

**SOUTH AFRICAN POLICE SERVICES
CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

Brought Forward			R
9	Wall mounted type Midwall Split Unit Cooling capacity - 5.3kW	No	1
10	Matching Outdoor Condensing unit, complete with wall mounted bracket	m	1
11	Diameter 6.35mm insulated refrigerant piping, installed inside trunking	m	22
12	Diameter 9.52mm insulated refrigerant piping, installed inside trunking	m	22
13	Diameter 32mm uPVC condensate drain piping, installed inside trunking	m	15
14	Hard wired controller	No	1
15	100 x 40mm uPVC Trunking	m	22
16	Bluchem full treatment for outdoor unit	No	1
17	Wall mounted type Midwall Split Unit Cooling capacity - 7.0kW	No	1
18	Matching Outdoor Condensing unit, complete with wall mounted bracket	No	1
19	Diameter 6.35mm insulated refrigerant piping, installed inside trunking	m	10
20	Diameter 9.52mm insulated refrigerant piping, installed inside trunking	m	10
21	Diameter 32mm uPVC condensate drain piping, installed inside trunking	m	12
22	Hard wired controller	No	1
23	100 x 40mm uPVC Trunking	m	10
24	Bluchem full treatment for outdoor unit	No	1
25	Ceiling Cassette Inverter Type Unit Cooling capacity - 5.3kW	No	3
26	Matching Outdoor Condensing unit, complete with wall mounted bracket	No	3

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**SOUTH AFRICAN POLICE SERVICES
CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

Brought Forward			R
27	Diameter 6.35mm insulated refrigerant piping, installed inside trunking	No	25
28	Diameter 9.52mm insulated refrigerant piping, installed inside trunking	m	25
29	Diameter 32mm uPVC condensate drain piping, installed inside trunking	m	50
30	Hard wired controller	No	3
31	100 x 40mm uPVC Trunking	m	25
32	Bluchem full treatment for outdoor unit	No	1
33	Ceiling Cassette Inverter Type Unit Cooling capacity - 10.5kW	No	1
34	Matching Outdoor Condensing unit, complete with wall mounted bracket	No	1
35	Diameter 6.35mm insulated refrigerant piping, installed inside trunking	m	10
36	Diameter 9.52mm insulated refrigerant piping, installed inside trunking	m	10
37	Diameter 32mm uPVC condensate drain piping, installed inside trunking	m	12
38	Hard wired controller	No	1
39	100 x 40mm uPVC Trunking	m	10
40	Bluchem full treatment for outdoor unit	No	1
<p><u>Supply and deliver the following Inverter Console type air conditioning system, complete with all with electrical connection to isolator, PIR Motion Detector, electrical control wiring, brackets, supports and all necessary accessories, as per the specification and manufacturer's recommendation. COP for all units to be 3. EER to be adjudicated by Engineer for acceptance upon equipment selections issued for approval</u></p>			
41	Inverter console Unit Cooling capacity - 3kW	No	34

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Brought Forward			R
42	Bluchem full treatment for unit	No	34
43	Inverter console Unit Cooling capacity - 4kW	No	17
44	Bluchem full treatment for unit	No	17
<p><u>Ventilation equipment 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></p>			
45	Plate mounted axial extract fan sized for 300L/s and 50Pa pressure drop complete with internal louvre, speed controller and timer switch.	No	2
46	Silent type in-line extract fan at the following flow rate and pressure drops complete with speed controller and timer switch 160 l/s @ 150 Pa	No	3
47	Matching sound attenuators	No	6
48	Silent type in-line extract fan at the following flow rate and pressure drops complete with speed controller and timer switch 200 l/s @ 150 Pa	No	3
49	Matching sound attenuators	No	6
50	Silent type in-line extract fan at the following flow rate and pressure drops complete with speed controller and timer switch 700 l/s @ 300 Pa	No	1
51	Matching sound attenuators	No	2
52	Axial flow kitchen extract fan, spark proof at the following flow rate and pressure drops 240 l/s @ 200 Pa	No	1
53	Matching sound attenuators	No	2
54	Silent type in-line extract fan at the following flow rate and pressure drops complete with speed controller and timer switch 100 l/s @ 150 Pa	No	1
55	Matching sound attenuators	No	2
Carried Forward			R
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Brought Forward		R
56	Wall mounted fresh air fan complete with internal louvre, speed controller and timer switch at the following flow rate and pressure drops 250 l/s at 50 Pa	No 4
57	Wall mounted extract fan complete with internal louvre, speed controller and timer switch at the following flow rate and pressure drops 30 l/s at 30 Pa	No 4
58	Wall mounted fresh air fan complete with internal louvre, speed controller and timer switch @ the following flow rate and pressure drops 50 l/s at 30 Pa	No 2
59	Wall mounted fresh air fan complete with internal louvre, speed controller and timer switch @ the following flow rate and pressure drops 65 l/s @ 60 Pa	No 1
60	Wall mounted fresh air fan complete with internal louvre, speed controller and timer switch @ the following flow rate and pressure drops 400 l/s @ 50 Pa	No 1
<p><u>Supply, deliver and install the following extract canopy complete with make-up and extract air connections, all ducting and duct fittings, 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></p>		
61	5200 x 2400mm Stainless steel "Cyclovent" or other equal and 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
62	On-off control / starters for fans	Item
63	Brushed stainless steel bulkhead to match canopy, to be installed between canopy and ceiling	Item
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SOUTH AFRICAN POLICE SERVICES
CONSTRUCTION OF THE NEW MSINSINI POLICE STATION

	Brought Forward				R
	<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>				
64	Ø100mm	m		1	
65	Ø160mm	m		1	
66	Ø200mm	m		1	
	<u>RECTANGULAR DUCTING</u>				
	<u>Rectangular galvanised mild steel sheet metal 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 sheet metal thickness shall apply to the corresponding categories:</u>				
	<u>Category One: 0.6mm</u>				
	<u>Category Two: 0.6mm</u>				
	<u>Category Three: 0.8mm</u>				
	<u>Category Four: 1.0mm</u>				
	<u>Category Five: 1.2mm</u>				
	<u>CATEGORY ONE</u>				
67	Width or height not exceeding 750mm and the sum of the two adjacent sides not exceeding 1150mm	m2		10	
	<u>Extra over for low pressure galvanised fittings (reducers, radius bends, transformations, spigots, tees and square-to-rounds)</u>				
68	Category one fittings other than stop ends	No		2	
	Carried Forward				R
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Brought Forward			R
<u>Stop ends</u>			
69	Category one stop end fittings	No	2
<u>CATEGORY TWO</u>			
70	Width or height not exceeding 750mm and the sum of the two adjacent sides exceeding 1150mm	m2	5
<u>Extra over for low pressure galvanised fittings (reducers, radius bends, transformations, spigots, tees and square-to-rounds)</u>			
71	Category two fittings other than stop ends	No	2
<u>Stop ends</u>			
72	Category two stop end fittings	No	2
<u>ROUND DUCTING</u>			
<u>Complete with fittings including hangers, clamps, brackets, nuts, bolts, etc.</u>			
<u>Sheetmetal Thickness for round ducting unless otherwise indicated up to 300mm dia.: 0.5mm</u>			
<u>301mm dia to 800mm dia.: 0.6mm</u>			
<u>801mm dia to 1000mm dia.: 0.8mm</u>			
<u>1001mm to 1200mm dia.: 1.0mm</u>			
<u>Note: Jointing shall be beaded</u>			
<u>STRAIGHT SECTIONS</u>			
73	Ø100mm	m	1
74	Ø150mm	m	60
75	Ø160mm	m	1
76	Ø200mm	m	1
77	Ø250mm	m	1
78	Ø315mm	m	1
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Brought Forward			R
79	Ø350mm	m	1
<u>90 DEGREE BENDS</u>			
80	Ø100mm	No	1
81	Ø150mm	No	10
82	Ø160mm	No	1
83	Ø200mm	No	1
84	Ø250mm	No	1
<u>TRANSFORMATION PIECES</u>			
85	Ø200mm - Ø150mm	No	1
86	Ø250mm - Ø200mm	No	1
87	Ø300mm - Ø250mm	No	1
88	250 x 250 - Ø150mm	No	12
89	450 x 350 - 300 x 300mm	No	1
90	300 x 300 - 250 x 250mm	No	1
91	500 x 300 - Ø315mm	No	1
<u>STOP ENDS</u>			
92	250 x 250mm	No	6
93	Ø200mm	No	1
94	Ø250mm	No	1
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**SOUTH AFRICAN POLICE SERVICES
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Brought Forward			R
<u>Air Terminals for the Supply (including delivery), installation (including testing, commissioning and handing over of the following grilles, weather louvres, disc valves, diffusers, filters, dampers and associated items including all necessary accessories and fittings.</u>			
<u>Louvres</u>			
95	350 x 400mm Weather Louvre complete with wire mesh screen epoxy colour coated finish to Engineers detail	No	9
96	550 x 500mm Weather Louvre complete with wire mesh screen epoxy colour coated finish to Engineers detail	No	1
<u>Disc Valves</u>			
97	Diameter 100mm duct mounted disc valve for extract air epoxy colour coated to matching ceiling detail. Various air flow rate. Please refer to drawing.	No	40
<u>Dampers</u>			
98	250x250 Volume Control Damper, (manual)	No	15
<u>Fire Dampers</u>			
99	Ø160 Fire Damper with Fusible link (2hr fire-rated, Normally open)	No	10
<u>Supply, deliver and install the following dehumidifiers complete with drip trays, supports, brackets and all necessary accessories.</u>			
100	Mechanical floor standing dehumidifier including installation, electrical termination, condensate piping and all accessories required to ensure a fully functioning system - 10L	No	5
101	Mechanical floor standing dehumidifier including installation, electrical termination, condensate piping and all accessories required to ensure a fully functioning system - 20L	No	10
<u>Door Grilles</u>			
102	300mm x 300mm Aluminium anodised	No	16
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**SOUTH AFRICAN POLICE SERVICES
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	Brought Forward			R
103	Supply, deliver and install 100mm wide wire mesh cable basket including brackets, supports and all necessary accessories, to install refrigeration piping on	m	100	
104	Supply, deliver and install 200mm wide wire mesh cable basket including brackets, supports and all necessary accessories, to install refrigeration piping on	m	100	
105	R410A Refrigerant charge	kg	25	
106	Supply and install 41 x 41mm Unistrut channel 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	100	
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**SOUTH AFRICAN POLICE SERVICES
CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

Item
No

Quantity	Rate	Amount
<p>Carried Forward</p>		
	R	

SECTION NO.4

MECHANICAL INSTALLATION

BILL NO. 2

**FIRE INSTALLATION (PROVISIONAL)
(CPAP WORK GROUP NO. 170 UNLESS
OTHERWISE STATED)**

SUPPLEMENTARY PREAMBLES

General

The Model Preambles for Trades 2017 as published by the Association of South African Quantity Surveyors shall be deemed to be incorporated in these bills of quantities and no claims arising from brevity of description of items fully described in the said Model Preambles will be entertained

The bill of quantities must be read in conjunction with the rest of the contract documents and drawings.

A price must be submitted for every item. Items for which no prices are given will be regarded as being covered by other items in the Bills.

The quantities measured in the Bill of Quantities for work and material must not be viewed as a limitation of the amount of work to be done and material provided by the contractor in the complete execution of the work.

The general descriptions and data of the work given in the specification, drawings or schedules are not fully repeated in the Bill of Quantities and reference to the other documents for complete information is therefore important and necessary.

No variations or omissions may be done to the Bill of Quantities by the tenderer, any such variations or omissions will not be recognized and the text of the Bill of Quantities will be strictly adhered to.

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**SOUTH AFRICAN POLICE SERVICES
CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

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Material must be ordered as determined on site and not from the drawings or Bill of Quantities. The Employer will not accept any responsibility for surplus or inadequately ordered material. Payments will only be made for the actual re-measured quantities as installed.

All fittings and accessories shall always include the connections thereto.

Unless otherwise stated in the Bill of Quantities, all prices shall allow for the following items:

Supply, deliver to site, and store new unused and undamaged and of the best quality available and complete with small materials necessary for the installation, testing, commissioning and rendering in proper working order.

Installation, fixing in position, running or laying, as applicable, in a thorough and workmanlike manner.

Making of all connections necessary.

Tenderer to ensure the proper working and serviceability of all items installed.

Complete labelling with engraved labels to indicate all functions and instructions which otherwise would be unclear to ordinary users.

Corrosion protection to be applied where necessary.

All profits, overheads, supervision, transport and skilled and unskilled labour.

Guarantee and maintenance for the complete Fire Installation including fittings, materials and workmanship for a period of TWELVE MONTHS after date of completion and handover.

Approval and inspection by the Engineer

Compliance with all relevant regulations, by-laws and codes of practice.

Compliance with the Specification. The installation is to comply with the project specifications if listed in this document.

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Compliance with all requirements set out in this section and any other section of the Specification and Bills of Quantity.

Tenderer to ensure Main Contractor allows for all the preliminary and general items required to provide the health & safety, mechanical and electrical installation for this project, but excluding items priced elsewhere in this Bill. This ensures there are no duplication in items priced and/or payments issued. Onus is on the tenderer to ensure the Main Contractors pricing issued incorporates P & G costs of each specialist sub-contractor appointed under them.

FIRE PROTECTION

STATUTORY SIGNAGE

Supply, delivery & installation to be in accordance with SANS 1186 & SANS 10400. The following signage reference codes are applicable in reference to the fire signage drawings 190mm x 190mm Photoluminescent Pictograms

1	F15	No	20
2	F4	No	20
3	F5	No	4
4	F6	No	4
5	F13	No	20
6	F15	No	20
7	F45	No	20

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CONSTRUCTION OF THE NEW MSINSINI POLICE STATION

	Brought Forward			R
	<p><u>Emergency Exit Signage Luminaires as per SAPS 5 Star Specification</u></p> <p><u>Synthetic housing shall be manufactured to EN 60598-1 and EN 60695-2-10 (850°C). Array of 20/40 high-brightness LEDs, shall provide excellent uniformity. Multiple circuits shall result in no single point of failure. The NiMH battery shall have no memory effect, and shall contain no Cadmium and shall have double the capacity of NiCad batteries. The LISU range shall be built to EN 60598-2-22 standards and shall comply with EN 1838 standards EN 60598-1 and EN 60695-2-10.</u></p> <p><u>LISU</u></p> <p><u>Single sided wall mounted (Integrated clip-on wall mount plate with plug-in terminal block.)</u></p>			
8	RTD1328 (Right Exit EU)	No	3	
9	RTD1329 (Left Exit EU)	No	3	
10	RTD1330 (Exit Down EU)	No	3	
11	RTD1331: Exit	No	3	
12	RT1308 (Text: Exit)	No	3	
	<p><u>LISU - B</u></p> <p><u>Double-sided pennant mounting (Integrated wall mount plate with plug-in terminal block.)</u></p>			
13	RTD1328 (Right Exit EU)	No	3	
14	RTD1329 (Left Exit EU)	No	3	
15	RTD1330 (Exit Down EU)	No	3	
16	RTD1331: Exit	No	3	
17	RT1308 (Text: Exit)	No	3	
	Carried Forward			R
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**SOUTH AFRICAN POLICE SERVICES
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Brought Forward									
<u>LISU-AD</u>									
<u>Double-sided ceiling mounted (Integrated wall mount plate with plug-in terminal block.)</u>									
18	RTD1328 (Right Exit EU)	No	3						
19	RTD1329 (Left Exit EU)	No	3						
20	RTD1330 (Exit Down EU)	No	3						
21	RTD1331: Exit	No	3						
22	RT1308 (Text: Exit)	No	3						
<u>LISU-S</u>									
<u>Double-sided ceiling suspended (Incorporated 30cm single suspension rod with ceiling cup and two terminal blocks.)</u>									
23	RTD1328 (Right Exit EU)	No	3						
24	RTD1329 (Left Exit EU)	No	3						
25	RTD1330 (Exit Down EU)	No	3						
26	RTD1331: Exit	No	3						
27	RT1308 (Text: Exit)	No	3						
<u>PUMP PROCUREMENT & TANK FITTINGS</u>									
<u>Tank infill mains</u>									
28	Supply, delivery, installation, connection, testing & commissioning of tank infill			Item					
<u>Fire pump set for Hose Reels & Hydrants</u>									
29	Supply, delivery, installation, connection, testing & commissioning of complete (Electric) pump set including vacuum breaks, auto air vents, etc. Electric pump sized for 2400 L/m @12.08bar, Electrical Jockey pump sized for 60 L/min @12.08bar)	No	1						
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**SOUTH AFRICAN POLICE SERVICES
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Brought Forward			R
<u>Pumphouse pipework Supply, delivery, installation, connection, testing & commissioning of pump house pipe work (incl. auto start arrangements, orifice plate test arrangement, etc.)</u>			
30	150mm dia. Butterfly valves	No	3
31	2500kPa Pressure gauge	No	8
32	Fire pump test meter	No	1
33	100mm dia. Butterfly valve	No	2
34	150mm dia. Non-return valve	No	2
35	150mm dia. Expansion joints	No	4
36	150mm dia. Strainer	No	1
37	150mm dia. Gate valve	No	3
38	250mm dia. Gate valve	No	2
39	Vortex impellers	No	2
40	Pressure switch	No	5
41	20mm dia. Ball valve	No	5
42	20mm dia. Check valve	No	4
43	50mm dia. Rubber expansion joints	No	2
44	50mm dia. Check valve	No	1
45	50mm dia. Ball valve	No	1
46	Membrane vessel	No	1
47	250mm dia. Black Mild Steel Elbows	No	3
48	150mm dia. Black Mild Steel Elbows	No	4
49	100mm dia. Black Mild Steel Elbows	No	5
50	250mm dia. Black Mild Steel Tee-pieces	No	1
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Brought Forward			R
51	150mm dia. Black Mild Steel Tee-pieces	No	2
52	250mm dia. Black Mild Steel straight piping	No	18
53	150mm dia. Black Mild Steel straight piping	No	30
54	100mm dia. Black Mild Steel straight piping	No	8
<u>Pump control panels</u>			
55	Supply, delivery, installation, connection, testing & commissioning of pump control panels		Item
<u>Electrical installation</u>			
56	Supply, delivery, installation, connection, testing & commissioning of all electrical work in the pump house		Item
<u>Auxiliary equipment</u>			
<u>Allow for all auxiliary equipment as specified in this document as well as the SANS 10287 code of practice. Pricing to be in accordance with requirements of pump room as per D0000-MB-A1-03</u>			
57	Ventilation fan sized for 30 Air changes per hour	No	1
58	Upright Sprinkler head directly above pump inclusive of range piping	No	2
59	Pump room alarm siren and strobe	No	1
60	Fire retardant cable Class A wiring (ph 30)	m	10
61	25mm PVC conduit in accordance with SANS 10139	m	10
<u>Trunk mains pipework</u>			
62	Supply, delivery, installation, connection, testing & commissioning of trunk mains from pump house to installation control valves		Item
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**SOUTH AFRICAN POLICE SERVICES
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	Brought Forward			R
	<u>Water storage tank fittings</u>			
63	Supply, delivery, installation, connection, testing & commissioning of Cylindrical 210kL effective capacity shared fire storage tank for adequate supply of fire and domestic system including flanges, connections, fittings, hangers, brackets, vortex inhibitor, water level indicator, water inlets, water outlets to pumps, catladder, access hatches, valves, drains, etc complete. Reference to be made to fire engineering designs as well as the relevant technical specifications when pricing		Item	
	<u>FIRE EQUIPMENT</u>			
	<u>Hydrant installation</u>			
	<u>Design, supply, delivery, installation, connection, testing & commissioning of a completely functioning fire hydrant installation as itemized below. Note that hydrant installation includes the piping associated with it.</u>			
64	65mm dia. fire hydrant with instantaneous coupling	No	6	
65	100mm dia. fire hydrant with instantaneous coupling	No	1	
	<u>Portable fire extinguishers</u>			
66	5kg CO2 portable fire extinguishers fully installed on meranti backing boards	No	1	
67	4.5kg DCP portable fire extinguishers fully installed on meranti backing boards	No	40	
	<u>Hose-reels</u>			
	<u>Design, supply, delivery, installation, connection, testing & commissioning of a completely functioning fire hydrant installation as itemized below. Note that hydrant installation includes the piping associated with it.</u>			
68	30m 25mm dia. hose reels	No	20	
	<u>Booster Connection</u>			
69	Booster Connection complete with Non-Return Valve	No	1	
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**SOUTH AFRICAN POLICE SERVICES
CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

Brought Forward			R
<u>Supply and install of pipework including fixtures, fittings, bends, tees, reducers, couplings, adapters, pipe supports etc. complete. Pipework to be re-measurable upon finalisation of installation.</u>			
70	100mm dia. Black Mild Steel Piping	m	500
71	40mm dia. Black Mild Steel Piping	m	100
72	32mm dia. Black Mild Steel Piping	m	200
73	25mm dia. Black Mild Steel Piping	m	200
74	Fire Blanket 1.8m x 1.8m	No	1
<u>FIRE SUPPRESSION</u>			
<u>AUTOMATIC FIRE SUPPRESSION SYSTEM</u>			
<u>Supply, delivery & installation to be in accordance with SANS 14520 and/or SANS 306 & SANS 10400.</u>			
75	Addressable Fire Suppression Panel with gas control EN54 approved	No	1
76	Smoke detectors and surface mount bases	No	2
77	Sirens with LED flashing beacons for discharge, warning	No	2
78	Fire Bells for Alarm warning	No	2
79	Gas relay Interface for activation of the suppressant cylinder	No	1
80	Power supply and batteries for Suppression control	No	2
81	25LT cylinder with bracket and Inergen	No	6
82	Schedule 40 ASTM 106 Grade B to manufacturers specification and Industry standards, supply 3000lb fittings for piping	m	25
83	PH 30 1mm 2 cr Fire resistant cable	m	100
84	Integrity test	No	1
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FIRE DETECTION

FIRE DETECTION SYSTEM

Supply, delivery & installation to be in accordance with SANS 10139 & SANS 10400.

85	Double loop addressable fire alarm panel c/w accessories, batteries and associated fittings	No	1
86	Fire retardant cable Class A wiring (ph 30)	m	200
87	25mm PVC conduit in accordance with SANS 10139	No	200
88	Base sounder and strobe combination	No	5
89	Manual call point	No	5
90	Sundries		Item

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**SOUTH AFRICAN POLICE SERVICES
CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

Item
No

SECTION NO.4

MECHANICAL INSTALLATION

BILL NO.3

**WET SERVICES INSTALLATION
(PROVISIONAL) (CPAP WORK GROUP NO.
170 UNLESS OTHERWISE STATED)**

SUPPLEMENTARY PREAMBLES

General

The Model Preambles for Trades 2017 as published by the Association of South African Quantity Surveyors shall be deemed to be incorporated in these bills of quantities and no claims arising from brevity of description of items fully described in the said Model Preambles will be entertained

The bill of quantities must be read in conjunction with the rest of the contract documents and drawings.

A price must be submitted for every item. Items for which no prices are given will be regarded as being covered by other items in the Bills.

The quantities measured in the Bill of Quantities for work and material must not be viewed as a limitation of the amount of work to be done and material provided by the contractor in the complete execution of the work.

The general descriptions and data of the work given in the specification, drawings or schedules are not fully repeated in the Bill of Quantities and reference to the other documents for complete information is therefore important and necessary.

No variations or omissions may be done to the Bill of Quantities by the tenderer, any such variations or omissions will not be recognized and the text of the Bill of Quantities will be strictly adhered to.

Carried Forward

Section No. 4
Bill No. 3
Wet Services

Quantity	Rate	Amount
	R	

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CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

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Material must be ordered as determined on site and not from the drawings or Bill of Quantities. The Employer will not accept any responsibility for surplus or inadequately ordered material. Payments will only be made for the actual re-measured quantities as installed.

All fittings and accessories shall always include the connections thereto.

Unless otherwise stated in the Bill of Quantities, all prices shall allow for the following items:

Supply, deliver to site, and store new unused and undamaged and of the best quality available and complete with small materials necessary for the installation, testing, commissioning and rendering in proper working order.

Installation, fixing in position, running or laying, as applicable, in a thorough and workmanlike manner.

Making of all connections necessary.

Tenderer to ensure the proper working and serviceability of all items installed.

Complete labelling with engraved labels to indicate all functions and instructions which otherwise would be unclear to ordinary users.

Corrosion protection to be applied where necessary.

All profits, overheads, supervision, transport and skilled and unskilled labour.

Guarantee and maintenance for the complete Fire Service Installation including fittings, materials and workmanship for a period of TWELVE MONTHS after date of completion and handover.

Approval and inspection by the Engineer

Compliance with all relevant regulations, by-laws and codes of practice.

Compliance with the Specification. The installation is to comply with the project specifications if listed in this document.

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	Brought Forward				R
3	For the complete supply, delivery and installation of 3.5kW air to water R410 A heat pump type water heater, heating reservoir water to a temperature of between 55 - 60°C, including controller, all safety features, temperature sensor, tube in shell exchanger, High EER Scroll compressor, integral single circulating pump set with strainer, flow switch, complete with control panel, with maximum noise level of 65dB(A), fittings, copper pipework, insulation, cladding, bends, tees, and necessary accessories as specified. AIRCO Model 3.5kW AKRS-RS 50 or other equal and approved	No		14	
4	For the complete supply, delivery and installation of 100L Kwikot Superline 400 Dual high pressure electric water heater or other equal approved. Inner cylinder to be 1.6mm steel and thermofused porcelain enamelled for cylinder longevity and hygiene. Including insulation and cladding, pressure and temperature gauges, inlet and outlet flanged connections, drain and drain piping, all safety features, supports and all necessary accessories as specified. kwikot DSG-100-5 or other equal and approved	No		1	
5	For the complete supply, delivery and installation of 150L Kwikot Superline 400 Dual high pressure electric water heater or other equal approved. Inner cylinder to be 1.6mm steel and thermofused porcelain enamelled for cylinder longevity and hygiene. Including insulation and cladding, pressure and temperature gauges, inlet and outlet flanged connections, drain and drain piping, all safety features, supports and all necessary accessories as specified. Kwikot DSG-100-5 or other equal and approved	No		13	
	<u>Associated pipework and fittings</u>				
	<u>For the Supply, delivery, installation and commissioning of pipe "Geberit Mepla" or other equal and approved including all necessary fixations and equal couplings in the running lengths fixed to soffit, walls, or chased into walls, etc.</u>				
	<u>Straight Pipe specified to be Geberit Mepla, similar or other equal and approved</u>				
6	system pipe, ML, in bars: d=16mm	m		1	
7	system pipe, ML, in bars: d=20mm	m		500	
	Carried Forward				R
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8	system pipe, ML, in bars: d=26mm	m	315
9	system pipe, ML, in bars: d=32mm	m	95
10	system pipe, ML, in bars: d=40mm	m	2
11	system pipe, ML, in bars: d=50mm	m	15
12	system pipe, ML, in bars: d=63mm	m	17
<u>Red lagged insulation for hot water piping specified to be "Geberit Mepla" similar or other equal and approved</u>			
13	Diameter 16mm	m	1
14	Diameter 20mm	m	210
15	Diameter 26mm	m	135
16	Diameter 32mm	m	1
<u>For the supply, delivery, installation and commissioning of extra over pipe for fittings "Geberit Mepla Gunmetal" or other equal and approved including all necessary crimps fixed to soffit, walls, or chased into walls, etc.</u>			
<u>BENDS-90° specified to be "Geberit Mepla" similar or other equal and approved</u>			
17	elbow: 90°, d=16mm	No	1
18	elbow: 90°, d=20mm	No	493
19	elbow: 90°, d=26mm	No	197
20	elbow: 90°, d=32mm	No	22
21	elbow: 90°, d=40mm	No	1
22	elbow: 90°, d=50mm	No	2
<u>COUPLING specified to be "Geberit Mepla" similar or other equal and approved</u>			
23	coupling: d=16mm	No	20
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CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

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24	coupling: d=20mm	No	200
25	coupling: d=26mm	No	100
26	coupling: d=32mm	No	60
27	coupling: d=40mm	No	40
28	coupling: d=50mm	No	40
<u>TEES specified to be "Geberit Mepla" similar or other equal and approved</u>			
29	T-piece, equal: d=20mm	No	2
30	T-piece, equal: d=26mm	No	21
31	T-piece, equal: d=32mm	No	6
32	T-piece, equal: d=40mm	No	1
33	T-piece, equal: d=50mm	No	1
34	T-piece, reduced: d=26mm, d1=26mm, d2=26mm	No	1
35	T-piece, reduced: d=26mm, d1=26mm, d2=20mm	No	80
36	T-piece, reduced: d=26mm, d1=20mm, d2=20mm	No	48
37	T-piece, reduced: d=32mm, d1=20mm, d2=26mm	No	1
38	T-piece, reduced: d=32mm, d1=26mm, d2=26mm	No	8
39	T-piece, reduced: d=32mm, d1=32mm, d2=20mm	No	1
40	T-piece, reduced: d=32mm, d1=32mm, d2=26mm	No	6
41	T-piece, reduced: d=63mm, d1=63mm, d2=32mm	No	2
42	T-piece, reduced: d=40mm, d1=40mm, d2=32mm	No	1
43	T-piece, reduced: d=63mm, d1=63mm, d2=50mm	No	1
44	T-piece, reduced: d=50mm, d1=50mm, d2=32mm	No	2
Carried Forward			R
Section No. 4 Bill No. 3 Wet Services			275 R. M. J. M.

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**SOUTH AFRICAN POLICE SERVICES
CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

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<u>REDUCER specified to be "Geberit Mepla" similar or other equal and approved</u>			
45	reducer: d=32mm, d1=20mm	No	1
46	reducer: d=32mm, d1=26mm	No	11
47	reducer: d=40mm, d1=26mm	No	1
48	reducer: d=40mm, d1=32mm	No	1
49	reducer: d=50mm, d1=32mm	No	2
50	reducer: d=50mm, d1=40mm	No	1
51	reducer: d=63mm, d1=40mm	No	1
<u>Isolating valves "Geberit Mepla" or other equal and approved</u>			
52	20mm	No	175
53	26mm	No	8
54	32mm	No	1
<u>GAUGES AND FITTINGS</u>			
<u>For the supply, delivery and installation of the pressure gauges and fittings in accordance with the project specification and Standard specification for Mechanical Installation.</u>			
55	Heat Pump circulation pumps (delivery side)	No	17
56	Heat Pump circulation pumps (Inlet side side)	No	17
57	Hot water return pumps (delivery side)	No	17
58	Hot water return pumps (Inlet side)	No	17
Carried Forward			R
Section No. 4 Bill No. 3 Wet Services			<div style="text-align: right;"> <p>276 T.J.W R-r.</p> <p><i>Alphab</i></p> </div>

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<u>STRAINERS</u>			
<u>For the supply, delivery and installation of the strainers in accordance with the project specification. Complete with connection flanges and fittings:</u>			
59	28 mm dia epoxy coated and lined strainer with element	No	10
60	54 mm dia epoxy coated and lined strainer with element	No	10
<u>For the supply, delivery, installation, testing and commissioning of the following Hydroboils</u>			
61	10L Hydroboil, 2,4 kW element rating ZIP or other equal and approved	No	2
<u>ELBOW TAP CONNECTOR specified to be "Geberit Mepla", similar or other equal and approved</u>			
62	Elbow tap connector 90°: d=20mm, Rp=1/2", L=3.6cm	No	20
<u>ADAPTER specified to be "Geberit Mepla", similar or equal and other approved</u>			
63	Adapter with male thread: d=20mm, R=1/2"	No	20
<u>Bi-Plex Pumpset (Lifting Pump)</u>			
64	Supply, delivery, installation, connection, testing & commissioning of complete Bi-Plex Electric pump set including valves, vacuum breaks, auto air vents, etc. Pumps to operate Duty and Standby. Each Pump sized for 83 L/m @2bar. Pumpset to include weatherproof enclosure	No	1
<u>Bi-Plex Pumpset</u>			
65	Supply, delivery, installation, connection, testing & commissioning of complete Bi-Plex Electric pumpset including valves, vacuum breaks, auto air vents, etc. Pumps to operate Duty and Standby. Each Pump sized for 270 L/m @2.18bar	No	1
<u>Pump house pipework Supply, delivery, installation, connection, testing & commissioning of pump house pipe work</u>			
66	150mm dia. Butterfly valves	No	3
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		Brought Forward		R
67	2500kPa Pressure gauge	No	8	
68	Test meter	No	1	
69	100mm dia. Butterfly valve	No	2	
70	150mm dia. Non-return valve	No	2	
71	150mm dia. Expansion joints	No	4	
72	150mm dia. Strainer	No	1	
73	150mm dia. Gate valve	No	3	
74	250mm dia. Gate valve	No	2	
75	Vortex impellers	No	2	
76	Pressure switch	No	5	
77	20mm dia. Ball valve	No	5	
78	20mm dia. Check valve	No	4	
79	50mm dia. Rubber expansion joints	No	2	
80	50mm dia. Check valve	No	1	
81	50mm dia. Ball valve	No	1	
82	Membrane vessel	No	1	
83	250mm dia. Elbows	No	3	
84	150mm dia. Elbows	No	4	
85	100mm dia. Elbows	No	5	
86	250mm dia. Tee-pieces	No	1	
87	150mm dia. Tee-pieces	No	2	
88	250mm dia. straight piping	No	18	
89	150mm dia. straight piping	No	30	
		Carried Forward		R
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		Brought Forward		R
90	100mm dia. straight piping	No	8	
	<u>Pump control panels</u>			
91	Supply, delivery, installation, connection, testing & commissioning of pump control panels.		Item	
	<u>Electrical installation</u>			
92	Supply, delivery, installation, connection, testing & commissioning of all electrical work in the pump house.		Item	
	<u>Plantroom Signage</u>			
	<u>Allow for the production and fixing of all statutory signs on chromadek or other equal and approved material.</u>			
93	190mm x 190mm Photoluminescent Pictograms	No	6	
	<u>Trunk mains pipework</u>			
	<u>Supply, delivery, installation, connection, testing & commissioning of trunk mains from pump house to building</u>			
94	system pipe, d=110mm	m	20	
	<u>INTERNAL SEWER DRAINAGE INSTALLATION</u>			
	<u>For the Supply, delivery, installation and commissioning of pipes and fittings (UPVC Class 2 in accordance to SANS 966-1) including all necessary fixations and equal couplings in the running lengths fixed to soffit, walls, or chased into walls, etc.</u>			
	<u>uPVC Pipe:</u>			
95	50 mm uPVC pipe	m	350	
96	110 mm uPVC pipe	m	220	
	<u>uPVC Y-Junction 45°:</u>			
97	uPVC d=50mm-d1=50mm-d2=50mm	No	6	
98	uPVC d=110mm-d1=110mm-d2=110mm	No	25	
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Brought Forward		No	10	R
99	uPVC d=110mm-d1=110mm-d2=50mm	No	10	
100	uPVC Double Junction d1=110mm-d2=110mm d3=110mm d4=110mm	No	10	
<u>uPVC T-Piece 90°:</u>				
101	uPVC d=50mm-d1=50mm-d2=50mm	No	38	
102	uPVC d=110mm-d1=110mm-d2=110mm	No	40	
103	uPVC d=110mm-d1=110mm-d2=50mm	No	31	
104	uPVC Double Junction d1=110mm-d2=110mm d3=50mm d4=50mm	No	6	
<u>uPVC reducer</u>				
105	UPVC reducer: d=160mm, d1=110mm	No	4	
106	UPVC reducer: d=110mm, d1=50mm	No	10	
<u>uPVC Bends</u>				
107	UPVC bend: 45°, d=50mm	No	9	
108	UPVC bend: 45°, d=110mm	No	38	
109	UPVC bend : 90°, d=50mm	No	212	
110	UPVC bend : 90°, d=110mm	No	47	
<u>uPVC end caps, etc.</u>				
111	110 mm end caps	No	44	
112	50 mm end caps	No	10	
<u>Air admittance valvess</u>				
113	110mm dia	No	10	
<u>uPVC Kimberley sockets</u>				
114	110mm dia	No	20	
115	50mm dia	No	20	
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	Brought Forward				R
	<u>For the Supply, delivery, installation and commissioning of Grease trap including all necessary fixations and fittings as well as chemical dosing unit with bio fluid (Herbish, equal, similar or other approved)</u>				
116	Herbish HB GT 700, equal, similar or other approved Under counter Grease Trap	No	1		
117	Herbish, equal, similar or other approved Chemical dosing unit (Enzyme/Bio dosing for grease line) including Bio Fluid	No	1		
	<u>Floor Drains</u>				
118	152mm x 152mm stainless steel type (for showers)	No	10		
119	Stainless steel type Floor Drain with Flange Size 240mm x 240mm (all other areas)	No	1		
Carried Forward to Summary of Section No. 4					R
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**SOUTH AFRICAN POLICE SERVICES
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SECTION SUMMARY - MECHANICAL INSTALLATION

Bill No		Page No	Amount
1	HVAC Installation	171	
2	Fire Installation	181	
3	Wet Services	193	

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**SOUTH AFRICAN POLICE SERVICES
CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

Item
No

Quantity	Rate	Amount
<p>Carried Forward</p>		
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SECTION NO. 5

EXTERNAL WORKS

BILL NO. 1

**GENERAL SITEWORKS, ETC
(PROVISIONAL)**

**(CPAP WORK GROUP NO. 104 UNLESS
OTHERWISE STATED)**

The Tenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2017 Edition).

SUPPLEMENTARY PREAMBLES

View site

Before submitting his tender the contractor shall visit the site and satisfy himself as to the nature and extent of the work to be done and the value of the materials contained in the buildings or portions of the buildings to be demolished. No claim for any variations of the contract sum in respect of the nature and extent of the work or of inferior or damaged materials will be entertained

Notices

Special care is to be exercised not to interfere unnecessarily with any electrical or telephone installations, etc., that may be met with and due notice is to be given to the Principal Agent when any disconnections or removal of wires, fittings, etc., are necessary and the Contractor is to afford every facility to the electricians, etc. carrying out this work

The Contractor will be responsible for the processing of all applications in respect of the removal and/or termination of Municipal services

Section No. 5
Bill No. 1
General Siteworks, Etc

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**SOUTH AFRICAN POLICE SERVICES
CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

Brought Forward		R
<p><u>Explosives</u></p> <p>No explosives whatsoever may be used for demolition purposes unless otherwise stated</p> <p><u>Existing Equipment</u></p> <p>Rates shall include for the disconnection and removal of all equipment housed in the area of the demolitions. All equipment removed must be handed over to the Employer</p> <p><u>Making good</u></p> <p>Prices of all works described throughout these Bills of Quantities are to include for making good, whether specifically mentioned or not</p> <p><u>Carting away of excavated material</u></p> <p>Descriptions of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stock piles situated on the building site</p> <p><u>Filling</u></p> <p>Notwithstanding the reference to prescribed multiple handling in clause 13 page 14 of the Standard System of Measuring Building Work (Seventh Edition), prices for filling and backfilling shall include for all selection and any necessary multiple handling of material</p> <p><u>Testing</u></p> <p>Prices for filling are to include for all necessary density tests in accordance with SABS 1200D</p> <p><u>General</u></p> <p>The Contractor shall carry out the whole of the works with as little mess and noise as possible and with a minimum of disturbance to adjoining premises. He shall provide proper protection and provide, erect and remove when directed, any temporary tarpaulins that may be necessary during the progress of the works, all to the satisfaction of the Principal Agent</p>		
Carried Forward		R
<p>Section No. 5 Bill No. 1 General Siteworks, Etc</p>		<p style="font-size: 2em; font-weight: bold;">284</p> <p style="font-size: 1.5em;">R. n.</p> <p style="font-size: 1.5em;">J.W</p>

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CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

	Brought Forward			R
<p>Water supply pipes and other piping that may be encountered and found necessary to disconnect or cut, shall be effectually stopped off or grubbed up and removed, and any new connections that may be necessary shall be made with proper fittings, to the satisfaction of the Principal Agent</p> <p>The Contractor is to keep accurate records for the removal of all items measured under this section. Where buildings, walls, etc. are demolished, photographs must be taken and kept as records, should discrepancies later arise when claims are made</p> <p>Special care is to be exercised not to interfere unnecessarily with any electrical or telephone installations, etc., that may be met with and due notice is to be given to the Principal Agent when any disconnections or removal of wires, fittings, etc., are necessary and the Contractor is to afford every facility to the electricians, etc. carrying out this work. The Contractor will be responsible for the processing of all applications in respect of the removal and/or termination of Municipal services</p> <p><u>Watering, etc</u></p> <p>The Contractor is to allow for watering the works with a jet or spray from a hose sufficiently to prevent any nuisance from dust</p> <p><u>DEMOLITIONS, ETC (PROVISIONAL) (CPAP WORK GROUP NO. 102 UNLESS OTHERWISE STATED)</u></p> <p><u>Demolishing and removing off site</u></p>				
<p>1 Single storey building with flat roof, approximately 18.50 x 15m on plan and 5m high at eaves comprising of reinforced concrete surface bed, solid concrete block external walls, solid concrete internal walls, concrete roof slab including breaking up and removing foundations, backfilling on completion, levelling site and cart away of rubble off site</p>	m2	280		
<p><u>Excavate, locate, take out and remove services, including backfilling, compaction, etc</u></p> <p>2 Precast concrete / brick inspection chambers, manholes, etc. exceeding 1m and not exceeding 2m deep</p>	No	2		
	Carried Forward			R
<p>Section No. 5 Bill No. 1 General Siteworks, Etc</p>				



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**SOUTH AFRICAN POLICE SERVICES
CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

Brought Forward		R
<u>EARTHWORKS (PROVISIONAL)</u>		
<u>(CPAP WORK GROUP NO. 104 UNLESS OTHERWISE STATED)</u>		
<u>SITE CLEARANCE, ETC (PROVISIONAL)</u>		
3	Digging up and removing from site rubbish, debris, vegetation, hedges, shrubs, bush, etc and trees not exceeding 200mm girth	m2 17,300
<u>REMOVAL OF TREES ETC</u>		
<u>Cutting down and removing, grubbing up roots and filling in holes</u>		
4	Tree exceeding 500mm and not exceeding 1000mm girth	No 30
5	Tree exceeding 1000mm and not exceeding 1500mm girth	No 10
6	Tree exceeding 1500mm and not exceeding 2000mm girth	No 10
7	Tree exceeding 2000mm and not exceeding 2500mm girth	No 8
8	Tree exceeding 3000mm and not exceeding 3500mm girth	No 10
9	Tree exceeding 3500mm and not exceeding 4000mm girth	No 7
10	Tree exceeding 4000mm and not exceeding 4500mm girth	No 5
11	Tree exceeding 4500mm and not exceeding 5000mm girth	No 6
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Bill No. 1		
General Siteworks, Etc		

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**SOUTH AFRICAN POLICE SERVICES
CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

Item No		Quantity	Rate	Amount
	<u>SECTION NO. 5</u>			
	<u>EXTERNAL WORKS</u>			
	<u>BILL NO. 2</u>			
	<u>BULK EARTHWORKS (PROVISIONAL)</u>			
	<u>(CPAP WORK GROUP NO. 104 UNLESS OTHERWISE STATED)</u>			
	The Tenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2017 Edition).			
	<u>SUPPLEMENTARY PREAMBLES</u>			
	The Contractor is advised that all quantities measured are NET and no allowance has been made for bulking. The Contractor is to ensure that when pricing any section pertaining to Earthworks, all rates are deemed to include for bulking.			
	<u>BULK EXCAVATION, FILLING, ETC</u>			
	<u>Open face excavation in earth over sloping site</u>			
1	Open face excavation to reduce levels "cut to spoil" and stockpile on site	m3	1,300	
	<u>Extra over all excavations for carting away</u>			
2	Surplus material from stock piles on site to a dumping site to be located by the contractor	m3	1,300	
	<u>Extra over bulk excavation in earth for excavation in</u>			
3	Soft rock	m3	130	
4	Hard rock	m3	195	
	<u>Keeping excavations free of water</u>			
5	Keeping excavations free of water other than subterranean water	Item		
	Carried Forward			R
	Section No. 5 Bill No. 2 Bulk Earthworks (Provisional)			

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CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

	Brought Forward			R
	<u>EARTH FILLING, ETC</u>			
	Note: All filling whether obtained from the excavations, from stockpiles or by the contractor from an outside source must be selected and approved by the Structural / Civil Engineers			
	<u>G5 Imported filling supplied by the contractor, compacted to 95% Mod AASHTO density</u>			
6	Over site to form platforms (LI)	m3	700	
	<u>G7 Imported filling supplied by the contractor, compacted to 95% Mod AASHTO density</u>			
7	Over site to form platforms (LI)	m3	12,350	
	<u>Prescribed density tests on filling</u>			
8	"Modified AASHTO Density" test	No	11	
9	"Field Density" test including "Optimum Moisture Content" (four readings per test)	No	11	
	Carried Forward to Summary of Section No. 5			R
	Section No. 5			
	Bill No. 2			
	Bulk Earthworks (Provisional)			

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CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

Item No		Quantity	Rate	Amount
	<p><u>SECTION NO. 5</u></p> <p><u>EXTERNAL WORKS</u></p> <p><u>BILL NO. 3</u></p> <p><u>SOIL DRAINAGE, ETC</u></p> <p><u>(CPAP WORK GROUP NO. 146 UNLESS OTHERWISE STATED)</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2017 Edition).</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>uPVC pipes and fittings</u></p> <p>Sewer and drainage pipes and fittings shall be jointed and sealed with butyl rubber rings.</p> <p>Soil, waste and vent pipes and fittings shall be solvent weld jointed.</p> <p><u>Concrete pipes</u></p> <p>Pipes shall be jointed with ogee joints with rubber collars or socket and spigot joints with rubber rings.</p> <p><u>Laying, backfilling, bedding, etc of pipes</u></p> <p>Pipes shall be laid and bedded in accordance with manufacturers' instructions and trenches shall be carefully backfilled.</p>			
	Carried Forward		R	
	<p>Section No. 5 Bill No. 3 Soil Drainage, Etc</p>			<p style="font-size: 2em; font-weight: bold;">289</p> <p><i>[Handwritten Signature]</i></p> <p style="font-size: 0.8em;">R. M. M. J. M.</p>

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CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

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

SABS 1200L : Medium-pressure pipelines

SABS 1200LD : Sewers

SABS 1200LE: Stormwater drainage

Pipe trenches, etc shall be backfilled in accordance with Clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200DB : Earthworks (Pipe trenches).

Pipes shall be bedded in accordance with Clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200LB : Bedding (Pipes).

Unless otherwise described bedding of rigid pipes shall be Class B bedding.

SANS 1200L : Medium-pressure pipelines

SANS 1200LD : Sewers

SANS 1200LE : Stormwater drainage

Pipe trenches, etc shall be backfilled in accordance with Clauses 3, 5.5, 5.6, 5.7 and 7 of SANS 1200DB : Earthworks (Pipe trenches).

Pipes shall be bedded in accordance with Clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SANS 1200LB : Bedding (Pipes).

Unless otherwise described bedding of rigid pipes shall be Class B bedding.

General

Descriptions of pipes laid in and including trenches and of inspection chambers, catch pits, etc shall be deemed to include excavation, bedding, backfilling, compaction to a minimum of 93% Mod AASHTO density and disposal of surplus material on site.

Tenderers are referred to drawing no 589/MSI/905 - Rev P1 indicating the typical manhole details, connections, etc.

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CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

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As built drawings

Where required, the contractor shall prepare an updated set of as built drawings. At completion of the contract the contractor shall hand these drawings to the Principal Agent for reproducing onto the originals for handing over to the employer (provision for allowance of as built drawings elsewhere).

Prices

Prices of all pipes shall include for short lengths and cuttings, for all joints in the length, including necessary couplings and for all jointing to fittings

Prices of all joints between pipes of dissimilar and between taps, valves, etc. and, shall include in all cases for the couplings or adapters. Prices of flanged and bolted joints between pipes of dissimilar and between valves, etc. and pipes, shall include for flanges drilled as required, flange adapters, rubber insertion rings and necessary bolts and nuts

Prices for all pipes in ground shall include for laying in ground, including digging trenches in earth, provision for risk of collapse to sides of excavations, except where specifically measured in detail, keeping excavations free from water, bedding as described and for filling in and ramming in 150 mm thick layers to 95% Modified AASHTO. Price of concrete encasement around pipes, bends, etc. and concrete anchor blocks, shall include for all additional excavation and formwork required

SOIL DRAINAGE (PROVISIONAL)

Note: Prices for all soil drainage pipes in ground are to include for bedding on and surrounding with approved selected granular material from site or supplied and carted on to site by the contractor to a minimum thickness of 150mm below and 300mm above the pipe including compaction and cart away surplus excavated material from site

uPVC Class 34 HD pipes laid in Class B bedding

1 160mm Pipe in ground including excavation not exceeding 1m deep (LI)

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2	160mm Pipe in ground including excavation exceeding 1m not exceeding 2m deep (LI)	m	183	
3	160mm Pipe in ground including excavation exceeding 2m not exceeding 3m deep (LI)	m	121	
4	160mm Pipe in ground including excavation exceeding 3m not exceeding 4m deep (LI)	m	54	
	<u>Extra over uPVC Class 34 HD pipes for fittings</u>			
5	160mm IE Junction (LI)	No	16	
6	160mm bend (LI)	No	12	
7	160mm Reducing junction (LI)	No	12	
8	160mm Access junction (LI)	No	12	
9	160mm Rodding eye (LI)	No	12	
10	160mm Overflow gulley head (LI)	No	20	
	<u>uPVC Gulleys</u>			
11	160mm Diameter gulley trap jointed to drain, complete with hopper head and grid and the whole set on and encased in unreinforced concrete Class B (1:3:5) carried up 75mm above ground as kerb, dished down to grating and finished on all exposed faces in 1:3 cement render with angles rounded, including necessary excavation and formwork (LI)	No	14	
	<u>Precast concrete manholes</u>			
12	Excavate for and build manhole formed of standard precast concrete rings and cover slab units, the cover slab unit rebated for and fitted with 750mm diameter heavy duty precast concrete cover and frame (elsewhere measured) including cutting and fitting precast concrete wall units around drain pipes and making good in cement mortar. Size internally 750mm diameter, exceeding 1m deep and not exceeding 1.25m deep (Refer to Engineers detail on drawing no. 589/MSI/905 Rev P1 - Type A). (LI)	No	1	
	Carried Forward			R
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	Brought Forward			R
13	Excavate for and build manhole formed of standard precast concrete rings and cover slab units, the cover slab unit rebated for and fitted with 750mm diameter heavy duty precast concrete cover and frame (elsewhere measured) including cutting and fitting precast concrete wall units around drain pipes and making good in cement mortar. Size internally 750mm diameter, exceeding 1.25m deep and not exceeding 1.5m deep (Refer to Engineers detail on drawing no. 589/MSI/905 Rev P1 - Type A). (LI)	No	1	
14	Excavate for and build manhole formed of standard precast concrete rings and cover slab units, the cover slab unit rebated for and fitted with 750mm diameter heavy duty precast concrete cover and frame (elsewhere measured) including cutting and fitting precast concrete wall units around drain pipes and making good in cement mortar. Size internally 750mm diameter, exceeding 1.5m deep and not exceeding 1.75m deep (Refer to Engineers detail on drawing no. 589/MSI/905 Rev P1 - Type A). (LI)	No	4	
15	Excavate for and build manhole formed of standard precast concrete rings and cover slab units, the cover slab unit rebated for and fitted with 750mm diameter heavy duty precast concrete cover and frame (elsewhere measured) including cutting and fitting precast concrete wall units around drain pipes and making good in cement mortar. Size internally 750mm diameter, exceeding 1.75m deep and not exceeding 2m deep (Refer to Engineers detail on drawing no. 589/MSI/905 Rev P1 - Type A). (LI)	No	3	
16	Excavate for and build manhole formed of standard precast concrete rings and cover slab units, the cover slab unit rebated for and fitted with 750mm diameter heavy duty precast concrete cover and frame (elsewhere measured) including cutting and fitting precast concrete wall units around drain pipes and making good in cement mortar. Size internally 750mm diameter, exceeding 2m deep and not exceeding 2.25m deep (Refer to Engineers detail on drawing no. 589/MSI/905 Rev P1 - Type A). (LI)	No	2	
	Carried Forward			R
	Section No. 5 Bill No. 3 Soil Drainage, Etc			

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**SOUTH AFRICAN POLICE SERVICES
CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

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17	Excavate for and build manhole formed of standard precast concrete rings and cover slab units, the cover slab unit rebated for and fitted with 750mm diameter heavy duty precast concrete cover and frame (elsewhere measured) including cutting and fitting precast concrete wall units around drain pipes and making good in cement mortar. Size internally 1000mm diameter, exceeding 0.75m deep and not exceeding 1m deep (Refer to Engineers detail on drawing no. 589/MSI/905 Rev P1 - Type B). (LI)	No	2	
18	Excavate for and build manhole formed of standard precast concrete rings and cover slab units, the cover slab unit rebated for and fitted with 750mm diameter heavy duty precast concrete cover and frame (elsewhere measured) including cutting and fitting precast concrete wall units around drain pipes and making good in cement mortar. Size internally 1000mm diameter, exceeding 1m deep and not exceeding 1.25m deep (Refer to Engineers detail on drawing no. 589/MSI/905 Rev P1 - Type B). (LI)	No	2	
19	Excavate for and build manhole formed of standard precast concrete rings and cover slab units, the cover slab unit rebated for and fitted with 750mm diameter heavy duty precast concrete cover and frame (elsewhere measured) including cutting and fitting precast concrete wall units around drain pipes and making good in cement mortar. Size internally 1000mm diameter, exceeding 1.25m deep and not exceeding 1.5m deep (Refer to Engineers detail on drawing no. 589/MSI/905 Rev P1 - Type B). (LI)	No	1	
20	Excavate for and build manhole formed of standard precast concrete rings and cover slab units, the cover slab unit rebated for and fitted with 750mm diameter heavy duty precast concrete cover and frame (elsewhere measured) including cutting and fitting precast concrete wall units around drain pipes and making good in cement mortar. Size internally 1000mm diameter, exceeding 1.5m deep and not exceeding 1.75m deep (Refer to Engineers detail on drawing no. 589/MSI/905 Rev P1 - Type B). (LI)	No	1	
	Carried Forward			R
	Section No. 5 Bill No. 3 Soil Drainage, Etc			

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| 21 | Excavate for and build manhole formed of standard precast concrete rings and cover slab units, the cover slab unit rebated for and fitted with 750mm diameter heavy duty precast concrete cover and frame (elsewhere measured) including cutting and fitting precast concrete wall units around drain pipes and making good in cement mortar. Size internally 1000mm diameter, exceeding 1.75m deep and not exceeding 2m deep (Refer to Engineers detail on drawing no. 589/MSI/905 Rev P1 - Type B). (LI) | No | 2 |
| 22 | Excavate for and build manhole formed of standard precast concrete rings and cover slab units, the cover slab unit rebated for and fitted with 750mm diameter heavy duty precast concrete cover and frame (elsewhere measured) including cutting and fitting precast concrete wall units around drain pipes and making good in cement mortar. Size internally 1000mm diameter, exceeding 2m deep and not exceeding 2.5m deep (Refer to Engineers detail on drawing no. 589/MSI/905 Rev P1 - Type B). (LI) | No | 4 |
| 23 | Excavate for and build manhole formed of standard precast concrete rings and cover slab units, the cover slab unit rebated for and fitted with 750mm diameter heavy duty precast concrete cover and frame (elsewhere measured) including cutting and fitting precast concrete wall units around drain pipes and making good in cement mortar. Size internally 1000mm diameter, exceeding 2.5m deep and not exceeding 2.75m deep (Refer to Engineers detail on drawing no. 589/MSI/905 Rev P1 - Type B). (LI) | No | 3 |
| 24 | Excavate for and build manhole formed of standard precast concrete rings and cover slab units, the cover slab unit rebated for and fitted with 750mm diameter heavy duty precast concrete cover and frame (elsewhere measured) including cutting and fitting precast concrete wall units around drain pipes and making good in cement mortar. Size internally 1000mm diameter, exceeding 2.75m deep and not exceeding 3m deep (Refer to Engineers detail on drawing no. 589/MSI/905 Rev P1 - Type B). (LI) | No | 1 |

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Section No. 5
Bill No. 3
Soil Drainage, Etc

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**SOUTH AFRICAN POLICE SERVICES
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Brought Forward		R
25	Excavate for and build manhole formed of standard precast concrete rings and cover slab units, the cover slab unit rebated for and fitted with 750mm diameter heavy duty precast concrete cover and frame (elsewhere measured) including cutting and fitting precast concrete wall units around drain pipes and making good in cement mortar. Size internally 1000mm diameter, exceeding 3m deep and not exceeding 3.25m deep (Refer to Engineers detail on drawing no. 589/MSI/905 Rev P1 - Type B). (LI)	No 2
26	Excavate for and build manhole formed of standard precast concrete rings and cover slab units, the cover slab unit rebated for and fitted with 750mm diameter heavy duty precast concrete cover and frame (elsewhere measured) including cutting and fitting precast concrete wall units around drain pipes and making good in cement mortar. Size internally 1000mm diameter, exceeding 3.25m deep and not exceeding 3.5m deep (Refer to Engineers detail on drawing no. 589/MSI/905 Rev P1 - Type B). (LI)	No 1
27	Excavate for and build manhole formed of standard precast concrete rings and cover slab units, the cover slab unit rebated for and fitted with 750mm diameter heavy duty precast concrete cover and frame (elsewhere measured) including cutting and fitting precast concrete wall units around drain pipes and making good in cement mortar. Size internally 1000mm diameter, exceeding 3.5m deep and not exceeding 3.75m deep (Refer to Engineers detail on drawing no. 589/MSI/905 Rev P1 - Type B). (LI)	No 2
<u>Covers</u>		
28	750mm Diameter heavy duty concrete manhole cover and frame	No 32
<u>Sundries</u>		
29	Extra over excavation in earth for pipe trenches, chambers, etc., for excavation in intermediate material (LI)	m3 66
30	Unreinforced concrete encasing to 160mm horizontal pipe (LI)	m 360
Carried Forward		R
Section No. 5 Bill No. 3 Soil Drainage, Etc		

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CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

	Brought Forward		R
		Item	
31	<p>Testing</p> <p>Allow for testing the whole of the soil drainage installation to the satisfaction of the Principal Agent and Local Authorities. All defective work is to be taken out and replaced at the Contractor's expense and the whole re-tested until found satisfactory</p>		
	Carried Forward to Summary of Section No. 5		R
	<p>Section No. 5 Bill No. 3 Soil Drainage, Etc</p>		

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**SOUTH AFRICAN POLICE SERVICES
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Item No	Quantity	Rate	Amount
<p><u>SECTION NO. 5</u></p> <p><u>EXTERNAL WORKS</u></p> <p><u>BILL NO. 4</u></p> <p><u>STORM WATER DRAINAGE, ETC</u></p> <p><u>(CPAP WORK GROUP NO. 146 UNLESS OTHERWISE STATED)</u></p> <p>The Tenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2017 Edition).</p> <p><u>SUPPLEMENTARY PREAMBLES</u></p> <p><u>Proprietary items or materials</u></p> <p>Proprietary items or materials where specified are to be of the brand specified or other approved by the client</p> <p><u>uPVC pipes and fittings</u></p> <p>Storm water drainage pipes and fittings shall be jointed and sealed with butyl rubber rings.</p> <p>Soil, waste and vent pipes and fittings shall be solvent weld jointed.</p> <p><u>Stormwater channels</u></p> <p>Descriptions of channels shall be deemed to include necessary excavation, surface preparation, compaction, etc. and disposal of surplus material on site.</p> <p><u>Concrete pipes</u></p> <p>Pipes shall be jointed with ogee joints with rubber collars or socket and spigot joints with rubber rings.</p> <p><u>Laying, backfilling, bedding, etc of pipes</u></p> <p>Pipes shall be laid and bedded in accordance with manufacturers' instructions and trenches shall be carefully backfilled.</p>			
Carried Forward		R	
Section No. 5 Bill No. 4 Storm Water Drainage			<div style="font-size: 2em; font-weight: bold;">298</div> <div style="font-size: 0.8em;">* J.M. R.m. K. Khula</div>

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CONSTRUCTION OF THE NEW MSINSINI POLICE STATION**

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

SABS 1200L : Medium-pressure pipelines

SABS 1200LD : Sewers

SABS 1200LE: Stormwater drainage

Pipe trenches, etc shall be backfilled in accordance with Clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200DB : Earthworks (Pipe trenches).

Pipes shall be bedded in accordance with Clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200LB : Bedding (Pipes).

Unless otherwise described bedding of rigid pipes shall be Class B bedding.

SANS 1200L : Medium-pressure pipelines

SANS 1200LD : Sewers

SANS 1200LE : Stormwater drainage

Pipe trenches, etc shall be backfilled in accordance with Clauses 3, 5.5, 5.6, 5.7 and 7 of SANS 1200DB : Earthworks (Pipe trenches).

Pipes shall be bedded in accordance with Clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SANS 1200LB : Bedding (Pipes).

Unless otherwise described bedding of rigid pipes shall be Class B bedding.

General

Descriptions of pipes laid in and including trenches and of inspection chambers, catch pits, etc shall be deemed to include excavation, bedding, backfilling, compaction to a minimum of 93% Mod AASHTO density and disposal of surplus material on site.

Tenderers are referred to drawing no 589/MSI/909 - Rev P1 indicating the typical manhole details, connections, etc.

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