

BILL OF QUANTITIES

VULCAN MTS TO SIYANQOBA SUBSTATION 132 kV CIRCUIT OVERHEAD LINE (CONTRACT NUMBER: ELM 07/2021 (READVERT))

LIST A: PRELIMINARY AND GENERAL

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
1	PRELIMINARY AND GENERAL						
	Amount allowed for all expenses, regarding the following:						
1.1	CONTRACTUAL REQUIREMENTS - FIXED AMOUNT						
1.1.1	Nett price for the fulfilment of the Tender Requirements, Conditions of Contract, Performance						
	Security/Security Bond, Indemnification, etc. Bond to remain valid until date of issue of the Final Completion						
	Certificate or within 28 days after expiry of Defects Notification Period		Sum	1			
1.1.2	Insurance of the Works in the joint names of the Employer and Contractor, Insurance of the Construction						
	Plant to its full replacement value and Third Party Insurance		Sum	1			
1.1.3	Site establishment, which includes, site office, site store, laydown area, temporary housing, security fence,						
	sanitary toilets, obtaining water, electrical connection, etc.		Sum	1			
1.1.4	Determining and locating of existing services as well as management of wayleaves		Sum	1			
1.1.5	Erecting of temporary obstructions and barricades		Sum	1			
1.1.6	Notice board		Sum	1			
1.1.7	Cleaning of the site, removal of all refuse, rubble, rock, etc. prior to handing over of every phase		Sum	1			
1.1.8	Obtaining permits, arranging for outages and switching with relevant Authorities		Sum	1			
1.1.9	Obtaining access to the Eskom Website (//scot.eskom.co.za) for access to the relevant Eskom Standards and						
	compile a site manual complete with all relevant Eskom DT drawings.		Sum	1			
1.1.10	Tools, material and safety clothing for the local labourers to conduct their work in accordance with safety						
	requirements		Sum	1			
1.1.11	Medical and induction cost		Sum	1			
1.1.12	As built drawings and manuals. (5 x sets). As Built drawings to include surveying of the works by a qualified						
	surveyor, especially MV and Main LV cables where applicable. (Drawings to be issued in CAD format)		Sum	1			
1.2	COMPLY WITH THE FOLLOWING SAFETY, HEALTH, ENVIRONMENTAL AND QUALITY						
	(SHEQ) REQUIREMENTS- FIXED AMOUNT						
1.2.1	Adherence to Construction Regulations of the OHSA		Sum	1			
1.2.2	Compile a Health and Safety Plan (H & S Plan)		Sum	1			
1.2.3	Compile a Risk Assessment for activities (RA)		Sum	1			

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ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
1.2.4	Comply with Environmental Management Plan (EMP)		Sum	1			
1.2.5	Submit proof of calibration of equipment eg Crimper, HV test apparatus, breaking failure test of terminations and joints of ACSR OH Lines, etc.		Sum	1			
1.2.6	Compile a SHEQ File to also include all the above in distinct sections		Sum	1			
1.3	TIME-RELATED COST - ADJUSTABLE WITH CONTRACT PERIOD						
	The running cost of the project related to the contract period which will also be used to adjust the cost if an event occurs that becomes the Employers Risk						
1.3.1	Head office overhead cost		Months	12			
1.3.2	Site overhead cost		Months	12			
1.3.3	Material-store cost on site		Months	12			
1.3.4	Material-store cost off site		Months	12			
1.3.5	Maintenance of setting out of the works by a qualified surveyor		Months	12			
1.3.6	Contracts Manager/ Contractor's Representative : Office and Site based		Months	12			
1.3.7	Health, Safety and Environmental Officer		Months	12			
1.3.8	Site Supervisor / Planner : Office and Site based		Months	12			
1.3.9	Site Agent : Site based		Months	12			
1.3.10	Comply with SHEQ requirements by Safety Officer e.g. regular review and update of Health and Safety File		Months	12			
1.3.11	Site offices cost , including ablution facilities, site administration, transport, accommodation etc.		Months	12			
1.3.12	Coordination and working together with other Contractors		Months	12			
1.3.13	Medicals and induction costs		Months	12			
1.3.14	Security for site camp and work on site		Months	12			
1.3.15	Local labour management cost for :						
1.3.15.1	Overhead cost to manage SMME's that will execute a portion of the contract (30% of labour portion)		Months	12			
1.3.15.2	Community Liaison Officer		Months	12			
1.3.15.3	Community liaison and communication		Months	12			

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TENDER PRICE

ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
1.3.15.4	Labour desk and recruitment		Months	12			
1.3.15.5	Employment of local people for the duration of the project		Months	12			
1.3.15.6	Training of semi-skilled labourers		Months	12			
1.3.15.7	Management of local labourers		Months	12			
1.4	COMPLY WITH THE FOLLOWING SHEQ REQUIREMENTS- TIME RELATED						
1.4.1	Adherence to Construction Regulations of the OHSA		Months	12			
1.4.2	Review and update the Health and Safety Plan (H & S Plan)		Months	12			
1.4.3	Review and update the Risk Assessment for activities (RA)		Months	12			
1.4.4	Review and update the Environmental Management Plan (EMP)		Months	12			
1.5	MAINTENANCE SUPPORT						
	Provide comprehensive maintenance support or a period of 12 Months after completion certificate.						
	Maintenance support shall include all equipment included in the secondary plant and primary plant.		Sum	1			
1.6	PHASED IMPLEMENTATION						
	Allow adequately time to execute the project over the specified period which could result in withdrawal from site and re-establishment on site. (Note: Contractor to allow for all costs for de-establishing and re-establishing including costs for contractual requirements).						
1.6.1	June 2022: Phase 1		Sum	1			
1.6.2	June 2023: Phase 3		Sum	1			
1.7	MISCELLANEOUS COSTS						
1.7.1	Installation and maintenance of LV Aux. construction supply to be used for entire delivery period. Contractor to submit a application to the Electricity Department of the Municipality.		Sum	1			
1.7.2	Removal of LV Aux. construction supply		Sum	1			
1.7.3	Construction lights to be provided prior to starting of electrical works for security purposes.						
	All equipment and labour to be provided for by the contractor, including the temporary lights, which shall be sufficient enough to light up the entire construction site. Temporary lights to be removed after completion		Sum	1			
1.8	ANY ITEMS THAT THE CONTRACTOR DEEMS NECESSARY WHICH HAS NOT BEEN COVERED						
1.8.1			Sum	1			

LIST A: PRELIMINARY AND GENERAL

[illegible]

LIST B: QUALITY CONTROL PROGRAM & BUSH CLEARING

[illegible]

BILL OF QUANTITIES

VULCAN MTS TO SIYANQOBA SUBSTATION 132 kV CIRCUIT OVERHEAD LINE (CONTRACT NUMBER: ELM 07/2021 (READVERT))

LIST C: LINE CONSTRUCTION

ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	TENDER PRICE		TOTAL
					UNIT LABOUR RATE	UNIT MATERIAL RATE	
	FOUNDATIONS						
	Note						
	Nominations of foundation types and design to be done by a registered Civil Engineer. Civil Engineer to specify which of the foundation types must be used for each structure.						
1.	FOUNDATIONS FOR TYPE 3 SOIL						
	Transport to pole position, supply and transport imported material, dispose excavated material, excavate, supply, and install complete foundation and based on a Type 3 foundation, for the following structures (Note: flange mounted foundations shall include the concrete blinding, concrete foundation, steel reinforcing including all spacers and fixtures, Top & Bottom templates, holding down bolts including all washers, nuts and torqueing, shuttering and finishing, backfill and compaction):						
1.1	22 m Intermediate Steel Pole, single circuit (Int_mono_SC_22m.pol)	7850s4	Each	5			
1.2	24 m Intermediate Steel Pole, single circuit (Int_mono_SC_24m_FM.pol)	Custom Design	Each	1			
1.2.1	Excavation (Total for all foundations required)		m ³	20.9			
1.2.2	Backfill (Total for all foundations required)		m ³	10.7			
1.2.3	Blinding (Total for all foundations required)		m ³	0.7			
1.2.4	Concrete (Total for all foundations required)		m ³	11.8			
1.2.5	Reinforcement (Total for all foundations required)		kg	857			
1.3	25.3 m Intermediate Steel Pole, single circuit (Int_mono_SC_25.3m_FM.pol)	GEN12062-101	Each	10			
1.3.1	Excavation (Total for all foundations required)		m ³	305			
1.3.2	Backfill (Total for all foundations required)		m ³	164			
1.3.3	Blinding (Total for all foundations required)		m ³	9.8			
1.3.4	Concrete (Total for all foundations required)		m ³	157			
1.3.5	Reinforcement (Total for all foundations required)		kg	11371			
1.4	24 m Intermediate Steel Pole, double circuit (HV/MV) (Int_mono_DCHVdcmv_24m_FM.pol)	Custom Design	Each	11			
1.4.1	Excavation (Total for all foundations required)		m ³	229.9			
1.4.2	Backfill (Total for all foundations required)		m ³	117.7			
1.4.3	Blinding (Total for all foundations required)		m ³	7.7			
1.4.4	Concrete (Total for all foundations required)		m ³	129.8			
1.4.5	Reinforcement (Total for all foundations required)		kg	9427			
1.5	20 m Angle Strain Steel Pole, single circuit (Str_mono_in-line_20m.pol)	7851s4	Each	1			
1.6	20 m Angle Strain Steel Pole, single circuit (Str_mono_SC_7615d_r2_20m.pol)	7851s4	Each	1			
1.7	23.2 m Angle Strain Steel Pole, single circuit (Str_mono_SC_23-2m_FMSS.pol)	GEN12062-106	Each	Rate Only			
1.7.1	Excavation (Total for all foundations required)		m ³	Rate Only			
1.7.2	Backfill (Total for all foundations required)		m ³	Rate Only			
1.7.3	Blinding (Total for all foundations required)		m ³	Rate Only			
1.7.4	Concrete (Total for all foundations required)		m ³	Rate Only			
1.7.5	Reinforcement (Total for all foundations required)		kg	Rate Only			

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LIST C: LINE CONSTRUCTION

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
1.8	24 m Angle Strain Steel Pole, single circuit (Str_mono_SC_7615d_r2_24.pol)	7851s4	Each	3			
1.9	19 m Angle Strain Steel Pole HV/MV (Str_2pole_2xSC_19mtcah+MV_FM.pol)	CIS14033-003	Each	2			
1.9.1	Excavation (Total for all foundations required)		m ³	115.6			
1.9.2	Backfill (Total for all foundations required)		m ³	61.6			
1.9.3	Blinding (Total for all foundations required)		m ³	3.4			
1.9.4	Concrete (Total for all foundations required)		m ³	57.4			
1.9.5	Reinforcement (Total for all foundations required)		kg	4155.8			
1.10	23.2 m Angle Strain Steel Pole HV/MV (Str_2pole_2xSC_23.2mtcah+MV_FM.pol)	GEN12062-106	Each	1			
1.10.1	Excavation (Total for all foundations required)		m ³	74.3			
1.10.2	Backfill (Total for all foundations required)		m ³	36.8			
1.10.3	Blinding (Total for all foundations required)		m ³	2.06			
1.10.4	Concrete (Total for all foundations required)		m ³	39.6			
1.10.5	Reinforcement (Total for all foundations required)		kg	2872.1			
1.11	3 x 32 m Pole Strain structure (Str_3pole_in-line_32m.pol)	CIS06024-101	Each	Rate Only			
1.12	4 Pole Strain structure (4x10 m Poles) (Str_4pole_in-line_10m.pol)	7851s4	Each	1			
1.13	4 Pole Strain structure (4x11 m Poles) (Str_4pole_in-line_11m.poll)	7851s4	Each	1			
1.14	4 Pole Strain structure (3x10 m & 1x11 m Poles) (Str_4pole_in-line_10m_11m.pol)	7851s4	Each	1			
1.15	4 Pole Strain structure (3x10 m & 1x12 m Poles) (Str_4pole_in-line_10m_12m.pol)	7851s4	Each	Rate Only			
1.16	4 Pole Strain structure (3x10 m & 1x12 m Poles) (Str_4pole_90deg_10m_12m.pol)	7851s4	Each	1			
1.17	4 Pole Strain structure (3x15 m & 1x16 m Poles) (Str_4pole_in-line_15m_16m.pol)	7851s4	Each	1			
1.18	4 Pole Strain structure (3x15 m & 1x17 m Poles) (Str_4pole_in-line_15m_17m.pol)	7851s4	Each	1			
2.	FOUNDATIONS FOR TYPE 1 SOIL						
	Transport to pole position, supply and transport imported material, dispose excavated material, excavate, supply, and install complete foundation and based on a Type 1 foundation, for the following structures (Note: flange mounted foundations shall include the concrete blinding, concrete foundation, steel reinforcing including all spacers and fixtures, Top & Bottom templates, holding down bolts including all washers, nuts and torqueing, shuttering and finishing, backfill and compaction):						
2.1	22 m Intermediate Steel Pole, single circuit (Int_mono_SC_22m.pol)	7850s2	Each	Rate Only			
2.2	24 m Intermediate Steel Pole, single circuit (Int_mono_SC_24m_FM.pol)	Custom Design	Each	Rate Only			
2.2.1	Excavation (Total for all foundations required)		m ³	Rate Only			
2.2.2	Backfill (Total for all foundations required)		m ³	Rate Only			
2.2.3	Blinding (Total for all foundations required)		m ³	Rate Only			
2.2.4	Concrete (Total for all foundations required)		m ³	Rate Only			

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ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	TENDER PRICE		
					UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
2.2.5	Reinforcement (Total for all foundations required)		kg	Rate Only			
2.3	25.3 m Intermediate Steel Pole, single circuit (Int_mono_SC_25.3m_FM.pol)	GEN12062-101	Each	Rate Only			
2.3.1	Excavation (Total for all foundations required)		m ³	Rate Only			
2.3.2	Backfill (Total for all foundations required)		m ³	Rate Only			
2.3.3	Blinding (Total for all foundations required)		m ³	Rate Only			
2.3.4	Concrete (Total for all foundations required)		m ³	Rate Only			
2.3.5	Reinforcement (Total for all foundations required)		kg	Rate Only			
2.4	24 m Intermediate Steel Pole, double circuit (HV/MV) (Int_mono_DCHVdcmv_24m_FM.pol)	Custom Design	Each	Rate Only			
2.4.1	Excavation (Total for all foundations required)		m ³	Rate Only			
2.4.2	Backfill (Total for all foundations required)		m ³	Rate Only			
2.4.3	Blinding (Total for all foundations required)		m ³	Rate Only			
2.4.4	Concrete (Total for all foundations required)		m ³	Rate Only			
2.4.5	Reinforcement (Total for all foundations required)		kg	Rate Only			
2.5	20 m Angle Strain Steel Pole, single circuit (Str_mono_in-line_20m.pol)	7851s2	Each	Rate Only			
2.6	20 m Angle Strain Steel Pole, single circuit (Str_mono_SC_7615d_r2_20m.pol)	7851s2	Each	Rate Only			
2.7	23.2 m Angle Strain Steel Pole, single circuit (Str_mono_SC_23-2m_FMSS.pol)	GEN12062-106	Each	Rate Only			
2.7.1	Excavation (Total for all foundations required)		m ³	Rate Only			
2.7.2	Backfill (Total for all foundations required)		m ³	Rate Only			
2.7.3	Blinding (Total for all foundations required)		m ³	Rate Only			
2.7.4	Concrete (Total for all foundations required)		m ³	Rate Only			
2.7.5	Reinforcement (Total for all foundations required)		kg	Rate Only			
2.8	24 m Angle Strain Steel Pole, single circuit (Str_mono_SC_7615d_r2_24.pol)	7851s2	Each	Rate Only			
2.9	19 m Angle Strain Steel Pole HV/MV (Str_2pole_2xSC_19mtcah+MV_FM.pol)	CIS14033-003	Each	Rate Only			
2.9.1	Excavation (Total for all foundations required)		m ³	Rate Only			
2.9.2	Backfill (Total for all foundations required)		m ³	Rate Only			
2.9.3	Blinding (Total for all foundations required)		m ³	Rate Only			
2.9.4	Concrete (Total for all foundations required)		m ³	Rate Only			
2.9.5	Reinforcement (Total for all foundations required)		kg	Rate Only			
2.10	23.2 m Angle Strain Steel Pole HV/MV (Str_2pole_2xSC_23.2mtcah+MV_FM.pol)	GEN12062-106	Each	Rate Only			
2.10.1	Excavation (Total for all foundations required)		m ³	Rate Only			
2.10.2	Backfill (Total for all foundations required)		m ³	Rate Only			
2.10.3	Blinding (Total for all foundations required)		m ³	Rate Only			
2.10.4	Concrete (Total for all foundations required)		m ³	Rate Only			
2.10.5	Reinforcement (Total for all foundations required)		kg	Rate Only			
2.11	3 x 32 m Pole Strain structure (Str_3pole_in-line_32m.pol)	CIS06024-101	Each	Rate Only			

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VULCAN MTS TO SIYANQOBA SUBSTATION 132 kV CIRCUIT OVERHEAD LINE (CONTRACT NUMBER: ELM 07/2021 (READVERT))

LIST C: LINE CONSTRUCTION

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
2.12	4 Pole Strain structure (4x10 m Poles) (Str_4pole_in-line_10m.pol)	7851s2	Each	Rate Only			
2.13	4 Pole Strain structure (4x11 m Poles) (Str_4pole_in-line_11m.poll)	7851s2	Each	Rate Only			
2.14	4 Pole Strain structure (3x10 m & 1x11 m Poles) (Str_4pole_in-line_10m_11m.pol)	7851s2	Each	Rate Only			
2.15	4 Pole Strain structure (3x10 m & 1x12 m Poles) (Str_4pole_in-line_10m_12m.pol)	7851s2	Each	Rate Only			
2.16	4 Pole Strain structure (3x10 m & 1x12 m Poles) (Str_4pole_90deg_10m_12m.pol)	7851s2	Each	Rate Only			
2.17	4 Pole Strain structure (3x15 m & 1x16 m Poles) (Str_4pole_in-line_15m_16m.pol)	7851s2	Each	Rate Only			
2.18	4 Pole Strain structure (3x15 m & 1x17 m Poles) (Str_4pole_in-line_15m_17m.pol)	7851s2	Each	Rate Only			
3.	FOUNDATIONS FOR TYPE 2 SOIL						
	Transport to pole position, supply and transport imported material, dispose excavated material, excavate, supply, and install						
	complete foundation and based on a Type 2 foundation, for the following structures (Note: flange mounted foundations shall						
	include the concrete blinding, concrete foundation, steel reinforcing including all spacers and fixtures, Top & Bottom						
	templates, holding down bolts including all washers, nuts and torqueing, shuttering and finishing, backfill and compaction):						
3.1	22 m Intermediate Steel Pole, single circuit (Int_mono_SC_22m.pol)	7850s3	Each	Rate Only			
3.2	24 m Intermediate Steel Pole, single circuit (Int_mono_SC_24m_FM.pol)	Custom Design	Each	Rate Only			
3.2.1	Excavation (Total for all foundations required)		m ³	Rate Only			
3.2.2	Backfill (Total for all foundations required)		m ³	Rate Only			
3.2.3	Blinding (Total for all foundations required)		m ³	Rate Only			
3.2.4	Concrete (Total for all foundations required)		m ³	Rate Only			
3.2.5	Reinforcement (Total for all foundations required)		kg	Rate Only			
3.3	25.3 m Intermediate Steel Pole, single circuit (Int_mono_SC_25.3m_FM.pol)	GEN12062-101	Each	Rate Only			
3.3.1	Excavation (Total for all foundations required)		m ³	Rate Only			
3.3.2	Backfill (Total for all foundations required)		m ³	Rate Only			
3.3.3	Blinding (Total for all foundations required)		m ³	Rate Only			
3.3.4	Concrete (Total for all foundations required)		m ³	Rate Only			
3.3.5	Reinforcement (Total for all foundations required)		kg	Rate Only			
3.4	24 m Intermediate Steel Pole, double circuit (HV/MV) (Int_mono_DCHVdcmv_24m_FM.pol)	Custom Design	Each	Rate Only			
3.4.1	Excavation (Total for all foundations required)		m ³	Rate Only			
3.4.2	Backfill (Total for all foundations required)		m ³	Rate Only			
3.4.3	Blinding (Total for all foundations required)		m ³	Rate Only			
3.4.4	Concrete (Total for all foundations required)		m ³	Rate Only			
3.4.5	Reinforcement (Total for all foundations required)		kg	Rate Only			
3.5	20 m Angle Strain Steel Pole, single circuit (Str_mono_in-line_20m.pol)	7851s3	Each	Rate Only			
3.6	20 m Angle Strain Steel Pole, single circuit (Str_mono_SC_7615d_r2_20m.pol)	7851s3	Each	Rate Only			

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VULCAN MTS TO SIYANQOBA SUBSTATION 132 kV CIRCUIT OVERHEAD LINE (CONTRACT NUMBER: ELM 07/2021 (READVERT))

LIST C: LINE CONSTRUCTION

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
3.7	23.2 m Angle Strain Steel Pole, single circuit (Str_mono_SC_23-2m_FMSS.pol)	GEN12062-106	Each	Rate Only			
3.7.1	Excavation (Total for all foundations required)		m ³	Rate Only			
3.7.2	Backfill (Total for all foundations required)		m ³	Rate Only			
3.7.3	Blinding (Total for all foundations required)		m ³	Rate Only			
3.7.4	Concrete (Total for all foundations required)		m ³	Rate Only			
3.7.5	Reinforcement (Total for all foundations required)		kg	Rate Only			
3.8	24 m Angle Strain Steel Pole, single circuit (Str_mono_SC_7615d_r2_24.pol)	7851s3	Each	Rate Only			
3.9	19 m Angle Strain Steel Pole HV/MV (Str_2pole_2xSC_19mtcah+MV_FM.pol)	CIS14033-003	Each	Rate Only			
3.9.1	Excavation (Total for all foundations required)		m ³	Rate Only			
3.9.2	Backfill (Total for all foundations required)		m ³	Rate Only			
3.9.3	Blinding (Total for all foundations required)		m ³	Rate Only			
3.9.4	Concrete (Total for all foundations required)		m ³	Rate Only			
3.9.5	Reinforcement (Total for all foundations required)		kg	Rate Only			
3.10	23.2 m Angle Strain Steel Pole HV/MV (Str_2pole_2xSC_23.2mtcah+MV_FM.pol)	GEN12062-106	Each	Rate Only			
3.10.1	Excavation (Total for all foundations required)		m ³	Rate Only			
3.10.2	Backfill (Total for all foundations required)		m ³	Rate Only			
3.10.3	Blinding (Total for all foundations required)		m ³	Rate Only			
3.10.4	Concrete (Total for all foundations required)		m ³	Rate Only			
3.10.5	Reinforcement (Total for all foundations required)		kg	Rate Only			
3.11	3 x 32 m Pole Strain structure (Str_3pole_in-line_32m.pol)	CIS06024-101	Each	Rate Only			
3.12	4 Pole Strain structure (4x10 m Poles) (Str_4pole_in-line_10m.pol)	7851s3	Each	Rate Only			
3.13	4 Pole Strain structure (4x11 m Poles) (Str_4pole_in-line_11m.poll)	7851s3	Each	Rate Only			
3.14	4 Pole Strain structure (3x10 m & 1x11 m Poles) (Str_4pole_in-line_10m_11m.pol)	7851s3	Each	Rate Only			
3.15	4 Pole Strain structure (3x10 m & 1x12 m Poles) (Str_4pole_in-line_10m_12m.pol)	7851s3	Each	Rate Only			
3.16	4 Pole Strain structure (3x10 m & 1x12 m Poles) (Str_4pole_90deg_10m_12m.pol)	7851s3	Each	Rate Only			
3.17	4 Pole Strain structure (3x15 m & 1x16 m Poles) (Str_4pole_in-line_15m_16m.pol)	7851s3	Each	Rate Only			
3.18	4 Pole Strain structure (3x15 m & 1x17 m Poles) (Str_4pole_in-line_15m_17m.pol)	7851s3	Each	Rate Only			
4.	FOUNDATIONS FOR TYPE 4 SOIL						
	Transport to pole position, supply and transport imported material, dispose excavated material, excavate, supply, and install						
	complete foundation and based on a Type 4 foundation, for the following structures (Note: flange mounted foundations shall						
	include the concrete blinding, concrete foundation, steel reinforcing including all spacers and fixtures, Top & Bottom						

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LIST C: LINE CONSTRUCTION

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
	templates, holding down bolts including all washers, nuts and torqueing, shuttering and finishing, backfill and compaction):						
4.1	22 m Intermediate Steel Pole, single circuit (Int_mono_SC_22m.pol)	7850s5	Each	Rate Only			
4.2	24 m Intermediate Steel Pole, single circuit (Int_mono_SC_24m_FM.pol)	Custom Design	Each	1			
4.2.1	Excavation (Total for all foundations required)		m ³	32.2			
4.2.2	Backfill (Total for all foundations required)		m ³	18.2			
4.2.3	Blinding (Total for all foundations required)		m ³	1.07			
4.2.4	Concrete (Total for all foundations required)		m ³	15.6			
4.2.5	Reinforcement (Total for all foundations required)		kg	1130.3			
4.3	25.3 m Intermediate Steel Pole, single circuit (Int_mono_SC_25.3m_FM.pol)	GEN12062-101	Each	5			
4.3.1	Excavation (Total for all foundations required)		m ³	229			
4.3.2	Backfill (Total for all foundations required)		m ³	131.5			
4.3.3	Blinding (Total for all foundations required)		m ³	7.4			
4.3.4	Concrete (Total for all foundations required)		m ³	105.5			
4.3.5	Reinforcement (Total for all foundations required)		kg	7659.5			
4.4	24 m Intermediate Steel Pole, double circuit (HV/MV) (Int_mono_DCHVdcmv_24m_FM.pol)	Custom Design	Each	2			
4.4.1	Excavation (Total for all foundations required)		m ³	64.4			
4.4.2	Backfill (Total for all foundations required)		m ³	36.4			
4.4.3	Blinding (Total for all foundations required)		m ³	2.14			
4.4.4	Concrete (Total for all foundations required)		m ³	31.2			
4.4.5	Reinforcement (Total for all foundations required)		kg	2260.6			
4.5	20 m Angle Strain Steel Pole, single circuit (Str_mono_in-line_20m.pol)	7851s5	Each	Rate Only			
4.6	20 m Angle Strain Steel Pole, single circuit (Str_mono_SC_7615d_r2_20m.pol)	7851s5	Each	Rate Only			
4.7	23.2 m Angle Strain Steel Pole, single circuit (Str_mono_SC_23-2m_FMSS.pol)	Custom Design	Each	3			
4.7.1	Excavation (Total for all foundations required)		m ³	345			
4.7.2	Backfill (Total for all foundations required)		m ³	178.5			
4.7.3	Blinding (Total for all foundations required)		m ³	9.6			
4.7.4	Concrete (Total for all foundations required)		m ³	173.1			
4.7.5	Reinforcement (Total for all foundations required)		kg	12557.4			
4.8	24 m Angle Strain Steel Pole, single circuit (Str_mono_SC_7615d_r2_24.pol)	7851s5	Each	Rate Only			
4.9	19 m Angle Strain Steel Pole HV/MV (Str_2pole_2xSC_19mtcah+MV_FM.pol)	CIS14033-003	Each	Rate Only			
4.9.1	Excavation (Total for all foundations required)		m ³	Rate Only			
4.9.2	Backfill (Total for all foundations required)		m ³	Rate Only			
4.9.3	Blinding (Total for all foundations required)		m ³	Rate Only			
4.9.4	Concrete (Total for all foundations required)		m ³	Rate Only			
4.9.5	Reinforcement (Total for all foundations required)		kg	Rate Only			
4.10	23.2 m Angle Strain Steel Pole HV/MV (Str_2pole_2xSC_23.2mtcah+MV_FM.pol)	GEN12062-106	Each	Rate Only			

BILL OF QUANTITIES

VULCAN MTS TO SIYANQOBA SUBSTATION 132 kV CIRCUIT OVERHEAD LINE (CONTRACT NUMBER: ELM 07/2021 (READVERT))

LIST C: LINE CONSTRUCTION

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
4.10.1	Excavation (Total for all foundations required)		m ³	Rate Only			
4.10.2	Backfill (Total for all foundations required)		m ³	Rate Only			
4.10.3	Blinding (Total for all foundations required)		m ³	Rate Only			
4.10.4	Concrete (Total for all foundations required)		m ³	Rate Only			
4.10.5	Reinforcement (Total for all foundations required)		kg	Rate Only			
4.11	3 x 32 m Pole Strain structure (Str_3pole_in-line_32m.pol)	CIS06024-101	Each	1			
4.12	4 Pole Strain structure (4x10 m Poles) (Str_4pole_in-line_10m.pol)	7851s5	Each	Rate Only			
4.13	4 Pole Strain structure (4x11 m Poles) (Str_4pole_in-line_11m.poll)	7851s5	Each	Rate Only			
4.14	4 Pole Strain structure (3x10 m & 1x11 m Poles) (Str_4pole_in-line_10m_11m.pol)	7851s5	Each	1			
4.15	4 Pole Strain structure (3x10 m & 1x12 m Poles) (Str_4pole_in-line_10m_12m.pol)	7851s5	Each	Rate Only			
4.16	4 Pole Strain structure (3x10 m & 1x12 m Poles) (Str_4pole_90deg_10m_12m.pol)	7851s5	Each	1			
4.17	4 Pole Strain structure (3x15 m & 1x16 m Poles) (Str_4pole_in-line_15m_16m.pol)	7851s5	Each	Rate Only			
4.18	4 Pole Strain structure (3x15 m & 1x17 m Poles) (Str_4pole_in-line_15m_17m.pol)	7851s5	Each	Rate Only			
5.	FOUNDATIONS FOR ROCK						
	Transport to pole position, supply and transport imported material, dispose excavated material, excavate, supply, and install						
	complete foundation and based on a Rock foundation, for the following structures (Note: flange mounted foundations shall						
	include the concrete blinding, concrete foundation, steel reinforcing including all spacers and fixtures, Top & Bottom						
	templates, holding down bolts including all washers, nuts and torqueing, shuttering and finishing, backfill and compaction):						
5.1	22 m Intermediate Steel Pole, single circuit (Int_mono_SC_22m.pol)	7850s1	Each	Rate Only			
5.2	24 m Intermediate Steel Pole, single circuit (Int_mono_SC_24m_FM.pol)	Custom Design	Each	Rate Only			
5.3	25.3 m Intermediate Steel Pole, single circuit (Int_mono_SC_25.3m_FM.pol)	GEN12062-101	Each	Rate Only			
5.4	24 m Intermediate Steel Pole, double circuit (HV/MV) (Int_mono_DCHVdcmv_24m_FM.pol)	Custom Design	Each	Rate Only			
5.5	20 m Angle Strain Steel Pole, single circuit (Str_mono_in-line_20m.pol)	7851s1	Each	Rate Only			
5.6	20 m Angle Strain Steel Pole, single circuit (Str_mono_SC_7615d_r2_20m.pol)	7851s1	Each	Rate Only			
5.7	23.2 m Angle Strain Steel Pole, single circuit (Str_mono_SC_23-2m_FMSS.pol)	GEN12062-106	Each	Rate Only			
5.8	24 m Angle Strain Steel Pole, single circuit (Str_mono_SC_7615d_r2_24.pol)	7851s1	Each	Rate Only			
5.9	19 m Angle Strain Steel Pole HV/MV (Str_2pole_2xSC_19mtcah+MV_FM.pol)	CIS14033-003	Each	Rate Only			

BILL OF QUANTITIES

VULCAN MTS TO SIYANQOBA SUBSTATION 132 kV CIRCUIT OVERHEAD LINE (CONTRACT NUMBER: ELM 07/2021 (READVERT))

LIST C: LINE CONSTRUCTION

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
5.10	23.2 m Angle Strain Steel Pole HV/MV (Str_2pole_2xSC_23.2mtcah+MV_FM.pol)	GEN12062-106	Each	Rate Only			
5.11	3 x 32 m Pole Strain structure (Str_3pole_in-line_32m.pol)	CIS06024-101	Each	Rate Only			
5.12	4 Pole Strain structure (4x10 m Poles) (Str_4pole_in-line_10m.pol)	7851s1	Each	Rate Only			
5.13	4 Pole Strain structure (4x11 m Poles) (Str_4pole_in-line_11m.poll)	7851s1	Each	Rate Only			
5.14	4 Pole Strain structure (3x10 m & 1x11 m Poles) (Str_4pole_in-line_10m_11m.pol)	7851s1	Each	Rate Only			
5.15	4 Pole Strain structure (3x10 m & 1x12 m Poles) (Str_4pole_in-line_10m_12m.pol)	7851s1	Each	Rate Only			
5.16	4 Pole Strain structure (3x10 m & 1x12 m Poles) (Str_4pole_90deg_10m_12m.pol)	7851s1	Each	Rate Only			
5.17	4 Pole Strain structure (3x15 m & 1x16 m Poles) (Str_4pole_in-line_15m_16m.pol)	7851s1	Each	Rate Only			
5.18	4 Pole Strain structure (3x15 m & 1x17 m Poles) (Str_4pole_in-line_15m_17m.pol)	7851s1	Each	Rate Only			
6	Extra-over items for foundation excavations:						
6.1	Intermediate material excavation		m³	100			
6.2	Hard Rock excavation		m³	100			
6.3	Boulder excavation		m³	100			
6.4	In close proximity to a Livened Line		Sum	1			
7.	STAY ROD ASSEMBLIES						
	Excavate and transport imported material, barricade and dispose of excavated material and install complete permanent						
	19/2.65mm stay rod assembly for the following soil conditions.						
7.1	Type 3 soil.		Each	105			
7.2	Type 1 soil.		Each	Rate Only			
7.3	Type 2 soil.		Each	Rate Only			
7.4	Type 4 soil.		Each	Rate Only			
7.5	Rock		Each	Rate Only			
8.	CONCRETE TEST CERTIFICATES						
	Take concrete test samples and obtain test certificates for the following:						
8.1	7, 14 and 28 concrete test cubes for Flange Mounted 25 m Monolithic Pole foundation (3 test cubes per concrete delivery).		Sum	1			
8.2	7, 14 and 28 concrete test cubes for foundation blindings and pole caps (Note: 3 test cubes per concrete delivery).		Sum	1			

BILL OF QUANTITIES**VULCAN MTS TO SIYANQOBA SUBSTATION 132 kV CIRCUIT OVERHEAD LINE (CONTRACT NUMBER: ELM 07/2021 (READVERT))****LIST C: LINE CONSTRUCTION**

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
9.	EARTHING						
	Excavate, supply, install and bond tower earthing for the following structures:						
9.1	Bond 2 x terminal towers to individual substation's earthmats using 2x 70 mm ² copper equivalent CCS buried 1m deep						
9.1.1	Vulcan MTS	6045	m	60			
9.1.	Siyanqoba Substation	6045	m	60			
9.2	Excavate, supply and install complete 3 point star earth electrode (incl. rocky terrain)	0640	Each	55			
9.3	Testing of tower footing resistance		Each	55			
9.4	<u>Extra-over items earthing: (Rates are only for excavation of the earth electrode trenches)</u>						
9.4.1	Intermediate material excavation		m ³	50			
9.4.2	Hard Rock excavation		m ³	20			
9.4.3	Boulder excavation		m ³	20			
10.	DISPOSAL OF EXCAVATED MATERIAL						
	Any additional disposal that might be required. (5km radius from the pole/tower position will be regarded as a free haul).						
10.1	Limited haul (The first 5 km beyond the end of the free haul distance by the shortest practical route)		m ³	50			
10.2	Long haul (Remainder of distance beyond the limited haul by the shortest practical route)		m ³	50			
11.	IMPORTING SOIL						
	Any additional disposal that might be required. (5km radius from the pole/tower position will be regarded as a free haul).						
11.1	Limited haul (The first 5 km beyond the end of the free haul distance by the shortest practical route)		m ³	50			
11.2	Long haul (Remainder of distance beyond the limited haul by the shortest practical route)		m ³	50			
12.	ERECTING OF STRUCTURES						
	Supply, transport to pole position, install and erect the steel pole for the following structures at specified positions,						
	including backfilling						
12.1	22 m Intermediate Steel Pole, single circuit (Int_mono_SC_22m.pol)	7611	Each	4			
12.2	24 m Intermediate Steel Pole, single circuit (Int_mono_SC_24m_FM.pol)	Custom Design	Each	2			
12.3	25.3 m Intermediate Steel Pole, single circuit (Int_mono_SC_25.3m_FM.pol) (44 kN)	Item 7 - 1	Each	15			
12.4	24 m Intermediate Steel Pole, double circuit (HV/MV) (Int_mono_DCHVdcmv_24m_FM.pol)	Custom Design	Each	13			
12.5	20 m Angle Strain Steel Pole, single circuit (Str_mono_in-line_20m.pol)	7615	Each	2			
12.6	20 m Angle Strain Steel Pole, single circuit (Str_mono_SC_7615d_r2_20m.pol)	7615	Each	1			

BILL OF QUANTITIES

VULCAN MTS TO SIYANQOBA SUBSTATION 132 kV CIRCUIT OVERHEAD LINE (CONTRACT NUMBER: ELM 07/2021 (READVERT))

LIST C: LINE CONSTRUCTION

ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	TENDER PRICE		
					UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
12.7	23.2 m Angle Strain Steel Pole, single circuit (Str_mono_SC_23-2m_FMSS.pol)	Item 5 - 1	Each	3			
12.8	24 m Angle Strain Steel Pole, single circuit (Str_mono_SC_7615d_r2_24.pol)	7615	Each	3			
12.9	19 m Angle Strain Steel Pole HV/MV (Str_2pole_2xSC_19mtcah+MV_FM.pol) (256 kN)	CIS 156kN S/C	Each	1			
13.10	23.2 m Angle Strain Steel Pole HV/MV (Str_2pole_2xSC_23.2mtcah+MV_FM.pol) (156 kN)	Item 5 - 1	Each	2			
13.11	3 x 32 m Pole Strain structure (Str_3pole_in-line_32m.pol)	CIS06024-201	Each	1			
13.12	4 Pole Strain structure (4x10 m Poles) (Str_4pole_in-line_10m.pol)	7618	Each	1			
13.13	4 Pole Strain structure (4x11 m Poles) (Str_4pole_in-line_11m.poll)	7618	Each	1			
13.14	4 Pole Strain structure (3x10 m & 1x11 m Poles) (Str_4pole_in-line_10m_11m.pol)	7618	Each	1			
13.15	4 Pole Strain structure (3x10 m & 1x12 m Poles) (Str_4pole_in-line_10m_12m.pol)	7618	Each	1			
13.16	4 Pole Strain structure (3x10 m & 1x12 m Poles) (Str_4pole_90deg_10m_12m.pol)	7618	Each	2			
13.17	4 Pole Strain structure (3x15 m & 1x16 m Poles) (Str_4pole_in-line_15m_16m.pol)	7618	Each	1			
13.18	4 Pole Strain structure (3x15 m & 1x17 m Poles) (Str_4pole_in-line_15m_17m.pol)	7618	Each	1			
13.18	Extra-over items for 7: (Rates are only for the erection of the structures)						
13.18.1	In close proximity to a Livened Line		Sum	1			
14.	STAY ROD ASSEMBLIES						
14.1	Supply & install complete stay rod assembly.	7325	Each	119			
14.2	Erecting of construction stays	7325	Sum	1			
15.	STRUCTURE DRESSING						
	Supply, transport to specific pole position and install complete hardware (including supply of all insulators) for the						
	following structures (Strains > 60° need no post insulators) :						
15.1	22 m Intermediate Steel Pole, single circuit (Int_mono_SC_22m.pol)		Each	4			
15.2	24 m Intermediate Steel Pole, single circuit (Int_mono_SC_24m_FM.pol)		Each	2			
15.3	25.3 m Intermediate Steel Pole, single circuit (Int_mono_SC_25.3m_FM.pol)		Each	15			
15.4	24 m Intermediate Steel Pole, double circuit (HV/MV) (Int_mono_DCHVdcmv_24m_FM.pol)		Each	13			
15.5	20 m Angle Strain Steel Pole, single circuit (Str_mono_in-line_20m.pol)		Each	2			
15.6	20 m Angle Strain Steel Pole, single circuit (Str_mono_SC_7615d_r2_20m.pol)		Each	1			

LIST C: LINE CONSTRUCTION

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
15.7	23.2 m Angle Strain Steel Pole, single circuit (Str_mono_SC_23-2m_FMSS.pol)		Each	3			
15.8	24 m Angle Strain Steel Pole, single circuit (Str_mono_SC_7615d_r2_24.pol)		Each	3			
15.9	19 m Angle Strain Steel Pole HV/MV (Str_2pole_2xSC_19mtcah+MV_FM.pol)		Each	1			
15.10	23.2 m Angle Strain Steel Pole HV/MV (Str_2pole_2xSC_23.2mtcah+MV_FM.pol)		Each	2			
15.11	3 x 32 m Pole Strain structure (Str_3pole_in-line_32m.pol)		Each	1			
15.12	4 Pole Strain structure (4x10 m Poles) (Str_4pole_in-line_10m.pol)		Each	1			
15.13	4 Pole Strain structure (4x11 m Poles) (Str_4pole_in-line_11m.poll)		Each	1			
15.14	4 Pole Strain structure (3x10 m & 1x11 m Poles) (Str_4pole_in-line_10m_11m.pol)		Each	1			
15.15	4 Pole Strain structure (3x10 m & 1x12 m Poles) (Str_4pole_in-line_10m_12m.pol)		Each	1			
15.16	4 Pole Strain structure (3x10 m & 1x12 m Poles) (Str_4pole_90deg_10m_12m.pol)		Each	2			
15.17	4 Pole Strain structure (3x15 m & 1x16 m Poles) (Str_4pole_in-line_15m_16m.pol)		Each	1			
15.18	4 Pole Strain structure (3x15 m & 1x17 m Poles) (Str_4pole_in-line_15m_17m.pol)		Each	1			
15.19	Extra-over items for 7: (Rates are only for dressing)						
15.19.1	In close proximity to a Livened Line		Sum	1			
16.1	TRANSPORTATION						
	Transporting all material and equipment to pole/tower position not covered elsewhere						
16.1	Limited haul (The first 5km beyond the end of the free haul distance by the shortest practical route)		Sum	1			
16.2	Long haul (Remainder of distance beyond the limited haul by the shortest practical route)		Sum	1			
	SUBTOTAL CARRIED TO ITEM 3 OF SUMMARY						

BILL OF QUANTITIES

VULCAN MTS TO SIYANQOBA SUBSTATION 132 kV CIRCUIT OVERHEAD LINE (CONTRACT NUMBER: ELM 07/2021 (READVERT))

LIST D: STRINGING AND REGULATION

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
	STRINGING AND REGULATION						
1.	STRINGING						
	Supply, transport to site and string the following (Length is for all three phases):						
1.1	Phase conductor - Single Chickadee	3136s3	m	37000			
1.2	Earth wire (Single 7/3.35)	3124	m	Rate Only			
2.	JOINTS AND TERMINATIONS						
	Supply and install the following compression joints:						
2.1	Midspan joint - Kingbird	7001s3	Each	24			
2.2	Dead end termination - Chickadee	7000s3	Each	126			
2.3	Dead end termination - Earth wire (Single 7/3.35)	7035s1	Each	Rate Only			
3.	DAMAGE REPAIR						
	Supply and install repair sleeves for damaged conductors:						
3.1	Midspan repair sleeve (Kingbird)	7020s3	Each	1			
4.	MAKING OFF AND REGULATION						
	(Strain to Strain Section)						
4.1	Phase conductor - Single Chickadee		Each	66			
4.2	Earth wire (Single 7/3.35)		Each	Rate Only			
5.	CLAMPING-IN						
5.1	Clamping-in phase conductor (Chickadee)		Each	189			
6.	VIBRATION DAMPERS						
	Supply and install the following vibration dampers:						
6.1	Install Multi-frequency dampers for Chickadee conductor	7005s3	Each	390			
6.2	Install Spiral dampers for Earth wire (Single 7/3.35)	3176	Each	Rate Only			
7.	PERCHING BRACKET						
	Supply and install a perching bracket	7447	Each	55			
8.	AIRCRAFT WARNING SPHERES						
	Supply, transport to specific spans and install complete hardware on specified spans	7028	Each	50			
9.	NATIONAL AND PROVINCIAL ROAD CROSSING						
	Prepare structures, erecting of temporary structures for road crossing, provision of all required road signs at point of crossing. Notify Route Manager, Regional Manager and provincial Traffic Officials at least 30 days prior						

BILL OF QUANTITIES

VULCAN MTS TO SIYANQOBA SUBSTATION 132 kV CIRCUIT OVERHEAD LINE (CONTRACT NUMBER: ELM 07/2021 (READVERT))

LIST D: STRINGING AND REGULATION

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
	to commencement of stringing. Arrange notification of road closure by means of news media and radio stations.						
9.1	National Road crossing including all signage and traffic control.		Sum	1			
9.2	Cost to advertise road closure and arrange closure with Provincial Traffic Department.		Sum	1			
10.	MUNICIPAL MAIN ROAD CROSSING						
	Prepare structures, erecting of temporary obstructions and barricades, provision of road signs. Notify manager Roads						
	Department and municipal traffic officials at least 30 days prior commencement of stringing.						
10.1	Municipal Main Road crossing including all signage and traffic control.		Sum	1			
10.2	Cost to advertise road closure and arrange closure with Municipal Traffic Department.		Sum	1			
11.	RAILWAY CROSSINGS.						
	Prepare structures, erecting of temporary structures for railway crossing. Notify Transnet Manager 30 days prior to						
	commencement of stringing across railway.						
11.1	Railway crossing.		Sum	Rate Only			
11.2	Transnet Supervision Cost		Sum	Rate Only			
11.3	Railway live line crossing		Sum	Rate Only			
12.	PIPELINE CROSSINGS						
	Prepare structures, erecting of temporary structures for waterboard crossing. Notify District Superintendent 30 days						
	prior to commencement of stringing across waterpipe line.						
12.1	Gaspipeline crossing.		Sum	1			
13.	Miscellaneous overhead crossings						
	Prepare structures, erecting of temporary obstructions and barricades, provision of relevant signs. Notify relevant						
	stakeholders at least 30 days prior commencement of stringing and obtain permits for the following crossing:						
13.1	Gravel Roads		Sum	1			
13.2	River and/or stream crossing		Sum	1			
13.3	Telephone Line		Sum	1			
13.4	Houses and/or structures		Sum	Rate Only			
14.	Miscellaneous Electrical Lines overhead crossings						
	Prepare structures, erecting of temporary obstructions and barricades, provision of relevant signs. Notify relevant						
	stakeholders at least 30 days prior commencement of stringing and obtain permits for the following overhead crossings:						
14.1	LV Power Line		Sum	1			
14.2	11 & 22 kV Power Line		Sum	1			

LIST D: STRINGING AND REGULATION

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
14.3	88 & 132 kV Power Line		Sum	1			
14.4	Live Line Crossings for 11 & 22 kV Power Lines.		Sum	1			
14.5	Live Line Crossings for 88 & 132 kV Power Lines.		Sum	1			
15	Miscellaneous underneath crossings						
	Prepare structures, erecting of temporary obstructions and barricades, provision of relevant signs. Notify relevant stakeholders at least 30 days prior commencement of stringing and obtain permits for the following underneath crossings:						
15.1	275 kV Power Line		Sum	Rate Only			
15.2	88 & 132 kV Power Line		Sum	1			
15.3	Working in close proximity to a Livened Line		Sum	1			
16.	CLOSING SPANS						
	Supply, transport to site and string the following (including conductors, shield wiring insulators, vibration dampers and assemblies):						
16.1	Vulcan MTS : Chickadee		Sum	1			
16.2	Siyanqoba Substation : Chickadee		Sum	1			
17.	Complete all parts of the Construction Handbook that applies to the construction of the line		Sum	1			
17	LABELLING						
17.1	POLE IDENTIFICATION LABELS						
	Supply and install pole identification labels on entire line from:						
17.1.1	Vulcan MTS to Siyanqoba 132 kV	5050s1	Each	55			
17.2	LINE DESIGNATION LABELS						
	Supply and install line designation labels on the third pole from both Kookfontein Substation and Sicelo Substation						
17.2.1	Vulcan MTS to Siyanqoba 132 kV	5050s1	Each	2			
17.3	LINE CROSSING LABELS						
	Supply and install line crossing labels on the three poles in front of a bend on either side.						
17.3.1	Supply and install line crossing labels	5050s2	Each	45			
	SUBTOTAL CARRIED TO ITEM 4 OF SUMMARY						

BILL OF QUANTITIES**VULCAN MTS TO SIYANQOBA SUBSTATION 132 kV CIRCUIT OVERHEAD LINE (CONTRACT NUMBER: ELM 07/2021 (READVERT))****LIST E: FIBRE OPTIC WORK**

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
	FIBRE OPTIC						
1.	STRINGING						
	Supply and string the following:						
1.1	48 Fibre 10/125 single mode OPGW cable		m	12100			
1.2	48 Fibre 10/125 single mode non-metallic duct fibre cable (ADSS)		m	200			
1.3	6 Fibre 10/125 single mode underground cable (armoured)		m	50			
2.	FIBRE OPTIC CONTROL CABLES						
	Supply and install the following:						
2.1	Patch leads Duplex ST to ST 3m		Each	2			
3.	FIBRE OPTIC CONTROL PANELS						
	Supply and install the following:						
3.1	19" Patch panel, 48 way (Complete with ST ceramic mid couplers, ST pigtails unruggedised)		Each	1			
3.2	19" Patch panel, 6 way (Complete with ST ceramic mid couplers, ST pigtails unruggedised)		Each	2			
3.3	19" Swing-frame BME cabinet		Each	1			
4.	JOINTS AND TERMINATIONS						
	Supply and install the following :						
4.1	Outdoor Splice enclosure (2 way)		Each	8			
4.2	Dead end termination - OPGW		Each	44			
5.	OPTIC FIBRE HARDWARE						
	Supply and install the following:						
5.1	HDPE Tubing (grade 6 or better) or Optex		m	200			
5.2	Galvanised pipe (25mm) / Channeling		m	50			
6.	MAKING OFF AND REGULATION						
	(Strain to Strain Section)						
6.1	OPGW		Each	22			
7.	CLAMPING-IN						
7.1	Clamping-in OPGW		Each	34			
8.	DRESSING						
	Supply, transport to specific pole position and install complete OPGW hardware for the following structures according to Eskom standard TRMASACB2:						

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO D-DT	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
8.1	OPGW Insulated strain assembly at Splicing tower including OPGW downlead clamps		Each	Rate Only			
8.2	OPGW Non-insulated strain assembly at Splicing tower including OPGW downlead clamps		Each	23			
8.3	OPGW Standard Non-insulated strain assembly		Each	0			
8.4	OPGW Standard Insulated strain assembly		Each	Rate Only			
8.5	OPGW Standard Non-insulated suspension assembly including support bracket		Each	34			
8.6	OPGW Standard Insulated suspension assembly including support bracket		Each	Rate Only			
9.	VIBRATION DAMPERS						
	Supply and install the following vibration dampers:						
9.1	Install Multi-frequency dampers for OPGW	7005s3	Each	110			
	SUBTOTAL CARRIED TO ITEM 5 OF SUMMARY						

BILL OF QUANTITIES**VULCAN MTS TO SIYANQOBA SUBSTATION 132 kV CIRCUIT OVERHEAD LINE (CONTRACT NUMBER: ELM 07/2021 (READVERT))****LIST F: SUBSTATION**

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
1.	EARTHING						
1.1	Transformer earthing, 80 mm x 6 mm galvanised steel earth strap (to be measured and bent on site)	5232	m	50			
2.	INSTALLATION OF EQUIPMENT						
	Supply, Installation and Commissioning of the following equipment:						
2.1	20 MVA 132 / 11 kV YNd1 OLTC transformer to be installed and commissioned by OEM	6126s1	Each	1			
2.2	132 kV Surge Arrestor S/CL MCOV 56kV 31mm/kV (Trfr mounted).	6211	Each	3			
2.3	66 kV Surge Arrestor S/CL MCOV 48kV 31mm/kV (Trfr mounted) Neutral Bushing.	6212	Each	1			
2.4	11 kV Surge Arrestor S/CL MCOV 12kV 31mm/kV (Trfr mounted).	6216	Each	3			
2.5	11 kV NEC / NER / AUX Transformer 360A-10sec 31mm/kV.	6140s1	Each	1			
2.6	66 kV Post Insulators.	6232s1	Each	6			
2.7	Insulated Long Rod 132 kV 120kN B/S 31C	7014s2	Each	18			
3.	CLAMP ASSEMBLIES, STRINGING, STRANDED CONDUCTOR & TUBULAR CONDUCTOR						
	Supply and install the following which must be capable of carrying 2 300 A.						
3.1	CLAMP B/COMP 26.5mm - 26mm EXC-A 0 DEG (McWade : KC-1)	6006s2	Each	3			
3.2	CLAMP B/COMP 38.3mm - 38mm EXC-C 0DEG (Mcwade : KC-3)	6006s2	Each	3			
3.3	CLAMP T/COMP RUN-23.5mm TAP-26.5mm ETC-A (McWade : TC-1)	6010s2	Each	6			
3.4	CLAMP PISTOL 4B 20mm-30mm	6042s1	Each	6			
3.5	CLAMP TUBE TAP-OFF ETP-TE-IL1-F0 (McWade : TBCT120/C1-38 0 DEG)	6090s3	Each	3			
3.6	CLAMP, SLIDE TUBE ECC-PI-S-F (McWade : TBSC120-127)	6086s4	Each	3			
3.7	CLAMP, FIXED TUBE ECC-PI-F-F (McWade : TBFC120-127)	6086s1	Each	3			
3.8	CLAMP TUB BUS/PALM T/OFF TBPT120	6117s1	Each	6			
3.9	BOLT U GALV M16 x 89 x 102mm	6098s1	Each	18			
3.10	CLEVIS BALL 16mm IEC 120kN	6059s1	Each	18			
3.11	SOCK TONGUE 16mm IEC 120kN	6061s1	Each	18			

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VULCAN MTS TO SIYANQOBA SUBSTATION 132 kV CIRCUIT OVERHEAD LINE (CONTRACT NUMBER: ELM 07/2021 (READVERT))

LIST F: SUBSTATION

TENDER PRICE

ITEM	DESCRIPTION	DRG NO	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
3.12	11 kV Busbar - Aluminium Tubes, 120 x 4 mm thick x 12 m lengths inclusive of vibration damping	6000s1	Each	1			
3.13	Stringers and droppers - Centipede	3136s7	m	200			
3.14	Stringers and droppers - Bull insulated	3136s8	m	50			
4.	EQUIPMENT LABELLING						
4.1	Supply and install outdoor equipment labels (chromadek c/w bolts, brackets etc).	5047	Each	3			
4.2	Supply and install phase identification disks (Blue/Red/White).	6114	Each	9			
5.	FACTORY ACCEPTANCE TEST (FAT)						
	Provision for three (3) Engineers and three (3) Employer Representatives and one (1) contractor representative to witness FAT						
	at manufacturer as specified in Clause C3.1.19.10 for the following equipment:						
5.1	20 MVA 132/11 kV Transformer		Sum	1			
5.2	11kV NEC / NER / AUX Transformer		Sum	1			
6.	SITE ACCEPTANCE TEST (FAT)						
6.1	20 MVA 132/11 kV Transformer		Sum	1			
6.2	11kV NEC / NER / AUX Transformer		Sum	1			
7.	CONTROL CABLE WORK						
	Supply, installation and commissioning of the following control cables:						
7.1	CABLE LAYING						
7.1.1	Cable 1 kV 19c 2,5 mm ² Armoured (No 3)		m	950			
7.1.2	Cable 1 kV 12c 2,5 mm ² Armoured (No 3)		m	2460			
7.1.3	Cable 1 kV 7c 2,5 mm ² Armoured (No 3)		m	500			
7.1.4	Cable 1 kV 4c 2.5 mm ² Armoured (No 1)		m	500			
7.1.5	Cable 1 kV 4c 4 mm ² Armoured (No 1)		m	2150			
7.1.6	Cable 1 kV 4c 16 mm ² Armoured (No 2)		m	100			
7.1.7	Cable 1 kV 4c 25 mm ² Armoured (No 3)		m	100			
7.1.8	Cable 10 Pair 0,6 mm ² Armoured (No 1)		m	30			

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VULCAN MTS TO SIYANQOBA SUBSTATION 132 kV CIRCUIT OVERHEAD LINE (CONTRACT NUMBER: ELM 07/2021 (READVERT))

LIST F: SUBSTATION

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
7.1.9	Cable 25 Pair 0,6 mm ² Armoured (No 3)		m	30			
7.1.10	Cable 50 Pair 0,6 mm ² Armoured (No 2)		m	30			
7.1.11	All HV external and internal SCADA cabling, wiring, termination, glanding etc. requirements (MV SCADA cabling and wiring measured with MV switchgear)						
			Sum	1			
7.2	CABLE MAKE OFF						
	Supply, making off and commissioning of cable ends.						
7.2.1	Cable 1 kV 19c 2,5 mm ² Armoured (No 3)		Each	36			
7.2.2	Cable 1 kV 12c 2,5 mm ² Armoured (No 3)		Each	114			
7.2.3	Cable 1 kV 7c 2,5 mm ² Armoured (No 3)		Each	9			
7.2.4	Cable 1 kV 4c 2.5 mm ² Armoured (No 1)		Each	9			
7.2.5	Cable 1 kV 4c 4 mm ² Armoured (No 1)		Each	197			
7.2.6	Cable 1 kV 4c 16 mm ² Armoured (No 2)		Each	6			
7.2.7	Cable 1 kV 4c 25 mm ² Armoured (No 3)		Each	6			
7.2.8	Cable 10 Pair 0,6 mm ² Armoured (No 1)		Each	24			
7.2.9	Cable 25 Pair 0,6 mm ² Armoured (No 3)		Each	6			
7.2.10	Cable 50 Pair 0,6 mm ² Armoured (No 2)		Each	6			
8.	TESTING AND COMMISSIONING						
	Megger testing of all LV cables before energising and confirming their destination		Sum	1			
9.	CONTROL PANELS (INDOOR SWING FRAME)						
	Design, supply, install and commission panels as follows. (Protection panels to include 1 x painted mimic c/w 19" rack-mounted frame, semaphores for all equipment and lamp test)						
9.1	Transformer Protection Panel and Tap Change Panel		Each	1			
9.2	132 kV Feeder Protection Panel		Each	1			
10.	FACTORY ACCEPTANCE TEST (FAT)						
	Provision for three (3) Engineers and three (3) Employer Representatives and one (1) contractor representative to witness FAT at the manufacturer as specified in Clause C3.1.19.10 for the following equipment:						

BILL OF QUANTITIES

VULCAN MTS TO SIYANQOBA SUBSTATION 132 kV CIRCUIT OVERHEAD LINE (CONTRACT NUMBER: ELM 07/2021 (READVERT))

LIST F: SUBSTATION

TENDER PRICE							
ITEM	DESCRIPTION	DRG NO	UNIT	QTY	UNIT LABOUR RATE	UNIT MATERIAL RATE	TOTAL
10.1	Transformer Protection and Tap Change Panel & Feeder Protection Panel		Sum	1			
11.	TESTING AND COMMISSIONING BY OEM ON SITE						
	Test of protection panels to be done with Omicron Testing Equipment.		Sum	1			
12.	FOUNDATIONS / PLINTHS	1200LC					
	Excavate, dispose of burden within free haul distance of 5km, backfill, compaction, supply and cast complete concrete foundations with holding down bolts, fdn, with holding down bolts, fdn, internal earthing and earth connections detailed in the drawings, rates for concrete to include taking concrete samples and obtaining test certificates for 9,14 & 28 days. General rules applicable to casting of concrete: cast below 35°C; use steel shuttering as far as possible, use slow curing concrete; use low shrinkage concrete. Concrete maximum shrinkage, stress and modules of elasticity obtainable from the specification. Only steel shuttering may be used and steel templates for the holding down bolts - to be approved prior to foundation construction						
12.1	132kV Column Lattice Steel Foundation	5252s1A	Each	6			
12.2	MV cable end support foundation	5213s1A	Each	1			
13.	ERECTION OF STEELWORK						
	Equipment Support - Manufacture, supply and install equipment support for the following:						
13.1	132kV Column Lattice Steel	5252s2A	Each	8			
13.2	132/50/1 Beam Lattice Steel	5252s2B	Each	6			
13.3	132/40/1 Beam Lattice Steel	5252s2D	Each	4			
13.4	132/EW Earthwire Support Lattice Steel	5252s2E	Each	8			
13.5	132kV Column Anti-Climbing Device	5252s2F	Each	8			
13.6	MV Cable Sealing End support	5213s3	Each	1			
14	MISCELLANEOUS						
	The tenderer to provide the following as par to fo the contract.						
14.1	12 Month maintenance support		Sum	1			
14.2	As-built manuals and drawings, hard and software copy.		Each	5			
15	CABLE TRENCH	PSE 07					
	Excavation, bedding, danger tape, backfilling and consolidation of cable trenches.		m	200			
	SUBTOTAL CARRIED TO ITEM 7 OF SUMMARY						

BILL OF QUANTITIES**VULCAN MTS TO SIYANQOBA SUBSTATION 132 kV CIRCUIT OVERHEAD LINE (CONTRACT NUMBER: ELM 07/2021 (READVERT))
SUMMARY**

ITEM NO	DESCRIPTION OF THE ITEM	LIST	PAGE	PRICE
	Overhead Line			
1	A - Preliminaries and General	List A		
2	B - Quality Control Program and Bush Clearing	List B		
3	C - Line Construction	List C		
4	D - Stringing and Regulation	List D		
5	E - Fibre Optic Work	List E		
6	F - Substation	List F		
	SUBTOTAL A			
	Plus: Amount allowed for contingencies (10 % x Subtotal A)			
	Plus: Amount allowed for escalation (5 % x Subtotal A)			
	SUBTOTAL B			
	Plus: 15 % VAT			
	TOTAL TENDER PRICES (Incl VAT)			