

PROVISIONAL SCHEDULE OF QUANTITIES

FOR

**ESKOM NORTH WEST GRID
WATERSHED LINE DEVIATION**

FOR

**ESKOM TRANSMISSION
MEGAWATT PARK
MAXWELL DRIVE
SUNNINGHILL**

**Document Prepared by
Transmission
Quantity Surveying Group**

SECTION NO. 1

PRELIMINARY AND GENERAL

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<u>SECTION NO. 1</u>				
	<u>SCHEDULE NO. 1</u>				
	<u>PRELIMINARY AND GENERAL</u> <u>(Applicable to the whole of the Works)</u>				
	<u>FIXED CHARGE ITEMS</u>				
1	Contractual requirements <u>Establishment of Facilities on the Site</u> <u>Facilities for Engineer</u>	SUM			
2	Name boards. (In No. 2) <u>Facilities for Contractor</u>	SUM			
3	Offices and storage sheds	SUM			
4	Workshops	SUM			
5	Laboratories	SUM			
6	Living accommodation	SUM			
7	Ablution and latrine facilities	SUM			
8	Tools and equipment	SUM			
9	Water supplies, electric power, communications, dealing with water, and access	SUM			
10	Dealing with water	SUM			
11	Access	SUM			
12	Plant	SUM			
13	Other fixed charge obligations	SUM			
14	Removal of site establishment	SUM			
15	Complying with Eskom Health and Safety Specifications	SUM			
16	Complying with the Mine Health and Safety Specifications	SUM			
17	Complying with Environmental Management Programme Act and all other statutory environmental requirements	SUM			
18	Security for the works for duration of the Contract, equivalent to Bidvest.	SUM			
19	Detailed "as built" records (as per works information) 3 soft copies and 1 hard copy	SUM			
	<u>CARRIED FORWARD</u>				

ITEM	DESCRIPTION	UNIT	QTY	RATE	
	<u>BROUGHT FORWARD</u>				
	<u>TIME RELATED ITEMS</u>				
20	Contractual requirements	SUM			
	<u>Operation and Maintenance of Facilities on Site, for Duration of Construction, (unless otherwise stated).</u>				
	<u>Facilities for Engineer</u>				
21	Name boards. (In No. 2)	SUM			
	<u>Facilities for Contractor</u>				
22	Offices and storage sheds	SUM			
23	Workshops	SUM			
24	Laboratories	SUM			
25	Living accommodation	SUM			
26	Ablution and latrine facilities	SUM			
27	Tools and equipment	SUM			
28	Water supplies, electric power, communications, dealing with water, and access	SUM			
29	Dealing with water	SUM			
30	Access	SUM			
31	Plant	SUM			
32	Supervision for duration of construction	SUM			
33	Complying with Eskom Health and Safety Specifications	SUM			
34	Complying with the all COVID 19 complainance as per all Eskom requirement for Health & Safetv, Environmental Specification.	SUM			
35	Company and head office overhead costs for duration of construction	SUM			
36	Other time related obligations	SUM			
37	Complying with Environmental Management Programme and all other statutory environmental requirements	SUM			
38	Security for the works for duration of the Contract.	SUM			
39	Detailed "as built" records (as per works information) 3 soft copies and 1 hard copy	SUM			
	<u>SUB TOTAL - CARRIED TO SUMMARY</u>				

SECTION NO. 2 -DAY WORKS PROVISIONAL ITEMS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<u>SECTION NO. 2.</u>				
	<u>SCHEDULE NO. 1</u>				
	<u>PROVISIONAL AMOUNTS</u>				
	Note: This will be used as instructed by the Project Manager and paid with a Site Instruction.				
	<u>Transportation for free issue material due to employers risk: (PROVISIONAL)</u>				
1	Provisional sum, for the collection and delivery of free issue material supplied by Eskom from a predetermined location to site, with a 10 ton flatbed truck including truck hire, driver, etc., complete. (Provisional)	Km	1000		
	<u>PROVISIONAL DAYWORKS</u>				
	<u>Standing Time Due to Employers Risk (Provisional):</u>				
	<u>Labour</u>				
2	Project Engineer	hr	100		
3	Site Engineer	hr	100		
4	Design Engineer	hr	100		
5	Site Foreman	hr	150		
6	Supervisors	hr	150		
7	Semi skilled Labourers	hr	200		
8	Unskilled Labourers	hr	200		
9	Community Laising Officer (CLO)	month	15		
10	Driver Operator	hr	200		
	<u>Transport and Plant</u>				
11	4 x 4 Light vehicle	day	20		
12	4 x 4 Light vehicle	km	200		
13	8 Ton truck	hr	100		
14	8 Ton truck	km	200		
15	10 Ton truck	hr	30		
16	10 Ton truck	km	200		
17	20 Ton Crane Truck	hr sta	50		
18	20 Ton Crane Truck	hr wo	120		
19	90 Ton Crane Truck	hr sta	50		
20	90 Ton Crane Truck	hr wo	120		
21	Day shift security guard grade C - unarmed	hr	200		
22	Night shift security guard grade C - armed	hr	200		
	<u>SUB TOTAL - CARRIED TO SUMMARY</u>				

This BOQ comprises of works to construct a Watershed Sub-Transmission line with 132kV Specifications

The contractor is requested to quote all items.

Item	Refer	Description	Unit	Qty	Rate	Amount
A	Supply all material and perform tests at an approved body as indicated below. Refer to Volume 4 for the required material. Should the Test Joint fail, the Contractor will re-test at his own cost. Before construction commences, the crimper/s to be used on the line shall be used to crimp the test pieces by an authorised person who shall perform joints on the line. This must be witnessed by Site Supervisor and test certificates to be provided as part of the Hand Over Documentation.					
A.1	SUPPLY ALL MATERIAL AND PERFORM TEST					
A.1.1	<u>Test Joint, concrete and conductors</u>	Supply all material and perform tests at an approved body as indicated below. Refer to Volume 4 for the required material. Should the Test Joint fail, the Contractor will re-test at his own cost.				
A.1.1.1	04TB-040	Test complete Kingbird assembly in accordance with Eskom technical bulletin 04TB-040	no	1		
A.1.1.2	04TB-040	Test complete Wolf assembly in accordance with Eskom technical bulletin 04TB-040	no	1		
A.1.1.3	04TB-040	Test complete 19/2.65 wire stay assembly to 115kN	no	1		
A.1.1.4		Tension testing on the phase conductor with dead ends (2 sample at a minimum of 11m each).	each	9		
A.1.1.5		Tension testing on the earthwire with dead ends (2 sample at a minimum of 11m each).	each	3		
A.1.1.6		Testing of concrete cubes for structure foundations	no	26		
A.1.1.7		Testing of concrete cubes for staywire foundations	no	21		
A.1.1.8	D-NT00004	Install Farm Gates (for fences crossed by line)	no	1		
A.1.1.9		Complete all parts of the Construction Handbook that applies to the construction of the	item	1		

Supply Poles Structures: Supply, transport to pole position.						
NOTE: The cost to supply the structures should include the cost to design the structures in accordance with 0501KR-01 rev 1. CIS or Structurecom can be approached for this. The design and full set of drawings to be submitted to the Eskom Design Engineer 2 weeks after the contract award. Contractor to nominate and confirm all 3-pole structure pole lengths at specified pole positions before ordering the poles.						
A1.3.3						
A1.3.3.1	Supply 132kV Steel Monopole Self-Supporting Structure:				Unit	Qty
A1.3.3.1.1	strsce0218kw110	Pole, St 132kV Strain (2 degrees 18 m) (Bottom Att 11 m) self support - supply	no	1		
A1.3.3.1.2	strsce4518kw110	Pole, St 132kV Strain (45 degrees 18 m) (Bottom Att 11 m) self support - supply	no	5		
A1.3.3.1.3	strsce9018kw110	Pole, St 132kV Strain (90 degrees 18 m) (Bottom Att 11 m) self support - supply	no	2		
A1.3.3.1.4	str3psce3518kw158	Pole, St 132kV Str 3 pole 16m,18m,16m 23kN (complete set) (Bottom Att 15.8 m) - supply	no	1		
A1.3.3.2	Supply 132kV 3-pole intermediate structure				Unit	Qty
A1.3.3.2.1	D-DT-7617	132kV 3 pole intermediate structure (18m,20m,18m) complete set- supply	no	1		
A1.3.3.2.2	D-DT-7617	132kV 3 pole intermediate structure (16m,18m,16m) complete set- supply	no	1		
A1.3.3.3	Stayed Strain Planted Structures D-DT-7618 (2x7618c)				Unit	Qty
A1.3.3.3.1	D-DT-7851s3	Pole, St 132kV Str 3 pole 16m,18m,16m 23kN (Bottom Att 13.4 m)complete set	no	2		
A1.3.3.4	Stayed Strain Planted Structures D-DT-7618 (1x7618d)				Unit	Qty
A1.3.3.4.1	D-DT-7851s3	Pole, St 132kV Str 3 pole 20m,22m,20m 23kN (Bottom Att 17.4 m)	no	3		
Sub-Total						

B.1 SITE CLEARANCE AND STRUCTURES FOUNDATION						
B.1.1		SITE CLEARANCE	Unit	Qty	Rate	Amount
B.1.1.1	ESKASABG 3 Rev1 & DISTIZAC2	Project Engineer/Environmental Officer to identify the extent of bush clearing needed and quote to do bush clearing on the whole line in accordance with the standard including site camp. Cost (as per Eskom approved rates)+5% handling fee	m2	3000		
B.1.1.2	As per TRMSCAAC1 Rev 5.2	Environmental Management Plan to maintain all existing private farm roads and tracks used to gain access to the servitude for construction purposes and reinstate to at least the original condition upon completion. Photographic evidence of the original condition must be provided by the Contractor before use. (Provisional)	km	1.5		
B.1.1.3	As per TRMSCAAC1 Rev 5.2	Environmental Management Plan to establish all temporary access roads necessary to gain access to the servitude and tower positions for construction purposes and close on completion, as instructed by the <i>Supervisor</i> .	km	1.5		
B.1.1.4	ROD/EA, EMP, TRMSCAAC1 and ESKASABG3.	Rehabilitation of damage caused during construction to tower sites, access and servitude roads, camp sites, batching plant sites, etc. In accordance with the requirements of the ROD, EMP, TRMSCAAC1 and ESKASABG3.	m2	3000		
B.1.2 Pole Foundations						
<p>Nomination of foundation types should be determined by registered civil engineer and signed off by him/her in Volume 5, Annexure D, Construction Report. Design foundations for all structures in accordance with 0501KR-01 rev 1 by a registered professional in each type of soil (type 1, 2, 3, 4 and rock). Designs and drawings to be submitted to Eskom Design Engineer two weeks after contract award. Designs to be Eskom Copyright. Nominations to be done on site by Contractor Civil Engineer to specify which of the foundation designs above must be used for each structure.</p> <p>Excavate, barricade, supply and transport to pole position imported material, dispose excavated material, supply, and install complete foundation based on a 20% Rock , 80% Type 3 and 20% Type 4 foundation, for the following structures: Note: Costs are based on 120% foundations for quotation purposes. Contractor invoices must be based on the foundation soil nomination done by the civil engineer.</p>						
B.1.2.1		Poles structure soil nomination	Unit	Qty	Rate	Amount
B.1.2.1		Soil Nomination of all polesfoundation,soil type to be determined by registered civil engineer and signed off by him/her in Volume 5, Annexure D, Construction Report.	no	5		
B.1.2.2 Poles structure foundations						
B.1.2.2.1		3 - Pole Strain Structures D-DT-7618	Unit	Qty	Rate	Amount
B.1.2.2.1.1	D-DT-7851	Pole, 3-Pole Strain Structure (0-90) 2 x 20m and 1 x 22m poles (Bottom Attachment Height m)- Foundation in type1	no	rate only		
B.1.2.2.1.2	D-DT-7851	Pole, 3-Pole Strain Structure (0-90) 2 x 20m and 1 x 22m poles (Bottom Attachment Height m)- Foundation in type2	no	1		
B.1.2.2.1.3	D-DT-7851	Pole, 3-Pole Strain Structure (0-90) 2 x 20m and 1 x 22m poles (Bottom Attachment Height m)- Foundation in type3	no	1		
B.1.2.2.1.4	D-DT-7851	Pole, 3-Pole Strain Structure (0-90) 2 x 20m and 1 x 22m poles (Bottom Attachment Height m)- Foundation in type4	no	rate only		
B.1.2.2.1.5	D-DT-7851	Pole, 3-Pole Strain Structure (0-90) 2 x 20m and 1 x 22m poles (Bottom Attachment Height m)- Foundation in Rocky	no	rate only		

B.1.2.2.2			3 - Pole Strain Structures D-DT-7617 (2 x 18m and 1 x 20m poles)	Unit	Qty	Rate	Amount
B.1.2.2.2.1	D-DT-7851	Pole, 3-Pole Strain Structure (0-90) 2 x 20 m and 1 x 22m poles (Bottom Attachment Height m)- Foundation in type1	no	rate only			
B.1.2.2.2.2	D-DT-7851	Pole, 3-Pole Strain Structure (0-90) 2 x 20 m and 1 x 22m poles (Bottom Attachment Height m)- Foundation in type2	no	1			
B.1.2.2.2.3	D-DT-7851	Pole, 3-Pole Strain Structure (0-90) 2 x 20 m and 1 x 22m poles (Bottom Attachment Height m)- Foundation in type3	no	1			
B.1.2.2.2.4	D-DT-7851	Pole, 3-Pole Strain Structure (0-90) 2 x 20 m and 1 x 22m poles (Bottom Attachment Height m)- Foundation in type4	no	rate only			
B.1.2.2.2.5	D-DT-7851	Pole, 3-Pole Strain Structure (0-90) 2 x 20 m and 1 x 22m poles (Bottom Attachment Height m)- Foundation in Rocky	no	rate only			
B.1.2.2.3			Strain Self Support Foundation Details	Unit	Qty	Rate	Amount
B.1.2.2.3.1	D-WC-7602-07-07-02	132kV 02 deg strain 18m monopole self-support- Foundation in type2	no	2			
B.1.2.2.3.2	D-WC-7602-07-11-03	132kV 45 deg strain 18m monopole self-support- Foundation in type2	no	5			
B.1.2.2.3.3	D-WC-7602-07-11-03	132kV 90 deg strain 18m monopole self-support- Foundation in type2	no	2			
B.1.2.2.3.4	D-WC-7602-07-07-02	132kV 35 deg strain 18m 3 pole self-support- Foundation in type2	no	1			
B.1.2.2.3.5	D-WC-7602-07-07-02	132kV 02 deg strain 18m monopole self-support- Foundation in type1	no	rate only			
B.1.2.2.3.6	D-WC-7602-07-11-03	132kV 45 deg strain 18m monopole self-support- Foundation in type1	no	rate only			
B.1.2.2.3.7	D-WC-7602-07-11-03	132kV 90 deg strain 18m monopole self-support- Foundation in type1	no	rate only			
B.1.2.2.3.8	D-WC-7602-07-07-02	132kV 35 deg strain 18m 3 pole self-support- Foundation in typ1	no	rate only			
B.1.2.2.3.9	D-WC-7602-07-07-02	132kV 02 deg strain 18m monopole self-support- Foundation in type3	no	rate only			
B.1.2.2.3.10	D-WC-7602-07-11-03	132kV 45 deg strain 18m monopole self-support- Foundation in type3	no	rate only			
B.1.2.2.3.11	D-WC-7602-07-11-03	132kV 90 deg strain 18m monopole self-support- Foundation in type3	no	rate only			
B.1.2.2.3.12	D-WC-7602-07-07-02	132kV 35 deg strain 18m 3 pole self-support- Foundation in type3	no	rate only			
B.1.2.2.3.13	D-WC-7602-07-07-02	132kV 02 deg strain 18m monopole self-support- Foundation in type4	no	rate only			
B.1.2.2.3.14	D-WC-7602-07-11-03	132kV 45 deg strain 18m monopole self-support- Foundation in type4	no	rate only			
B.1.2.2.3.15	D-WC-7602-07-11-03	132kV 90 deg strain 18m monopole self-support- Foundation in type4	no	rate only			
B.1.2.2.3.16	D-WC-7602-07-07-02	132kV 35 deg strain 18m 3 pole self-support- Foundation in type4	no	rate only			
B.1.2.2.3.17	D-WC-7602-07-07-02	132kV 02 deg strain 18m monopole self-support- Foundation in rocky	no	rate only			
B.1.2.2.3.18	D-WC-7602-07-11-03	132kV 45 deg strain 18m monopole self-support- Foundation in rocky	no	rate only			
B.1.2.2.3.19	D-WC-7602-07-11-03	132kV 90 deg strain 18m monopole self-support- Foundation in rocky	no	rate only			
B.1.2.2.3.20	D-WC-7602-07-07-02	132kV 35 deg strain 18m 3 pole self-support- Foundation in rocky	no	rate only			
Sub-Total							
B.1.2.2.4			Stayed Strain Planted Structures D-DT-7618 (2x7618c)	Unit	Qty	Rate	Amount
B.1.2.2.4.1	D-DT-7851s3	Pole, St 132kV Str 3 pole 16m,18m,16m 23kN (Bottom Att 13.4 m)complete set - foundation	no	2			
B.1.2.2.5			Stayed Strain Planted Structures D-DT-7618 (1x7618d)	Unit	Qty	Rate	Amount
B.1.2.2.5.1	D-DT-7851s3	Pole, St 132kV Str 3 pole 20m,22m,20m 23kN(Bottom Att 17.4 m) foundation	no	3			
Sub-Total							

C		LINE CONSTRUCTION continue				
Towers to be connected to each other before the concrete cap is constructed. The Copper strap should thus be encased in the concrete cap. Material for 3 Point Star Earth Electrode as per 2-WT/763 (Structure Footing resistance results to be submitted to the Project Engineer/COW before earthing is done).The amount of the annealed copper conductor to be used for earthing will depend on the resistivity test at each pole: 900, cu = 60m, 900 ≤ ρ ≤ 1500, Cu = 80m 0 ≤ ρ ≤ 300, Cu = 20m. 300 ≤ ρ ≤ 600, Cu = 40m. 600 ≤ ρ ≤						
C.1		FOUNDATIONS TOWER EARTHING				
Tower Earthing: Supply, install and bond tower earthing:						
C.1.1		Tower Earthing: Supply tower earthing material	Unit	Qty	Rate	Amount
C.1.1.1	D-DT-3139	Cond, Cu Bare Str 7/1.63 Annealed 16mm SQ(D-DT-3139)	m	810		
C.1.1.2	D-DT-3048	Line Tap, TFR Brass/Tinned M12(D-DT-3048)	no	28		
C.1.1.3	D-DT-3102	Lug, Crimp Cu 50 SQ x M14 fixing Hole (as per D-DT-3102 but with M14 fixing hole)	no	14		
C.1.1.4	D-DT-3093	Clamp, Earth Rod 16 RODPH/BRNZ(D-DT-3093)	no	106		
C.1.1.5	D-DT-3091	Earth Rod Cu 1500x16D Threadless(D-DT-3091)	no	106		
C.1.1.6	D-DT-3082	Set Screw, Hx Galv M12x40 Nut+Wash(D-DT-3082)	no	28		
C.1.2		Tower Earthing: Test, install and bond tower earthing	Unit	Qty	Rate	Amount
C.1.2.1		Test footing resistance and share results with Engineer before installing the TPS	no	28		
C.1.2.2	2-WT/763 D-DT-0642	Excavate, supply and install complete 3 point star earth electrode (incl. rocky terrain)	no	28		
C.1.2.3		Bond the 3 poles of 3-Pole structures to each other by using 50 x 3mm flat Cu strap buried 1m deep, including excavation, supply, installation and backfilling. Note: Towers to be connected to each other before the concrete cap is constructed. The Copper strap should thus be encased in the concrete cap.	m	250		
		Boulder excavation - Class A	m3	5		
C		LINE CONSTRUCTION continue				
C.2		ERECTING, DRESSING AND STAYED STRUCTURES				
C.2.1		Steel Monopole Self-Supporting Structure: Erect the steel pole for the following structures at specified positions, including backfilling	Unit	Qty	Rate	Amount
C.2.1.1	strsce0218kw110	Pole, St 132kV Strain (2 degrees 18 m) (Bottom Att 11 m) self support - installation	no	2		
C.2.1.2	strsce4518kw110	Pole, St 132kV Strain (45 degrees 18 m) (Bottom Att 11 m) self support - installation	no	5		
C.2.1.3	strsce9018kw110	Pole, St 132kV Strain (90 degrees 18 m) (Bottom Att 11 m) self support - installation	no	2		
C.2.1.4	str3psce3518kw158	Pole, St 132kV Str 3 pole 16m,18m,16m 23kN (Bottom Att 15.8 m) - installation	no	1		
C.2.2		132kV 3-pole intermediate structure: Erect the steel pole for the following structures at specified positions, including backfilling	Unit	Qty	Rate	Amount
C.2.2.1	D-DT-7617	132kV 3 pole intermediate structure (18m,20m,18m)- installation	no	1		
C.2.2.2	D-DT-7617	132kV 3 pole intermediate structure (16m,18m,16m)- installation	no	1		
C.2.3		Stayed Strain Planted Structures D-DT-7618 (2x7618c): Erect the steel pole for the following structures at specified positions, including backfilling	Unit	Qty	Rate	Amount
C.2.3.1	D-DT-7851s3	Pole, St 132kV Str 3 pole 16m,18m,16m 23kN (Bottom Att 13.4 m) foundation	no	2		
C.2.4		Stayed Strain Planted Structures D-DT-7618 (1x7618d): Erect the steel pole for the following structures at specified positions, including backfilling	Unit	Qty	Rate	Amount
C.2.4.1	D-DT-7851s3	Pole, St 132kV Str 3 pole 20m,22m,20m 23kN (Bottom Att 17.4 m) foundation	no	1		

C.2.3	Supply and install all Stay wire and Stay assemblies					
<i>Please Note:</i> Quantity of stays determined on basis of 120% for costing: 80% for Type 3, 20% Type 4 soil and 20% for Rocky terrain. Contractor to verify on site the number of stay rod assemblies that will be needed for Type 3 and Type 4 soil, and the number of stay rod assemblies that will be needed for rocky terrain at specific pole positions.						
C.2.3.1	Supply and install all stay wire & assemblies for 132kV structures					
C.2.3.1.1	Supply all stay wire for 132kV structures - 19/2.65 stay rod assemblies		Unit	Qty	Rate	Amount
C.2.3.1.1.1	Supply and install all stay wire for 132kV structures		NO	21		
C.2.3.1.4	Foundations of staywire					
C.2.3.1.3.2		Excavate and transport imported material, barricade and dispose of excavated material, supply & install complete stay foundation for type 2 soil and connect to pole	NO	21		
C.2.3.1.3.3		Excavate and transport imported material, barricade and dispose of excavated material, supply & install complete stay foundation for type 1 soil and connect to pole	NO	rate only		
C.2.3.1.3.4		Excavate and transport imported material, barricade and dispose of excavated material, supply & install complete stay foundation for type 3 soil and connect to pole	each	rate only		
C.2.3.1.3.5		Excavate and transport imported material, barricade and dispose of excavated material, supply & install complete stay foundation for type 4 soil and connect to pole	each	rate only		
C.2.3.1.3.6		Excavate and transport imported material, barricade and dispose of excavated material, supply & install complete stay foundation for rock type and connect to pole	each	rate only		
Proof Load Testing of Stays: Contractor to do proof load test on every stay according to table V2.15 on page number of Volume 2.						
C.3		Contractor to supply proof loading specification (approved by professional engineer) to the Project Engineer 2 weeks after contract award.	each	1		
C.4		Proof load testing of 19/2.65 permanent stay assemblies.	each	1		
<i>Please Note:</i> Quantity of stays determined on basis of 120% for costing: 80% for Type 3, 20% Type 4 soil and 20% for Rocky terrain. Contractor to verify on site the number of stay rod assemblies that will be needed for Type 3 and Type 4 soil, and the number of stay rod assemblies that will be needed for rocky terrain at specific pole positions.						
C	LINE CONSTRUCTION continue					
C.5	Dressing					
Dressing must include the supply, transport to specific pole position and installation of complete hardware for the following structures:						
Note: Insulators to be supplied by Eskom						
3 - Pole Strain Structures D-DT-7617						
C.5.1	D-DT-7321	Pole, 132kV 3-Pole Strain Structure (0-90) 2 x 16 m and 1 x 18m poles (Bottom Attachment Height m)	no	1		
C.5.2	D-DT-7321	Pole, 132kV 3-Pole Strain Structure (0-90) 2 x 18 m and 1 x 20m poles (Bottom Attachment Height m)	no	1		
3 - Pole Strain Structures D-DT-7618						
C.5.3	D-DT-7311 D-DT-7321	Pole, 132kV 3-Pole Strain Structure (0-90) 2 x 16 m and 1 x 18m poles (Bottom Attachment Height m)	no	2		
Monopole Self-Supporting Structure						
C.5.4	D-DT-7311 & D-DT-7321 & 2WT 1421-1	Pole, St 132kV Strain (2 degrees 18 m) (Bottom Att 11 m) self support foundation	no	1		
C.9.40	D-DT-7311 & D-DT-7321 & 2WT 1421-1	Pole, St 132kV Strain (45 degrees 18 m) (Bottom Att 11 m) self support foundation	no	5		
C.9.41	D-DT-7311 & D-DT-7321 & 2WT 1421-1	Pole, St 132kV Strain (90 degrees 18 m) (Bottom Att 11 m) self support foundation	no	2		
C.9.42	D-DT-7311 & D-DT-7321 & 2WT 1421-1	Pole, St 132kV Str 3 pole 16m, 18m, 16m 23kN (Bottom Att 13.4 m) foundation	no	1		
Sub-Total						

D1	STRINGING and REGULATION					
D.1	<u>Stringing</u>					
Please Note: Phase conductor and earthwire already ordered by Eskom						
Please Note: Due to size and weight of Kingbird conductor, Contractor to ensure the necessary strength and size of Pilot wire for the purpose of stringing.						
		String the following (length is for all three phases):				
D.1.1		Phase conductor - Single Kingbird	m	6 500		
D.1.4		Earth wire - Single Wolf (incl. double for spans to and from 3-pole structures)	m	2 300		
D.1.6		Closing spans - Single Conductor king bird	m	498		
D.2	<u>Line Crossings</u>					
D.2.1		Prepare temporary structures and do stringing for the following type of crossings: Allow for all HV lines and etc. crossing as per the profile. Allow all the necessary requirements for line Crossings - supply and install safety net support structure (30m long x 16 width),including all the accessories.	no	6		
D.2.2		Allow all the necessary requirements for Line Crossings (Provisional)	no	6		
D.3	<u>Joints</u>					
D.3.1		Supply and string the following compression joints:				
D.3.1.1		Cond,Acsr Kingbird 23.90D Ungrs(D-DT-3136)	m	20		
D.3.1.2		Joint,M/Span Comp Kingbird 23.87(D-DT-7001)	no	2		
D.3.1.3		Cond, Acsr Wolf 18.13D Ungrs(D-DT-3136)	m	20		
D.3.1.4		Joint, M/Span Comp Wolf 18.13(D-DT-7001)	no	2		
D.3.1.5		Shackle, Straight Bolt Type 120kN(D-DT-7017)	no	2		
D.3.1.6		Clamp,C D/End Assy K/Bird 23.88 ACSR(D-DT-7000)	no	4		
D.3.1.7		Clamp, Comp D/End Assy Wolf 18.13(D-DT-7000)	no	4		
D.3.1.8		Install Midspan joint - Single Kingbird	no	12		
D.3.1.9		Install Midspan joint - Earth wire Wolf	no	4		
D.3.1.10		Install Dead-end termination - Kingbird	no	12		
D.3.1.11		Install Dead -end termination - Earth wire Wolf	no	4		
D.4	<u>Damage Repair</u>					
Install repair sleeves for damaged conductors:						
D.4.1		Mid span repair sleeve	no	5		
D.5	<u>Making off and Regulation</u>					
D5.1		Making off phase conductor - Kingbird	no	66		
		Making off shield wire - wolf	no	22		
		Regulating - Kingbird	no	66		
D5.5		Regulating - wolf	no	22		
D.6	<u>Clamping In</u>		Unit	Qty	Rate	Amount
D.6.1		Clamping-in phase conductor Kingbird	no	6		
D.6.4		Clamping-in earth wire (Wolf)	no	2		
D.7	<u>Vibration Dampers</u>		Unit	Qty	Rate	Amount
D.7.1		Install asymmetrical dampers on the phase conductors as indicated in Volume 2	no	84		
D.7.2		Install asymmetrical dampers on the phase conductors Spiral dampers on the earth wire as indicated in Volume 2	no	9		
D.8	<u>Bird Flappers & Aircraft Warning Spheres</u>		Unit	Qty	Rate	Amount
To be specified by the Environmental Report						
D.8.1		Supply and Install EBM bird flappers on shielding wire	no	6		
Spans crossing the cliffs deeper than 60m (between poles X1 to X2, Y1 to Y2, & Z1 to Z3)						
D.8.2	D-DT-7028	Supply and Install aircraft warning spheres on shielding wire (D-DT-7028 – SAP: 0174771) Cloud White - G80	no	6		
D.8.3		Supply and Install aircraft warning spheres on shielding wire (D-DT-7028 – SAP: 0174771) International Orange A15	no	6		
Sub-Total						

E	ESKASAANO Rev 1 2-WT/1148	LABELLING	Unit	Qty	Rate	Amount
E.1	Pole/Tower Identification Labels					
	D-DT-5050 s1	Supply and install for:				
E.1.1		Pole identification label	no	14		
E.2	Line Designation labels					
		Supply and install on terminal structures				
E.2.1	D-DT-5050 s1	Substation Terminal structure	no	rate only		
E.3	Line Crossing Labels					
	D-DT-5050 s2	Supply and install:				
E.3.1		Name line poles:	no	6		
E.4	Phase Disks(plate, PH MKR RED,WHITE & BLUE)					
	D-DT-6114	Supply and install on terminal structures				
E.4.1		Source Substation Terminal structure	no	12		
		Sub-Total				

F		REMOVAL OF EXISTING TOWERS WITH FOUNDATIONS AND HARDWARE				
F.1		Dismantle the following items and remove from site: stockpiling unwanted materials and Carefully remove all the conductor & earthwire to minimise damage to other infrastructures and earthwire for re-use to the new tower structure .	Dismantle, demolish, removal, Carefully remove all the conductor & earthwire to minimise damage to other infrastructures and earthwire for re-use to the new tower structure .			
			Unit	Qty	Rate	Amount
F.1.1		Removal of the 4 x lattice towers including foundations, stockpile and all unwanted material , and hand it over to an Eskom representative.	no	4		
F.1.2		Removal of the 2 x lattice structure including stays and foundations, stockpile and all unwanted material , and hand it over to an Eskom representative.	no	2		
F.1.3		Removal of the 1 x steel monopole structure including stays and foundations, stockpile and all unwanted material , and hand it over to an Eskom representative.	no	1		
F.1.4		Removal of the 1 x concrete monopole structure including stays and foundations, stockpile and all unwanted material , and hand it over to an Eskom representative.	no	1		
F.1.5		Dismantle Conductor, including all accessories and hand it over to Eskom representative etc.	m	3000		
F.1.6		Dismantle earthwire, including all accessories and hand it over to Eskom representative etc.	m	1 000		
F.1.3		Removal of hardware and insulator assebly for towers (160kg weight/ each), stockpile and hand it over to an Eskom representative	no	8		
F.1.4		Cutting of the steel towers stubs (120mm x 120mm x 10mm thick), and make it good.	no	6		
F.2		Lowering of earthwire attachment point	Unit	Qty	Rate	Amount
F.2.1		lower earthwire on lattice structure to correct Zeerust line clearance	no	1		
		Sub-Total				

WATERSHED LINE DEVIATION		
BILL	DESCRIPTIONS	AMOUNT
	<u>PRELIMINARY AND GENERAL</u>	
1	Preliminaries (Fixed & Time Related Items)	
2	Provisional Items	
	<u>SECTION 2</u>	
3	SUPPLY ALL MATERIAL AND PERFORM TEST	
4	SITE CLEARANCE AND STRUCTURES FOUNDATION	
5	FOUNDATION TOWER EARTHING	
6	STRINGING and REGULATION	
7	LABELLING	
8	REMOVAL OF EXISTING TOWERS WITH FOUNDATIONS AND HARDWARE	
	CONTRACT AMOUNT	