General attendance (.....%)	%	
<u>TRAINING PERSONNEL</u>			
7	Subcontract amount of one Two Hundred Thousand Rand for Training Personnel	Item	200,000.00
8	Profit (.....%)	%	
9	General attendance (.....%)	%	
Carried Forward to Summary of Section No. 6			
Section No. 6			
Bill No. 1			
Provisional Sums, ETC			

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 6</u>			
	<u>BILL NO. 2</u>			
	<u>BUDGETARY ALLOWANCES</u>			
	<u>PREAMBLES</u>			
	<u>General:</u>			
	A Budgetary Allowance is a sum of money included in the contract sum for work intended for execution by the Contractor, the extent of which is identified but not detailed			
	Work for which budgetary allowances are provided will be measured and valued in accordance with clause 32 of the Principal Building Agreement and deducted in whole or in part if not required without any compensation for loss or profit on the said allowances			
	Each Budgetary Allowance may comprise more than one element of work			
	<u>SOLAR PANEL STRUCTURAL SUPPORT</u>			
1	Budgetary Allowance of Five Million Five Hundred Thousand Rand for the solar panels structural support	Item		5,500,000.00
	<u>ARTWORK TO CONCRETE WALL</u>			
2	Budgetary Allowance of One Million Two Hundred Thousand Rand for the artwork to concrete wall	Item		1,200,000.00
	<u>REMOVAL OF EXISTING STEEL FRAMEWORK</u>			
3	Budgetary Allowance of One Hundred and Fifty Thousand Rand for the removal of existing steel framework	Item		150,000.00
	<u>STORMWATER DRAINAGE</u>			
4	Budgetary Allowance of Three Hundred Thousand Rand for the artwork to stormwater drainage	Item		300,000.00
	Carried Forward to Summary of Section No. 6		R	
	Section No. 6			
	Bill No. 2			
	Budgetary Allowances			

[illegible]

**PASSENGER RAIL AGENCY OF SOUTH AFRICA
PV SOLAR PLANT
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Section No	<u>FINAL SUMMARY</u>	Page No	Amount
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5	Mechanical Installations	72	
6	Provisional Sums	77	
			R
			R
			R
			R
			R

Carried to Form of Tender