

Brought Forward				R
174	80mm Twin booster complete with non-return valve	No	1	
175	Fire blanket 1800 x 1800mm	No	1	
<u>FIRE APPLIANCES</u>				
176	Fire hose reel complete with 30m rubber hose, chromium plated stopcock, shut-off nozzle, wall bracket and cover.	No	15	
177	5kg Carbon dioxide fire extinguisher including approved bracket and meranti backing board fixed to wall	No	1	
178	4.5kg DCP portable fire extinguisher including approved bracket and meranti backing board fixed to wall	No	30	
<u>PIPE INSULATION</u>				
<u>Geberit Mepla or other equally approved red lagged insulation for hot water piping, neatly cut around pipe as required</u>				
179	Insulation to 16mm diameter piping and couplings including working around fittings (LI)	m	16	
180	Insulation to 20mm diameter piping and couplings including working around fittings (LI)	m	178	
181	Insulation to 26mm diameter piping and couplings including working around fittings (LI)	m	32	
182	Insulation to 32mm diameter piping and couplings including working around fittings (LI)	m	76	
<u>WATER METER</u>				
183	50mm Sealed counter semi-positive rotary piston type water meter with a body length 165mm as "Kent PSM Size 5", suitable for vertical or horizontal installation and joints to brass connectors (elsewhere measured).	No	1	
<u>SUNDRIES</u>				
184	Provide a full set of as-built drawings on completion of the installation		Item	
185	Allow for pressure testing of the plumbing and drainage system.		Item	
Carried Forward				R
Bill No. 13 Plumbing and Drainage (Provisional)				

Brought Forward			R
186	Allow for disinfecting the system in this building in accordance with SANS 10252.	Item	
187	Testing and Commissioning of the plumbing and drainage system.	Item	
188	12 month guarantee period	Item	
Carried to Summary			R
Bill No. 13 Plumbing and Drainage (Provisional)			

Item No	Unit	Quantity	Rate	Amount
<u>BILL NO. 14</u>				
<u>ELECTRICAL WORKS</u>				
<u>(CPAP WORK GROUP NO. 160 UNLESS OTHERWISE STATED)</u>				
<u>PREAMBLES</u>				
The descriptions given in the various items below are not necessarily full and complete and reference must be made to the "General Preambles for Trades 2017" as published by the Association of South African Quantity Surveyors", and Supplementary Preambles for further description and amplification of work in this section				
<u>SUPPLEMENTARY PREAMBLES</u>				
<u>Specifications drawings etc</u>				
Tenderers are referred to the specification and drawings annexed to these bills of quantities for the electrical work, for the full descriptions of the following items which are to be read and priced in conjunction with the said specification and drawings				
<u>Distribution boards etc</u>				
Rates for distribution boards, etc. are to include for bus bars, jumpers, neutral bars, internal wiring and connections, circuit identification markers, control gear labels, circuit legend cards and working drawings				
<u>Switches socket outlets etc.</u>				
Rates for switches, socket outlets, etc. are to include for screwing to outlet boxes, connecting up and cover plates				
<u>Light fittings</u>				
Rates for light fittings are to include for hanging, fixing and connecting and for lamp holders and fluorescent tubes and lamps of the type and wattage described				
Carried Forward			R	
Bill No. 14 Electrical Works				

Brought Forward		R	
<u>GENERAL ITEMS</u>			
1	Guarantee and maintenance for the complete Electrical Installation including fittings, materials and workmanship for a period of TWELVE MONTHS after date of completion and handover	Item	
2	Allow for testing and commissioning the whole of the electrical installation as laid down in the specification and for re-testing as may be required after the making good of all defective work to the satisfaction of the Engineer	Item	
3	3 sets of as built drawings showing all conduit routes, draw boxes and positions of outlets etc.	Item	
4	Allowance for final testing and Certificate of Compliance to be issued on completion of the project in addition to the detailed testing specified.	Item	
5	Allowance for Power application	Item	
<u>SITE RETICULATION</u>			
6	Excavate not exceeding 800mm deep in soft material for cabling and cable pipe trench including bedding, backfilling, compaction and disposal of surplus material	m3	155
7	Excavate not exceeding 800mm deep in intermediate rock material for cabling and cable pipe trench including bedding, backfilling, compaction and disposal of surplus material	m3	55
8	Excavate not exceeding 800mm deep in hard rock material for cabling and cable pipe trench including bedding, backfilling, compaction and disposal of surplus material	m3	22
9	Earthing and bonding of cable ladder and galvanised trunking 10mm ² Cu PVC jumpers with lugs	Item	
<u>ELECTRICAL / ELECTRONIC MANHOLES</u>			
10	Supply and install 600 x 600 x 600mm manhole to specification complete with heavy duty manhole cover	No	2
11	Supply and install 800 x 800 x 800mm manhole to specification complete with heavy duty manhole cover	No	10
Carried Forward		R	
Bill No. 14 Electrical Works			

Brought Forward				R
12	Supply and install 1000 x 1000 x 1000mm manhole to specification complete with heavy duty manhole cover	No	3	
<u>SLEEVES</u>				
<u>Supply the following cable sleeves:</u>				
13	160mm uPVC sleeves	m	220	
14	110mm uPVC sleeves	m	335	
15	75mm uPVC sleeves	m	345	
16	50mm uPVC sleeves	m	160	
<u>Extra on last to install the following in trench (trenching measured elsewhere)</u>				
17	160mm uPVC sleeves	m	220	
18	110mm uPVC sleeves	m	335	
19	75mm uPVC sleeves	m	345	
20	50mm uPVC sleeves	m	160	
<u>Supply the following 600/1000 Volt Cu PVC SWA PVC ECC cables:</u>				
21	185mm ² 4 core	m	20	
22	150mm ² 4 core	m	15	
23	120mm ² 4 core	m	35	
24	95mm ² 4 core	m	260	
25	70mm ² 4 core	m	22	
26	50mm ² 4 core	m	340	
27	35mm ² 4 core	m	105	
28	25mm ² 4 core	m	240	
29	16mm ² 4 core	m	1 245	
Carried Forward				R
Bill No. 14 Electrical Works				

**Ikageng New Police Station
Portion 4 of ERF 6934 Ikageng Ext. 4**

Brought Forward			R
30	10mm ² 4 core	m	165
31	6mm ² 4 core	m	620
32	16mm ² 2 core	m	129
33	10mm ² 2 core	m	55
34	6mm ² 2 core	m	45
<u>Extra on last to install in cable sleeve, ladder, tray, basket</u>			
35	185mm ² 4 core	m	20
36	150mm ² 4 core	m	15
37	120mm ² 4 core	m	35
38	95mm ² 4 core	m	260
39	70mm ² 4 core	m	22
40	50mm ² 4 core	m	340
41	35mm ² 4 core	m	105
42	25mm ² 4 core	m	240
43	16mm ² 4 core	m	1 245
44	10mm ² 4 core	m	165
45	6mm ² 4 core	m	620
46	16mm ² 2 core	m	129
47	10mm ² 2 core	m	55
48	6mm ² 2 core	m	45
<u>Termination inclusive of cable glands, lugs etc.</u>			
49	185mm ² 4 core	No	2
50	150mm ² 4 core	No	2
Carried Forward			R
Bill No. 14 Electrical Works			

**Ikageng New Police Station
Portion 4 of ERF 6934 Ikageng Ext. 4**

Brought Forward				R
51	120mm ² 4 core	No	4	
52	95mm ² 4 core	No	8	
53	70mm ² 4 core	No	4	
54	50mm ² 4 core	No	2	
55	35mm ² 4 core	No	12	
56	25mm ² 4 core	No	6	
57	16mm ² 4 core	No	8	
58	10mm ² 4 core	No	4	
59	6mm ² 4 core	No	4	
60	16mm ² 2 core	No	8	
61	10mm ² 2 core	No	6	
62	6mm ² 4 core	No	6	
<u>Supply and install Scotchcast cable joint for the following PVC SWA PVC ECC cables;</u>				
63	95mm ² 4 core	No	1	
64	50mm ² 4 core	No	1	
65	35mm ² 4 core	No	1	
66	16mm ² 4 core	No	2	
<u>DISTRIBUTION BOARDS</u>				
<u>Supply and delivery of the following distribution boards</u>				
67	Main Metering Kiosk As per single line diagram. Tenderer's are referred to Electrical Engineer's drawings annexed to these bills of quantities, Drawing No. 23029_405	No	1	
68	Extra on last to install	No	1	
Carried Forward				R
Bill No. 14 Electrical Works				

Ikageng New Police Station
Portion 4 of ERF 6934 Ikageng Ext. 4

Brought Forward					R
69	Main LV Panel As per single line diagram. Tenderer's are referred to Electrical Engineer's drawings annexed to these bills of quantities. Drawing No. 23029_400	No	1		
70	Extra on last to install	No	1		
71	Ground Floor Distribution board - DB-A/AE/AUPS As per single line diagram. Tenderer's are referred to Electrical Engineer's drawings annexed to these bills of quantities. Drawing No. 23029_401	No	1		
72	Extra on last to install	No	1		
73	Ground Floor Distribution board - DB-B/BE/B-UPS As per single line diagram. Tenderer's are referred to Electrical Engineer's drawings annexed to these bills of quantities. Drawing No. 23029_402	No	1		
74	Extra on last to install	No	1		
75	Ground Floor Distribution board - DB-C/CE/C-UPS As per single line diagram. Tenderer's are referred to Electrical Engineer's drawings annexed to these bills of quantities. Drawing No. 23029_403	No	1		
76	Extra on last to install	No	1		
77	Ground Floor Distribution board - DB-D/DE/D-UPS s per single line diagram. Tenderer's are referred to Electrical Engineer's drawings annexed to these bills of quantities. Drawing No. 23029_404	No	1		
78	Extra on last to install	No	1		
79	Ground Floor Distribution board - DB-G/GE/G-UPS As per single line diagram. Tenderer's are referred to Electrical Engineer's drawings annexed to these bills of quantities. Drawing No. 23029_409	No	1		
80	Extra on last to install	No	1		
81	DB-LK - single line diagram - Drawing No. 23029_407	No	1		
82	Extra on last to install	No	1		
83	PV Load DB - single line diagram - Drawing No. 23029_412	No	2		
Carried Forward					R
Bill No. 14 Electrical Works					

Brought Forward				R
84	Extra on last to install	No	2	
85	PV GT DB - single line diagram - Drawing No. 23029_413	No	2	
86	Extra on last to install	No	2	
87	DB- CO- As per single line diagram - Drawing No. 23029_414	No	2	
88	Extra on last to install	No	2	
<u>LIGHTING</u>				
89	25mm PVC conduit surface mounted	m	433	
90	25mm PVC conduit cast-in to floor slab	m	120	
91	25mm PVC conduit in partition wall	m	202	
<u>PVC insulated 1 000 V grade hard drawn copper wire drawn into trunking/conduit and coloured as per phase</u>				
92	2.5mm ²	m	3 341	
93	2.5mm ² PVC insulated surfix cable	m	244	
94	Extra on last to terminate inclusive of glands etc.	No	36	
95	Single lever 1 way 16 amp Crabtree classic or equal and approved light switch in 100 x 50/50 galvanised box inclusive of cover	No	245	
96	2 lever 1 way 16 amp Crabtree classic or equal approved light switch or other in 100 x 50/50 galvanised box inclusive of cover	No	8	
97	Two lever 2 way 16 amp Crabtree classic or equal and approved light switch in 100 x 50/50 galvanised box inclusive of cover	No	6	
98	Three lever 1 way 16 amp Crabtree classic or equal and approved light switch in 100 x 50/50 galvanised box inclusive of cover	No	6	
Carried Forward				R
Bill No. 14 Electrical Works				

	Brought Forward			R
99	Four lever 1 way 16 amp Crabtree classic or equal and approved light switch in 100 x 50/50 galvanised box inclusive of cover	No	4	
100	6 amp unswitched socket outlet (yellow)	No	340	
101	65mm PVC round box for 25mm conduit	No	45	
102	65mm 3 way PVC round draw box	No	36	
103	20A Photocell inclusive of bulkhead enclosure	No	12	
104	Occupancy sensor - Province Lighting (PS-PIR3) or equal and approved flush mounted, white with 360 degree detection angle	No	36	
105	Supply and install P9000 trunking complete with cover plate to soffit	m	755	
106	Supply and install P9000 crossover	No	10	
107	Supply and install P9000 elbow	No	8	
108	Supply and install P9000 Tee-piece	No	12	
109	Supply and install P9000 4-way piece	No	12	
110	Supply and install P9000 end caps	No	18	
	<u>SMALL POWER</u>			
111	20mm PVC conduit surface mounted	m	456	
112	20mm PVC conduit cast-in slab	m	102	
113	20mm PVC conduit in partition wall	m	190	
114	25mm PVC conduit surface mounted	m	336	
115	25mm PVC conduit cast-in to floor slab	m	542	
116	25mm PVC conduit in partition wall	m	616	
117	32mm PVC conduit surface mounted	m	334	
118	32mm PVC conduit cast-in to floor slab	m	655	
	Carried Forward			R
Bill No. 14 Electrical Works				

Brought Forward			R
119	32mm PVC conduit in partition wall	m	318
	<u>PVC insulated 1 000 V grade hard drawn copper wire drawn into trunking/conduit and coloured as per phase</u>		
120	2.5mm ²	m	1 970
121	4.0mm ²	m	3 348
122	6.0mm ²	m	1 976
123	2,5mm ² PVC insulated surfix cable	m	744
124	Extra on last to terminate inclusive of glands, etc.	No	22
125	Supply and install single switch socket outlet, with euro combo outlet in 100 x 100/50 PVC conduit box Crabtree classic or equal and approved	No	46
126	Supply and Install 20A Three pin UPS switch socket outlet installed in power skirting / floor box	No	82
127	Supply and Install 20A Three pin dedicated switch socket outlet installed in power skirting / floor box	No	82
128	Supply and Install 20A Three pin normal switch socket outlet in installed in power skirting / floor box	No	82
129	Supply and Install 20A Three pin euro switch socket outlet in installed in power skirting / floor box	No	82
130	Blank cover plate	No	40
131	65mm PVC round box for 25mm conduit	No	159
132	100x50/50 PVC conduit boxes for AC controller	No	155
133	Supply and install P9000 trunking complete with cover plate to soffit	m	366
134	Supply and install P9000 crossover	No	10
135	Supply and install P9000 elbow	No	10
136	Supply and install P9000 Tee-piece	No	8
Carried Forward			R
Bill No. 14 Electrical Works			

Brought Forward			R
137	Supply and install P9000 end caps	No 20	
138	Supply and install P9000 4-way piece	No 4	
139	Supply and install 10A single phase isolator for extraction	No 8	
140	Supply and install 20A single phase isolators for aircon supply	No 40	
141	Supply and install 20A single phase isolators for hydroboil / kitchen equipment	No 10	
142	Supply and install 20A single phase isolators for hand drier power supplies	No 8	
143	Supply and install 30A single phase isolators	No 45	
144	Supply and install 30A single phase weather proof isolator for aircon supply	No 10	
145	Supply and install 40A single phase weather proof isolator for aircon supply	No 15	
146	Supply and install 30A three phase isolators for aircon supply	No 33	
147	Supply and install 40A three phase isolators for aircon supply	No 20	
148	Supply and install 40A three phase weather proof isolator for aircon supply	No 12	
149	Supply and install 16A weather proof switch socket outlet	No 22	
150	Supply and install Cabstrut or other equally approved Corporate connection system complete with: 2 x Normal S.S.O (SANS 164-1) (white / white toggle) 2 x Normal Euro S.S.O (SANS 164-2) (white / white toggle) 2 x Essential S.S.O (SANS 164-1) (white / red toggle) 4 x RJ45 outlets	No 12	
<u>TELEPHONE AND DATA</u>			
151	Supply and Install Krone RJ 11 telephone outlets installed in power skirting	No 20	
Carried Forward			R
Bill No. 14 Electrical Works			

Brought Forward				R
152	Supply and Install Krone RJ 45 data outlets installed in power skirting inclusive of cradle and cover plate	No	44	
<u>SENSORS AND RELAYS</u>				
<u>Supply and install the following DEMAN master unit relays / Slave units or other equally approved</u>				
153	Alux Controller Alux M6 Master unit - AluxM6A10	No	30	
154	Alux Controller Alux M7 Master unit - AluxM7A10	No	15	
155	Alux Slave Alux S1 unit AluxS1A11	No	90	
156	Alux Slave Alux S2 unit - AluxS2A10	No	15	
<u>GENERATOR INSTALLATION</u>				
<u>The complete supply, transport to site, install, test and commission in accordance with the specification of a standby generation system.</u>				
<u>NOTE: ONLY GENUINE ENGINE AND ALTERNATORS WITH LOCAL FACTORY BACKUP. SERVICE AND SPARES WILL BE ACCEPTED. NO "GREY" PRODUCTS FROM THE EAST WILL BE CONSIDERED (Refer schedule 17052 602)</u>				
157	Standby generator. Tenderer's are referred to Electrical Engineer's drawings annexed to these bills of quantities. Drawing no. 23029_601	No	1	
158	Connection of all generator control and protection, AMF and communication information wired to terminals within the Main LV Panel for changeover requirements		Item	
159	The complete supply and installation of Generator Earthing as specified, including testing and commissioning the entire earthing installation as per I.E.C. standards, including re- testing as may be required after making good, and typed test certificates		Item	
160	Allowance to fill/re-fill diesel tanks after testing - Lowsulphur diesel to manufacturers specification.	LTS	1 500	
<u>Supply the following 600/1000 Volt Cu PVC SWA PVC ECC cables:</u>				
161	4 mm ² 7 core Cable	m	230	
Carried Forward				R
Bill No. 14 Electrical Works				

Brought Forward			R
162	2,5 mm ² 7 core Cable	m	230
	<u>Extra on last to install in cable sleeve, ladder, tray, basket</u>		
163	4 mm ² 7 core Cable	m	230
164	2,5 mm ² 7 core Cable	m	230
	<u>Termination inclusive of cable glands, lugs etc.</u>		
165	4 mm ² 7 core Cable	No	12
166	2,5 mm ² 7 core Cable	No	20
	<u>SOLAR PHOTOVOLTAIC INSTALLATION</u>		
167	Supply 550 Watt Solar Panel (Art Solar Monocrystalline or other equally approved)	No	156
168	Extra on last to install on purpose made brackets	No	156
169	Supply and install aluminium purpose made brackets for mounting of solar panels (16 panels per frame)	No	12
170	Wattmon Mini3-4G IOT data logger or equal and approved with rs-485 comms, 15 Slaves and 10 servers, input power of 6-60V DC, 100Mbit Ethernet, 4G LTE, sim slot, 16gb micro SD card with inverter monitoring (grid tie and hybrid monitoring) AC/DC power monitoring, weather station monitoring, zero feed in and DG protection	No	1
171	6mm ² Cu PVC 1800V DC UV stablised cable	m	128
172	4mm ² black/Red Cu PVC 1800V DC UV stablised cable	m	128
173	DC combiner boxes consisting of 2 No. 40 Amp 2P DC circuit breakers for each string, 4 No. Class Type 2, 1500V DC 8/20µs 50 kA surge protection device	No	6
174	Supply and install on load 2 pole 40A DC isolators	No	12
175	Supply and install Schneider PM 5320 complete with CT's, PT fuses in existing Main LV Board	No	12
176	10mm air termination rod fixed to metal support structure inclusive of 2No. Saddle clamps	No	50
	Carried Forward		
	Bill No. 14 Electrical Works		

**Ikageng New Police Station
Portion 4 of ERF 6934 Ikageng Ext. 4**

Brought Forward			R
177	Bonding of PV structure frame with 10mm copper insulated earth cables inclusive of lugs. Equipotential Bonding	No 120	
178	Provide an budgetary amount of R450,000.00 power application / municipal application	Item	450 000,00
179	Profit	%	
180	Attendance	%	
181	Provision for final testing and Certificate of Compliance to be issued on completion of the project in addition to the detailed testing specified.	Item	
182	Supply and install 60A 10KA single phase circuit breaker in existing main LV panel (CBI, Schneider, ABB or other equally approved)	No 2	
183	Supply and install 40A 10KA single phase circuit breaker in existing distribution board (CBI, Schneider, ABB or other equally approved)	No 8	
184	Supply and install Class II Surge protection 20KA 4 pole with intergral health indicators in existing distribution board	No 4	
185	Supply and install 60A 3 way break before make rotary switch	No 2	
186	Supply and install AVD Lith Ex 9L Lithium fire extinguisher or equal and approved	No 12	
<u>Supply the following Canadian Solar, Sunsynk / Deve / Victron equal and approved hybrid / grid tied inverter complete with battery monitoring system, LCD screen, charge controller enclosure to be IP54 rated, 50Hz 230V Single phase with reverse polarity Protection, Insulation Resistor Detection Residual Current monitoring Unit, Output over current protection, Output Shorted protection, Surge protection. Inverter to have <3% THD and <0,5% input current - DC current inflection. Complete with 5 year warantee</u>			
187	25 kW hybrid inverter, SMA 3 phase or equal and approved complete with MPPT	No 3	
Carried Forward			R
Bill No. 14 Electrical Works			

Brought Forward			R
<u>RACK MOUNTED BATTERIES</u>			
<u>Supply the following Hubble, Solar MD, Freedom One, Weco or equal and approved 51.2V, IP54 enclosure (excluding battery terminals), rack mounted complete with LiFe - Lithium-Ion cell technology, SOC status indicator, LED indicators, 80% Depth of discharge capable low self discharge, intergrated battery monitoring system with current limiting function, over charge protection, over discharge and over temperature battery protection and 2m canbus cable. Compete with 10 year warantee.</u>			
188	5 kWh Battery	No	10
189	50 kWh Battery	No	2
190	100 kWh Battery	No	1
191	12 module high rack frame for Rack mount batteries and inclusive of space for control box	No	2
192	High Voltage control box for 120VDC - 750VDC as DEYE-HV-B750/100A-EU or equal and approved	No	2
<u>Supply the following.</u>			
193	Victron Lynx's distributor 1000 with 4 battery connections	No	2
194	DP DC 500V 250A fuse holders (suitable for cylindrical fuses)	No	11
195	DC 500V 125A fuse holders (suitable for cylindrical fuses)	No	11
196	250A 500V DC fuses (cylindrical)	No	10
197	125A 500V DC fuses (cylindrical)	No	22
<u>Data cabling</u>			
198	Supply and install Cat6E grey	m	120
199	RJ 45 Terminations for Cat6E	No	8
Carried Forward			R
Bill No. 14 Electrical Works			

Brought Forward			R
200	'Supply and install Cat6E grey 1 meter flyleads (RJ45 to RJ45)	No	2
201	'Supply and install Cat6E grey 5 meter flyleads (RJ45 to RJ45)	No	1
<u>DC CABLING</u>			
<u>PVC Insulated 1000V DC stranded Cu Cable</u>			
202	25mm ² - Red / Black	m	190
203	35mm ² - Red / Black	m	60
204	50mm ² - Red / Black	m	180
205	70mm ² - Red / Black	m	90
206	95mm ² - Red / Black	m	120
<u>Extra on last to install in cable sleeve or on basket</u>			
207	25mm	m	190
208	35mm	m	60
209	50mm	m	180
210	70mm	m	90
211	95mm	m	120
<u>Termination using crimped lugs</u>			
212	25mm ² - Red / Black	No	32
213	35mm ² - Red / Black	No	16
214	50mm ² - Red / Black	No	32
215	70mm ² - Red / Black	No	52
216	95mm ² - Red / Black	No	40
<u>CABLE LADDERS</u>			
Carried Forward			R
Bill No. 14 Electrical Works			

Brought Forward			R
<u>The complete supply, transport to site, and storage of hot dipped galvanised heavy duty cable ladder and offsets as required below:</u>			
217	300mm wide	m	94
218	600mm wide	m	55
219	800mm wide	m	75
<u>Extra on last to install horizontally (trapeeze) or vertically (P1000 unistrut). Fixings at 1000mm. Installation is to include for all joiner splices, raw bolts and fixing cable ladder to unistrut with bolt fasteners complete with spring washer, fixing bolts etc.</u>			
220	300mm wide	m	94
221	600mm wide	m	55
222	800mm wide	m	75
<u>CABLE BASKETS</u>			
<u>The complete supply, transport to site, and storage of hot dipped galvanised medium duty cable basket and offsets as required below:</u>			
223	150mm wide	m	85
224	300mm wide	m	220
<u>Extra on last to install horizontally (trapeeze) or vertically (P1000 unistrut). Fixings at 1000mm. Installation is to include for all joiner splices, raw bolts and fixing cable basket to unistrut with bolt fasteners complete with spring washer, fixing bolts etc.</u>			
225	150mm wide	m	85
226	300mm wide	m	220
<u>LUMINAIRES</u>			
Carried Forward			R
Bill No. 14 Electrical Works			

Brought Forward				R
<u>Supply the following luminaries, inclusive of lamps. Tenderer's are referred to Electrical Engineer's drawings annexed to these bills of quantities. Drawing No. 23029 600</u>				
227	Type A1 - LED	No	250	
228	Type A1e - LED	No	30	
229	Type A2 - LED	No	12	
230	Type A2e - LED	No	12	
231	Type B -	No	40	
232	Type Be -	No	5	
233	Type C -	No	55	
234	Type Ce -	No	12	
235	Type D -	No	22	
236	Type De -	No	8	
237	Type E1 -	No	20	
238	Type E1e -	No	20	
239	Type F -	No	8	
240	Type Fe -	No	8	
241	Type G	No	12	
242	Type H	No	20	
243	Type K	No	20	
<u>Install and connect the following luminaries, inclusive of lamps. Tenderer's are referred to Electrical Engineer's drawings annexed to these bills of quantities. Drawing No. 23029 600</u>				
244	Type A1 - LED	No	250	
Carried Forward				R
Bill No. 14 Electrical Works				

Brought Forward				R
245	Type A1e - LED	No	30	
246	Type A2 - LED	No	12	
247	Type A2e - LED	No	12	
248	Type B	No	40	
249	Type Be	No	5	
250	Type C	No	55	
251	Type Ce	No	12	
252	Type D	No	22	
253	Type De	No	8	
254	Type E1	No	20	
255	Type E1e	No	20	
256	Type Fe	No	8	
257	Type F	No	8	
258	Type G	No	12	
259	Type H	No	20	
260	Type K	No	20	
<u>POWER SKIRTING, INTERCOM & METAL DETECTOR</u>				
<u>Supply and install the following:</u>				
261	Two Compartment 2 cover, epoxy powder coated power skirting, surface mounted, inclusive of cover	m	420	
262	Supply and install End caps	No	65	
263	Supply and install 90° bends	No	36	
Carried Forward				R
Bill No. 14 Electrical Works				

Brought Forward				R
<u>Supply, install and commission intercom with colour video system complete with all hardware, airphone or other equally approved system and central equipment</u>				
264	Master station unit suitable for 10 slave stations and hands free with 3.5" colour LCD display	No	1	
<u>Field Equipment</u>				
265	Door station with audio and video, flush mounted with stainless steel face	No	12	
266	Door maglock release connection via a I/O interface to access control system located in IT Room	No	12	
<u>Cabling</u>				
267	Cat 6A cabling	m	3 550	
268	RJ45 termination	No	48	
269	4 core 1.0 mm Cu PVC PVC cable	m	1 366	
270	Terminated in above equipment	No	24	
<u>Supply, install, test and commission Metal Detector (or other equally approved) complete with connectors, adapters, fixings, power sockets, cables, consumables and all material to complete required</u>				
271	Supply and install walk through metal detector incorporating 42 zones with illuminating indicator strip along the length of the unit	No	1	
<u>EARTHING AND LIGHTNING PROTECTION</u>				
272	Undertake soil resistivity test, witnessed by the Engineer inclusive of submitting a typed test report/certificate		Item	
273	70mm ² PVC insulated copper earth wire	m	188	
274	Extra on last to install	m	188	
275	Earthing tails clamped to top of column rebar	No	40	
Carried Forward				R
Bill No. 14 Electrical Works				

Brought Forward				R
276	Bonding of earth tails to sheet trusses/roof sheeting	No	36	
277	Monitor bonding of pile caps steel to column steel	No	40	
278	Supply and install 25mm conduit	m	160	
279	Supply and install 10mm aluminium ridge conductor	m	755	
280	Supply and install stainless steel lugs	No	40	
281	Supply and install stainless steel bolts and nuts	No	40	
282	Supply and install stop cork box	No	36	
283	Supply and install 1.8m earth spike	No	36	
<u>EARTHING AND BONDING</u>				
284	Allowance for general electrical earthing and bonding in accordance with SABS 0142			Item
285	Test and commissioning inclusive of test report			Item
<u>SOIL RESISTIVITY SURVEY</u>				
<u>Soil sensitivity survey allow to survey the site to establish any prevailing conditions and carry out soil resistivity testing in the locations adjacent to each Sub Station. A detailed report indicating test results and requirements to achieve the necessary earth resistance for each area is to be submitted to the Electrical Engineer.</u>				
286	Resistivity Test survey in earth	No	1	
287	Test report indicating electrode requirements, etc. to achieve 1 ohm or less	No	1	
<u>TRENCHING</u>				
<u>Excavate by hand for cable trench or earth mats including backfill with sifted sand, cable trench 350mm wide x 600mm deep x 1 500mm long</u>				
288	In earth	No	1	
289	In Shale	No	2	
Carried Forward				R
Bill No. 14 Electrical Works				

Brought Forward			R
290	In hard rock	No	2
<u>Bonding to earth electrodes</u>			
291	Supply and install 20mm lengths of 95mm ² Green PVC insulated copper conductors fitted into sleeves and trench complete with lugs, ferrules and termination clamps between substation earth bar and earth electrode.	No	1
<u>Earth Mats</u>			
292	Supply and install 1,600mm copper clad Earth Electrodes driven into ground at 1,500mm by 1,500mm spacing including brass termination clamps and 50mm ² bare copper conductor interlinking to 2 No.earth grid adjacent earth spike to form an earth grid	No	2
<u>Earth electrodes</u>			
293	Supply and install additional 1,600mm copper clad earth electrode driven into the ground including the ferrel	No	1
<u>ACCESS CONTROL & ALARM</u>			
<u>Supply, install, test and commission Impro Access Portal Basic (or other equally approved) access control and intercom system complete with connectors, adapters, fixings, power sockets, cables, consumables and all material to complete required Control room equipment complete with all power supplies and mounting equipment.</u>			
294	Programming and enrolment station, PC (I7 processor, 8 Gb RAM 500 Gb SSD storage, Windows 10, Office and Acrobat) with 21 "monitor, mouse, keyboard etc.	No	1
295	Biometric fingerprint enrolment reader	No	2
296	Enrolment camera	No	1
297	Set up and program access control software for 100 users and 20 No. doors	No	1
<u>Door control complete with all mounting equipment located in IT cupboard</u>			
298	Wall mounted door controller in IP 54 housing complete with 2 No.Wiegard reader modules and power supply	No	11
Carried Forward			R
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Brought Forward			R
299	Biometric fingerprint and Mifare reader - Morpho Access Sigma lite	No 1	
300	600kg surface mounted monitored maglock with LED	No 11	
301	ZL bracket for maglock	No 11	
302	No touch exit sensor	No 11	
303	Green Breakglass unit with internal buzzer (resettable)	No 11	
304	25Khz, 150 Khz card reader	No 30	
<u>Supply and installation of cable and wiring on cable basket in ceiling void or drawn into conduit as specified, including all lables and terminations at both ends.</u>			
305	Category 6 UTP	m 1 417	
306	Termination of UTP Cat 6	No 60	
307	8 twisted pair PVC insulated mylar cable. 0.22mm ² stranded tinned copper cores. Aluminium polyester shield and drain.	m 1 312	
308	Termination of above cable	No 72	
<u>ALARM SYSTEM (PROVISIONAL)</u>			
<u>Supply and Installation of a Alarm system complete. Prices shall include for all materials, labour, profit, transport, etc. Everything necessary for the execution and complete installation of the work in accordance with the description.</u>			
<u>CENTRAL EQUIPMENT</u>			
309	I/O controller (minimum of 16 input, 8 output) as specified connected on to the access control system network	No 1	
310	Flush mounted door position switch connected to I/O controller	No 4	
311	Long range wall mounted PIR detectors connected to I/O controller	No 4	
Carried Forward			R
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Brought Forward			R
312	Ceiling Mount 360° PIR connected to I/O controller	No 6	
313	Ceiling mounted PIR / microwave intrusion detector (Dual Detector) connected to I/O controller	No 55	
314	Panic button wall mounted connected to I/O controller	No 12	
315	Push button mounted in polyester box with green LED for panic alarm connected to I/O controller	No 12	
316	Flashing red high intensity LED and siren mounted above disabled WC alarm connected to I/O controller	No 12	
317	Pushbutton mounted in polyester box with green LED for acceptance of Panic alarm connected to I/O controller	No 12	
<u>CENTRAL EQUIPMENT</u>			
318	0,5mm ² 4-core Mylar	m 756	
319	Terminate 0,5mm ² 4-core Mylar	No 28	
320	0,75mm ² 4-core Myla	m 1 523	
321	Terminate 0,75mm ² 4-core Mylar	No 26	
322	1mm ² 4-core Mylar	m 2 120	
323	Terminate 1mm ² 4-core Mylar	No 28	
Carried to Summary			R
Bill No. 14 Electrical Works			

Item No		Quantity	Rate	Amount
	<u>BILL NO. 15</u>			
	<u>MECHANICAL INSTALLATION</u>			
	<u>(CPAP WORK GROUP NO. 170 UNLESS OTHERWISE STATED)</u>			
	<u>PREAMBLES</u>			
	The descriptions given in the various items below are not necessarily full and complete and reference must be made to the "General Preambles for Trades 2017" as published by the Association of South African Quantity Surveyors", and Supplementary Preambles for further description and amplification of work in this section			
	<u>AIR-CONDITIONING & VENTILATION INSTALLATION</u>			
	<u>GENERAL ITEMS</u>			
	<u>Any additional items that the Tenderer deems necessary for the successful and total completion of the portion of the work required for this Bill. Specify:</u>			
1	Allow for builders work, drilling and making good of holes through slabs or walls including sleeves.	Item		
2	Allow for painting of ducting and insulation of the Air conditioning and Ventilation installation as specified to SANS 10173. The surfaces shall be cleaned, primed, undercoated and finished in high quality gloss paint.	Item		
3	Allow for painting and labelling of equipment as specified.	Item		
4	Allow for Commissioning and testing the complete installation as specified.	Item		
5	Allow for three sets of maintenance and operation manuals, including wiring diagrams, spare part lists as specified.	Item		
	Carried Forward		R	
	Bill No. 15 Mechanical Works			

**Ikageng New Police Station
Portion 4 of ERF 6934 Ikageng Ext. 4**

Brought Forward			R
6	Allow for twelve months free maintenance and guarantee.	Item	
7	Allow for instructing the clients staff in the correct operation of the installation.	Item	
8	Allow for preparation of "as installed drawings" and printing (3 sets).	No	1
9	Allow for preparation of Workshop drawings and printing (3 sets).	No	1
10	Any items not specifically listed above but required to complete the installation as per the specification and drawings (list the items) a) b) c)	Item	
<u>Air conditioning equipment and piping</u>			
<u>Supply and deliver the following Direct Expansion, Inverter split type air conditioning system (YORK or other equally approved), complete with condensing and evaporator units, all with electrical connection to isolator, refrigeration- and drain piping, electrical control wiring, brackets, supports, auxiliary extended drip tray at each indoor unit and all necessary accessories, as per the specification and manufacturer's recommendation.</u>			
11	Wall mounted type Evapourator Unit (Y5HJH009BAM--FY) Cooling capacity - 2.64 kW Heating capacity - 2.74 kW	No	9
12	Matching Outdoor Condensing unit, complete with wall mounted bracket. (Y5HJH009BAM-A-Y) EER - 3.26 COP - 3,61	No	9
13	Diameter 6.35mm insulated refrigerant piping, installed inside trunking.	m	90
14	Diameter 9,52mm insulated refrigerant piping, installed inside trunking.	m	90
Carried Forward			R
Bill No. 15 Mechanical Works			

Ikageng New Police Station
Portion 4 of ERF 6934 Ikageng Ext. 4

Brought Forward			R
15	Diameter 32mm uPVC condensate drain piping, installed inside trunking.	m	60
16	Hard wired controller	No	9
17	100 x 40mm uPVC Trunking.	m	60
18	Wall mounted type Evapourator Unit (Y5HJH012BAM-FY) Cooling capacity - 3.52 kW Heating capacity - 3.6 kW	No	1
19	Matching Outdoor Condensing unit, complete with wall mounted bracket. (Y5HJH012BAM-A-Y) EER - 3.23 COP - 3,61	No	1
20	Diameter 6,35mm insulated refrigerant piping, installed inside trunking.	m	10
21	Diameter 9,52mm insulated refrigerant piping, installed inside trunking.	m	10
22	Diameter 32mm uPVC condensate drain piping, installed inside trunking.	m	10
23	Hard wired controller	No	1
24	100 x 40mm uPVC Trunking.	m	15
25	Wall mounted type Evapourator Unit (Y5HJH024BAM-FY) Cooling capacity - 7.03 kW Heating capacity - 7.03 kW	No	6
26	Matching Outdoor Condensing unit, complete with wall mounted bracket. (Y5HJH024BAM-A-Y)	No	6
27	Diameter 9,52mm insulated refrigerant piping, installed inside trunking.	m	90
28	Diameter 15,88mm insulated refrigerant piping, installed inside trunking.	m	90
Carried Forward			R
Bill No. 15 Mechanical Works			

Ikageng New Police Station
Portion 4 of ERF 6934 Ikageng Ext. 4

Brought Forward			R
29	Diameter 32mm uPVC condensate drain piping, installed inside trunking.	m	60
30	Hard wired controller	No	6
31	100 x 40mm uPVC Trunking	m	60
32	Wall mounted type Evapourator Unit (Y5HJH030BAM-FY) Cooling capacity - 8.64 kW Heating capacity - 8.64 kW	No	4
33	Matching Outdoor Condensing unit, complete with wall mounted bracket. (Y5HJH030BAM-A-Y) EER - 3.47 COP - 3,51	No	4
34	Diameter 9,52mm insulated refrigerant piping, installed inside trunking.	m	60
35	Diameter 15,88mm insulated refrigerant piping, installed inside trunking.	m	60
36	Diameter 32mm uPVC condensate drain piping, installed inside trunking.	m	40
37	Hard wired controller	No	4
38	100 x 40mm uPVC Trunking	m	40
<u>Supply and deliver the following Inverter Console type air conditioning system (YORK or other equally approved), complete with all with electrical connection to isolator, electrical control wiring, brackets, supports and all necessary accessories, as per the specification and manufacturer's recommendation.</u>			
39	Inverter console Unit (MIHP09A) Cooling capacity - 2.64 kW Heating capacity - 2.85 kW EER - 2.75 COP - 2.94	No	26
Carried Forward			R
Bill No. 15 Mechanical Works			

Brought Forward				R
40	Inverter console Unit (MIHP13A) Cooling capacity - 3.8 kW Heating capacity - 3.5 kW EER - 2.24 COP - 2.82	No	12	
41	Inverter console Unit (MIHP15A) Cooling capacity - 4.4 kW Heating capacity - 3.5 kW EER - 2.25 COP - 2.82	No	7	
<u>Ventilation equipment</u>				
<u>For the Supply (including delivery), installation (including testing, commissioning and handing over of the following ventilation fan complete with electrical connection to isolator or light circuit as specified, ducting, flexible connections, including hangers, supports, brackets, sound attenuators matching the fan capacities and all necessary accessories.</u>				
42	TD SILENT 2000/315 @ the following flow rate and pressure drops 242 l/s @ 330 Pa 223 l/s @ 380 Pa 204 @ 355 Pa inline fan complete with speed controller and timer switch. Supply 220/50/1, 260W. AMS or other equally approved.	No	4	
43	Matching Sound Attenuators.	No	8	
44	TD SILENT 1300/250 @ the following flow rate and pressure drops 126 l/s @ 300 Pa 66 l/s @ 273 Pa inline fan complete with speed controller and timer switch. Supply 220/50/1, 260W. AMS or other equally approved.	No	2	
45	Matching Sound Attenuators.	No	4	
Carried Forward				R
Bill No. 15 Mechanical Works				

Brought Forward			R
46	TD SILENT 1000/200 @ the following flow rate and pressure drops 50 l/s @ 250 Pa 30 l/s @ 271 Pa inline fan complete with speed controller and timer switch. Supply 220/50/1, 260W. AMS or other equally approved.	No	2
47	Matching Sound Attenuators.	No	4
48	Vortice vario (150/6 ARI LLS) - Donkin or other equally approved	No	4
<u>Ductwork and fittings</u>			
<u>Supply, deliver and install LOW PRESSURE galvanized un-insulated ductwork as per the specification including fittings, reducers, radius bends, stop end, branches, tees and transformations all hangers, straps, supports, clamps and necessary accessories.</u>			
<u>FLEXIBLE DUCTING (foil faced 50mm mineral wool)</u>			
49	Ø100mm	m	40
50	Ø160mm	m	25
51	Ø200mm	m	25
<u>RECTANGULAR DUCTING</u>			
Rectangular galvanised mild steel sheetmetal ductwork installed as per specification complete with fittings including hangers, clamps, brackets, etc. (excluding insulation) Square meterage of ducting is inclusive of area over fittings. The following sheetmetal thicknesses shall apply to the corresponding categories; Category One: 0.6mm Category Two: 0.6mm Category Three: 0.8mm Category Four: 1.0mm Category Five: 1.2mm			
<u>CATEGORY ONE</u>			
52	Width or height not exceeding 750mm and the sum of the two adjacent sides not exceeding 1150mm	m2	30
Carried Forward			R
Bill No. 15 Mechanical Works			

Brought Forward			R
<u>Extra over for low pressure galvanised fittings (reducers, radius bends, transformations, spigots, tees and square-to-rounds)</u>			
53	Category one fittings other than stop ends	No	20
<u>Stop ends</u>			
54	Category one Stop End fittings	No	8
<u>CATEGORY TWO</u>			
55	Width or height not exceeding 750mm and the sum of the two adjacent sides exceeding 1150mm	m2	15
<u>Extra over for low pressure galvanised fittings (reducers, radius bends, transformations, spigots, tees and square-to-rounds)</u>			
56	Category two fittings other than stop ends	No	8
<u>Stop ends</u>			
57	Category two Stop End fittings	No	2
<u>ROUND DUCTING</u>			
<u>Complete with fittings including hangers, clamps, brackets, nuts, bolts, etc</u>			
Sheetmetal Thickness for round ducting unless otherwise indicated up to 300mm dia. : 0.5mm 301dia to 800dia : 0.6mm 801dia to 1000dia. : 0.8mm 1001 to 1200dia : 1.0mm Jointing shall be beaded			
<u>STRAIGHT SECTIONS</u>			
58	Ø100mm	m	45
59	Ø150mm	m	15
60	Ø160mm	m	22
61	Ø200mm	m	10
Carried Forward			R
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Brought Forward			R
62	Ø250mm	m	48
63	Ø315mm	m	10
64	Ø350mm	m	10
<u>90 DEGREE BENDS</u>			
65	Ø100mm	No	10
66	Ø150mm	No	5
67	Ø160mm	No	6
68	Ø200mm	No	5
69	Ø250mm	No	5
<u>TRANSFORMATION PIECES</u>			
70	Ø150mm - Ø100mm	No	5
71	Ø200mm - Ø100mm	No	5
72	Ø200mm - Ø150mm	No	3
73	Ø200mm - Ø160mm	No	2
74	Ø250mm - Ø200mm	No	5
75	Ø300mm - Ø250mm	No	10
76	Ø315mm - Ø250mm	No	2
77	Ø315mm - Ø300mm	No	2
78	Ø350mm - Ø300mm	No	2
79	Ø350mm - Ø315mm	No	3
80	300 x 200 - Ø200mm	No	2
81	315 x 300 - Ø200mm	No	2
82	400 x 300 - Ø250mm	No	3
83	500 x 300 - Ø315mm	No	5
Carried Forward			R
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Brought Forward			R
<u>STOP ENDS</u>			
84	Ø150mm	No	4
85	Ø200mm	No	2
86	Ø250mm	No	4
<u>Air Terminals</u>			
<u>For the Supply (including delivery), installation (including testing, commissioning and handing over of the following grilles, weather louvers, disc valves, diffusers, filters, dampers and associated items including all necessary accessories and fittings.</u>			
<u>Louvres</u>			
87	200 x 400mm Weather Louver (Trox AWG or other equally approved) complete with wire mesh screen epoxy colour coated finish to Engineers detail	No	2
88	300 x 400mm Weather Louver (Trox AWG or other equally approved) complete with wire mesh screen epoxy colour coated finish to Engineers detail	No	6
<u>Disc Valves</u>			
89	Diameter 100mm duct mounted disc valve for supply air (Trox type Z-LVS or other equally approved) epoxy colour coated to matching ceiling detail. Various air flow rate. Please refer to drawing.	No	26
90	Diameter 160mm duct mounted disc valve for extract air (Trox type Z-LVS or other equally approved) epoxy colour coated to matching ceiling detail. Various air flow rate. Please refer to drawing.	No	18
91	Diameter 200mm duct mounted disc valve for extract air (Trox type Z-LVS or other equally approved) epoxy colour coated to matching ceiling detail. Various air flow rate. Please refer to drawing.	No	13
<u>Dampers</u>			
92	Ø100mm Circular Volume Control Damper, (manual) (Trox type VFC or other equally approved).	No	26
Carried Forward			R
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Brought Forward			R
93	Ø160mm Circular Volume Control Damper, (manual) (Trox type VFC or other equally approved).	No 15	
94	Ø200mm Circular Volume Control Damper, (manual) (Trox type VFC or other equally approved).	No 12	
<u>Fire Dampers</u>			
95	500 x 500mm Fire Damper with Fusible link (2hr fire-rated, Normally open)	No 5	
96	250 x 250mm Fire Damper with Fusible link (2hr fire-rated, Normally open)	No 5	
<u>Washable Pleated Filters</u>			
97	PF1 - 595 x 295 x 50mm Washable primary pleated filters (Trox type WP-PS/ 595 x 295 x 50mm or other approved) complete with filter box	No 8	
<u>Grilles (Supply & extract air)</u>			
98	400 x 300mm Extract air grille (Trox type VAT-AG or other approved), made from aluminium, complete with OBD, spigot connection to ducting, epoxy colour coated finish to architect's detail. Pressure drop at 25 Pa	No 1	
<u>Supply, deliver and install the following extract canopy complete with make-up and extract air connections, filters, drip trays, stainless steel impingement filters electrical connection to isolator or light circuit as specified, including hangers, supports, brackets and all necessary accessories.</u>			
99	<u>2000 x 1500mm Stainless steel "Cyclovent" or equally approved model CV 100B kitchen extraction canopy complete with "Cycloclean" or equally approved filters, grease cups and on/off switch linked to extract and make up air fans, set up and fixed in position complete</u>	No 1	
100	On-off control / starters for fans	Item	
101	Brushed stainless steel bulkhead to match canopy, to be installed between canopy and ceiling	Item	
Carried Forward			R
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Brought Forward			R
<u>Supply, deliver and install the following dehumidifiers complete with drip trays, supports, brackets and all necessary accessories.</u>			
102	Dehumidifiers (Maeco dry arte 25L or equal approved)	No	9
103	Supply, deliver and install 250 x 100mm galvanized trunking, with removable covers, including brackets, supports and all necessary accessories, to install refrigeration piping in. Provisional	m	40
104	Supply, deliver and install 200 x 100mm galvanized trunking, with removable covers, including brackets, supports and all necessary accessories, to install refrigeration piping in (Provisional)	m	30
105	Supply, deliver and install 100mm wide wire mesh cable basket (Cabstrut or other equally approved), including brackets, supports and all necessary accessories, to install refrigeration piping on (Provisional)	m	50
106	Supply, deliver and install 200mm wide wire mesh cable basket (Cabstrut or other equally approved), including brackets, supports and all necessary accessories, to install refrigeration piping on (Provisional)	m	40
107	R410A Refrigerant charge (Provisional)	kg	10
108	Supply and install 41 x 41mm Unistrut channel (Cabstrut or other equally approved) as brackets and supports for the air conditioning units, ducting and cable trays to the building roof and wall structure, complete with necessary fittings and accessories as per manufacturer's recommendation (Provisional)	m	80
<u>KITCHEN EQUIPMENT</u>			
<u>Specifications, drawings, etc</u>			
Tenderers are referred to the specification at the back of these bills of quantities for the mechanical work, for the full descriptions of the following items which are to be read and priced in conjunction with the said specification and drawing			
<u>KITCHEN EQUIPMENT</u>			
Carried Forward			R
Bill No. 15 Mechanical Works			

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Brought Forward			R
<u>Supply and install "Vulcan" or other equally approved stainless steel sinks, tables, shelves, racks, trolleys, etc.</u>			
109	1850 x 650 x 910mm x 85kg stainless steel (PS□L or PS-R) double combination pot sink with 150mm splashback at rear	No	1
110	2250 x 300mm Single tier wall mounted shelf code 2749331	No	1
111	1850 x 400mm Wall mounted tubular pot rack	No	1
112	910 x 530 x 310mm "Cambro" model DRS36480 or other equally approved dunnage rack code 2610096	No	4
113	1070 x 540 x 1830mm "Cambro" or other equally approved vented four shelf add-on unit code 2610151A	No	4
114	1840 x 650 x 910mm Table code 3044702 with 150mm splashback to rear, all 430 type stainless steel with heavy duty backing sheet with bitumastic sound deadening and fitted on stainless steel legs with adjustable foot pieces	No	1
115	1140 x 610 x 1670mm Model MCR-6 mobile 600 piece crockery rack code 2745007	No	1
116	1200 x 600 x 1450mm Model MPR mobile pot rack code 3043447 mounted on 100mm casters	No	1
117	1100 x 300mm Two tier heated riser shelf code 3028966 fitted with code 3318639 H-Infra heating	No	2
118	1200 x 300mm Two tier heated riser shelf code 3018962 fitted with code 3318639 G-Infra heating	No	2
119	1090 x 530 x 934mm x 20kg Model TCT tray and cutlery trolley code 3081860 with provision for two (2No) cutlery boxes and four (4No) code 2707002 four division cutlery boxes	No	2
120	890 x 533 x 940mm x 16kg Model DCT dish clearing trolley frame code 3081101 with six (6No) code 2715805 dish boxes, two (2No) code 3381268A stainless steel shelves and two (2No) code 3381292 stainless steel trash bins	No	2
Carried Forward			R
Bill No. 15 Mechanical Works			

Brought Forward			R
<u>Supply and install "Vulcan" or other equally approved kitchen equipment, etc all in accordance with the specification</u>			
121	240Ltr mobile food refuse bin code 2790406	No	4
122	1000 x 850 x 910mm Model RE-3 range with three solid top electric stove with oven code 3005561	No	1
123	135L Oil Jacketed Boiling Pot (Electric)	No	1
124	1180 x 750 x 915mm Model QUB4/PLTS/C 1½ door self contained cabinet underbar refrigerator complete with Just Polar Top	No	2
125	1780 x 750 x 915mm Just Model QUB-6/SC self contained 2½ door underbar fridge code 2729087	No	1
126	625 x 760 x 1460mm x 140kg "Comenda" or other equally approved model LC-1200M hood type dish washer code 2614811 complete with two (2No) code 2618030 peg type plate racks, one (1No) code 2608035 open type cup rack and one (1No) code 2618033 flatware cutlery rack	No	1
<u>GENERAL ITEMS FOR KITCHEN EQUIPMENT</u>			
<u>Guarantee and Maintenance</u>			
127	The Guarantee and Kitchen Equipment including materials and workmanship will be for a period of TWELVE MONTHS after date of Works Completion	Item	
<u>Testing and Commissioning</u>			
128	Allow for the Testing and Commissioning the whole of all of the Kitchen Equipment as laid down in the specification and for re-testing as maybe required after making good of all defective work to the satisfaction of the Principal Agent	Item	
<u>Certificate for Compliance</u>			
129	Allow for the issuing of a Certificate of Compliance in line with the standard regulations applying at the time	Item	
Carried Forward			R
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Brought Forward		R	
<u>Training</u>			
130	Allow for the training of the Employer's operators to enable them to be responsible for and capable of operating the plant	Item	
<u>Operating Manuals</u>			
131	Allow for three complete sets of indexed loose leaf operating instructions and maintenance manuals	Item	
<u>LAUNDRY EQUIPMENT</u>			
<u>Specifications, drawings, etc</u>			
Tenderers are referred to the specification at the back of these bills of quantities for the mechanical work, for the full descriptions of the following items which are to be read and priced in conjunction with the said specification and drawing			
<u>LAUNDRY EQUIPMENT</u>			
<u>Supply and install laundry equipment, etc</u>			
132	Electrolux Professional model EI-T5550 or other equally approved 18kW 30kg dryer	No	2
133	Electrolux Professional model EI-W5180H or other equally approved 450G 20kg washer	No	2
134	Electrolux model EI-IB42316 or other equally approved 1.65m chest type flatwork ironer	No	1
135	Pony model PI-FVC or other equally approved electrically heated and vacuum finishing table	No	2
<u>Sundry equipment</u>			
136	Blue laundry trolley	No	2
137	Red laundry trolley	No	2
<u>GENERAL ITEMS FOR LAUNDRY EQUIPMENT</u>			
Carried Forward		R	
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Brought Forward			R
<u>Guarantee and Maintenance</u>			
138	The Guarantee and Laundry Equipment including materials and workmanship will be for a period of TWELVE MONTHS after date of Works Completion	Item	
<u>Testing and Commissioning</u>			
139	Allow for the Testing and Commissioning the whole of all of the Laundry Equipment as laid down in the specification and for re-testing as maybe required after making good of all defective work to the satisfaction of the Principal Agent	Item	
<u>Certificate for Compliance</u>			
140	Allow for the issuing of a Certificate of Compliance in line with the standard regulations applying at the time	Item	
<u>Training</u>			
141	Allow for the training of the Employer's operators to enable them to be responsible for and capable of operating the plant	Item	
<u>Operating Manuals</u>			
142	Allow for three complete sets of indexed loose leaf operating instructions and maintenance manuals	Item	
<u>FIRE SUPPRESSION</u>			
<u>AUTOMATIC FIRE SUPPRESSION SYSTEM</u>			
Supply, delivery & installation to be in accordance with SANS 14520 and/or SANS 306 & SANS 10400.			
143	TC 3001 Fire Panel with gas control EN54	No	1
144	Smoke detectors and surface mount bases	No	4
145	Sirens with LED flashing beacons for discharge warning	No	2
146	Fire Bells for Alarm warning	No	2
Carried Forward			R
Bill No. 15 Mechanical Works			

Brought Forward			R
147	Gas relay interface for activation of the suppressant cylinder	No 1	
148	Power supply and batteries for Suppression control	No 1	
149	25LT cylinder with bracket and FM200	No 2	
150	Courier/freight costs	No 1	
151	Schedule 40 ASTM 106 Grade B to manufacturers specification and Industry standards, supply 3000lb fittings for piping	Item	
152	Supply PH 30 1mm 2 cr Fire resistant cable	Item	
153	Training and handover	Item	
154	Provide certification and documentation	Item	
<u>FIRE DETECTION SYSTEM</u>			
Supply, delivery & installation to be in accordance with SANS 10139 & SANS 10400.			
155	Fire retardant cable Class A wiring (ph 120)	m 200	
156	25mm PVC conduit in accordance with SANS 10139	m 200	
157	Base sounder and strobe combination	No 14	
158	Manual call point	No 14	
159	Sundries	Item	
160	Commissioning, Testing and Provision of new COC for fire detection system	Item	
161	Health and safety file	Item	
162	Preparation of Shop drawings for Engineers approval by SAQCC Qualified designer	Item	
163	Handover files (2x hard copies and 1x soft copy)	Item	
164	Quarterly service	No 4	
Carried Forward			R
Bill No. 15 Mechanical Works			

		Brought Forward		R
165	End-user training		Item	

Item
No

Unit Quantity Rate Amount

BILL NO. 16

GLAZING

(CPAP WORK GROUP NO. 150 UNLESS OTHERWISE STATED)

PREAMBLES

The descriptions given in the various items below are not necessarily full and complete and reference must be made to the "General Preambles for Trades 2017" as published by the Association of South African Quantity Surveyors", and Supplementary Preambles for further description and amplification of work in this section

MIRRORS

6mm Silvered float glass copper backed mirrors with polished edges, holed for and fixed with chromium plated dome capped mirror screws with rubber buffers to plugs in brickwork or concrete

- | | |
|---|---|
| 1 | 450 x 450 x 6mm Silvered float glass copper backed mirror with 10mm bevelled and polished edges, holed for and fixed with four number chromium plated domed capped mirror screws with rubber buffers to plugs in brickwork or concrete. |
|---|---|

No 24

Carried to Summary

R

Bill No. 16
Glazing

R

	Brought Forward			R
4	On narrow widths (LI)	m2	409	
	<u>ON EXTERNAL FLOATED PLASTER SURFACES</u>			
	<u>One coat plaster primer and two coats "Micatex" emulsion paint for exterior use</u>			
5	On beams (LI)	m2	55	
	<u>ON FIBRE-CEMENT BOARD SURFACES</u>			
	<u>One universal undercoat and two coats Eggshell enamel, colour to Principal Agent's approval</u>			
6	On fascia boards (LI)	m2	657	
	<u>ON METAL SURFACES</u>			
	<u>Prepare and apply one coat of zinc chromate primer one coat universal undercoat and two coats of universal SABS approved gloss enamel paint. Colour to Principal Agent's approval</u>			
7	On steel gates (LI)	m2	38	
8	On steel doors (LI)	m2	51	
9	On steel door frames (LI)	m2	971	
10	On steel window frames (LI)	m2	74	
11	On balustrades (LI)	m2	246	
12	On handrails (LI)	m	14	
	<u>ON WOOD SURFACES</u>			
	<u>One coat wood primer, one coat universal undercoat and two coats Silthane Silk. Colour to Principal Agent's approval</u>			
13	On doors (LI)	m2	353	
	<u>Lightly sand down in the direction of the grain. Apply 2 coats matt varnish to all exposed sides. Colour to Principal Agent's approval</u>			
14	On doors (LI)	m2	154	
	Carried Forward			R
	Bill No. 17 Paintwork			

Brought Forward			R
<u>One coat alkyd based primer and two coats professional gloss enamel paint. Colour to Principal Agent's approval</u>			
15	On skirtings, rails, etc not exceeding 300mm girth (LI)	m	15
<u>Two coats of carbolinium</u>			
16	On exposed timber trusses (LI)	m2	730
<u>ON PLASTERBOARD SURFACES</u>			
<u>Prepare surfaces and remove all loose material, apply one coat gypsum primer (PP700) and two coats professional super matt (PEM 900/TSA) for interior use to Principal Agent's approval</u>			
17	On ceilings including priming metal cover strips and nail heads (LI)	m2	35
18	On dry walls (LI)	m2	2 541
Carried to Summary			R
Bill No. 17 Paintwork			

Unit	Quantity	Rate	Amount
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m2	12 100
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R

-167-

R.

14



Brought Forward		R	
<u>BULK EXCAVATION, FILLING, ETC.</u>			
Bulk earthworks quantities are based on the final levels required. Rates are deemed to include for sequencing of work if required, temporary ramps, double handling etc, deemed necessary during the construction period.			
Backfilling to platforms, embankments, etc. using in-situ material or imported fill from commercial sources, must be evenly spread, graded and mechanically compacted in layers not exceeding 200mm thick to a 95% Mod. AASHTO maximum density.			
The contractor shall make his own arrangement for disposal of spoil materials off site and the cost of all royalty and haulage; loading and unloading are to be included in the relevant rate.			
Rates for bulk excavations are deemed to include for risk of collapse/shoring to sides of excavated faces.			
Rates for bulk excavations are deemed to include for any necessary precautions or varied method of excavation required for excavating along the lateral support structure, existing services, etc.			
Temporary access ramps, forming temporary support banks, etc, as required by the Contractor and the sequencing and staging thereof have not been separately measured and are deemed to be included in the items described hereunder.			
<u>Open face excavation in earth</u>			
2	Strip average 150mm thick layer of topsoil, stockpile on site and maintain	m2	1 267
3	Strip average 150mm thick layer of topsoil and cart off site	m2	10 833
4	Open face excavation over sloping site to reduce levels	m3	3 243
5	Filling with selected material from the excavations including haulage from within the boundary of the site to form slopes, contours, platforms, etc. compacted to 95% Mod. AASHTO maximum density	m3	2 703
6	Average 75mm topsoil from stockpiles on site, spread and levelled over site, and abutting kerbs, walls, etc.	m2	2 534
Carried Forward		R	
Bill No. 18 External Works			

Brought Forward				R
7	Allow for all necessary tests by an independent testing authority of compaction and moisture content of compacted earth to ensure that the required compaction are being attained and for submitting results to the Engineer	No	235	
8	Keeping excavations free of all subterranean water by methods to be determined by the contractor		Item	
	<u>Extra over bulk excavation in earth for excavation in:</u>			
9	Intermediate material	m3	230	
10	Hard material	m3	173	
	<u>Extra over all excavations for carting away</u>			
11	Surplus material from excavations and/or stock piles on site, to a dumping site to be located by the contractor	m3	540	
	<u>Sundries</u>			
12	1000mm Wide x 500mm high platform drainage berms	m	108	
	<u>STORMWATER DRAINAGE</u>			
	<u>(CPAP WORK GROUP NO. 146 UNLESS OTHERWISE STATED)</u>			
	<u>Class 34 heavy duty uPVC pipes laid in class B bedding including all excavation, bedding, backfilling and compaction and disposal of surplus material</u>			
13	200mm Pipes laid in and trenches not exceeding 1m deep (LI)	m	44	
14	200mm Pipes laid in and including trenches exceeding 1m and not exceeding 2m deep (LI)	m	80	
15	250mm Pipes laid in and including trenches exceeding 1m and not exceeding 2m deep (LI)	m	160	
16	375mm Pipes laid in and including trenches exceeding 1m and not exceeding 2m deep (LI)	m	21	
	Carried Forward			R
	Bill No. 18 External Works			

Brought Forward				R
	<u>Extra over Class 6 Heavy Duty uPVC pipes for fittings</u>			
17	250mm Bend (LI)	No	15	
	<u>Sumps, catchpits, inspection chambers, etc (gratings and covers elsewhere)</u>			
18	Brick manhole 1380 x 920mm internally and not exceeding 1000mm deep internally comprising suitable 2340 x 1880 x 250mm thick 25MPa/26mm unreinforced concrete base, 230mm brickwork of NFX clay bricks (14 MPa nominal compressive strength) in class I mortar, 1840 x 1380 x 200mm thick 25Mpa/26mm reinforced concrete cover slab with Y10 high tensile steel bars at 150mm centres set in both directions and rebated opening to accommodate cover and frame (cover and frame elsewhere measured) including all excavation, backfilling, formwork etc. all in accordance to Type A, annexured to these Bills of Quantities for the full details, drawing number: TGC/03. (LI)	No	8	
19	Brick manhole 1380 x 920mm internally exceeding 1000mm and not exceeding 1250mm deep internally comprising suitable 2340 x 1880 x 250mm thick 25MPa/26mm unreinforced concrete base, 230mm brickwork of NFX clay bricks (14 MPa nominal compressive strength) in class I mortar, 1840 x 1380 x 200mm thick 25Mpa/26mm reinforced concrete cover slab with Y10 high tensile steel bars at 150mm centres set in both directions and rebated opening to accommodate cover and frame (cover and frame elsewhere measured) including all excavation, backfilling, formwork etc. all in accordance to Type A, annexured to these Bills of Quantities for the full details, drawing number: TGC/03. (LI)	No	2	
Carried Forward				R
Bill No. 18 External Works				