

SANSA MATJIESFONTEIN
ELECTRICAL INSTALLATION - EARTHING AND LIGHTNING PROTECTION INSTALLATION
PART C1.2.5
BILL OF QUANTITIES

ITEM	DESCRIPTION	UNIT	QTY	RATE	TOTAL
1.0	BILL NO. 1				
	PRELIMINARIES AND GENERAL				
	CONDITIONS OF CONTRACT				
	Provisional and General items in order to comply with the Conditions of Contract associated with the works contained in this document.				
1.1	Test, Commission and prepare As-Built drawings	Item	1	R	-
1.2	Laminated drawings for all Plant rooms and Network rooms	Item	1	R	-
1.3	Insurances	Item	1	R	-
1.4	Mobilisation	Item	1	R	-
1.5	Project Management	Item	1	R	-
1.6	Site Tools and Instrumentation	Item	1	R	-
1.7	Maintenance and Guarantee for 12 months after practical completion	Item	1	R	-
1.8	Site Establishment	Item	1	R	-
1.9	Site Running Costs	Item	1	R	-
1.10	Demobilisation	Item	1	R	-
1.11	Vehicles	Item	1	R	-
1.12	Allowance to fix price for the duration of the contract	Sum	1	R	-
	<i>The rates in the remainder of the Bill of Quantities (BOQ) must exclude these costs, as they are to be priced under this item.</i>				
1.13	Remote Location Overhead Costs	Sum	1	R	-
	<i>Provide a lump sum cost for all additional expenses associated with working at the remote project site, located approximately 230 km from Cape Town and 5 km south of Matjiesfontein. This includes transportation of materials and personnel, accommodation, site establishment, and any other costs related to the remote nature of the location. The rates in the remainder of the Bill of Quantities (BOQ) must exclude these costs, as they are to be priced under this item.</i>				
1.14	OTHER ITEMS				
	Any other items tenderers may wish to add of a preliminary and general nature not specifically mentioned above in order to comply with the specification and contract conditions. Please add below:				
1.14.1		Item	1	R	-
1.14.2		Item	1	R	-
1.14.3		Item	1	R	-
	TOTAL - BILL NO 1 CARRIED TO FINAL SUMMARY PAGE			R	-

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ITEM	DESCRIPTION	UNIT	QTY	RATE	TOTAL
2.0	BILL NO. 2				
	EARTHING & LIGHTNING PROTECTION				
	THE WORK DETAILED BELOW AS WELL AS IN ALL OF THE SUBSEQUENT BILLS IN THIS EARTHING AND LIGHTNING PROTECTION INSTALLATION IS FOR THE COMPLETE SUPPLY, DELIVERY ON SITE AND CONSTRUCTION OF THE FOLLOWING MATERIAL AND EQUIPMENT AND THE GUARANTEE THEREOF, AS SPECIFIED				
	All prices listed below must make provision for the delivery to site and must include all materials deemed necessary for commissioning of equipment in full, including all handling costs, insurance and any other costs involved in the delivery of material and equipment to complete installation.				
	Note: All material quantities are to be ordered according to drawings and not this BOQ				
2.1.1	Bonding of Structural Columns				
	Supply and install 50mm ² steel earth strap from structural steel to 100x100x50 cast in earth test joint box with galvanised steel cover plate. Connect test joint box to 1500mm x 16mm earth spike via a 95mm ² PVC insulated conductor. Earth spike to be driven into the ground to a depth of 1200mm or deeper.				
	Refer to the detail "TYPICAL DETAIL FOR BONDING COLUMN STEEL TO EARTH STRAP" on drawing J2700-001-EL-01 EARTHING AND LIGHTING PROTECTION LAYOUT.				
	Supply	Each	30	R	-
	Install	Each	30	R	-
2.1.2	Bonding of Roof Structure				
	Supply and install 50mm ² steel earth strap from structural steel to 100x100x50 cast in earth test joint box with galvanised steel cover plate. Connect test joint box to roof structure via 70mm ² ICEC.				
	Refer to the detail "TYPICAL LIGHTNING PROTECTION DRAWBOX DETAIL - BONDING TO ROOF" on drawing J2700-001-EL-01 EARTHING AND LIGHTING PROTECTION LAYOUT.				
	Supply	Each	14	R	-
	Install	Each	14	R	-
2.2	Supply and install 70mm ² BCEC at 500mm below ground to connect all earth spikes. Include all terminations and trenching. All below ground terminations to be exothermically welded.				
	Supply	m	665	R	-
	Install	m	665	R	-
	Termination	Each	30	R	-

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ITEM	DESCRIPTION	UNIT	QTY	RATE	TOTAL
2.3	Supply and install Earth Matt to achieve a <1ohm earth measurement. Earth matt tails to be connected to the earth bar in the location where it has been installed. All below ground terminations to be exothermically welded.				
2.3.1	Energy Centre - LV				
	Supply	Each	1	R	-
	Install	Each	1	R	-
2.3.2	Energy Centre - MV				
	Supply	Each	1	R	-
	Install	Each	1	R	-
2.3.3	Main Operations Building - LV				
	Supply	Each	1	R	-
	Install	Each	1	R	-
2.3.4	Gatehouse Building - LV				
	Supply	Each	1	R	-
	Install	Each	1	R	-
2.3.5	Minisub 1-5				
	Supply	Each	5	R	-
	Install	Each	5	R	-
2.4	Supply and install Copper Earth Bar on insulators mounted on wall - 300mmx50mmx6mm				
2.4.1	Energy Centre - LV				
	Supply	Each	1	R	-
	Install	Each	1	R	-
2.4.2	Energy Centre - MV				
	Supply	Each	1	R	-
	Install	Each	1	R	-
2.4.3	Main Operations Building - LV, NASA Equipment Room, SANSA Equipment Room				
	Supply	Each	3	R	-
	Install	Each	3	R	-
2.4.4	Gatehouse				
	Supply	Each	1	R	-
	Install	Each	1	R	-
2.5	15m Lightning protection mast with own earth matt bonded to the structure earth. All below ground terminations to be exothermically welded.				
	Supply	Each	1	R	-
	Install	Each	1	R	-
TOTAL - BILL NO 2 CARRIED TO FINAL SUMMARY PAGE				R	-

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ITEM	DESCRIPTION	UNIT	QTY	RATE	TOTAL
3.0	BILL NO. 3				
	NASA LEGS ANTENNA EARTHING AND LIGHTNING PROTECTION				
3.1	Site				
3.1.1	IP54 Polycarbonate Kiosk with wooden backboard inclusive of 300mm x 50mm x 6mm copper earth bar mounted on insulators. Kiosk to be mounted on precast concrete plinth with sleeves for incoming cables.				
	Supply	Each	1	R	-
	Install	Each	1	R	-
3.1.2	Earth Matt with <10 Ohm resistance. Earth matt tails to be connected to earth bar in kiosk. All below ground terminations to be exothermically welded.				
	Supply	Each	1	R	-
	Install	Each	1	R	-
3.1.3	Supply and install 70mm ² BCEC at 500mm below ground level from Minisub earth bar to kiosk Include all terminations and trenching. All below ground terminations to be exothermically welded.				
	Supply	m	130	R	-
	Install	m	130	R	-
	Termination	Each	2	R	-
3.2	Antenna Level 1				
3.2.1	Supply and install 120mm ² BCEC at 500mm below ground level around antenna base and terminate to base structural steel. All below ground terminations to be exothermically welded.				
	Supply	m	50	R	-
	Install	m	50	R	-
	Termination	Each	2	R	-
3.2.2	Link ground earth conductor to level 3 via 120mm ² BCEC and exothermic weld - allow 10m length of cable per point. All below ground terminations to be exothermically welded.				
	Supply	each	4	R	-
	Install	each	4	R	-
	Termination	Each	8	R	-
3.2.3	Ground Test Point. All below ground terminations to be exothermically welded.				
	Supply	each	1	R	-
	Install	each	1	R	-
3.2.1	600mm x 50mm x 6mm Copper earth bar mounted on insulators with connection to earth conductor				
	Supply	Each	1	R	-
	Install	Each	1	R	-
	Termination	Each	2	R	-
3.3	Antenna Level 3				
3.3.1	Connect support ring to bonding conductor from 1st floor via 120mm ² ICEC				
	<i>Refer to the detail "CONCRETE TOWER SUPPORT RING CONNECTION" on drawing J2700-001-EL-01 EARTHING AND LIGHTNING PROTECTION LAYOUT.</i>				
	Supply	each	4	R	-
	Install	each	4	R	-
3.3.2	600mm x 50mm x 6mm Copper earth bar mounted on insulators with connection to earth conductor				
	Supply	Each	1	R	-
	Install	Each	1	R	-
	Termination	Each	2	R	-
3.4	Power Fence				
3.4.1	Supply and install 70mm ² BCEC at 500mm below ground level and connect to power fence and antenna earth. All below ground terminations to be exothermically welded.				
	Supply	m	100	R	-
	Install	m	100	R	-
	Termination	Each	2	R	-
	TOTAL - BILL NO 3 CARRIED TO FINAL SUMMARY PAGE			R	-

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ITEM	DESCRIPTION	UNIT	QTY	RATE	TOTAL
	BILL NO. 4				
	ADDITIONAL ITEMS				
4.1	Other items the tenderer may consider necessary to complete the installation				
4.1.1		No	1		R -
		No	1		R -
4.1.2		No	1		R -
		No	1		R -
4.1.3		No	1		R -
		No	1		R -
	TOTAL - BILL NO 4 CARRIED TO FINAL SUMMARY PAGE				R -

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	FINAL SUMMARY PAGE				
	BILL NO. 1				
	PRELIMINARIES AND GENERAL			R	-
	BILL NO. 2				
	EARTHING & LIGHTNING PROTECTION			R	-
	BILL NO. 3				
	NASA LEGS ANTENNA EARTHING AND LIGHTING PROTECTION			R	-
	BILL NO. 4				
	ADDITIONAL ITEMS				
	Any other items tenderers may wish to add of a Technical nature not specifically mentioned above in order to comply with the specification and contract conditions. Please add below:			R	-
	TOTAL CARRIED TO BILL NO. 16 ELECTRICAL INSTALLATION - EARTHING & LIGHTNING PROTECTION PART C1.2.5			R	-