

**Proposed New Makhaza Police Station
Potion On ERF 75169 OF 59037 (Khayelitsha)**

Brought Forward				R
<u>"AIPHONE" OR OTHER EQUALLY APPROVED SYSTEM</u>				
<u>CENTRAL EQUIPMENT</u>				
505	Supply master station unit suitable for 10 slave stations and hands free with 3.5" colour LCD display	No	1	
506	Extra on last to install	No	1	
<u>FIELD EQUIPMENT</u>				
507	Supply door station with audio and video, flush mounted with stainless steel face	No	6	
508	Extra on last to install	No	6	
509	Supply door maglock release connection via a I/O interface to access control system located in IT Room	No	6	
510	Extra on last to install	No	6	
<u>CABLING</u>				
511	Supply Cat 6A cabling	m	3 550	
512	Extra on last to install	m	3 500	
513	RJ45 termination	No	48	
514	4 core 1.0mm Cu PVC PVC cable	m	1 366	
515	Extra on last to install	m	1 366	
516	Terminated in above equipment	No	24	
517	Supply Metal Detector (or equal and approved) complete with connectors, adapters , fixings, power sockets, cables, consumables and all material to complete required	No	1	
518	Extra on last to install	No	1	
519	Test and commission walk through metal detector incorporating 42 zones with illuminating indicator strip		Item	
Carried Forward				R
Bill No. 15 Electrical Works				

Brought Forward			R
<u>EARTHING AND LIGHTNING PROTECTION</u>			
520	Undertake soil resistivity test, witnessed by the Engineer inclusive of submitting a typed test report/certificate	Item	
521	Supply 70mm ² PVC insulated copper earth wire	m	188
522	Extra on last to install	m	188
523	Earthing tails clamped to top of column rebar	No	40
524	Bonding of earth tails to sheet trusses/roof sheeting	No	36
525	Bonding of pile caps steel to column steel	No	40
526	Supply 25mm conduit	m	160
527	Extra on last to install	m	160
528	Supply 10mm aluminium ridge conductor	m	755
529	Extra on last to install	m	755
530	Supply stainless steel lugs	No	40
531	Extra on last to install	No	40
532	Supply stainless steel bolts and nuts	No	40
533	Extra on last to install	No	40
534	Supply stop cork box	No	36
535	Extra on last to install	No	36
536	Supply 1.8m earth spike	No	36
537	Extra on last to install	No	36
<u>EARTHING AND BONDING</u>			
538	Allowance for general electrical earthing and bonding in accordance with SABS 0142	Item	
539	Test and commissioning inclusive of test report	Item	
Carried Forward			R
Bill No. 15 Electrical Works			



Brought Forward		R	
<u>SOIL RESISTIVITY SURVEY</u>			
540	Allow to survey the site to establish any prevailing conditions and carry out soil resistivity testing in the locations adjacent to the kiosk. 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.	Item	
541	Resistivity Test survey in earth	No	1
542	Test report indicating electrode requirements etc. to achieve 1 ohm or less	Item	
<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>			
543	In earth	No	1
544	In Shale	No	2
545	In hard rock	No	2
<u>BONDING TO EARTH ELECTRODES</u>			
546	Supply 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
547	Extra on last to install	No	1
<u>EARTH MATS</u>			
548	Supply 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
549	Extra on last to install	No	2
Carried Forward		R	
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Brought Forward		R	
<u>EARTH ELECTRODES</u>			
550	Supply additional 1,600mm copper clad earth electrode driven into the ground including the ferrel	No	1
551	Extra on last to install	No	1
<u>GENERATOR INSTALLATION</u>			
<u>The complete supply, transport to site, test and commission in accordance with the specification of a standby generation system. 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 32307 602 0)</u>			
552	Supply standby generator as per drawing no. 32307_602	No	1
553	Extra on last to install	No	1
554	Connection of all generator control and protection, AMF and communication information wired to terminals within the Main LV Panel for changeover requirements		Item
555	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
556	Extra on last to install		Item
557	Allowance to fill/re-fill diesel tanks after testing - Low sulphur diesel to manufacturers specification.	ltr	1 500
<u>Supply the following 600/1000 Volt Cu PVC SWA</u>			
<u>PVC ECC cables:</u>			
558	Supply 4mm² 7 core Cable	m	45
559	Supply 2,5mm² 7 core Cable	m	45
Carried Forward		R	
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Brought Forward			R
	<u>Extra on last to install in cable sleeve, ladder, tray, basket</u>		
560	Supply 4mm² 7 core Cable	m	45
561	Supply 2,5mm² 7 core Cable	m	45
	<u>Termination inclusive of cable glands, lugs etc.</u>		
562	Supply 4mm² 7 core Cable	No	5
563	Supply 2,5mm² 7 core Cable	No	5
	<u>Servicing of Generator</u>		
564	Two (2) No. generator services to be conducted at 6 and 12 months from hand over for generator as per drawing.	Item	
	<u>WIRE-WAYS</u>		
	<u>CABLE LADDERS</u>		
	<u>The complete supply, transport to site, and storage of hot dipped galvanised heavy duty cable ladder and offsets as required below:</u>		
565	800mm wide	m	12
566	800mm 90 degree bend	No	1
567	800mm Tee piece	No	1
568	800mm 4-way piece	No	1
569	800mm riser piece	No	1
570	300mm wide	m	52
571	300mm 90 degree bend	No	6
572	300mm Tee piece	No	2
573	300mm 4-way piece	No	1
574	300mm riser piece	No	1
	Carried Forward		
	R		
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Brought Forward			R
<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>			
575	800mm wide	m	12
576	800mm 90 degree bend	No	1
577	800mm Tee piece	No	1
578	800mm 4-way piece	No	1
579	800mm riser piece	No	1
580	300mm wide	m	52
581	300mm 90 degree bend	No	6
582	300mm Tee piece	No	2
583	300mm 4-way piece	No	1
584	300mm riser piece	No	1
<u>CABLE TRAYS</u>			
<u>The complete supply, transport to site, and storage of hot dipped galvanised heavy duty cable tray and offsets as required below:</u>			
585	150mm wide	m	12
586	150mm 90 degree bend	No	1
587	150mm Tee piece	No	1
588	150mm 4-way piece	No	1
589	150mm riser piece	No	1
590	300mm wide	m	18
591	300mm 90 degree bend	No	1
Carried Forward			R
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Brought Forward		R	
592	300mm Tee piece	No	1
593	300mm 4-way piece	No	1
594	300mm riser piece	No	1
<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 tray to unistrut with bolt fasteners complete with spring washer, fixing bolts etc.</u>			
595	150mm wide	m	12
596	150mm 90 degree bend	No	1
597	150mm Tee piece	No	1
598	150mm 4-way piece	No	1
599	150mm riser piece	No	1
600	300mm wide	m	18
601	300mm 90 degree bend	No	1
602	300mm Tee piece	No	1
603	300mm 4-way piece	No	1
604	300mm riser piece	No	1
<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>			
605	150mm wide	m	45
606	150mm 90 degree bend	No	1
607	150mm Tee piece	No	1
608	150mm 4-way piece	No	1
Carried Forward		R	
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Brought Forward			R
609	150mm riser piece	No	1
610	300mm wide	m	340
611	300mm 90 degree bend	No	3
612	300mm Tee piece	No	4
613	300mm 4-way piece	No	2
614	300mm riser piece	No	1
<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>			
615	150mm wide	m	45
616	150mm 90 degree bend	No	1
617	150mm Tee piece	No	1
618	150mm 4-way piece	No	1
619	150mm riser piece	No	1
620	300mm wide	m	340
621	300mm 90 degree bend	No	3
622	300mm Tee piece	No	4
623	300mm 4-way piece	No	2
624	300mm riser piece	No	1
Carried to Summary			R
Bill No. 15 Electrical Works			

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Item No		Quantity	Rate	Amount
	<u>BILL NO. 16</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>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 and for re-testing as may be required after the making good of all defective work to the satisfaction of the Engineer.	Item		
5	Allow for final testing and Certificate of Compliance to be issued on completion of the project in addition to the detailed testing specified.	Item		
	Carried Forward		R	
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Brought Forward			R
6	Allow for three sets hard copy and one set soft copy of maintenance and operation manuals, including wiring diagrams, spare part lists as specified.	Item	
7	Guarantee and maintenance for the complete Mechanical Installation including fittings, materials and workmanship for a period of TWELVE MONTHS after date of completion and handover.	Item	
8	Allow for instructing the clients staff in the correct operation of the installation.	Item	
9	Allow for preparation of "as installed drawings" and printing (3 sets).	No	1
10	Allow for preparation of Workshop drawings and printing (3 sets).	No	1
11	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 & VENTILATION INSTALLATION</u>			
<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>			
12	M1 - Wall mounted type Evapourator Unit (Approved by engineer) Cooling capacity - 3,5 kW Heating capacity - 3,7 kW	No	5
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Brought Forward			R
13	Matching Outdoor Condensing unit (Approved by engineer), complete with wall mounted bracket. EER - 3,26 COP - 3,61	No	5
14	Diameter 6,35mm insulated refrigerant piping, installed inside trunking	m	70
15	Diameter 9,52mm insulated refrigerant piping, installed inside trunking	m	70
16	Diameter 32mm uPVC condensate drain piping, installed inside trunking	m	65
17	Hard wired controller	No	15
18	100 x 40mm uPVC Trunking	m	80
19	K1 - Ceiling Cassette Unit (approved by Engine) Cooling capacity - 7,1kW Heating capacity - 7,5kW	No	1
20	Matching Outdoor Condensing unit (Approved by engineer), complete with wall mounted bracket. EER - 2,71 COP - 3,16	No	1
21	Diameter 6,35mm insulated refrigerant piping, installed inside trunking	m	30
22	Diameter 9,52mm insulated refrigerant piping, installed inside trunking	m	30
23	Diameter 32mm uPVC condensate drain piping, installed inside trunking	m	28
24	Hard wired controller	No	2
25	100 x 40mm uPVC Trunking	m	24
26	K2 - Ceiling Cassette Unit (approved by engineer) Cooling capacity - 3,6 kW Heating capacity - 3,6 kW	No	3
Carried Forward			R
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Brought Forward			R
27	Matching Outdoor Condensing unit, complete with wall mounted bracket. EER - 2,81 COP - 3,15	No	3
28	Diameter 9,52mm insulated refrigerant piping, installed inside trunking	m	52
29	Diameter 15,88mm insulated refrigerant piping, installed inside trunking	m	52
30	Diameter 32mm uPVC condensate drain piping, installed inside trunking	m	45
31	Hard wired controller	No	3
32	100 x 40mm uPVC Trunking	m	45
33	K3 - Ceiling Cassette Unit (approved by engineer) Cooling capacity - 5,3 kW Heating capacity - 5,3 kW	No	6
34	Matching Outdoor Condensing unit, complete with wall mounted bracket. EER - 2,71 COP - 3,23	No	6
35	Diameter 9,52mm insulated refrigerant piping, installed inside trunking	m	55
36	Diameter 15,88mm insulated refrigerant piping, installed inside trunking	m	55
37	Diameter 32mm uPVC condensate drain piping, installed inside trunking	m	45
38	Hard wired controller	No	6
39	100 x 40mm uPVC Trunking	m	45
Carried Forward			R
Bill No. 16 Mechanical Works			

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Brought Forward				R
<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>				
40	CU1 - Console Unit (MP-30 or any other equally approved unit with fresh air supply approved by engineer) Cooling capacity - 3 kW Heating capacity - 3,2 kW EER - 3,1	No	68	
41	CU2 - Console Unit (MP-40 or any other equally approved unit with fresh air supply approved by engineer) Cooling capacity - 4 kW Heating capacity - 4,3 kW EER - 3	No	9	
<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	W1 - TD SILENT @ the following flow rate and pressure drops 1060 l/s @ 350 Pa inline fan complete with speed controller and timer switch. Supply 220/50/1, 260W. AMS or other equally approved.	No	1	
43	Matching Sound Attenuators	No	2	
44	W2 - TD SILENT @ the following flow rate and pressure drops 220 l/s @ 250 Pa inline fan complete with speed controller and timer switch. Supply 220/50/1, 260W. AMS or other equally approved.	No	1	
45	Matching Sound Attenuators	No	2	
Carried Forward				R
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	Brought Forward		R
46	W3 - TD SILENT @ the following flow rate and pressure drops 350 l/s @ 150 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	W5 - TD SILENT @ the following flow rate and pressure drops 500 l/s @ 230 Pa inline fan complete with speed controller and timer switch. Supply 220/50/1, 260W. AMS or other equally approved.	No	2
49	Matching Sound Attenuators	No	4
50	W6 - TD SILENT @ the following flow rate and pressure drops 450 l/s @ 230 Pa inline fan complete with speed controller and timer switch. Supply 220/50/1, 260W. AMS or other equally approved.	No	1
51	Matching Sound Attenuators	No	2
52	W7- TD SILENT @ the following flow rate and pressure drops 420 l/s @ 230 Pa inline fan complete with speed controller and timer switch. Supply 220/50/1, 260W. AMS or other equally approved.	No	1
53	Matching Sound Attenuators	No	2
54	W8- TD SILENT @ the following flow rate and pressure drops 1100 l/s @ 230 Pa inline fan complete with speed controller and timer switch. Supply 220/50/1, 260W. AMS or other equally approved.	No	5
55	Matching Sound Attenuators	No	10
56	P1 - Plate mounted fan @ the following flow rate and pressure drops 300 l/s @ 150 Pa wall fan complete with thermostat and security box. Supply 220/50/1, 260W. AMS or other equally approved.	No	2
57	WF1 - Wall/Window fan @ the following flow rate and pressure drops 30 l/s @ 30 Pa wall/window fan complete with thermostat and security box. Supply 220/50/1, 260W. AMS or other equally approved.	No	2
<u>DUCTWORK AND FITTINGS</u>			
	Carried Forward		R
Bill No. 16 Mechanical Works			



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Brought Forward				R
<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>				
58	150mm Diameter	m	150	
<u>RECTANGULAR DUCTING</u> <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;</u> Category One: 0.6mm Category Two: 0.6mm Category Three: 0.8mm Category Four: 1.0mm Category Five: 1.2mm <u>CATEGORY ONE</u>				
59	Width or height not exceeding 750mm and the sum of the two adjacent sides not exceeding 1150mm	m2	300	
<u>Extra over for low pressure galvanised fittings (reducers, radius bends, transformations, spigots, tees and square-to-rounds)</u>				
60	Category one fittings other than stop ends	No	150	
<u>Stop ends</u>				
61	Category one stop end fittings	No	50	
<u>ROUND DUCTING</u>				
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Brought Forward			R
<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>			
62	150mm Diameter	m	150
<u>90 DEGREE BENDS</u>			
63	150mm Diameter	No	2
64	250mm Diameter	No	8
<u>TRANSFORMATION PIECES</u>			
65	250 x 250mm - 150mm Diameter	No	2
<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>			
66	WL1 - 700 x 550mm Weather Louver ("Trolox AWG" or other equally approved) complete with wire mesh screen epoxy colour coated finish to Engineers detail	No	3
67	WL2 - 400 x 350mm Weather Louver ("Trolox AWG" or other equally approved) complete with wire mesh screen epoxy colour coated finish to Engineers detail	No	1
68	WL3 - 450 x 400mm Weather Louver ("Trolox AWG" or other equally approved) complete with wire mesh screen epoxy colour coated finish to Engineers detail	No	2
69	WL5 - 450 x 450mm Weather Louver ("Trolox AWG" or other equally approved) complete with wire mesh screen epoxy colour coated finish to Engineers detail	No	3
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Brought Forward			R
70	WL6 - 700 x 450mm Weather Louver ("Trox AWG" or other equally approved) complete with wire mesh screen epoxy colour coated finish to Engineers detail	No	1
71	WL7 - 400 x 400mm Weather Louver ("Trox AWG" or other equally approved) complete with wire mesh screen epoxy colour coated finish to Engineers detail	No	2
<u>Disc Valves</u>			
72	100mm Diameter 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	12
73	100mm Diameter 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	53
<u>Dampers</u>			
74	150mm Diameter Circular Volume Control Damper, (manual) ("Trox" type VFC or other equally approved).	No	60
75	250 x 250mm Volume Control Damper, (manual) ("Trox" type VFC or other equally approved).	No	3
<u>Fire Dampers</u>			
76	250mm Diameter Fire Damper with Fusible link (2hr fire-rated, Normally open)	No	11
77	250 x 250mm Fire Damper with Fusible link (2hr fire-rated, Normally open)	No	2
<u>Washable Pleated Filters</u>			
78	PF1 - 595 x 295 x 50mm Washable primary pleated filters (Trox type WP-PS/ 595 x 295 x 50 or other equally approved) complete with filter box	No	2
<u>Grilles (Supply & extract air)</u>			
79	400 x 300mm Extract air grille (Trox type VAT-AG or other equally 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	3
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Brought Forward			R
80	G1 - 300 x 300mm Door grille (Trox type VAT-AG or other equally 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	18
	<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>		
81	2000 x 1500mm Stainless steel "Cyclovent" or other equally approved model CV 100B kitchen extraction canopy complete with "Cycloclean" or other equally approved filters, grease cups and on/off switch linked to extract and make up air fans, set up and fixed in position complete	No	1
82	On-Off control/ starters for fans		Item
83	Brushed stainless steel bulkhead to match canopy, to be installed between canopy and ceiling		Item
	<u>Supply, deliver and install the following dehumidifiers complete with drip trays supports brackets and all necessary accessories.</u>		
84	Dehumidifiers (Maeco dry artete 25L or other equally approved)	No	6
85	Supply, deliver and install 250 x 100mm galvanized trunking, with removable covers, including brackets, supports and all necessary accessories, to install refrigeration piping in	m	40
86	Supply, deliver and install 200 x 100mm galvanized trunking, with removable covers, including brackets, supports and all necessary accessories, to install refrigeration piping in	m	30
87	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	m	40
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88	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	m	30
89	R410A Refrigerant charge	kg	10
90	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	m	40
<u>AUTOMATIC FIRE SUPPRESSION SYSTEM</u>			
Supply, delivery & installation to be in accordance with SANS 14520 and/or SANS 306 & SANS 10400.			
91	TC 3001 Fire Panel with gas control EN54 approved	No	1
92	Smoke detectors and surface mount bases	No	2
93	Sirens with LED flashing beacons for discharge warning	No	2
94	Fire Bells for Alarm warning	No	2
95	Gas relay Interface for activation of the suppressant cylinder	No	2
96	Power supply and batteries for Suppression control	No	2
97	25LT cylinder with bracket and Inergen	No	6
98	Schedule 40 ASTM 106 Grade B to manufacturers specification and Industry standards, supply 3000lb fittings for piping	m	25
99	PH 30 1mm 2 cr Fire resistant cable	m	100
100	Integrity test	No	1
<u>FIRE DETECTION SYSTEM</u>			
Carried Forward			R
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Brought Forward			R
<u>Supply, delivery & installation to be in accordance with SANS 10139 & SANS 10400.</u>			
101	Fire retardant cable Class A wiring (ph 30)	m	200
102	25mm PVC conduit in accordance with SANS 10139	m	200
103	Base sounder and strobe combination	No	10
104	Manual call point	No	10
105	Addressable Fire Alarm Panel (Single loop)	No	1
<u>ELEVATOR INSTALLATION</u>			
Refer to the following clauses in the Technical Specification covering the complete supply installation and commissioning of the following systems			
106	Supply, Deliver to Site, Install and Commission the following elevator units as per specification:	No	1
107	Type of Lift: Passenger Lift. Lift Numbers: 1. No. of Cars: 1. Load: 1000Kgs / 13 Persons disable friendly. Speed: 1.00 m/s. No. of Floors: 3 stops. No. of Entrances: 1. Control: VVVF Simplex Single. Drive: Gearless. Directly above hoist way. Motor : In shaft. Door Operator: New door drive. Levelling Accuracy: 3mm Hoist way Dimensions: 2800mm W x 3200mm D. Travel Height: 8m. Pit depth: 1700mm. Car Dimensions: 1600mm W x 1900mm D x 2200mm H. Machine output: 13 kW. Nominal supply current: -. Power supply machinery: 3 x 400V, 50Hz.		
Carried Forward			R
Bill No. 16 Mechanical Works			

Brought Forward				R
108	<u>Car finisher's per Lift</u> Front/Side/Rear Walls: Full brushed SST. Cabin ceiling and lighting: Hairline brushed SST. Floor: PVC/ local tiled floor. Cabin/Car Doors: Full hairline brushed SST (2 hour fire rated). Landing Doors: Full hairline brushed SST (2 hour fire rated). Forward Cover (valid for 6 months from date of tender). Architraves. 3 Phase voltage regulator and surge protection. Battery Backup. Alarm bell (at main floor). Elevator announcer (not programmable). Call registered buzzer (both car and landing calls). Emergency battery drive (automatic). Emergency stop switch in shaft, two switches: Fire detection, whole building, doors open. Firemans drive. Acoustic device for arrival, on car, electronic, twice for down. Emergency interphone car - machine room - control room (maximum 30 meters wiring radius). Lock with emergency opening device. Shaft light, switch and fuse in controller, switch in the shaft pit. Pit ladder. Trimmer steels, Ventilation. <u>SUMP PUMP</u> For the supply, delivery, installation and commissioning of the 60040064 - V180F ("Hydro Solutions" or other equally approved) sump pump set including Electrical motor at 2 kW suitable for pump specified. Water volume to be pumped: - 1,94 l/s Pump Static Head: - 7m Motor size - 2 kW <u>KITCHEN EQUIPMENT</u> <u>Supply and install "Vulcan" or other equally approved stainless steel sinks, tables, shelves, racks, trolleys, etc.</u>			
		No	1	
110	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	
111	2275 x 350mm Single tier wall mounted shelf in accordance with drawing no. POL 2012/F1	No	5	
112	1840 x 650 x 910mm Table 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	
Carried Forward				R
Bill No. 16 Mechanical Works				

Proposed New Makhaza Police Station
Potion On ERF 75169 OF 59037 (Khayelitsha)

Brought Forward

R

Supply and install kitchen equipment, etc. all in
accordance with the specification

- 113 3 Phase industrial type stove, with solid plate without
oven, type "Vulcan RE-2, T or Bakers Price" or other
equally approved
- 114 135L Oil Jacketed Boiling Pot (Electric)

No

1

No

1

Carried to Summary

R

Bill No. 16
Mechanical Works

Item
No

Unit Quantity Rate Amount

BILL NO. 17

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

- 1 600 x 700mm High "Ultra Mirror" or other equally approved reflective stainless steel mirror polished, in 304 (18/10) grade stainless steel 1.2mm thick gauge with 4 holes on the corners, fixed with 4/8 number domed capped mirror screws with rubber buffers to plugs in brickwork or concrete.
- 2 620 x 700mm High "Ultra Mirror" or other equally approved reflective stainless steel mirror polished, in 304 (18/10) grade stainless steel 1.2mm thick gauge with 4 holes on the corners, fixed with 4/8 number domed capped mirror screws with rubber buffers to plugs in brickwork or concrete.
- 3 645 x 700mm High "Ultra Mirror" or other equally approved reflective stainless steel mirror polished, in 304 (18/10) grade stainless steel 1.2mm thick gauge with 4 holes on the corners, fixed with 4/8 number domed capped mirror screws with rubber buffers to plugs in brickwork or concrete.

No

4

No

1

No

1

Carried Forward

R

Bill No. 17
Glazing

**Proposed New Makhaza Police Station
Potion On ERF 75169 OF 59037 (Khayelitsha)**

Brought Forward				R
4	700 x 700mm High "Ultra Mirror" or other equally approved reflective stainless steel mirror polished, in 304 (18/10) grade stainless steel 1.2mm thick gauge with 4 holes on the corners, fixed with 4/8 number domed capped mirror screws with rubber buffers to plugs in brickwork or concrete.	No	3	
5	1140 x 700mm High "Ultra Mirror" or other equally approved reflective stainless steel mirror polished, in 304 (18/10) grade stainless steel 1.2mm thick gauge with 4 holes on the corners, 4 holes on the centre, fixed with 4/8 number domed capped mirror screws with rubber buffers to plugs in brickwork or concrete.	No	1	
6	1255 x 700mm High "Ultra Mirror" or other equally approved reflective stainless steel mirror polished, in 304 (18/10) grade stainless steel 1.2mm thick gauge with 4 holes on the corners, 4 holes on the centre, fixed with 4/8 number domed capped mirror screws with rubber buffers to plugs in brickwork or concrete.	No	1	
7	1500 x 700mm High "Ultra Mirror" or other equally approved reflective stainless steel mirror polished, in 304 (18/10) grade stainless steel 1.2mm thick gauge with 4 holes on the corners, 4 holes on the centre, fixed with 4/8 number domed capped mirror screws with rubber buffers to plugs in brickwork or concrete.	No	1	
8	1547 x 700mm High "Ultra Mirror" or other equally approved reflective stainless steel mirror polished, in 304 (18/10) grade stainless steel 1.2mm thick gauge with 4 holes on the corners, 4 holes on the centre, fixed with 4/8 number domed capped mirror screws with rubber buffers to plugs in brickwork or concrete.	No	1	
9	1660 x 700mm High "Ultra Mirror" or other equally approved reflective stainless steel mirror polished, in 304 (18/10) grade stainless steel 1.2mm thick gauge with 4 holes on the corners, 4 holes on the centre, fixed with 4/8 number domed capped mirror screws with rubber buffers to plugs in brickwork or concrete	No	2	
10	1800 x 700mm High "Ultra Mirror" or other equally approved reflective stainless steel mirror polished, in 304 (18/10) grade stainless steel 1.2mm thick gauge with 4 holes on the corners, 6 holes on the centre, fixed with 4/8 number domed capped mirror screws with rubber buffers to plugs in brickwork or concrete.	No	1	
Carried Forward				R
Bill No. 17 Glazing				

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**Proposed New Makhaza Police Station
Potion On ERF 75169 OF 59037 (Khayelitsha)**

	Brought Forward			R
11	1900 x 700mm High "Ultra Mirror" or other equally approved reflective stainless steel mirror polished, in 304 (18/10) grade stainless steel 1.2mm thick gauge with 4 holes on the corners, 6 holes on the centre, fixed with 4/8 number domed capped mirror screws with rubber buffers to plugs in brickwork or concrete.	No	4	
12	2820 x 700mm High "Ultra Mirror" or other equally approved reflective stainless steel mirror polished, in 304 (18/10) grade stainless steel 1.2mm thick gauge with 4 holes on the corners, 10 holes on the centre, fixed with 4/8 number domed capped mirror screws with rubber buffers to plugs in brickwork or concrete.	No	1	
Carried to Summary				R
Bill No. 17 Glazing				

Proposed New Makhaza Police Station
Potion On ERF 75169 OF 59037 (Khayelitsha)

Item No		Unit	Quantity	Rate	Amount
	<u>BILL NO. 18</u>				
	<u>PAINTWORK</u>				
	<u>(CPAP WORK GROUP NO. 152 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>PAINT SPECIFICATIONS</u>				
	Painting, etc.				
	All painting shall be done in accordance with SANS specifications unless otherwise described				
	<u>COLOURS</u>				
	Colours, etc.				
	Unless otherwise described all paintwork shall be deemed to have a colour value in excess of 7 on the Munsell system in accordance with SANS 1091				
	<u>PAINTWORK, ETC. TO NEW SURFACES</u>				
	<u>ON INTERNAL FLOATED PLASTER SURFACES</u>				
	<u>One coat alkali resistant plaster primer, one coat universal undercoat and one coats of eggshell paint to SANS 1586. Colour to Principal Agent's approval</u>				
1	On walls (LI)	m2	1 558		
2	On beams (LI)	m2	515		
3	On soffits (LI)	m2	85		
	Carried Forward			R	
	Bill No. 18 Paintwork				

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Proposed New Makhaza Police Station
Potion On ERF 75169 OF 59037 (Khayelitsha)

Brought Forward			R
4	On narrow widths (LI)	m2	133
5	On stair soffits and sides (LI)	m2	27
<u>ON EXTERNAL FLOATED PLASTER SURFACES</u>			
<u>One coat plaster primer and two coats "Micatex" emulsion paint for exterior use</u>			
6	On beams (LI)	m2	441
<u>ON FIBRE-CEMENT BOARD SURFACES</u>			
<u>One universal undercoat and two coats Eggshell enamel, colour to Principal Agent's approval</u>			
7	On ceilings (LI)	m2	517
8	On fascia boards (LI)	m2	159
<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>			
9	On steel gates (LI)	m2	28
10	On steel doors (LI)	m2	190
11	On steel door frames (LI)	m2	385
12	On steel window frames (LI)	m2	133
13	On balustrades (LI)	m2	100
14	On handrails (LI)	m	13
<u>Prepare and apply rustproof undercoat by the manufacturer and two coats of universal SABS approved gloss enamel paint. Colour to Principal Agent's approval</u>			
15	On steel door frames (LI)	m2	9
Carried Forward			R
Bill No. 18 Paintwork			

**Proposed New Makhaza Police Station
Potion On ERF 75169 OF 59037 (Khayelitsha)**

Brought Forward			R
<u>Prepare and apply heavy duty enamel paint on hot dipped galvanised steel frames</u>			
16	On steel door frames (LI)	m2	115
<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>			
17	On doors (LI)	m2	452
<u>One coat sealer, 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>			
18	On doors (LI)	m2	106
<u>Rustproof undercoat by the manufacturer and two coats of universal SABS approved gloss enamel paint. Colour to Principal Agent's approval</u>			
19	On steel door (LI)	m2	14
<u>One coat wood primer, two finishing coats of velvaco or similar approved, sanding lightly between coats.</u>			
20	On doors (LI)	m2	48
Carried to Summary			R
Bill No. 18 Paintwork			

**Proposed New Makhaza Police Station
Potion On ERF 75169 OF 59037 (Khayelitsha)**

Item No		Unit	Quantity	Rate	Amount
	<u>BILL NO. 19</u>				
	<u>EXTERNAL WORKS (ALL TRADES)</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>EXTERNAL WORKS (ALL TRADES)</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>TEMPORARY HOARDING FENCE AND GATE</u>				
	<u>Metalwork (CPAP Work Group No. 136)</u>				
	<u>Welded mesh fencing, shade cloth, etc.</u>				
1	60 x 150 x 2.7mm Galvanised steel wire mesh fence 2100mm high with seven horizontal strand wire of 2.9mm diameter fixed to 2700mm high posts, y-standards, droppers, etc with posts at 2400mm centres with 600mm bottom ends cast into concrete base. Tenderers are referred to Architects drawings annexed to these Bills of Quantities, drawing number UKU-A-1003-03	m	380		
	Carried Forward			R	
	Bill No. 19 External Works				

**Proposed New Makhaza Police Station
Potion On ERF 75169 OF 59037 (Khayelitsha)**

Brought Forward				R
2	Extra over 2100mm high fencing for wrapping fence with heavy-duty 80% blue Shade cloth made from 140GSM UV-stabilized HDPE installed all in accordance to manufacturer's instruction. Tenderers are referred to Architects drawings annexed to these Bills of Quantities, drawing number UKU-A-1003-03	m	380	
	<u>Gates, screens, etc.</u>			
	<u>Gates, etc.</u>			
3	Manual operated sliding gate size 6000 x 2100mm high formed of 50 x 50 x 2mm hollow section frame and mullions and filled in with vertical bars, with and including heavy-duty 80% blue shade cloth fixed to gate, approved sliding track cast into 30Mpa/19mm concrete. Tenderers are referred to Architects drawings annexed to these Bills of Quantities, drawing number UKU-A-1003-03	No	1	
	<u>Alterations (CPAP Work Group No. 102)</u>			
	<u>Carefully remove fencing, etc.</u>			
4	Carefully take down and remove wire steel mesh steel fence with shade cloths 2,1m high, 2700mm high steel posts and droppers, including breaking up and removing concrete bases to posts, filling in and ramming, etc. on project completion	m	380	
5	6000 x 21000mm High sliding gate including shade cloth, sliding track, breaking up and remove concrete, filling in and ramming, etc. on project completion	No	1	
	<u>SITE CLEARANCE</u>			
	<u>(CPAP WORK GROUP NO. 146 UNLESS OTHERWISE STATED)</u>			
6	Allow for clearing the area of the site to be built upon of all grass, weeds, shrubs, trees with trunks not exceeding 200mm girth, debris, etc., including grubbing up all roots, scoffling up as required and cart away all vegetation and debris.	m2	10 229	
Carried Forward				R
Bill No. 19 External Works				

Brought Forward

R

BULK EXCAVATION, FILLING, ETC.

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.

Open face excavation in earth

7	Strip average 150mm thick layer of topsoil, stockpile on site and maintain	m2	3 610
8	Strip average 150mm thick layer of topsoil and cart off site	m2	6 619
9	Open face excavation over sloping site to reduce levels	m3	10 240
10	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	300

Carried Forward

R

Bill No. 19
External Works

**Proposed New Makhaza Police Station
Potion On ERF 75169 OF 59037 (Khayelitsha)**

Brought Forward			R
11	Filling with G7 material supplied by the contractor to form slopes, contours, platforms, etc. compacted to 95% Mod. AASHTO maximum density	m3	2 300
12	Imported 125mm diameter nominal quarry stone obtained from commercial sources supplied by the contractor, compacted to 97% Mod AASHTO density	m3	2 400
13	Average 75mm topsoil from stockpiles on site, spread and levelled over site, and abutting kerbs, walls, etc.	m2	3 610
14	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	500
15	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>			
16	Intermediate material	m3	1 536
17	Hard material	m3	768
<u>Extra over all excavations for carting away</u>			
18	Surplus material from excavations and/or stock piles on site, to a dumping site to be located by the contractor	m3	9 940
<u>Sundries</u>			
19	Bidum U14 non woven geotextile on damp rock	m2	4 000
<u>STORMWATER DRAINAGE</u>			
<u>(CPAP WORK GROUP NO. 146 UNLESS OTHERWISE STATED)</u>			
Carried Forward			R
Bill No. 19 External Works			

Proposed New Makhaza Police Station
Potion On ERF 75169 OF 59037 (Khayelitsha)

Brought Forward				R
<u>Class 34 heavy duty uPVC pipes laid in class B bedding including excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, compaction in layers of 150mm, cart away surplus material, shoring to pipe trenches, etc.</u>				
20	110mm Pipes vertically or ramped to cleaning eyes etc. (no excavation) (LI)	m	52	
21	110mm Pipes laid in and trenches not exceeding 1m deep (LI)	m	250	
22	110mm Pipes laid in and including trenches exceeding 1m and not exceeding 2m deep (LI)	m	148	
23	160mm Pipes laid in and trenches not exceeding 1m deep (LI)	m	15	
24	160mm Pipes laid in and including trenches exceeding 1m and not exceeding 2m deep (LI)	m	16	
25	200mm Pipes laid in and trenches not exceeding 1m deep (LI)	m	5	
26	200mm Pipes laid in and including trenches exceeding 1m and not exceeding 2m deep (LI)	m	27	
<u>Extra over Class 34 Heavy Duty uPVC pipes for fittings</u>				
27	110mm Bend (LI)	No	128	
28	110mm Access junction (LI)	No	59	
29	110mm Coupling (LI)	No	49	
30	160mm Bend (LI)	No	3	
31	160 x 110mm Bend (LI)	No	2	
32	160 x 110mm Access junction (LI)	No	4	
Carried Forward				R
Bill No. 19 External Works				

Proposed New Makhaza Police Station
Potion On ERF 75169 OF 59037 (Khayelitsha)

Brought Forward				R
<u>Class 100D concrete pipes in class C bedding including excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, compaction in layers of 150mm, cart away surplus material, shoring to pipe trenches, etc.</u>				
33	300mm Pipes laid in and trenches not exceeding 1m deep (LI)	m	22	
34	300mm Pipes laid in and including trenches exceeding 1m and not exceeding 2m deep (LI)	m	53	
35	300mm Pipes laid in and including trenches exceeding 2m and not exceeding 3m deep (LI)	m	4	
36	375mm Pipes laid in and trenches not exceeding 1m deep (LI)	m	22	
37	375mm Pipes laid in and including trenches exceeding 1m and not exceeding 2m deep (LI)	m	191	
38	375mm Pipes laid in and including trenches exceeding 2m and not exceeding 3m deep (LI)	m	6	
<u>Sumps, catchpits, inspection chambers, etc (gratings and covers elsewhere)</u>				
39	Brick manhole 805 x 805mm internally and not exceeding 1000mm deep internally comprising suitable 1565 x 1565 x 150mm thick 25MPa/26mm unreinforced concrete base, 230mm brickwork of NFX clay bricks (14 MPa nominal compressive strength) in class II mortar, 1265 x 1265 x 100mm thick precast concrete cover slab and rebated opening to accommodate cover and frame (cover and frame elsewhere measured) complete with excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, cart away surplus material, shoring benching, haunching, etc. all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-001. (LI)	No	6	
Carried Forward				R
Bill No. 19 External Works				

**Proposed New Makhaza Police Station
Potion On ERF 75169 OF 59037 (Khayelitsha)**

Brought Forward				R
40	Brick manhole 805 x 805mm internally, exceeding 1000mm and not exceeding 1250mm deep internally comprising suitable 1565 x 1565 x 150mm thick 25MPa/26mm unreinforced concrete base, 230mm brickwork of NFX clay bricks (14 MPa nominal compressive strength) in class II mortar, 1265 x 1265 x 100mm thick precast concrete cover slab and rebated opening to accommodate cover and frame (cover and frame elsewhere measured) complete with excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, cart away surplus material , shoring benching, haunching, etc. all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-001. (LI)	No	2	
41	Brick manhole 805 x 805mm internally, exceeding 1250mm and not exceeding 1500mm deep internally comprising suitable 1565 x 1565 x 150mm thick 25MPa/26mm unreinforced concrete base, 230mm brickwork of NFX clay bricks (14 MPa nominal compressive strength) in class II mortar, 1265 x 1265 x 100mm thick precast concrete cover slab and rebated opening to accommodate cover and frame (cover and frame elsewhere measured) complete with excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, cart away surplus material , shoring benching, haunching, etc. all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-001. (LI)	No	3	
42	Brick manhole 805 x 805mm internally, exceeding 1500mm and not exceeding 1750mm deep internally comprising suitable 1565 x 1565 x 150mm thick 25MPa/26mm unreinforced concrete base, 230mm brickwork of NFX clay bricks (14 MPa nominal compressive strength) in class II mortar, 1265 x 1265 x 100mm thick precast concrete cover slab and rebated opening to accommodate cover and frame (cover and frame elsewhere measured) complete with excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, cart away surplus material , shoring benching, haunching, etc. all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-001. (LI)	No	1	
Carried Forward				R
Bill No. 19 External Works				

**Proposed New Makhaza Police Station
Potion On ERF 75169 OF 59037 (Khayelitsha)**

Brought Forward				R
43	Brick manhole 805 x 805mm internally, exceeding 1750mm and not exceeding 2000mm deep internally comprising suitable 1565 x 1565 x 150mm thick 25MPa/26mm unreinforced concrete base, 230mm brickwork of NFX clay bricks (14 MPa nominal compressive strength) in class II mortar, 1265 x 1265 x 100mm thick precast concrete cover slab and rebated opening to accommodate cover and frame (cover and frame elsewhere measured) complete with excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, cart away surplus material, shoring benching, haunching, etc. all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-001. (LI)	No	1	
<u>Kerb inlets for stormwater manholes (gratings and covers elsewhere)</u>				
44	Double kerb inlet stormwater drainage, overall size 2950 x 1340mm externally not exceeding 1000mm deep internally comprising of 150mm thick 25Mpa/19mm reinforced concrete base, 230mm brickwork of NFX clay bricks (14 MPa nominal compressive strength) in class II mortar, and 200mm thick precast concrete cover and rebated opening to accommodate cover and frame (cover and frame elsewhere measured) complete with excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, cart away surplus material, shoring benching, haunching, etc. all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-001. (LI)	No	11	
45	Double kerb inlet stormwater drainage, overall size 2950 x 1340mm externally exceeding 1000mm and not exceeding 1250mm deep internally comprising of 150mm thick 25Mpa/19mm reinforced concrete base, 230mm brickwork of NFX clay bricks (14 MPa nominal compressive strength) in class II mortar, and 200mm thick precast concrete cover and rebated opening to accommodate cover and frame (cover and frame elsewhere measured) complete with excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, cart away surplus material, shoring benching, haunching, etc. all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-001. (LI)	No	1	
Carried Forward				R
Bill No. 19 External Works				

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**Proposed New Makhaza Police Station
Potion On ERF 75169 OF 59037 (Khayelitsha)**

Brought Forward				R
<u>Gratings, covers, etc</u>				
46	Heavy duty precast concrete 500mm diameter cover, all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-001. (LI)	No	8	
47	Heavy duty precast concrete hinged cover and frame to EN 124, Class B125 approximate size 450 x 900mm, all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-001. (LI)	No	24	
48	450 x 300mm St. Gobain type 2880 heavy duty cast iron grate and frame including casting in fixing lugs into concrete	No	5	
<u>Keeping excavations free of water</u>				
49	Keeping excavations free of all water other than subterranean water		Item	
<u>Alterations to existing manholes etc.:</u>				
50	Break through brick walls situated on side of manhole for and connect up new 200mm uPVC pipe (elsewhere measured) and make good all round including new channels, benching, etc.	No	1	
51	Break through brick walls situated on side of manhole for and connect up new 375mm concrete pipe (elsewhere measured) and make good all round including new channels, benching, etc.	No	2	
<u>Sundries</u>				
52	Extra over excavation in earth for pipe trenches, chambers, etc for excavation in soft rock (LI)	m3	121	
53	Extra over excavation in earth for pipe trenches, chambers, etc for excavation in hard rock	m3	61	
54	Extra over excavation for pipe trenches, chambers, etc for carting away surplus material to a dumping site to be located by the Contractor	m3	494	
Carried Forward				R
Bill No. 19 External Works				

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**Proposed New Makhaza Police Station
Potion On ERF 75169 OF 59037 (Khayelitsha)**

Brought Forward			R
55	Extra over backfilling to pipe trenches, chambers, etc for imported selected and approved granular material for bedding material SANS 1200 LB 3.3, maximum aggregate 6mm compacted to 93% MOD AASHTO density in 100mm layers (LI)	m3	228
56	Extra over backfilling to pipe trenches, chambers, etc for imported selected and approved granular material for fill blanket material placed in accordance to SANS 1200 LB 3.2, maximum aggregate 10mm compacted to 93% MOD AASHTO density (LI)	m3	152
57	Extra over backfilling to pipe trenches, chambers, etc for imported selected and approved granular material for backfill material placed and compacted in accordance to SANS 1200 BD 3.5, maximum aggregate 63mm compacted in to 93% MOD AASHTO density (LI)	m3	114
<u>Testing</u>			
58	Allow for testing of the entire stormwater drainage system to Engineer's satisfaction.	Item	
<u>SOIL 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 excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, compaction in layers of 150mm, cart away surplus material, shoring to pipe trenches, etc.</u>			
59	110mm Pipes vertically or ramped to cleaning eyes etc. (no excavation) (LI)	m	40
60	110mm Pipes laid in and trenches not exceeding 1m deep (LI)	m	197
61	110mm Pipes laid in and including trenches exceeding 1m and not exceeding 2m deep (LI)	m	77
62	110mm Pipes laid in and including trenches exceeding 2m and not exceeding 3m deep (LI)	m	12
Carried Forward			R
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Brought Forward				R
63	160mm Pipes laid in and trenches not exceeding 1m deep (LI)	m	9	
64	160mm Pipes laid in and including trenches exceeding 1m and not exceeding 2m deep (LI)	m	165	
65	160mm Pipes laid in and including trenches exceeding 2m and not exceeding 3m deep (LI)	m	15	
<u>Extra over Class 34 Heavy Duty uPVC pipes for fittings</u>				
66	110mm Bends (LI)	No	81	
67	110mm Access junction (LI)	No	22	
68	160 x 110mm Access junction (LI)	No	13	
69	110mm 'ABC' cast iron rodding eyes set in 300 x 300 x 300mm thick 15MPa/19 unreinforced concrete surround finished smooth on exposed surfaces with rounded angles	No	7	
<u>Precast concrete circular inspection chambers (covers elsewhere)</u>				
Where approach grades into the manhole are 1:15 or steeper and associated with a change in direction in the manhole of 30° or more, the benching is to be brought up two pipe diameters above the pipe invert (Type B benching sewers)				
Rendering for all manhole benching shall consist of one part H.A.C. to two parts sand thoroughly mixed and applied to 'uncured' concrete surfaces to a minimum thickness of 20mm				
Carried Forward				R
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Brought Forward				R
70	Excavate for and construct 1050mm internal diameter circular pre-cast concrete manhole exceeding 750mm and not exceeding 1000mm deep with 1800mm diameter x 150mm thick unreinforced concrete grade 25/26 base and benching and 150mm thick pre-cast cover slab and rebated opening to accommodate cover and rebated opening to accommodate cover and frame (cover and frame elsewhere measured) complete with excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, cart away surplus material, shoring benching, haunching, etc. all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-002. (LI)	No	3	
71	Excavate for and construct 1050mm internal diameter circular pre-cast concrete manhole exceeding 1000mm and not exceeding 1250mm deep with 1800mm diameter x 150mm thick unreinforced concrete grade 25/26 base and benching and 150mm thick pre-cast cover slab and rebated opening to accommodate cover and rebated opening to accommodate cover and frame (cover and frame elsewhere measured) complete with excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, cart away surplus material, shoring benching, haunching, etc. all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-002. (LI)	No	3	
72	Excavate for and construct 1050mm internal diameter circular pre-cast concrete manhole exceeding 1250mm and not exceeding 1500mm deep with 1800mm diameter x 150mm thick unreinforced concrete grade 25/26 base and benching and 150mm thick pre-cast cover slab and rebated opening to accommodate cover and rebated opening to accommodate cover and frame (cover and frame elsewhere measured) complete with excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, cart away surplus material, shoring benching, haunching, etc. all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-002. (LI)	No	2	
Carried Forward				R
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Brought Forward				R
73	Excavate for and construct 1050mm internal diameter circular pre-cast concrete manhole exceeding 1500mm and not exceeding 1750mm deep with 1800mm diameter x 150mm thick unreinforced concrete grade 25/26 base and benching and 150mm thick pre-cast cover slab and rebated opening to accommodate cover and rebated opening to accommodate cover and frame (cover and frame elsewhere measured) complete with excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, cart away surplus material , shoring benching, haunching, etc. all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-002. (LI)	No	5	
74	Excavate for and construct 1050mm internal diameter circular pre-cast concrete manhole exceeding 1750mm and not exceeding 2000mm deep with 1800mm diameter x 150mm thick unreinforced concrete grade 25/26 base and benching and 150mm thick pre-cast cover slab and rebated opening to accommodate cover and rebated opening to accommodate cover and frame (cover and frame elsewhere measured) complete with excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, cart away surplus material , shoring benching, haunching, etc. all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-002. (LI)	No	5	
75	Excavate for and construct 1050mm internal diameter circular pre-cast concrete manhole exceeding 2000mm and not exceeding 2250mm deep with 1800mm diameter x 150mm thick unreinforced concrete grade 25/26 base and benching and 150mm thick pre-cast cover slab and rebated opening to accommodate cover and rebated opening to accommodate cover and frame (cover and frame elsewhere measured) complete with excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, cart away surplus material , shoring benching, haunching, etc. all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-002. (LI)	No	1	
Carried Forward				R
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Brought Forward		R	
<u>Covers, etc</u>			
76	550mm Diameter heavy duty cover and frame 'DM' Type double sealed (Ductile iron), all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-002. (LI)	No	19
<u>Keeping excavations free of water</u>			
77	Keeping excavations free of all water other than subterranean water		Item
<u>Alterations to existing manholes etc.:</u>			
78	Break through precast concrete situated on side of manhole for and connect up new 160mm uPVC pipe (elsewhere measured) and make good all round including new channels, benching, etc.	No	1
<u>Sundries</u>			
79	Excavate for and construct gulley comprising of 110mm uPVC gulley trap with 190mm diameter uPVC hopperhead with pvc grating, all set in mass concrete and not exceeding 500mm deep. The top of the gulley to be raised 75mm above surrounding ground level and internally dished down to hopper head with smoothened render and external of raised sides to be finished neatly. (LI)	No	16
80	Extra over excavation in earth for pipe trenches, chambers, etc. for excavation in soft rock (LI)	m3	77
81	Extra over excavation in earth for pipe trenches, chambers, etc. for excavation in hard rock	m3	39
82	Extra over excavation for pipe trenches, chambers, etc for carting away surplus material to a dumping site to be located by the Contractor	m3	309
83	Extra over backfilling to pipe trenches, chambers, etc for imported selected and approved granular material for bedding material SANS 1200 LB 3.3, maximum aggregate 6mm compacted to 93% MOD AASHTO density in 100mm layers (LI)	m3	143
Carried Forward			R
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**Proposed New Makhaza Police Station
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	Brought Forward			R
84	Extra over backfilling to pipe trenches, chambers, etc for imported selected and approved granular material for fill blanket material placed in accordance to SANS 1200 LB 3.2, maximum aggregate 10mm compacted in to 93% MOD AASHTO density (LI)	m3	95	
85	Extra over backfilling to pipe trenches, chambers, etc for imported selected and approved granular material for backfill material placed and compacted in accordance to SANS 1200 BD 3.5, maximum aggregate 63mm compacted in to 93% MOD AASHTO density (LI)	m3	71	
	<u>Testing</u>			
86	Allow for testing of the entire sewer drainage system to the satisfaction of the Engineer		Item	
	<u>WATER SUPPLIES</u>			
	<u>(CPAP WORK GROUP NO. 148 UNLESS OTHERWISE STATED)</u>			
	<u>Class 16 HDPE Pipes or other equally approved</u>			
87	20mm Pipes laid in trenches (No excavations)	m	4	
88	20mm Pipes laid in trenches including excavation, risk of collapse, backfilling with selected excavated material, compaction in layers, etc. (LI)	m	11	
89	25mm Pipes laid in trenches (No excavations)	m	2	
90	25mm Pipes laid in trenches including excavation, risk of collapse, backfilling with selected excavated material, compaction in layers, etc. (LI)	m	2	
91	32mm Pipes laid in trenches (No excavations)	m	6	
92	32mm Pipes laid in trenches including excavation, risk of collapse, backfilling with selected excavated material, compaction in layers, etc. (LI)	m	49	
93	90mm Pipes laid in trenches (No excavations)	m	3	
94	90mm Pipes laid in trenches including excavation, risk of collapse, backfilling with selected excavated material, compaction in layers, etc. (LI)	m	137	
	Carried Forward			R
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Brought Forward		R	
<u>Extra over HDPE pipe for 'Plasson' or other equally approved HDPE compression type fittings</u>			
95	20mm Elbow (LI)	No	4
96	25mm Elbow (LI)	No	2
97	32mm Elbows (LI)	No	6
98	90mm Elbow (LI)	No	7
99	90mm Tees (LI)	No	2
100	90 x 20mm Tees (LI)	No	3
101	90 x 25mm Tees (LI)	No	2
102	90 x 32mm Tees (LI)	No	6
<u>Class PN4 HDPE Pipes or other equally approved</u>			
103	50mm Pipes laid in trenches (No excavations)	m	7
104	50mm Pipes laid in trenches including excavation, risk of collapse, backfilling with selected excavated material, compaction in layers, etc. (LI)	m	134
<u>Extra over HDPE pipe for 'Plasson' or other equally approved HDPE compression type fittings</u>			
105	50mm Elbows (LI)	No	13
106	50mm Tees (LI)	No	3
<u>Extra over HDPE Pipes for Brass Compression Fittings</u>			
107	50mm Gate valve	No	1
108	90mm Gate valve	No	1
109	50mm Isolation valve	No	1
110	50mm brass non return valve	No	1
111	50mm brass in line strainer	No	2
112	20mm Coupling (LI)	No	3
Carried Forward		R	
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Brought Forward		R	
113	25mm Coupling (LI)	No	2
114	32mm Coupling (LI)	No	6
115	50mm Coupling (LI)	No	8
116	90mm Coupling (LI)	No	2
<u>Valve Chambers, etc.</u>			
117	Valve box set 1835 x 1350mm internally and not exceeding 1395mm deep internally on 2235 x 1750 x 200mm thick concrete base, including 200mm thick concrete walls, 200mm thick concrete slabs, formworks, reinforcement and fitted with and including with 1100 x 800mm cast iron cover and frame set level to the ground complete with excavation, risk of collapse, working space, hoisting in position, backfilling with selected excavated material, cart away surplus material, etc. all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-002. (LI)	No	1
<u>Keeping excavations free of water</u>			
118	Keeping excavations free of all water other than subterranean water	Item	
<u>Sundries</u>			
119	30Mpa/19mm Unreinforced mass concrete as anchor blocks around various fittings (LI)	m3	5
120	30Mpa/19mm Unreinforced mass concrete encasing to pipework on trenches (LI)	m3	8
121	200 x 200 x 200mm Mass concrete markers blocks	No	36
122	Extra over excavation in earth for pipe trenches, valve boxes, etc for excavation in soft rock (LI)	m3	33
123	Extra over excavation in earth for pipe trenches, valve boxes, etc for excavation in hard rock	m3	17
124	Cart away surplus material to a dumping site located by the contractor	m3	100
Carried Forward		R	
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Brought Forward				R
125	Import Class "B" bedding and initial backfill to 300mm above crown of pipe (LI)	m3	100	
	<u>Municipal connection</u>			
126	Allow for the tie in to the municipal water main		Item	
	<u>Testing</u>			
127	Allow for testing the whole of the Domestic water supplies to the satisfaction of the Principal Agent and Local authority. All defective work to removed and made good at the contractors expense and the whole works to be re-tested until found satisfactory		Item	
	<u>FIRE WATER MAIN</u>			
	<u>(CPAP WORK GROUP NO. 148 UNLESS OTHERWISE STATED)</u>			
	<u>Class HDPE 100PN 12.5 Pipes or other equally approved</u>			
128	110mm Pipes laid in trenches (No excavations)	m	7	
129	110mm Pipes laid in trenches including excavation, risk of collapse, backfilling with selected excavated material, compaction in layers, etc. (LI)	m	32	
	<u>Extra over HDPE Pipes for Electroweld Fusion couplings for Fittings</u>			
130	110mm Elbow (LI)	No	7	
131	110mm Tees (LI)	No	2	
	<u>Extra over HDPE Pipes for Brass Compression Fittings</u>			
132	110mm Coupling (LI)	No	7	
133	110mm Non-return valve (LI)	No	1	
Carried Forward				R
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Brought Forward		R	
<u>Isolating valve chamber</u>			
134	Excavate in ground for and build valve chamber 800 x 800 x 1000mm deep of 250mm uPVC pipe as chamber with 150mm (15MPa) thick concrete base, 300mm thick (20Mpa) concrete slab fitted with and including Bell Toby valve box cover and frame complete with excavation, risk of collapse, working space, backfilling with selected excavated material, cart away surplus material, etc. all in accordance to Civil Engineer drawings, annexured to these Bills of Quantities for the full details, drawing number: FEC-23022-GEN-TYP-002. (LI)	No	1
<u>Extra over isolating valve chamber</u>			
135	110mm Gate Valve	No	1
<u>Keeping excavations free of water</u>			
136	Keeping excavations free of all water other than subterranean water	Item	
<u>Sundries</u>			
137	30MPa/19mm unreinforced mass concrete as anchor blocks around various fittings (LI)	m3	4
138	200 x 200 x 200mm Mass concrete markers blocks	No	9
139	Extra over excavation in earth for pipe trenches, valve boxes, etc for excavation in soft rock (LI)	m3	4
140	Extra over excavation in earth for pipe trenches, valve boxes, etc for excavation in hard rock	m3	2
141	Cart away surplus material to a dumping site located by the contractor	m3	10
142	Import Class "B" bedding and initial backfill to 300mm above crown of pipe (LI)	m3	10
143	75mm Hydrant with connection with cap and chain	No	1
144	80 x 65mm Brass double booster pump connection with caps and chains	No	1
Carried Forward		R	
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Brought Forward				R
<u>Municipal connection</u>				
145	Allow for the tie in to the municipal water main		Item	
<u>Testing</u>				
146	Allow for testing the whole of the Fire water supplies to the satisfaction of the Principal Agent and Local authority. All defective work to removed and made good at the contractors expense and the whole works to be re-tested until found satisfactory		Item	
<u>WALKWAY</u>				
<u>Earthworks (CPAP Work Group No. 104)</u>				
<u>Excavation other than bulk</u>				
147	Excavate to reduced level (LI)	m3	287	
<u>Extra over all excavations for loading, carting and dumping surplus excavated material, rubble, etc. (no allowance made for increase in bulk)</u>				
148	Off site to a dumping site to be found by the Contractor.	m3	287	
<u>Keeping excavations free of water</u>				
149	Keeping excavations free of all water other than subterranean water		Item	
<u>Compaction of surfaces</u>				
150	Compaction of ground surface under pavings, roads etc including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 95% Mod AASHTO density	m2	737	
<u>Base course of earth filling supplied by the contractor under pavings, roads, etc</u>				
151	150mm Thick layer of G7 sub-base course under walkway areas, etc., with selected and approved natural G7 quality material, supplied and carted onto site by the contractor, compacted in layers of 150mm thickness to at least 95% Mod. AASHTO density (LI)	m3	111	
Carried Forward				R
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Brought Forward				R
152	150mm Thick layer of C4 stabilized sub-base course under walkway areas, etc., stabilised cement in accordance with SABS 1200 DM, with selected and approved natural G5 quality material, supplied and carted onto site by the contractor, compacted in layers of 150mm thickness to at least 95% Mod. AASHTO density (LI)	m3	111	
<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				
The items of testing given below are for additional testing which may be required by the Engineer over and above those required in accordance with the SABS 1200 series				
<u>Additional tests required by Engineer</u>				
153	Maximum dry density and optimum moisture content test in accordance with Method A7 of TMH 1	No	13	
154	Atterberg limits test in accordance with methods A2 to A4 of TMH 1	No	9	
155	In-situ dry density test in accordance with method A10(b) of TMH 1		Item	
<u>Weedkiller mixed with water and applied at a rate of 100grams/m2</u>				
156	Under walkway areas, etc. (LI)	m2	737	
<u>Masonry (CPAP Work Group No. 116)</u>				
<u>30MPa Nougat Modular paving bricks</u>				
157	50mm clay paving bricks laid in herringbone pattern to SANS 1200MJ, blocks laid on 25mm river sand layer on concrete aprons (concrete aprons elsewhere measured) (LI)	m2	628	
Carried Forward				R
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Brought Forward			R
<u>30MPa Graphite Modular paving bricks</u>			
158	50mm clay paving bricks laid in herringbone pattern to SANS 1200MJ, blocks laid on 25mm river sand layer on concrete aprons (concrete aprons elsewhere measured) (LI)	m2	109
<u>RETAINING WALLS</u>			
<u>Earthworks (CPAP Work Group No. 104)</u>			
<u>Excavation other than bulk</u>			
159	Trenches (LI)	m3	619
<u>Extra over all excavations for loading, carting and dumping surplus excavated material, rubble, etc. (no allowance made for increase in bulk)</u>			
160	Off site to a dumping site to be found by the Contractor.	m3	272
<u>Risk of collapse of excavations</u>			
161	Sides of trench and hole excavations not exceeding 1,5m deep	m2	688
<u>Keeping excavations free of water</u>			
162	Keeping excavations free of all water other than subterranean water		Item
<u>Compaction of surfaces</u>			
163	Compaction of ground surface under strip footings, etc. including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 95% Mod AASHTO density	m2	310
<u>Earth filling obtained from the excavations and/or prescribed stock piles on site, compacted to 95% Mod AASHTO density.</u>			
164	Backfilling to trenches, holes, etc. (LI)	m3	347

Carried Forward

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