

BLACKHEATH SUBSTATION PHASE 2
PROJECT ID: WS-STM- 1207- 1172- 00002
BILL OF QUANTITIES
01 February 2022

Contracts Management Services

Prepared by: Khangelwa Gura

BILLS OF QUANTITIES SUMMARY PAGE

DESCRIPTION		AMOUNT
A	PRELIMINARIES AND GENERAL ITEMS	R 0.00
A1	Fixed Items	R 0.00
A2	Time Related Items	R 0.00
A3	Health and Safety	R 0.00
B	CIVIL WORKS	R 0.00
C	POWER PLANT	R 0.00
	Power plant bills of quantities	R 0.00
D	CONTROL PLANT	R 0.00
	Control Plant bills of quantities	R 0.00
E	DISMANTLING ACTIVITIES	R 0.00
	Dismantling activities	R 0.00
F	POWER PLANT BOM	R 0.00
	Bills of material	R 0.00
G	CONTROL PLANT BOM	R 0.00
	Bills of material	R 0.00
I	CONSTRUCTION COST EXCLUDING P'S & G'S	R 0.00
J	FINAL CONSTRUCTION COST INCLUDING P'S & G'S	R0

BLACKHEATH SUBSTATION PHASE 2					
					
BLACKHEATH SUBSTATION					
Item No.	Description	Unit	Qty	Rate	Price
A	SECTION A : PRELIMINARY AND GENERAL				
A.1	Fixed Charge Items				
	Establish Facilities on Site:				
A.1.1	Site Offices and Storage Sheds including temporary site office fencing	Sum	1		R 0.00
A.1.2	Ablution facilities	Sum	1		R 0.00
A.1.3	Tools and Equipment	Sum	1		R 0.00
A.1.4	Water Supply	Sum	1		R 0.00
A.1.5	Establishment of Plant on Site	Sum	1		R 0.00
A.1.6	Electric Power and Communications	Sum	1		R 0.00
	Remove site establishment on Completion				
A.1.7	Including making good and restoring the site to the satisfaction of the client/engineer	Sum	1		R 0.00
	SUB-TOTAL				R 0.00
	Time-Related Items:				
A.1.8	Contractual Requirements.	Months	18		R 0.00
	Facilities for the contractor				
A.1.9	Site Offices and Storage Sheds including temporary site office fencing.	Month	18		R 0.00
A.1.10	Ablution facilities	Month	18		R 0.00
A.1.11	Tools and Equipment	Month	18		R 0.00
A.1.12	Water Supply	Month	18		R 0.00
A.1.13	Electricity	Month	18		R 0.00
A.1.14	Security(24/7).Two security guards at all times:night and day shifts needs 2no. Security officers with bullet vests and two-way radios at all times including a guard hut and toilet for them on site.	Month	18		R 0.00
A.1.15	Supervision for the duration of the contract (ORHVS Authorised Supervisor)	Month	18		R 0.00
	SUB-TOTAL				R 0.00
	Health & Safety & ENVIROMENTAL				
	<i>To Comply With Legislative Requirement - Please Specify Below The Detail Breakdown Of Items Which Comprise The Lump Sum Costs:(specify If More Items Are Required) Note:H&s Plan To Be Submitted By Tenderers At Tender Stage.</i>				
A1.16	Prepare, submit and obtain approval of safety plan/file and lodge same on site	Item	1		R 0.00
A1.17	Personal protective equipment (Can only be claimed if local labour is employed and proof of cost e.g invoice to be submitted when claimed)	Item	1		R 0.00
A1.18	Transportation of employees	month	18		R 0.00
A1.19	Safety Officer	month	18		R 0.00
	ENVIRONMENTAL				
A1.20	Environmental Requirements	Item	1		R 0.00
	SUB-TOTAL				R 0.00
	TOTAL SECTION 'A' CARRIED FORWARD TO SUMMARY				R 0.00
B.	CIVIL WORKS (SUPPLY AND INSTALL)				
B1.					
	SCHEDULE B: SITE CLEARANCE				
B1	Clear and grub in :				
B1.1	a) Site of Works	m2	11240		R 0.00
B1.2	b) Servitudes for Stormwater Channels (6m wide)	m	206		R 0.00
B2	Remove from site all rubble and undesirable material and dump at a site to be identified by the Contractor	m3	1		R 0.00
B2.	SCHEDULE C: EARTHWORKS GENERAL				
	BULK EARTHWORKS (for platform and stormwater channels)				
	Bulk excavation				

Item No.	Description	Unit	Qty	Rate	Price
B2.1	Remove topsoil to a nominal depth of 150 mm and remove from site	m2	4640		R 0.00
B2.2	Excavate in all material to shape substation platform levels, compacted to 93% MOD AASHTO density (100% for sand)	m3	180		R 0.00
B2.3	Extra over Item 8.3.2(a) for:				
B2.3.1	a) Intermediate excavation	m3	5		R 0.00
B2.3.2	b) Hard rock excavation	m3	14		R 0.00
B2.4	Import suitable material from commercial sources to fill platform area, compacted to 93% AASHTO density (100% for sand)	m3	7320		R 0.00
B2.5	Restricted excavation				
B2.5.1	a) Open channels and cut off trenches to the cross section including finishings as per the detail.	m3	77		R 0.00
C6	Extra over Item 8.3.3 for:				
C6.1	a) Intermediate excavation	m3	7		R 0.00
C6.2	b) Hard rock excavation	m3	8		R 0.00
C7	CUT - SPOIL or STOCKPILE on site, of material out of platform and open channel excavations in:				
C7.1	a) Soft excavation	m3	7		R 0.00
C7.2	b) Intermediate excavation	m3	7		R 0.00
C7.3	c) Hard rock excavation	m3	7		R 0.00
C8	Extra over for temporary stockpiling of material	m3	7		R 0.00
C9	Preparation and in-situ compaction of platform to:				
C9.1	93% MOD.AASHTO-density (100 % for sand) on platform (in-situ selected layers)	m3	1229		R 0.00
C9.2	In-situ treatment of roadbed in:				
C9.3	a) Intermediate material	m3	5		R 0.00
C9.4	b) Hard rock material	m3	135		R 0.00
SCHEDULE D: EARTHWORKS STREETS					
Preparation and in-situ compaction of roadbed and walkways to:					
D1.1	93% MOD.AASHTO-density (100 % for sand) under roads and walkways (in-situ selected layers)	m3	162		R 0.00
	In-situ treatment of roadbed in:				
D1.2	a) Intermediate material	m3	4		R 0.00
D1.3	b) Hard rock material	m3	12		R 0.00
D2	CUT - FILL in road reserve or elsewhere on site, compacted to 93% MOD.AASHTO- density (100% for sand) with material:				
D2.1	a) From excavation on site	m3	4		R 0.00
D2.2	b) From commercial sources	m3	4		R 0.00
D3	Selected layers compacted to 93% MOD. AASHTO- density (100%for sand):				
D3.1	Upper layer using materials:				
D3.1.1	a) From excavation on site	m3	8		R 0.00
D3.1.2	b) From commercial sources	m3	121		R 0.00
D3.2	Lower layer using materials:				
D3.2.1	a) From excavation on site	m3	8		R 0.00
D3.2.2	b) From commercial sources	m3	121		R 0.00
D4	Extra over Items SDDM 8.3.4 for:				
D4.1	a) Intermediate material	m3	6		R 0.00
D4.2	b) Hard rock material	m3	10		R 0.00
D5	CUT - SPOIL or STOCKPILE on site, of material out of road prism and walkways in:				
D5.1	a) Soft excavation	m3	6		R 0.00
D5.2	b) Intermediate excavation	m3	6		R 0.00
D5.3	c) Hard rock excavation	m3	6		R 0.00
D6	Extra over Item D2.1,D3.1.1 & D3.2.1 for temporary stockpiling of material	m3	6		R 0.00
D7	Overhaul				
D7.1	a) Limited overhaul from 0.5km to 1.0km	m3	6		R 0.00
D7.2	b) Long overhaul further than 1.0km	m3.km	6		R 0.00
D8	Finishing of verges and channel profiles in cut or fill at grades as shown.	m2	517		R 0.00
D9	Digging of trial holes	No	2		R 0.00
D10	Extra over PSDM 8.3.7 & PSDM 8.3.4 for removal of unsuitable material under roadbed for the following areas:				
D10.1	0 - 100 m2	m2	6		R 0.00
D10.2	101 - 300 m2	m2	6		R 0.00
D10.3	greater than 300 m2	m2	6		R 0.00
SCHEDULE E : OIL DRAINAGE					
EXCAVATIONS					
Trench excavations in all materials, backfilling, compacting and removal of surplus material for pipes:					
with a nominal diameters greater than 300 mm up to 900 mm for the following depths:					
E1.1	a) 0,00 - 1,00 m	m	52		R 0.00
	Extra over PSDB 8.3.2(a) for excavation and stockpiling on site as instructed:				
E1.4	a) Intermediate Material	m3	1		R 0.00
E1.5	b) Hard Rock Excavation	m3	2		R 0.00

Item No.	Description	Unit	Qty	Rate	Price
E1.6	Excavate and dispose of unsuitable material from the trench bottom	m3	1		R 0.00
E1.9	Excavate by hand to expose existing services as instructed	m3	1		R 0.00
E2	Excavation Ancillaries				
	Make up deficiency in backfillmaterial from:				
E2.1	a) commercial sources	m3	1		R 0.00
E2.2	b) excavations on site	m3	2		R 0.00
E2.3	Compaction in road reserves	m3	33		R 0.00
E3	Overhaul				
E3.1	a) Limited overhaul from 0,5km to 1,0km	m3	88		R 0.00
E3.2	b) Long overhaul further than 1,0km	m3.km	3		R 0.00
E4	Existing services				
	Services that intersect a trench				
E4.1	d) Telkom cables	No	1		R 0.00
E4.2	e) Electrical cables	No	1		R 0.00
	Services that adjoin a trench:				
E4.3	d) Telkom cables	m	1		R 0.00
E4.4	e) Electrical cables	m	1		R 0.00
E5	Handling of ground water in trenches				
E5.1	Supply and place 19 mm crushed stone from commercial sources	m3	6		R 0.00
E5.2	b) Supply and place geotextile (refer to PSDB 3.8)	m2	1		R 0.00
E6	BEDDING				
	Supply and compact bedding to 100% Mod.AASHTO-density with material:				
	from commercial sources:				
E6.1	a) Bedding	m3	7		R 0.00
E6.2	b) Blanket	m3	31		R 0.00
E7	PIPEWORK				
	Supply, handle, lay and bed (Class C bedding) uPVC pipes, joint & test pipes:				
E7.1	a) 75mm dia	m	31		R 0.00
E7.2	b) 110mm dia	m	5		R 0.00
	Supply, handle, lay and bed (Class C bedding) concrete pipes, type Spigot & Socket:				
E7.3	300 mm dia 100D	m	71		R 0.00
E8	Extra over Item 8.2.1 for cutting ends of pipe on site for the following dia:				
E8.1	300 mm dia	No	3		R 0.00
E9	Structures for oil drainage				
	Supply and install complete as indicated on the drawings:				
	Manholes with type 2A cover and frame for the following depth catagories:				
E9.1	1,01 m - 1,50 m	No	2		R 0.00
	SCHEDULE F : STORMWATER DRAINAGE				
	EXCAVATIONS				
	Trench excavations in all materials, backfilling, compacting and removal of surplus material for pipes:				
F1.1	a) 0,00 - 1,00 m	m	139		R 0.00
	Extra over PSDB 8.3.2(a) for excavation and stockpiling on site as instructed:				
F1.3	a) Intermediate Material	m3	2		R 0.00
F1.4	b) Hard Rock Excavation	m3	13		R 0.00
F1.5	Excavate and dispose of unsuitable material from the trench	m3	1		R 0.00
F1.6	Excavate by hand to expose existing services as instructed	m3	1		R 0.00
F2	Excavation Ancillaries				
	Make up deficiency in backfillmaterial from:				
F2.1	a) commercial sources	m3	1		R 0.00
F2.2	b) excavations on site	m3	1		R 0.00
F2.3	Compaction in road reserves	m3	52		R 0.00
F3	Overhaul				
F3.1	a) Limited overhaul from 0,5km to 1,0km	m3	180		R 0.00
F3.2	b) Long overhaul further than 1,0km	m3.km	5		R 0.00
F4	Existing services				
	Services that intersect a trench				
F4.1	a) Cable ducts	No	1		R 0.00
F4.2	b) Electrical cables	No	1		R 0.00
	Services that adjoin a trench:				
F4.3	a) Telkom cables	m	5		R 0.00
F4.4	b) Electrical cables	m	130		R 0.00
F5	Handling of ground water in trenches				
F5.1	b) Supply and place 19mm crushed stone from commercial	m3	4		R 0.00
F5.2	b) Supply and place geotextile (refer to PSDB 3.8)	m2	90		R 0.00
F6	Bedding				
	Supply and compact bedding to 100% Mod.AASHTO-density from commercial sources:				
F6.1	a) Bedding	m3	8		R 0.00
F6.2	b) Blanket	m3	93		R 0.00
F7	Pipework				

Item No.	Description	Unit	Qty	Rate	Price
	Supply, handle, lay and bed (Class C bedding) concrete pipes, type Spigot & Socket:				
F7.1	375 mm 100D	m	130		R 0.00
F7.2	600 mm 75D	m	6		R 0.00
F8	Extra over Item 8.2.1 for cutting ends of pipe on site for the				
F8.1	375mm	No	6		R 0.00
F9	Structures for stormwater drainage				
	Supply and install complete as indicated on the drawings:				
	Headwall structure to detail for the following pipes and culverts:				
F9.4	600 mm	No	2		R 0.00
	Double Inlet Catchpits with cover and frame complete to detail				
F9.5	0,00 m - 1,00 m	No	0		R 0.00
	Cast Iron Grid Inlet complete to detail for the following depths:				
F9.6	0,00 m - 1,00 m	No	1		R 0.00
	Cable Trench Inspection Chamber complete to detail for the				
F9.7	0,00 m - 1,00 m	No	4		R 0.00
	Double Combined Catchpit Grid Inlet complete to detail for the				
F9.8	0,00m - 1.00m	No	1		R 0.00
F10	Subsurface drainage: Supply and install subsurface drains complete as indicated on detail for:				
F10.1	a) Type A 110mm	m	10		R 0.00
F10.2	b) Type B 160mm	m	867		R 0.00
F10.3	Connect subsurface drain to manholes and inlet structures	No	6		R 0.00
F10.4	Construct in-situ cast reinforced concrete channel as per typical detail. (see drawing)	m	191		R 0.00
	SCHEDULE G : SEWERAGE				
	Trench excavations in all materials, backfilling, compacting and removal of surplus material for pipes diam 110mm to 300mm for depths:				
G.1.1	a) 1,00 - 1,50 m	m	14		R 0.00
G.1.2	Excavation by hand to expose existing services	m3	2		R 0.00
G.2	EXCAVATION ANCILLARIES				
G.2.1	Compaction in road reserves (Road crossings only)	m3	5		R 0.00
G.3	EXISTING SERVICES				
	Services that intersect a trench				
G.3.1	a) Water pipes	No	1		R 0.00
G.3.2	b) Electrical cables	No	1		R 0.00
G.3.3	c) Kerbs	No	1		R 0.00
G.3.4	d) Stormwater pipes	No	1		R 0.00
G.4	FINISHINGS				
	Handling of ground water in trenches				
G.4.1	b) Supply and place geotextile	m2	60		R 0.00
G.5	BEDDING				
	Supply and compact bedding to 100% Mod.AASHTO-density with from commercial sources:				
G.5.1	a) Bedding	m3	2		R 0.00
E.5.2	b) Blanket	m ³	11		R 0.00
	b) Blanket	m3	5		R 0.00
G.6	SEWERS				
	Supply and lay uPVC Class 34 heavy duty, on Class C bedding, joint and test sewer pipes				
G.6.1	a) 160 mm diam	m	14		R 0.00
G.6.2	Manholes for the following depth catagories:				
	2,0m - 2,5m	No	1		R 0.00
G.7	SUNDRIES				
	Marker posts as per detail for:				
G.7.1	a) Erf connections	No	1		R 0.00
	Connect to existing sewer				
G.7.2	a) 1,00 - 1,50 m	No	1		R 0.00
	End caps				
G.8	a) 160 mm diam uPVC Class 34	No	1		R 0.00
	SCHEDULE H: WATER RETICULATION				
H.1	Trench excavations in all materials, backfilling, compacting and				
H.1.1	a) 1,00 - 1,50 m	m	57		R 0.00
H.1.2	Excavation by hand to expose existing services	m3	5		R 0.00
H.2	EXISTING SERVICES				
	Services that intersect a trench				
H.2.1	a) Sewer pipes	No	1		R 0.00
H.2.2	b) Electrical cables	No	1		R 0.00
H.2.3	c) Kerbs	No	1		R 0.00
H.3	FINISHINGS				
H.4	Excavate by hand to expose existing services	m3	2		R 0.00
	Handling of ground water in trenches				
H.4.1	a) Supply and place 19mm crushed stone from commercial sources	m3	5		R 0.00
H.5.2	b) Supply and place geotextile (refer to PSDB 3.8)	m2	60		R 0.00
H.5	BEDDING				
	Supply and compact bedding to 100% Mod.AASHTO-density with from commercial sources:				
H.5.1	a) Bedding	m3	4		R 0.00
H.5.2	b) Blanket	m3	17		R 0.00
H.6	SUNDRIES				
	Kerb paint marking for:				
H.6.1	b) Water connections (blue)	No	1		R 0.00
H.6	MEDIUM PRESSURE PIPELINES				
	uPVC Class 12 Pipes				

Item No.	Description	Unit	Qty	Rate	Price
	Supply, handle, lay and bed (Class C bedding), joint as described in notes on drawing, test and disinfect pipes for:				
H.6.1	40 mm diam	m	57		R 0.00
H.7	SPECIALS AND FITTINGS				
	Extra over 8.2.1 for supply, lay, handle, bed (Class C bedding), joint, including cut pipes to lengths where required, test and disinfect for uPVC Class 12 pipes:				
H.7.1	Ductile iron Bends (socket ended) 40 mm diam x 90 °	No	1		R 0.00
	Ductile iron T-Piece				
H.7.2	200 x 40mm	No	1		R 0.00
	Ductile iron End Caps				
H.7.3	40 mm diam	No	1		R 0.00
	SCHEDULE I : SUBBASE COURSE and CONCRETE WEARING COURSE				
I1	Construct subbase course and compact to 95% of AASHTO density with material from a commercial source, as indicated on the typical cross-sections of the road prism.				
I1.1	200 mm thick for roads (G5-material)	m3	174		R 0.00
I1.2	100 mm thick for platform (G5-material)	m3	972		R 0.00
I1.3	75 mm thick for walkways (G5-material)	m3	24		R 0.00
	SCHEDULE J : KERBING AND CHANNELLING				
J3	Precast concrete edging kerb (slotted) (E1 Type) on concrete bedding according to detail on walkways:				
J3.1	a) Radius to 20 m	m	5		R 0.00
J3.2	b) Radius greater than 20 m and straight	m	275		R 0.00
J4	Precast concrete barrier kerb (BK2 Type) on walkways:				
J4.1	a) Radius to 20 m	m	5		R 0.00
J4.2	b) Radius greater than 20 m and straight	m	262		R 0.00
J5	Precast concrete barrier kerb (MK10 Type) on platform on				
J5.1	a) Radius to 20 m	m	57		R 0.00
J5.2	b) Radius greater than 20 m and straight	m	79		R 0.00
J6	Precast concrete mountable channel kerb (CK5 Type) on				
J6.1	a) Radius to 20 m	m	44		R 0.00
J6.2	b) Radius greater than 20 m and straight	m	104		R 0.00
	SCHEDULE K : CABLE DUCTS				
	EXCAVATIONS				
	Trench excavations in all materials, backfill, compact and removal of				
K1	i) 3 x 160mm duct	m	15		R 0.00
	Extra over 8.3.2(a) for excavations in:				
K1.1	Hard rock material	m3	1		R 0.00
	Excavation and dispose of unsuitable material from trench bottom	m3	1		R 0.00
K1.2	Excavation by hand to expose existing services	m3	1		R 0.00
K1.3	Excavation Ancillaries				
K1.4	Make up deficiency in backfill material from:				
K2	a) commercial sources	m3	7		R 0.00
K2.1	Compaction in road reserves (Road crossings only)	m3	2		R 0.00
K2.2	Handling of ground water in trenches				
K3	b) Supply and place geotextile (refer PSDB 3.8)	m2	24		R 0.00
K3.1	Bedding (ducts)				
K3.2	Supply and compact bedding to 100% Mod.AASHTO-density with from commercial sources:				
	a) Bedding	m3	1		R 0.00
	b) Blanket	m3	37		R 0.00
K4.1	Cable markers				
K4.2	Duct markers	No	6		R 0.00
	TOTAL SECTION 'B' CARRIED FORWARD TO SUMMARY				R 0.00
	SECTION C: POWER PLANT BILLS OF QUANTITIES FOR FOUNDATIONS				
C1.	LABOUR ONLY (PLEASE TAKE NOTE WHERE STATED SUPPLY AND INSTALL)				
	Clear and grub				
C1.1	Clear and grub REMOVE coverd under civil	m ²	0		R 0.00
	Set out earth works				
C1.2	Setting Out Of Pegs	each	432		R 0.00
	Excavation:				
C1.3	Excavations soft	m ³	3674		R 0.00
C1.4	Excavations intermediate	m ³	0		R 0.00
D1.5	Excavations hard rock to be checked on site during construction	m ³	0		R 0.00
	Supply and install Shoring				
C1.6	Shoring	m ²	420		R 0.00
	Backfill and compact				
C1.7	Backfill and compact (Normal)	m ³	86		R 0.00
C1.8	Backfill and compact (Cable Trench)	m ³	46		R 0.00
	Clearing of excess material to spoil				
C1.9	Clearing of excess material to spoil	m ³	511		R 0.00
	Supply and Install Drainage (supply and install)				
C1.10	PVC pipes 0-400mm Diameter	m	73		R 0.00

Item No.	Description	Unit	Qty	Rate	Price
	Foundations (supply and install)				
C1.11	Setting & Marking of foundations	each	108		R 0.00
C1.12	supply and install steel reinforcing	kg	6639		R 0.00
C1.13	Supply and install HD Bolts (nuts and washers)	kg	7881.1		R 0.00
C1.14	Supply and install formwork	m²	166		R 0.00
C1.15	Supply and Place concrete	m³	379		R 0.00
	Cable trench cover/checkerplate(supply and install)				
C1.16	supply and Lay cable trench cover	each	1477		R 0.00
	Stoning yard (Supply and lay)				
C1.17	100mm thick Stoning yard	m²	9180		R 0.00
	Install kerbing (supply and install)				
C1.18	Supply and Install kerbing (Outside fence + control trench)	m	578		R 0.00
	Install fencing & gates (supply and install) fully including poles and all necessary material)				
	High Security Steel Mesh				
C1.19	Install Fencing inclusive of fence kerb	m	164		R 0.00
C1.20	Install Security gate (5m double leaf sliding) motorised	each	1		R 0.00
	Brick laying (Supply and Lay)				
C1.21	220mm face bricks	m²	66		R 0.00
	Earthing				
C1.29	Lay main earthmat	m	3000		R 0.00
C1.30	Bond main earthmat	each	73		R 0.00
C1.31	Bonding of fence to earthmat	each	9		R 0.00
C1.32	Earthing of steel structures (per tail)	each	246		R 0.00
	Finishing:				
C1.33	Finishing Foundation	each	108		R 0.00
	ELECTRICAL EQUIPMENT				
C2	LABOUR ONLY				
	Layout of structures:				
	Layout Structures - Lattice	ton	92.4		R 0.00
C2.1	Assemble Structures				
C2.2	Assemble Structures - Lattice	ton	89.3		R 0.00
	Errect Structures				
C2.3	Errect Structures	ton	92.4		R 0.00
	Install Insulating panel "fire wall"				
C2.4	Install Insulating panel "fire wall"	sheet	18		R 0.00
	Erect 132/66/44 kV equipment:				
C2.5	Erect 132/66/44 kV Current Transformer (CT)	each	24		R 0.00
C2.6	Erect 132/66/44 kV Surge Arrester (SA)	each	12		R 0.00
C2.8	Erect 132/66/44 kV Post Insulator (Pi)	each	9		R 0.00
C2.9	Erect 132/66/44 kV Breakers post type	set	6		R 0.00
	Erect 132/66/44 kV Isolators				
C2.10	Erect 132/66/44 kV Hand operated device (HOD)	each	15		R 0.00
	Erect 33/22/11/6.6 Kv equipment:				
C2.11	Erect 33/22/11/6.6 kV Surge Arrester (SA)	each	6		R 0.00
C2.12	Erect 33/22/11/6.6 kV NEC RT	each	2		R 0.00
	BUSBARS				
C2.13	Install Busbar Strain Assembly	each	186		R 0.00
C2.14	Install Busbar Suspension Assembly	each	186		R 0.00
C2.15	Terminate jumper to busbar Clamp/compress bolted	each	495		R 0.00
C2.16	Terminate jumper to busbar Clamp/bolted clamps	each	291		R 0.00
C2.17	Terminate / Install tubular bar	m	12		R 0.00
C2.18	Install spacers	each	174		R 0.00
	Stringing HV				
C2.19	Conductor Run Out & Hang - Single	phm	4148		R 0.00
C2.20	Con Tension Reg & Terminate - Single	phm	4148		R 0.00
C2.21	Lay cables (>= 1000V)	m	1480		R 0.00
C2.22	Terminate cable (>= 1000V) including joints	core	24		R 0.00
C2.23	Support cable (>= 1000V)	each	8		R 0.00
	Earthing				
C2.24	Bond and earth equipment	each	79		R 0.00
	Finishing:				
C2.25	Finishing Handing Over Documentation	stru	367		R 0.00
C2.26	Finishing Torque nuts	each	952		R 0.00
	Commissioning				
C2.27	Testing of Cable Circuits (Ring Out) MV cable	each	4		R 0.00
	POWER PLANT TOTAL SECTION 'C' CARRIED FORWARD TO SUMMARY				R 0.00
D	CONTROL PLANT				
D1.1	Transportation of Panels	km			R 0.00
D1.2	Install metering & protection panels	each			R 0.00
D1.3	Install modules in panels	each			R 0.00

Item No.	Description	Unit	Qty	Rate	Price
D1.4	Earthing of panels	each			R 0.00
D1.5	Install Junction Boxes/AC Yard Box	each			R 0.00
D1.6	Install yard lights	each	20		R 0.00
D1.7	Install warning signs	each			R 0.00
D1.8	Labeling	each			R 0.00
D1.9	Lay cables (< 1000V)	m	18069		R 0.00
D1.10	Glanding of Cables (per gland) (< 1000V)	each	408		R 0.00
D1.11	Label & Loom Cable (< 1000V)	core	3746		R 0.00
D1.12	Terminate and support cable (< 1000V) i.e. each strand	each	180		R 0.00
	CONTROL PLANT TOTAL SECTION 'D' CARRIED FORWARD TO SUMMARY				R 0.00
E	DISMANTLING ACTIVITIES				
	Dismantle and dispose				
E1.1	Loosen/Slacking of conductor/earth	each	288.0		R 0.00
E1.2	Dismantle Fencing and gates	m	220.0		R 0.00
	Bringing down Structures				
E1.3	Bringing down steelwork	kg	42194		R 0.00
E1.4	Dis-assemble steelwork	kg	42194		R 0.00
E1.5	Remove steelwork - off site	kg	42194		R 0.00
E1.6	Demolish concrete	m³	112		R 0.00
E1.7	Remove concrete - off site	m2	112		R 0.00
	Disassemble Equipment and transport to Brackenfell				
E1.8	Disassemble Equipment	each	62		R 0.00
E1.9	Disassemble Breaker	each	7		R 0.00
E1.10	Disassemble Isolator	each	19		R 0.00
E1.11	Disassemble Indoor switchgear (to be clarified who will transport	each	12		R 0.00
E1.12	Disconnect relay panel and cable	each	29		R 0.00
E1.13	Remove relay panel and cable - off site	each	29		R 0.00
	CONTROL PLANT TOTAL SECTION 'E' CARRIED FORWARD TO SUMMARY				R 0.00
BOM					
F	POWER PLANT BILLS OF MATERIAL				
	STEELWORK (Supply)				
F.1	NECRT Support 1500mm High	kg	453 kg		R 0.00
F.2	132kV Circuit Breaker Support	kg	795 kg		R 0.00
F.3	66kV Circuit Breaker Support	kg	795 kg		R 0.00
F.4	132kV Isolator Support - MANUAL	kg	4385 kg		R 0.00
F.5	66kV Isolator Support - MANUAL	kg	2627 kg		R 0.00
F.6	132kV Isolator Support + L/H Earth Switch - MANUAL	kg	462 kg		R 0.00
F.7	66kV Isolator Support - MANUAL	kg	2627 kg		R 0.00
F.8	66kV Isolator Support + L/H Earth Switch - MANUAL	kg	462 kg		R 0.00
F.9	66kV Surge Arrestor Bracket Mounted on Isolator Support	kg	163 kg		R 0.00
F.10	Ball joint, single earth assembly G/S	kg	90 kg		R 0.00
F.11	Medium Equipment Support Steelwork(2.5m)	kg	3000 kg		R 0.00
F.12	Medium Equipment Support Steelwork(3m)	kg	152 kg		R 0.00
F.13	Small/Medium Equipment Support Steelwork CAP 'M1' Adjustable Fixings 1000mm	kg	1368 kg		R 0.00
F.14	Small/Medium Equipment Support Steelwork CAP 'M2' 3PH Adjustable Fixings 1000mm	kg	116 kg		R 0.00
F.15	Control Cable Bracket	kg	480 kg		R 0.00
F.16	MV Cable End Support 1,2,3 or 4 x 1C Cable/Phase Steelwork Assembly	kg	578 kg		R 0.00
F.17	Yard AC Distribution Board Steelwork	kg	137 kg		R 0.00
F.18	Steel Fire Barrier Support 6.5m high	kg	2218 kg		R 0.00
F.19	6.5m Stainless Steel Fire Barrier (Typical Layout - Module A)	kg	336 kg		R 0.00
F.20	6.5 Stainless Steel Fire Barrier (Typical Layout - Module B)	kg	38 kg		R 0.00
F.21	Standard Lightning Mast For Substations (8m)	kg	1080 kg		R 0.00
F.22					R 0.00
F.23	132kV Yard Steelwork - BEAM 132/50/1	kg	8992 kg		R 0.00
F.24	132kV Yard Steelwork - BEAM 132/40/1	kg	10056 kg		R 0.00
F.25	132kV Yard Steelwork - COLUMN 132/C	kg	20315 kg		R 0.00
F.26	66kV Yard Steelwork - BEAM 66/50/1	kg	6672 kg		R 0.00
F.27	66kV Yard Steelwork - BEAM 66/32/1	kg	7792 kg		R 0.00
F.28	66kV Yard Steelwork - BEAM 66/25/1	kg	774 kg		R 0.00
F.29	66kV Yard Steelwork - COLUMN 66/27/1	kg	13208 kg		R 0.00
F.30	Earthwire Support W/O Spike (132kV) Exclude: EW11, EW15, and 2 x EW16	kg	1791 kg		R 0.00
F.31	Galvanised U Bolt M16 X 89 X 102mm	kg	317 kg		R 0.00
	EARTHING				
F32	kg Round Copper Bar (10mm Ø)	kg	2130		R 0.00
F33	kg Flat Copper Bar (3x50mm)	kg	5336		R 0.00
F34	Strip Galvanised Steel (6 x 80mm) *NOTE: Strap to be cut, bent and welded before it is taken for galvanising	No	20.00		R 0.00
	STRING ASSEMBLIES				

Item No.	Description	Unit	Qty	Rate	Price
F1.6	132kV Strain String Assembly - 1 x Centipede Conductor	each	12		R 0.00
F1.7	132kV Strain String Assembly - 1 x Bull Conductor	each	78		R 0.00
F1.8	66kV Strain String Assembly - 1 x Bull Conductor (900mm Long)	each	30		R 0.00
F1.9	66kV Strain String Assembly - 2 x Bull Conductor (900mm Long)	each	66		R 0.00
F1.10	66kV Suspension String Assembly - 2 x Bull Conductor (900mm Long Rod)	each	24		R 0.00
F1.11	Earth Wire String Assembly	each	14		R 0.00
F1.12	Twin Earth Wire String Assembly	each	20		R 0.00
	CONDUCTOR				
F1.13	COND, AAC CENTIPEDE 26.46D UNGRS	m	351		R 0.00
F1.14	COND, AAC BULL 38.25D UNGRS	M	2887		R 0.00
F1.15	COND, AAC HORNET 16.25D INSU UNGRS	M	18		R 0.00
F1.16	Bull conductor	M	36		R 0.00
F1.17	COND, OAK 13.95D GRS	M	856		R 0.00
	Tubular busbar to be supplied				
	CLAMPS				
	STRANDED CONDUCTOR CLAMPS				
	Bolted - Bolted				
F1.18	EX-A,Cross Clamp	each	3		R 0.00
F1.19	EX-B,Cross Clamp	each	9		R 0.00
F1.20	EX-C,Cross Clamp	each	3		R 0.00
F1.21	KCP 26/127, fixed -1 x conductors	each	3		R 0.00
F1.22	EUT-E,T/Clamp	each	3		R 0.00
F1.23	ES-B, Conductor Spacer	each	174		R 0.00
F1.24	EPC26,Peg Aluminium Centipede Clamp	each	21		R 0.00
F1.25	EPC38,Peg Aluminium Bull Clamp	each	54		R 0.00
	Bolted- compression				
F1.28	EXC-A-B/Comp	each	11		R 0.00
F1.29	EXC-L/Comp	each	6		R 0.00
F1.30	EXC-B-B/Comp	each	12		R 0.00
F1.31	EXC-C-B/Comp	each	15		R 0.00
F1.32	EXC-D-B/Comp	each	3		R 0.00
F1.33	EXC-F-B/Comp	each	3		R 0.00
F1.34	ETC-C-T/Comp	each	18		R 0.00
F1.35	ETC-J-T/Comp	each	18		R 0.00
F1.36	ETC-K-T/Comp	each	252		R 0.00
F1.37	EYC-B-Y/Comp	each	15		R 0.00
F1.38	EYC-D-Y/Comp	each	6		R 0.00
F1.39	EYC-F-Y/Comp	each	3		R 0.00
F1.40	EYC-R-Y/Comp	each	17		R 0.00
F1.41	EYC-S-Y/Comp	each	16		R 0.00
F1.42	EPC-A-B/Comp 50x50	each	13		R 0.00
F1.43	EPC-B-B/Comp 50x50	each	12		R 0.00
F1.44	EPC-C-B/Comp 50x50	each	9		R 0.00
F1.45	EPC-D-B/Comp 50x50	each	24		R 0.00
F1.46	EPC-E-B/Comp 50x50	each	21		R 0.00
F1.47	EPC-F-B/Comp 50x50	each	6		R 0.00
F1.48	EYC-T-Bolted palm 50 x 50 / 2 x cond compression	each	3		R 0.00
F1.49	Hornet Lug	each	6		R 0.00
	TUBULAR CONDUCTOR CLAMPS				
	Bolted -Bolted				
F1.50	EET-TB-A-Clamp, Clamp Earthing Tube	each	3		R 0.00
F1.51	ECC-PI-S-B-Coupling Clamp PI Mounted slide	each	3		R 0.00
F1.52	ESC-PI-F-B Support Clamp:PI Mounted Fixed	each	3		R 0.00
	CABLES				
F1.53	11 KV single Core	M	1480		R 0.00
	Cable Termination kits				
F1.54	Term Kit 500 - 800mm ² ; Per phase [Single Core Cable]	each	4		R 0.00
F1.55	Term Kit 500 - 800mm ² ; Per phase [Single Core Cable]	each	4		R 0.00
	Miscellaneous on Cables				
F1.56	Double Cable Clamp Polypropylene	each	24		R 0.00
F1.56	Lug, Crimping Cu 630.0SQ x M16 XLPE D3102	each	24		R 0.00
F1.57	Set Screw Galvanised M12 x 65mm	each	48		R 0.00
	MISCELLANEOUS				
F1.58	Stainless Steel Bolt & Nut : M12 x 65mm with 1 x flat washers & M12 washer (each)	each	472.00		R 0.00
F1.59	M12 washer (each)	each	472.00		R 0.00
F1.60	Nut And Bolt - Galvanised: M16 x 45mm	each	72.00		R 0.00
F1.61	Stainless Steel Bolt & Nut : M16 x 40mm with 1 x flat washer & 1	each	256.00		R 0.00
F1.62	Galvanised Round Flat M16 with 18mm Dia hole (kg)	kg	4.00		R 0.00
F1.63	Galvanised Taper M16 with 18mm Dia hole (kg)	kg	1.00		R 0.00
F1.64	Stainless Steel Bolt & Nut : M16 x 75mm	each	112.00		R 0.00
F1.65	Schotchfill Putty 38mm W Roll	each	12.00		R 0.00

Item No.	Description	Unit	Qty	Rate	Price
F1.66	Self Fusing EPR Based Corona Resistant 18mm W x 0.76 Thk	each	12.00		R 0.00
	Signage				
F1.66	Red plate - Chromadek	each	72		R 0.00
F1.67	Blue plate - Chromadek	each	72		R 0.00
F1.68	White plate - Chromadek	each	72		R 0.00
F1.69	Mounting Bracket	each	216		R 0.00
F1.70	Cable warning PVC tape orange / black - 450wide,2049m	kg	44.00		R 0.00
	FLOODLIGHTS				
F1.71	Floodlight Lamp Holder incl fitting 400/250W HPS/MH	each	20		R 0.00
F1.72	230V Floodlight, Lamp High Pressure Sodium / 48000 Lumens	each	20		R 0.00
	POWER PLANT TOTAL SECTION 'F' CARRIED FORWARD TO SUMMARY				R 0.00
	CONTROL PLANT BOM				
G	LV CONTROL CABLES				
G1.1	Cable 1kV 19c 2.5mm² Cu BVX19DCV	M	3417		R 0.00
G1.2	Cable 1kV 12c 2.5mm² Cu BVX12DCV	M	5545		R 0.00
G1.4	Cable 1kV 4c 4.0mm² Cu BVX4ECV	M	7747		R 0.00
G1.5	Cable 1kV 4c 16.0mm² Cu BVX4HCV	M	160		R 0.00
G1.8	Cable telephone 10pr 0.5mm dia (Unarmoured)	M	300		R 0.00
G1.10	CAT5E FTP (Shielded) Solid Core (4pair)	M	900		R 0.00
	CABLE GLANDS				
G1.11	Gland No 3 & Shroud	each	58.00		R 0.00
G1.12	Gland No 2 & Shroud	each	134.00		R 0.00
G1.13	Gland No 1 & Shroud	each	152.00		R 0.00
G1.14	Compression CABLE Gland No 1	each	64.00		R 0.00
	CONTROL PLANT TOTAL SECTION 'G' CARRIED FORWARD TO SUMMARY				R 0.00
	TOTAL COST OF BLACKHEATH SUBSTATION CARRIED TO SUMMARY PAGE				R 0.00