



ELIDZ ELECTRICAL INFRASTRUCTURE UPGRADE FOR ZONE 1A - PHASE 1 & 2

ELECTRICAL ENGINEERING SERVICES

CONTRACT

ELIDZ ELECTRICAL INFRASTRUCTURE UPGRADE FOR ZONE 1A - PHASE 1 & 2

Summary of Bills

Bill No.	Description	Amount (R)
1	PRELIMINARY AND GENERAL	
2	PROVISIONAL SUMS	
3	LEACHES BAY	
4	SWITCHING STATION SS 1A1	
5	SWITCHING STATION SS 1A2	
6	SWITCHING STATION SS 1A3	
7	SWITCHING STATION SS 1A4	
8	PROVISION FOR MINIATURE SUBSTATION	
Sub-Total		
Provisional sum: Allowance for Contract Price Adjustment (10% of Sub-Total)		
Sub-Total		
Provisional sum: Allowance for Contingencies (10% of Sub-Total)		
Total Construction Cost		
Value Added Tax at 15%		
Total Amount of Tender Carried Forward to Form of Offer and Acceptance		

Bankers Details :

Contractor's Name: _____
 Name reflected on bank statement: _____
 Bank: _____
 Branch: _____
 Account Number: _____
 Cheque Account or Savings Account

Signature :

By Tenderer : _____
 Company Name : _____
 Date : _____



Item	Payment Reference	Description	Unit	Qty	Material Cost	Unit Cost	Amount (R)
Schedule No. 1							
Preliminary and General							
	1200 A						
1.1		<u>FIXED-CHARGE ITEMS</u>					
1.1.1	8.3.1	Contractual Requirements (Specify)	sum	1			
		<u>Establishment of Facilities on Site</u>					
1.2	8.3.2	<u>.1 Facilities for the Engineer</u>					
1.2.1		Site Office and meeting facilities (1 off)	sum	nil			
1.2.2		Ablution and latrine facilities (2 off)	sum	nil			
1.2.3		Carports (3 off)	sum	nil			
1.2.4		Nameboard (1 off)	sum	nil			
		Other fixed-charge obligations (Specify) Allow for all costs which the Contractor may incur in terms of any or all descriptions in the tender/contract documents and of the drawings, which costs are not specifically covered in the schedule below. Submit full details in writing.					
1.2.5			sum	1			
1.3	8.3.2	<u>.2 Facilities for the Contractor</u>					
1.3.1		Offices and storage sheds	sum	1			
1.3.2		Living accommodation	sum	1			
1.3.3		Ablution and latrine facilities	sum	1			
1.3.4		Material Store Facilities	sum	1			
1.3.5		Tools and Equipment	sum	1			
1.3.6		Electric power	sum	1			
1.3.7		Water supplies	sum	1			
1.3.8		Communications	sum	1			
1.3.9	8.3.3	Other fixed-charge obligations (Specify)	sum	1			
1.3.10	8.3.4	Removal of Contractor's and Engineers site establishment on completion	sum	1			
1.4	8.3.5	<u>Occupational Health and Safety</u>					
1.4.1	PSA7.1	Compliance with Occupational Health and Safety Act (Act 85 of 1993) and its regulations and with the Employers Health and Safety Specification	sum	1			
1.5	8.3.6	<u>Environmental Management</u>					
1.5.1	PSA8.1	Compliance with Environmental Management plan	sum	1			
					Carried Forward		

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

				Brought Forward	
1.6		TIME-RELATED ITEMS			
1.6.1	8.4.1	Contractual requirements (Specify)	sum	1	
		<u>Operation and maintenance of facilities on the Site for the of construction</u>			
	8.4.2	<u>0.1 Facilities for the Engineer</u>			
1.6.2		Site Office and meeting facilities (1 off)	sum	nil	
1.6.3		Ablution and latrine facilities (2 off)	sum	nil	
1.6.4		Carports (3 off)	sum	nil	
1.6.5		Nameboard (1 off)	sum	nil	
1.6.6		Other fixed-charge obligations (Specify)	sum	nil	
	8.4.2	<u>.2 Facilities for the Contractor</u>			
1.6.7		Offices and storage sheds	sum	1	
1.6.8		Living accommodation	sum	1	
1.6.9		Ablution and latrine facilities	sum	1	
1.6.10		Material Store Facilities	sum	1	
1.6.11		Tools and Equipment	sum	1	
1.6.12		Electric power (Generator)	sum	1	
1.6.13		Water supplies	sum	1	
1.6.14		Communications	sum	1	
1.6.15	8.4.3	Supervision for duration of construction	sum	1	
1.6.16	8.4.4	Company and head office overhead costs for the duration of the contract.	sum	1	
1.6.17	8.4.5	Other time-related obligations (Specify)	sum	1	
	8.4.6	<u>Occupational Health and Safety</u>			
1.6.18	PSA7.2	Compliance with Occupational Health and Safety Act (Act 85 of 1993) and its regulations and with the Employers Health and Specification	sum	1	
	8.4.7	<u>Environmental Management</u>			
1.6.19	PSA8.2	Compliance with Environmental Management plan	sum	1	
		<u>Security</u>			
1.6.20		Security until final handover to ELIDZ	month	1	
		Total : Schedule 1 Preliminary and General Carried forward to Summary of Schedules			
		Total			

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2



Item	Payment Reference	Description	Unit	Qty	Material Cost	Unit Cost	Amount (R)
2	SANS 1200 A	<u>SCHEDULE NO. 2</u> <u>Provisional Sums and Prime Cost Items</u> <u>SUMS STATED PROVISIONALLY BY THE ENGINEER</u> <u>For work to be executed by the Contractor and valued in terms of the "Valuation of Variations" clause in the Conditions of Contract</u> <u>ALLOWANCES</u> 8.5 <u>(a) .1 Community Requirements</u>					
2.1	PSA9	.1 CLO/LDO remuneration	Prov sum	1.00		R 100 000.00	100000
2.2		.2 Overheads, charges and profit on the above	%				
2.3	PSA9	.3 Accredited and approved training courses for selected personnel, local and other labourers	Prov sum	1.00		R 10 000.00	10000
2.4		.4 Overheads, charges and profit on the above	%				
2.5	PSA9	.5 Wages and salaries of local and other labourers employed during training	Prov sum	1.00		R 5 000.00	5000
2.6		.6 Overheads, charges and profit on the above	%				
		8.5 <u>(a) .2 Engineers Requirements</u>					
2.9	PSA9	.1 Cellular phone cost	Prov sum	1.00		R 15 000.00	15000
2.10		.2 Overheads, charges and profit on the above	%				
2.11	PSA9	.3 Site office consumables	Prov sum	nil		R 20 000.00	20000
2.12		.4 Overheads, charges and profit on the above	%				
					Carried Forward		150000

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

				Brought Forward		150000
2.13	PSA9	.5 Electronic office equipment	Prov sum	1.00	R 15 000.00	15000
2.14		.6 Overheads, charges and profit on the above	%			
2.15	PSA9	.7 Accommodation for the Engineer's Representative(s)	Prov sum	1.00	R 30 000.00	30000
2.16		.8 Overheads, charges and profit on the above	%			
8.5		<u>(a) .3 Existing services</u>				
		.1 Locating existing services	Prov sum	1.00	R 50 000.00	50000
		.2 Overheads, charges and profit on the above	%			
		.3 Protecting existing services	Prov sum	1.00	R 50 000.00	50000
		.4 Overheads, charges and profit on the above	%			
		<u>(a) .4 Specialist services</u>				
		.1 Payment of specialist services	Prov sum	1.00	R 100 000.00	100000
		.2 Overheads, charges and profit on the above	%			
		<u>(a) .5 Royalties</u>				
		.1 Royalties payable for borrow materials	Prov sum	nil		
		.2 Overheads, charges and profit on the above	%			
		<u>(a) .6 Connection to ELIDZ Water Supply</u>				
		.1 Connections to be measured	Prov sum	nil		
		.2 Overheads, charges and profit on the above	%			
		<u>(a) .7 Factory Acceptance Tests</u>				
		.1 Detail to be measured	Prov sum	1.00	R 60 000.00	60000
		.2 Overheads, charges and profit on the above	%			
		<u>(a) .8 Testing of existing 11kV panels in ELIDZ stores</u>				
		.1 Detail to be measured	Prov sum	1.00	R 20 000.00	
		.2 Overheads, charges and profit on the above	%			
		Total			Carried Forward	455000

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

					Brought Forward	455000
		<u>(a) .9 Power Supply</u>				
		.1 Power supply	Prov sum	1.00	R 10 000.00	10000
		.2 Overheads, charges and profit on the above	%			
		<u>(b) For work to be executed by the Employer or a Nominated Sub-contractor</u>				
		.1 Other (Specify)	Prov sum	nil		
		.2 Overheads, charges and profit on the above	%			
		PRIME COST ITEMS				
	8.6	<u>Materials for dayworks</u>				
	PSA10.1	(a) Materials used in the execution of dayworks	Prov sum		R 10 000.00	10000
		(b) Overheads, charges and profit on the above	%			
		<u>Provision of for live works</u>				
	8.7	(a) Allow for tools, equipment, procedures, etc. for live works	Item	nil		
		(b) Overheads, charges and profit on the above	%			
		(a) Make provision for backup supply (where live works cannot be carried out) for the outage duration and cost of preparing for outages	Item	1	R 100 000.00	
		(b) Overheads, charges and profit on the above	%			
		(a) Make provision for temporary works to accommodate existing cables during extension of the Sub- station building	Sum	1	R 100 000.00	
		(b) Overheads, charges and profit on the above	%			
		Total : Schedule 2				
		Provisional Sums and Prime Cost Items				
		Carried forward to Summary of Schedules				
		Total				

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2



Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
	BILL NO 3.1 LEACHES BAY				
	<u>EARTHING</u>				
	Extend the existing Sub- station's earthgrid to cover the Sub- <u>Equipment Earth Tails (50x3mm - 1.38kg/m)</u>				
3.1.1	.1 Supply	m	10		
3.1.2	.2 Install	m	10		
	<u>11 kV Switchgear panels</u>				
3.1.3	.1 Supply	ea	4		
3.1.4	.2 Install	ea	4		
	<u>PRIMARY PLANT -INDOOR</u>				
	Supply & installation of complete switchboard including all inter- panel connections, busbars and bus wiring; switchboard consisting of:				
	<u>11kV 1250A Circuit Breaker (outgoing feeders)</u>				
3.1.5	.1 Supply	ea	4		
3.1.6	.2 Install	ea	4		
	<u>11kV 1250A Circuit Breaker 's 320mm Deep extention box</u>				
3.1.7	.1 Supply	ea	4		
3.1.8	.2 Install	ea	4		
	<u>CONTROL PLANT</u>				
	Design, supply and install all protection, metering, control, telecom- munication, AC/DC and security systems: Panels to be fully equipped with all relays, switches, indication lamps, mimic display, terminals, fuses, links and all other equipment required for the HV and MV protection and control system as generally specified and indicated for HV & MV plant on the drawings. Supply, delivery & installation of control panels, including all connections, inter-panel cabling, complete testing and commissioning to ensure a fully functional system				
	<u>MV Feeder Protection Scheme: 4RF1100 and related works for control of 11 kV CB panel</u>				
3.1.9	.1 Supply	lot	4		
3.1.10	.2 Install	lot	4		
	<u>Make a provision for the Update of Tariff metering (Wireconn modules with ABB meters) to integrate the energy through the new 2 feeder panels</u>	sum	1		
Carried Forward					

			Brought Forward	
		<u>Cable wiring to supply new Panels from existing AC/DC Board (using spare AC and DC supplies) or BTU</u>		
3.1.12	.1	Supply	lot	2
3.1.13	.2	Install	lot	2
		<u>MISCELLNEOUS</u>		
		<u>110mm 6m PE pipe/sleeve, include sealing and draw wires</u>		
3.1.15	.1	Supply	m	4
3.1.15	.2	Install	m	4
		<u>Earth continuity test between structure and earthgrid</u>		
3.1.16			item	2
		<u>Equipment labels</u>		
3.1.15	.1	Supply	lot	4
3.1.18	.2	Install	lot	4
3.1.19		<u>Truck (1 Ton)</u>	km	300
3.1.20		<u>4 x 4 LDV</u>	km	300
3.1.21		<u>Other please specify:</u>	item	1
		<u>BILL NO 3.1</u> <u>LEACHES BAY</u>		
Carried forward to Summary of Bills			Total	



Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
		BILL NO 4.1				
		SWITCHING STATION SS 1A1				
		CIVIL WORKS				
4.1.1		(a) Make provision for temporary works to accommodate existing cables during extension of the switching station building	Sum	1		
		BUILDINGS				
		<u>Extension to existing control building</u>				
		Construct an extension to the switching room building inclusive of all required foundations, brickwork, roof & tiles, gutters, down-pipes, plumbing, electrical works, earth bonding to main earthgrid, carpentry, plastering, painting, doors, air ventilation, concrete ramp/porch and control cable trench entry into building. All accessories such as nuts, bolts, brackets, supports, etc. included				
4.1.2		.1 Supply	m ²	25		
4.1.3		.2 Install	m ²	25		
		<u>Demolish existing wall 5m long and 3 meter high</u>				
4.1.4		.1 Supply	ea	-		
4.1.5		.2 Install	ea	1		
		<u>Wall mounted cable rack (flush to wall) - heavy duty</u>				
4.1.6		.1 Supply	m	10		
4.1.7		.2 Install	m	10		
		<u>Overhead mounted cable rack - heavy duty</u>				
4.1.8		.1 Supply	m	10		
4.1.9		.2 Install	m	10		
		<u>Safety signs/Danger labels</u>				
4.1.10		.1 Supply	ea	2		
4.1.11		.2 Install	ea	2		
		<u>Hardwood wall mounted drawing frame to house drawings</u>				
4.1.12		.1 Supply	ea	1		
4.1.13		.2 Install	ea	1		
Carried Forward						

			Brought Forward		
		<u>6m 300mm PE sleeves for power cable entry</u>			
4.1.14	.1	Supply	ea	4	
4.1.15	.2	Install	ea	4	
		<u>Lock and keys for doors and gates</u>			
4.1.16	.1	Supply	ea	2	
4.1.17	.2	Install	ea	2	
		<u>EARTHING</u>			
		<u>Main Earthgrid</u>			
		Extend the existing switching station's earthgrid to cover the switching station building's extension			
		(a) Trenching			
4.1.18	.1	Supply	m ³	-	
4.1.19	.2	Install	m ³	18	
		<u>Install Horizontal Grid (10mm² annealed round copper - 0.7kg/m)</u>			
4.1.20	.1	Supply	m	50	
4.1.21	.2	Install	m	50	
		<u>Equipment Earth Tails (50x3mm - 1.38kg/m)</u>			
4.1.22	.1	Supply	m	16	
4.1.23	.2	Install	m	16	
		<u>Vertical 16mm² rods</u>			
4.1.24	.1	Supply	m	8	
4.1.25	.2	Install	m	8	
		<u>Bentonite (conductive concrete)</u>			
4.1.26	.1	Supply	m ³	1	
4.1.27	.2	Install	m ³	1	
		<u>Exo-welding (bonding)</u>			
4.1.28	.1	Supply	ea	4	
4.1.29	.2	Install	ea	4	
		<u>Backfill and compaction</u>			
4.1.30	.1	Supply	m ³	10	
4.1.31	.2	Install	m ³	10	
			Carried Forward		

			Brought Forward		
		<u>Indoor Equipment earthing</u>			
		<u>11 kV Switchgear panels</u>			
4.1.32	.1	Supply	ea	4	
4.1.33	.2	Install	ea	4	
		<u>Earthing accessories (1000x100x50 earth bar, down conductor, BCEW) for extension</u>			
4.1.34	.1	Supply	Lot	1	
4.1.35	.2	Install	Lot	1	
		<u>Measure Earthgrid Resistance (Soil resistivity testing to be included.</u>			
4.1.36	.1	Supply	ea	1	
4.1.37	.2	Install	ea	1	
		<u>PRIMARY PLANT - OUTDOOR</u>			
		Allow for all costs which the Contractor may incur in terms of any or all of descriptions the drawings which costs are not specifically covered in the Schedule hereafter.			
		<u>PRIMARY PLANT - OUTDOOR</u>			
		Allow for all costs which the Contractor may incur in terms of any or all of descriptions the drawings which costs are not specifically covered in the Schedule hereafter.			
		<u>Install 11 kV Cables</u>			
		Complete installation of two 11kV three core cables per between Leaches Bay MV panel (switchgear) and and SS 1A1 11kV switchgear including all indoor terminations and connections.			
		Complete installation of wooden cable supports in the Switching Station cable trenches and sealing off of cable ducts/sleeves across road.			
		Rearrange panels such that power is balanced as much as possible on the MV board's busbar			
		<u>Trenching (Note existing services. Any damage will be to the contractor's cost)</u>			
4.1.38	.1	Supply	m ³	520	
4.1.39	.2	Install	m ³	520	
		<u>Install 11 kV 240mm² three core Cu XLPE SWA cable</u>			
4.1.40	.1	Supply	m	1300	
4.1.41	.2	Install	m	1300	
		<u>Backfill and compaction and test</u>			
4.1.42	.1	Supply	m ³	416	
4.1.43	.2	Install	m ³	416	
			Carried Forward		

			Brought Forward	
		<u>MISCELLANEOUS</u>		
		<u>Pipes and Sleeves</u>		
		<u>160mm 6m PE pipe/sleeve, include sealing and draw wires</u>		
4.1.59	.1	Supply	Item	2
4.1.60	.2	Install	Item	2
		<u>110mm 6m PE pipe/sleeve, include sealing and draw wires</u>		
4.1.61	.1	Supply	Item	2
4.1.62	.2	Install	Item	2
		<u>Testing</u>		
		<u>Testing of power cables</u>		
4.1.63	.1	Supply	Item	-
4.1.64	.2	Install	Item	2
		<u>Earth continuity test between structure and earthgrid</u>		
4.1.65	.1	Supply	Item	-
4.1.66	.2	Install	Item	4
		<u>Resistance test of Switching Station earthgrid with report</u>		
4.1.67	.1	Supply	Item	-
4.1.68	.2	Install	Item	1
		<u>Signs/Notices</u>		
		Station labels (safety/danger/access/medical/identification)		
4.1.69	.1	Supply	Lot	2
4.1.70	.2	Install	Lot	2
		<u>Equipment labels</u>		
4.1.71	.1	Supply	Lot	13
4.1.72	.2	Install	Lot	13
			Carried Forward	

			Brought Forward	
		<u>Excavations</u>		
		Excavations - pickable soil		
4.1.73	.1	Supply	m ³	-
4.1.74	.2	Install	m ³	325
		<u>Excavations - Intermediate soil</u>		
4.1.75	.1	Supply	m ³	-
4.1.76	.2	Install	m ³	195
		<u>Excavations - soft rock (machine)</u>		
4.1.77	.1	Supply	m ³	-
4.1.78	.2	Install	m ³	65
		<u>Excavations - hard rock (machine)</u>		
4.1.79	.1	Supply	m ³	-
4.1.80	.2	Install	m ³	65
		<u>Side wall protection of 1.2m to 2m deep trenches</u>		
4.1.81	.1	Supply	m ²	1
4.1.82	.2	Install	m ²	1
		<u>Imported bedding sand/ riversand for bedding & backfilling materials</u>		
4.1.83	.1	Supply	m ³	65
4.1.84	.2	Install	m ³	65
		<u>Removal of excavated material (rock, etc.) and spoil not suitable for backfilling and</u>		
4.1.85	.1	Supply	m ³	65
4.1.86	.2	Install	m ³	65
		<u>Drill pit (For drilling underneath road)</u>		
4.1.87	.1	Supply	m ³	12
4.1.88	.2	Install	m ³	12
		<u>Horizontal drilling (soft soil)</u>		
4.1.89	.1	Supply	m ³	2.9
4.1.90	.2	Install	m ³	2.9
		<u>Horizontal drilling (hard rock)</u>		
4.1.91	.1	Supply	m ³	2.9
4.1.92	.2	Install	m ³	2.9
		<u>Boulders – Class A</u>		
4.1.93	.1	Supply	m ³	3
4.1.94	.2	Install	m ³	3
			Carried Forward	

			Brought Forward		
		<u>Concrete works</u>			
		<u>Stone (19mm stone size)</u>			
4.1.195	.1	Supply	m ³	5	
4.1.196	.2	Install	m ³	5	
		<u>Sand</u>			
4.1.197	.1	Supply	m ³	5	
4.1.198	.2	Install	m ³	5	
		<u>50kg pockets of 25MPa cement</u>			
4.1.199	.1	Supply	ea	25	
4.1.100	.2	Install	ea	25	
		<u>Building services</u>			
		<u>Bricks</u>			
4.1.101	.1	Supply	m ²	45	
4.1.102	.2	Install	m ²	45	
		<u>Brickforce</u>			
4.1.103	.1	Supply	m	36	
4.1.104	.2	Install	m	36	
		<u>Concrete Lintol (1,2m)</u>			
4.1.105	.1	Supply	m	2	
4.1.106	.2	Install	m	2	
		<u>Concrete Lintol (2,4m)</u>			
4.1.107	.1	Supply	m	1	
4.1.108	.2	Install	m	1	
		<u>Paint (20 litre)</u>			
4.1.109	.1	Supply	ea	5	
4.1.110	.2	Install	ea	5	
		<u>Tools (brick laying, shovels/marking/waterpas/mixer)</u>			
4.1.111	.1	Supply	Lot	1	
4.1.112	.2	Install	Lot	1	
			Carried Forward		



Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
		BILL NO 5.1				
		SWITCHING STATION SS 1A2				
		CIVIL WORKS				
5.1.1		(a) Make provision for temporary works to accommodate existing cables during extension of the switching station building	Sum	1		
		BUILDINGS (Contractor to do quantity survey on all buildings extensions)				
		<u>Extension to existing control building</u>				
		Construct an extension to the switching room building inclusive of all required foundations, brickwork, roof & tiles, gutters, down-pipes, plumbing, electrical works, earth bonding to main earthgrid, carpentry, plastering, painting, doors, air ventilation, concrete ramp/porch and control cable trench entry into building. All accessories such as nuts, bolts, brackets, supports, etc. included				
5.1.2		.1 Supply	m ²	25		
5.1.3		.2 Install	m ²	25		
		<u>Demolish existing wall 5m long and 3 meter high</u>				
5.1.4		.1 Supply	ea	-		
5.1.5		.2 Install	ea	1		
		<u>Wall mounted cable rack (flush to wall) - heavy duty</u>				
5.1.6		.1 Supply	m	10		
5.1.7		.2 Install	m	10		
		<u>Overhead mounted cable rack - heavy duty</u>				
5.1.8		.1 Supply	m	10		
5.1.9		.2 Install	m	10		
		<u>Safety signs/Danger labels</u>				
5.1.10		.1 Supply	ea	2		
5.1.11		.2 Install	ea	2		
		<u>Hardwood wall mounted drawing frame to house drawings</u>				
5.1.12		.1 Supply	ea	1		
5.1.13		.2 Install	ea	1		
Carried Forward						

			Brought Forward		
		<u>6m 300mm PE sleeves for power cable entry</u>			
5.1.14	.1	Supply	ea	4	
5.1.15	.2	Install	ea	4	
		<u>Lock and keys for doors and gates</u>			
5.1.16	.1	Supply	ea	2	
5.1.17	.2	Install	ea	2	
		<u>EARTHING</u>			
		<u>Main Earthgrid</u>			
		Extend the existing switching station's earthgrid to cover the switching station building's extension			
		(a) Trenching			
5.1.18	.1	Supply	m ³	-	
5.1.19	.2	Install	m ³	18	
		<u>Install Horizontal Grid (10mm² annealed round copper - 0.7kg/m)</u>			
5.1.20	.1	Supply	m	50	
5.1.21	.2	Install	m	50	
		<u>Equipment Earth Tails (50x3mm - 1.38kg/m)</u>			
5.1.22	.1	Supply	m	16	
5.1.23	.2	Install	m	16	
			Carried Forward		

			Brought Forward	
		<u>Vertical 16mm2 rods</u>		
5.1.24	.1	Supply	m	8
5.1.25	.2	Install	m	8
		<u>Bentonite (conductive concrete)</u>		
5.1.26	.1	Supply	m ³	1
5.1.27	.2	Install	m ³	1
		<u>Exo-welding (bonding)</u>		
5.1.28	.1	Supply	ea	4
5.1.29	.2	Install	ea	4
		<u>Backfill and compaction</u>		
5.1.30	.1	Supply	m ³	18
5.1.31	.2	Install	m ³	18
		<u>Indoor Equipment earthing</u>		
		<u>11 kV Switchgear panels</u>		
5.1.32	.1	Supply	ea	4
5.1.33	.2	Install	ea	4
		<u>Earthing accessories (1000x100x50 earth bar, down conductor, BCEW) for extension</u>		
5.1.34	.1	Supply	Lot	1
5.1.35	.2	Install	Lot	1
		<u>Measure Earthgrid Resistance (Soil resistivity testing to be included,</u>		
5.1.36	.1	Supply	ea	1
5.1.37	.2	Install	ea	1
		<u>PRIMARY PLANT - OUTDOOR</u>		
		Allow for all costs which the Contractor may incur in terms of any or all of descriptions the drawings which costs are not specifically covered in the Schedule hereafter.		
		<u>Install 11 kV Cables</u>		
		Complete installation of two 11kV three core cables per between Leaches Bay MV panel (switchgear) and and SS 1A1 11kV switchgear including all indoor terminations and connections. Complete installation of wooden cable supports in the Switching Station cable trenches and sealing off of cable ducts/sleeves across road. Rearrange panels such that power is balanced as much as possible on the MV board's busbar		
		<u>Trenching (Note existing services. Any damage will be to the contractor's cost)</u>		
5.1.38	.1	Supply	m ³	1040
5.1.39	.2	Install	m ³	1040
		<u>Install 11 kV 240mm² three core Cu XLPE SWA cable</u>		
5.1.40	.1	Supply	m	2600
5.1.41	.2	Install	m	2600
		<u>Backfill and compaction and test</u>		
5.1.42	.1	Supply	m ³	832
5.1.43	.2	Install	m ³	832
		<u>Install 160mm dia. Class 6 sleeves</u>		
5.1.44	.1	Supply	m	180
5.1.45	.2	Install	m	180
		<u>Install 110mm dia. Class 6 sleeves</u>		
5.1.46	.1	Supply	m	180
5.1.47	.2	Install	m	180
			Carried Forward	

		Brought Forward	
		<u>Make-off 11 kV 240mm² three core Cu XLPE cable indoor shrouded termination</u>	
5.1.48	.1 Supply	ea	4
5.1.49	.2 Install	ea	4
		<u>Make-off 11 kV 240mm² three core Cu XLPE SWA cold shrink cable joint</u>	
5.1.50	.1 Supply	ea	4
5.1.51	.2 Install	ea	4
		<u>PRIMARY PLANT -INDOOR</u>	
		Supply & installation of complete switchboard including all inter-panel connections, busbars and bus wiring; switchboard consisting of:	
		<u>11kV Switchboard</u>	
		<u>11kV 800A Circuit Breaker (outgoing feeder)</u>	
5.1.52	.1 Supply	ea	0
5.1.53	.2 Install	ea	0
		<u>11kV 1250A Circuit Breaker 's 320mm Deep extention box</u>	
5.1.54	.1 Supply	ea	2
5.1.55	.2 Install	ea	2
		<u>CONTROL PLANT</u>	
		<u>Design, supply and install all protection, metering, control, telecommunication, AC/DC and security systems:</u> Panels to be fully equipped with all relays, switches, indication lamps, mimic display, terminals, fuses, links and all other equipment required for the HV and MV protection and control system as generally specified and indicated for HV & MV plant on the drawings. Supply, delivery & installation of control panels, including all connections, inter-panel cabling, complete testing and commissioning to ensure a fully functional system	
		<u>Make provision for new AC/DC Panel (3x3Phase Circuit, 6x1Phase Circuits, 9 DC circuits) with 25% spare space</u>	sum 1
		Make provision for 110V Charger & Batteries (54 cells 161 Ah lead acid cells), 30A charger and Battery cabinet	sum 1
		Integration of the new board to the existing or existing AC/DC source including any upgrade required	lot 1
		<u>MISCELLANEOUS</u>	
		<u>Pipes and Sleeves</u>	
		<u>160mm 6m PE pipe/sleeve, include sealing and draw wires</u>	
5.1.59	.1 Supply	item	2
5.1.60	.2 Install	item	2
			Carried Forward

			Brought Forward	
		<u>110mm 6m PE pipe/sleeve, include sealing and draw wires</u>		
5.1.61	.1	Supply	item	2
5.1.62	.2	Install	item	2
		<u>Testing</u>		
		<u>Testing of power cables</u>		
5.1.63	.1	Supply	item	-
5.1.64	.2	Install	item	2
		<u>Earth continuity test between structure and earthgrid</u>		
5.1.65	.1	Supply	item	-
5.1.66	.2	Install	item	4
		<u>Resistance test of Switching Station earthgrid with report</u>		
5.1.67	.1	Supply	item	-
5.1.68	.2	Install	item	1
		<u>Signs/Notices</u>		
		<u>Station labels (safety/danger/access/medical/identification)</u>		
5.1.69	.1	Supply	Lot	2
5.1.70	.2	Install	Lot	2
		<u>Equipment labels</u>		
5.1.71	.1	Supply	Lot	13
5.1.72	.2	Install	Lot	13
		<u>Excavations</u>		
		<u>Excavations - pickable soil</u>		
5.1.73	.1	Supply	m ³	-
5.1.74	.2	Install	m ³	325
		<u>Excavations - Intermediate soil</u>		
5.1.75	.1	Supply	m ³	-
5.1.76	.2	Install	m ³	195
		<u>Excavations - soft rock (machine)</u>		
5.1.77	.1	Supply	m ³	-
5.1.78	.2	Install	m ³	65
		<u>Excavations - hard rock (machine)</u>		
5.1.79	.1	Supply	m ³	-
5.1.80	.2	Install	m ³	65
		<u>Side wall protection of 1.2m to 2m deep trenches</u>		
5.1.81	.1	Supply	m ³	1
5.1.82	.2	Install	m ³	1
		<u>Imported bedding sand/ riversand for bedding & backfilling materials</u>		
5.1.83	.1	Supply	m ³	65
5.1.84	.2	Install	m ³	65
		<u>Removal of excavated material (rock, etc.) and spoil not suitable for backfilling and transport to an approved dumping site (50km radius)</u>		
5.1.85	.1	Supply	m ³	65
5.1.86	.2	Install	m ³	65
		<u>Drill pit (For drilling underneath road)</u>		
5.1.87	.1	Supply	m ³	12
5.1.88	.2	Install	m ³	12
		<u>Horizontal drilling (soft soil)</u>		

5.1.89	.1 Supply	m ³	2.9
5.1.90	.2 Install	m ³	2.9
<u>Horizontal drilling (hard rock)</u>			
5.1.91	.1 Supply	m ³	2.9
5.1.92	.2 Install	m ³	2.9
<u>Boulders – Class A</u>			
5.1.93	.1 Supply	m ³	3
5.1.94	.2 Install	m ³	3
<u>Boulders – Class A</u>			
<u>Concrete works</u>			
<u>Stone (19mm stone size)</u>			
5.1.95	.1 Supply	m ³	5
5.1.96	.2 Install	m ³	5
<u>Sand</u>			
5.1.97	.1 Supply	m ³	5
5.1.98	.2 Install	m ³	5
<u>50kg pockets of 25MPa cement</u>			
5.1.99	.1 Supply	ea	25
5.1.100	.2 Install	ea	25
<u>Building services</u>			
<u>Bricks</u>			
5.1.101	.1 Supply	m ²	45
5.1.102	.2 Install	m ²	45
<u>Brickforce</u>			
5.1.103	.1 Supply	m	36
5.1.104	.2 Install	m	36
<u>Concrete Lintol (1,2m)</u>			
5.1.105	.1 Supply	ea	2
5.1.106	.2 Install	ea	2
<u>Concrete Lintol (2,4m)</u>			
5.1.107	.1 Supply	ea	1
5.1.108	.2 Install	ea	1
<u>Paint (20 litre)</u>			
5.1.109	.1 Supply	ea	5
5.1.110	.2 Install	ea	5
<u>Tools (brick laying, shovels/markings/waterpas/mixer)</u>			
5.1.111	.1 Supply	Lot	1
5.1.112	.2 Install	Lot	1
<u>Transport - travelling required other than allowed for on contract</u>			
<u>Truck (1 Ton)</u>			
5.1.113	.1 Supply	km	300
5.1.114	.2 Install	km	300
<u>4 x 4 LDV</u>			
5.1.115	.1 Supply	km	300
5.1.116	.2 Install	km	300
<u>Make provision for the architectural design of the switching station extension</u>			
5.1.117	.1 Supply	Sum	1
5.1.118	.2 Install	Sum	1

		Make provision for the civil design of the switching station extension			
5.1.119	.1	Supply	Sum	1	
5.1.120	.2	Install	Sum	1	
		BILL NO 5.1			
		SWITCHING STATION SS 1A2			
		Carried forward to Summary of Bills			Total



Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
		BILL NO 6.1				
		SWITCHING STATION SS 1A3				
		CIVIL WORKS				
6.1.1		(a) Make provision for temporary works to accommodate existing cables during extension of the switching station building	Sum	1		
		<u>BUILDINGS (Contractor to do quantity survey on all buildings extensions)</u>				
		<u>Extension to existing control building.</u>				
		Construct an extension to the switching room building inclusive of all required foundations, brickwork, roof & tiles, gutters, down-pipes, plumbing, electrical works, earth bonding to main earthgrid, carpentry, plastering, painting, doors, air ventilation, concrete ramp/porch and control cable trench entry into building. All accessories such as nuts, bolts, brackets, supports, etc. included				
6.1.2		.1 Supply	m ²	25		
6.1.3		.2 Install	m ²	25		
		<u>Demolish existing wall 5m long and 3 meter high.</u>				
6.1.4		.1 Supply	ea	-		
6.1.5		.2 Install	ea	0		
		<u>Wall mounted cable rack (flush to wall) - heavy duty</u>				
6.1.6		.1 Supply	m	10		
6.1.7		.2 Install	m	10		
		<u>Overhead mounted cable rack - heavy duty</u>				
6.1.8		.1 Supply	m	10		
6.1.9		.2 Install	m	10		
		<u>Safety signs/Danger labels</u>				
6.1.10		.1 Supply	ea	2		
6.1.11		.2 Install	ea	2		
		<u>Hardwood wall mounted drawing frame to house drawings.</u>				
6.1.12		.1 Supply	ea	1		
6.1.13		.2 Install	ea	1		
Carried Forward						

			Brought Forward	
		<u>6m 300mm PE sleeves for power cable entry</u>		
6.1.14	.1	Supply	ea	7
6.1.15	.2	Install	ea	7
		<u>Lock and keys for doors and gates</u>		
6.1.16	.1	Supply	ea	2
6.1.17	.2	Install	ea	2
		<u>EARTHING</u>		
		<u>Main Earthgrid</u>		
		Extend the existing switching station's earthgrid to cover the switching station building's extension		
		(a) Trenching		
6.1.18	.1	Supply	m ³	-
6.1.19	.2	Install	m ³	18
		<u>Install Horizontal Grid (10mm² annealed round copper - 0.7kg/m)</u>		
6.1.20	.1	Supply	m	50
6.1.21	.2	Install	m	50
		<u>Equipment Earth Tails (50x3mm - 1.38kg/m)</u>		
6.1.22	.1	Supply	m	21
6.1.23	.2	Install	m	21
			Carried Forward	

		Brought Forward	
	<u>Vertical 16mm² rods</u>		
6.1.24	.1 Supply	m	8
6.1.25	.2 Install	m	8
	<u>Bentonite (conductive concrete)</u>		
6.1.26	.1 Supply	m ³	1
6.1.27	.2 Install	m ³	1
	<u>Exo-welding (bonding)</u>		
6.1.28	.1 Supply	ea	4
6.1.29	.2 Install	ea	4
	<u>Backfill and compaction</u>		
6.1.30	.1 Supply	m ³	10
6.1.31	.2 Install	m ³	10
	<u>Indoor Equipment earthing</u>		
	<u>11 kV Switchgear panels</u>		
6.1.32	.1 Supply	ea	7
6.1.33	.2 Install	ea	7
	<u>Earthing accessories (1000x100x50 earth bar, down conductor, BCEW) for extension</u>		
6.1.34	.1 Supply	Lot	1
6.1.35	.2 Install	Lot	1
	<u>Measure Earthgrid Resistance (Soil resistivity testing to be included,</u>		
6.1.36	.1 Supply	ea	1
6.1.37	.2 Install	ea	1
	<u>PRIMARY PLANT - OUTDOOR</u>		
	Allow for all costs which the Contractor may incur in terms of any or all of descriptions the drawings which costs are not specifically covered in the Schedule hereafter.		
	<u>Install 11 kV Cables</u>		
	Complete installation of two 11kV three core cables per between Leaches Bay MV panel (switchgear) and SS 1A1 11kV switchgear including all indoor terminations and connections.		
	Complete installation of wooden cable supports in the Switching Station cable trenches and sealing off of cable ducts/sleeves across road.		
	Rearrange panels such that power is balanced as much as possible on the MV board's busbar		
	<u>Trenching (Note existing services. Any damage will be to the contractor's cost)</u>		
6.1.38	.1 Supply	m ³	2480
6.1.39	.2 Install	m ³	2480
	<u>Install 11 kV 240mm² three core Cu XLPE SWA cable</u>		
6.1.40	.1 Supply	m	5500
6.1.41	.2 Install	m	5500
	<u>Backfill and compaction and test</u>		
6.1.42	.1 Supply	m ³	1984
6.1.43	.2 Install	m ³	1984
	<u>Install 160mm dia. Class 6 sleeves</u>		
6.1.44	.1 Supply	m	180
6.1.45	.2 Install	m	180
	<u>Install 110mm dia. Class 6 sleeves</u>		
6.1.46	.1 Supply	m	180
6.1.47	.2 Install	m	180
		Carried Forward	

		Brought Forward	
	<u>Make-off 11 kV 240mm² three core Cu XLPE cable indoor shrouded termination</u>		
6.1.48	.1 Supply	ea	6
6.1.49	.2 Install	ea	6
	<u>Make-off 11 kV 240mm² three core Cu XLPE SWA cold shrink cable joint</u>		
6.1.50	.1 Supply	ea	12
6.1.51	.2 Install	ea	12
	<u>Install 11 kV 185mm² three core Cu XLPE SWA cable</u>		
6.1.52	.1 Supply	m	20
6.1.53	.2 Install	m	20
	<u>Make-off 11 kV 185mm² three core Cu XLPE cable indoor shrouded termination</u>		
6.1.54	.1 Supply	ea	2
6.1.55	.2 Install	ea	2
	<u>PRIMARY PLANT -INDOOR</u>		
	Supply & installation of complete switchboard including all inter-panel connections, busbars and bus wiring; switchboard consisting of:		
	<u>11kV Switchboard</u>		
	<u>11kV 800A Circuit Breaker (outgoing feeder)</u>		
6.1.56	.1 Supply	ea	4
6.1.57	.2 Install	ea	4
	<u>11kV 1250A (incoming feeder) Circuit Breaker</u>		
6.1.58	.1 Supply	ea	2
6.1.59	.2 Install	ea	2
	<u>11kV 1250A Circuit Breaker 's 320mm Deep extension box</u>		
6.1.60	.1 Supply	ea	0
6.1.61	.2 Install	ea	0
	<u>11kV Voltage Transformer panel</u>		
6.1.62	.1 Supply	ea	1
6.1.63	.2 Install	ea	1
	<u>CONTROL PLANT</u>		
	<u>Design, supply and install all protection, metering, control, telecommunication, AC/DC and security systems:</u> Panels to be fully equipped with all relays, switches, indication lamps, mimic display, terminals, fuses, links and all other equipment required for the HV and MV protection and control system as generally specified and indicated for HV & MV plant on the drawings. Supply, delivery & installation of control panels, including all connections, inter-panel cabling, complete testing and commissioning to ensure a fully functional system		
	<u>Make provision for new AC/DC Panel (3x3Phase Circuit, 6x1Phase Circuits, 9 DC circuits) with 25% spare space</u>	sum	1
	Make provision for 110V Charger & Batteries (54 cells 161 Ah lead acid cells), 30A charger and Battery cabinet	sum	1
	Integration of the new board to the existing or existing AC/DC source including any upgrade required	lot	1
	<u>MISCELLANEOUS</u>		
	<u>Pipes and Sleeves</u>		
	160mm 6m PE pipe/sleeve, include sealing and draw wires		
6.1.67	.1 Supply	item	2
6.1.68	.2 Install	item	2
Carried Forward			

		Brought Forward	
	110mm 6m PE pipe/sleeve, include sealing and draw wires		
6.1.69	.1 Supply	item	5
6.1.70	.2 Install	item	5
	<u>Testing</u>		
	Testing of power cables		
6.1.71	.1 Supply	item	-
6.1.72	.2 Install	item	2
	Earth continuity test between structure and earthgrid		
6.1.73	.1 Supply	item	-
6.1.74	.2 Install	item	7
	Resistance test of Switching Station earthgrid with report		
6.1.75	.1 Supply	item	-
6.1.76	.2 Install	item	1
	<u>Signs/Notices</u>		
	Station labels (safety/danger/access/medical/identification)		
6.1.77	.1 Supply	Lot	2
6.1.78	.2 Install	Lot	2
	Equipment labels		
6.1.79	.1 Supply	Lot	14
6.1.80	.2 Install	Lot	14
	<u>Excavations</u>		
	Excavations - pickable soil		
6.1.81	.1 Supply	m ³	-
6.1.82	.2 Install	m ³	800
	Excavations - Intermediate soil		
6.1.83	.1 Supply	m ³	-
6.1.84	.2 Install	m ³	195
	Excavations - soft rock (machine)		
6.1.85	.1 Supply	m ³	-
6.1.86	.2 Install	m ³	65
	Excavations - hard rock (machine)		
6.1.87	.1 Supply	m ³	-
6.1.88	.2 Install	m ³	65
	Side wall protection of 1.2m to 2m deep trenches		
6.1.89	.1 Supply	m ³	1
6.1.90	.2 Install	m ³	1
	Imported bedding sand/ riversand for bedding & backfilling materials		
6.1.91	.1 Supply	m ³	160
6.1.92	.2 Install	m ³	160
	Removal of excavated material (rock, etc.) and spoil not suitable for backfilling and transport to an approved dumping site (50km radius)		
6.1.93	.1 Supply	m ³	160
6.1.94	.2 Install	m ³	160
	Drill pit (For drilling underneath road)		
6.1.95	.1 Supply	m ³	12
6.1.96	.2 Install	m ³	12
	Horizontal drilling (soft soil)		

6.1.97	.1 Supply	m ³	2.9		
6.1.98	.2 Install	m ³	2.9		
	Horizontal drilling (hard rock)				
6.1.99	.1 Supply	m ³	2.9		
6.1.100	.2 Install	m ³	2.9		
	Boulders – Class A				
6.1.101	.1 Supply	m ³	3		
6.1.102	.2 Install	m ³	3		
	Boulders – Class A				
	<u>Concrete works</u>				
	Stone (19mm stone size)				
6.1.103	.1 Supply	m ³	5		
6.1.104	.2 Install	m ³	5		
	Sand				
6.1.105	.1 Supply	m ³	5		
6.1.106	.2 Install	m ³	5		
	50kg pockets of 25MPa cement				
6.1.107	.1 Supply	ea	25		
6.1.108	.2 Install	ea	25		
	<u>Building services</u>				
	Bricks				
6.1.109	.1 Supply	m ²	45		
6.1.110	.2 Install	m ²	45		
	Brickforce				
6.1.111	.1 Supply	m	36		
6.1.112	.2 Install	m	36		
	Concrete Lintol (1,2m)				
6.1.113	.1 Supply	ea	2		
6.1.114	.2 Install	ea	2		
	Concrete Lintol (2,4m)				
6.1.115	.1 Supply	ea	1		
6.1.116	.2 Install	ea	1		
	Paint (20 litre)				
6.1.117	.1 Supply	ea	5		
6.1.118	.2 Install	ea	5		
	Tools (brick laying, shovels/markings/waterpas/mixer)				
6.1.119	.1 Supply	Lot	1		
6.1.120	.2 Install	Lot	1		
	Transport - travelling required other than allowed for on contract				
	Truck (1 Ton)				
6.1.121	.1 Supply	km	300		
6.1.122	.2 Install	km	300		
	4 x 4 LDV				
6.1.123	.1 Supply	km	300		
6.1.124	.2 Install	km	300		
	Make provision for the architectural design of the switching station extension				
6.1.125	.1 Supply	Sum	1		
6.1.126	.2 Install	Sum	1		
	Make provision for the civil design of the switching station extension				
6.1.127	.1 Supply	Sum	1		
6.1.128	.2 Install	Sum	1		
	BILL NO 6.1				
	SWITCHING STATION SS 1A3				
	Carried forward to Summary of Bills			Total	



Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
		BILL NO 7.1				
		SWITCHING STATION SS 1A4				
		CIVIL WORKS				
7.1.1		(a) Make provision for temporary works to accommodate existing cables during extension of the switching station building	Sum	1		
		BUILDINGS				
		<u>Extension to existing control building</u>				
		Construct an extension to the switching room building inclusive of all required foundations, brickwork, roof & tiles, gutters, down-pipes, plumbing, electrical works, earth bonding to main earthgrid, carpentry, plastering, painting, doors, air ventilation, concrete ramp/porch and control cable trench entry into building. All accessories such as nuts, bolts, brackets, supports, etc. included				
7.1.2		.1 Supply	m ²	25		
7.1.3		.2 Install	m ²	25		
		<u>Demolish existing wall 5m long and 3 meter high</u>				
7.1.4		.1 Supply	ea	-		
7.1.5		.2 Install	ea	0		
		<u>Wall mounted cable rack (flush to wall) - heavy duty</u>				
7.1.6		.1 Supply	m	10		
7.1.7		.2 Install	m	10		
		<u>Overhead mounted cable rack - heavy duty</u>				
7.1.8		.1 Supply	m	10		
7.1.9		.2 Install	m	10		
		<u>Safety signs/Danger labels</u>				
7.1.10		.1 Supply	ea	2		
7.1.11		.2 Install	ea	2		
		<u>Hardwood wall mounted drawing frame to house drawings</u>				
7.1.12		.1 Supply	ea	1		
7.1.13		.2 Install	ea	1		
Carried Forward						

			Brought Forward		
		<u>6m 300mm PE sleeves for power cable entry</u>			
7.1.14	.1	Supply	ea	7	
7.1.15	.2	Install	ea	7	
		<u>Lock and keys for doors and gates</u>			
7.1.16	.1	Supply	ea	2	
7.1.17	.2	Install	ea	2	
		<u>EARTHING</u>			
		<u>Main Earthgrid</u>			
		Extend the existing switching station's earthgrid to cover the switching station building's extension			
		(a) Trenching			
7.1.18	.1	Supply	m ³	-	
7.1.19	.2	Install	m ³	18	
		<u>Install Horizontal Grid (10mm2 annealed round copper - 0.7kg/m)</u>			
7.1.20	.1	Supply	m	50	
7.1.21	.2	Install	m	50	
		<u>Equipment Earth Tails (50x3mm - 1.38kg/m)</u>			
7.1.22	.1	Supply	m	21	
7.1.23	.2	Install	m	21	
			Carried Forward		

			Brought Forward		
		<u>Vertical 16mm2 rods</u>			
7.1.24	.1	Supply	m	8	
7.1.25	.2	Install	m	8	
		<u>Bentonite (conductive concrete)</u>			
7.1.26	.1	Supply	m ³	1	
7.1.27	.2	Install	m ³	1	
		<u>Exo-welding (bonding)</u>			
7.1.28	.1	Supply	ea	4	
7.1.29	.2	Install	ea	4	
		<u>Backfill and compaction</u>			
7.1.30	.1	Supply	m ³	10	
7.1.31	.2	Install	m ³	10	
		<u>Indoor Equipment earthing</u>			
		<u>11 kV Switchgear panels</u>			
7.1.32	.1	Supply	ea	7	
7.1.33	.2	Install	ea	7	
		<u>Earthing accessories (1000x100x50 earth bar, down conductor, BCEW) for extension</u>			
7.1.34	.1	Supply	Lot	1	
7.1.35	.2	Install	Lot	1	
		<u>Measure Earthgrid Resistance (Soil resistivity testing to be included,</u>			
7.1.36	.1	Supply	ea	1	
7.1.37	.2	Install	ea	1	
		<u>PRIMARY PLANT - OUTDOOR</u>			
		Allow for all costs which the Contractor may incur in terms of any or all of descriptions the drawings which costs are not specifically covered in the Schedule hereafter.			
		<u>Install 11 kV Cables</u>			
		Complete installation of two 11kV three core cables per between Leaches Bay MV panel (switchgear) and and SS 1A1 11kV switchgear including all indoor terminations and connections. Complete installation of wooden cable supports in the Switching Station cable trenches and sealing off of cable ducts/sleeves across road. Rearrange panels such that power is balanced as much as possible on the MV board's busbar			
		<u>Trenching (Note existing services. Any damage will be to the contractor's cost)</u>			
7.1.38	.1	Supply	m ³	1600	
7.1.39	.2	Install	m ³	1600	
		<u>Install 11 kV 240mm² three core Cu XLPE SWA cable</u>			
7.1.40	.1	Supply	m	4000	
7.1.41	.2	Install	m	4000	
		<u>Backfill and compaction and test</u>			
7.1.42	.1	Supply	m ³	1280	
7.1.43	.2	Install	m ³	1280	
		<u>Install 160mm dia. Class 6 sleeves</u>			
7.1.44	.1	Supply	m	240	
7.1.45	.2	Install	m	240	
		<u>Install 110mm dia. Class 6 sleeves</u>			
7.1.46	.1	Supply	m	180	
7.1.47	.2	Install	m	180	
			Carried Forward		

		Brought Forward	
		<u>Make-off 11 kV 240mm² three core Cu XLPE cable indoor shrouded termination</u>	
7.1.48	.1 Supply	ea	4
7.1.49	.2 Install	ea	4
		<u>Make-off 11 kV 240mm² three core Cu XLPE SWA cold shrink cable joint</u>	
7.1.50	.1 Supply	ea	4
7.1.51	.2 Install	ea	4
		<u>PRIMARY PLANT -INDOOR</u>	
		Supply & installation of complete switchboard including all inter-panel connections, busbars and bus wiring; switchboard consisting of:	
		<u>11kV Switchboard</u>	
		11kV 630A Circuit Breaker (outgoing feeder)	
7.1.52	.1 Supply	ea	4
7.1.53	.2 Install	ea	4
		11kV 1250A (incoming feeder) Circuit Breaker	
7.1.54	.1 Supply	ea	2
7.1.55	.2 Install	ea	2
		11kV 1250A Bus-Section Circuit Breaker (including riser panel)	
7.1.56	.1 Supply	ea	1
7.1.57	.2 Install	ea	1
		11kV Voltage Transformer panel	
7.1.58	.1 Supply	ea	1
7.1.59	.2 Install	ea	1
		<u>CONTROL PLANT</u>	
		<u>Design, supply and install all protection, metering, control, telecommunication, AC/DC and security systems:</u> Panels to be fully equipped with all relays, switches, indication lamps, mimic display, terminals, fuses, links and all other equipment required for the HV and MV protection and control system as generally specified and indicated for HV & MV plant on the drawings. Supply, delivery & installation of control panels, including all connections, inter-panel cabling, complete testing and commissioning to ensure a fully functional system	
		<u>Make provision for new AC/DC Panel (3x3Phase Circuit, 6x1Phase Circuits, 9 DC circuits) with 25% spare space</u>	
		sum	1
		Make provision for 110V Charger & Batteries (54 cells 161 Ah lead acid cells), 30A charger and Battery cabinet	
		sum	1
		Integration of the new board to the existing or existing AC/DC source including any upgrade required	
		lot	1
		<u>MISCELLANEOUS</u>	
		<u>Pipes and Sleeves</u>	
		<u>160mm 6m PE pipe/sleeve, include sealing and draw wires</u>	
7.1.63	.1 Supply	Item	2
7.1.64	.2 Install	Item	2
		Carried Forward	

			Brought Forward		
		<u>110mm 6m PE pipe/sleeve, include sealing and draw wires</u>			
7.1.65	.1	Supply	Item	5	
7.1.66	.2	Install	Item	5	
		<u>Testing</u>			
		<u>Testing of power cables</u>			
7.1.67	.1	Supply	Item	-	
7.1.68	.2	Install	Item	2	
		<u>Earth continuity test between structure and earthgrid</u>			
7.1.69	.1	Supply	Item	-	
7.1.70	.2	Install	Item	7	
		<u>Resistance test of Switching Station earthgrid with report</u>			
7.1.71	.1	Supply	Item	-	
7.1.72	.2	Install	Item	1	
		<u>Signs/Notices</u>			
		Station labels (safety/danger/access/medical/identification)			
7.1.73	.1	Supply	Lot	2	
7.1.74	.2	Install	Lot	2	
		<u>Equipment labels</u>			
7.1.75	.1	Supply	Lot	14	
7.1.76	.2	Install	Lot	14	
		<u>Excavations</u>			
		Excavations - pickable soil			
7.1.77	.1	Supply	m ³	-	
7.1.78	.2	Install	m ³	800	
		<u>Excavations - Intermediate soil</u>			
7.1.79	.1	Supply	m ³	-	
7.1.80	.2	Install	m ³	195	
		<u>Excavations - soft rock (machine)</u>			
7.1.81	.1	Supply	m ³	-	
7.1.82	.2	Install	m ³	65	
			Carried Forward		

			Brought Forward		
		<u>Excavations - hard rock (machine)</u>			
7.1.83	.1	Supply	m ³	-	
7.1.84	.2	Install	m ³	65	
		<u>Side wall protection of 1.2m to 2m deep trenches</u>			
7.1.85	.1	Supply	m ²	1	
7.1.86	.2	Install	m ²	1	
		<u>Imported bedding sand/ riversand for bedding & backfilling materials</u>			
7.1.87	.1	Supply	m ³	160	
7.1.88	.2	Install	m ³	160	
		<u>Removal of excavated material (rock, etc.) and spoil not suitable for backfilling and transport to an approved dumping site (50km radius)</u>			
7.1.89	.1	Supply	m ³	160	
7.1.90	.2	Install	m ³	160	
		<u>Drill pit (For drilling underneath road)</u>			
7.1.91	.1	Supply	m ³	12	
7.1.92	.2	Install	m ³	12	
		<u>Horizontal drilling (soft soil)</u>			
7.1.93	.1	Supply	m ³	2.9	
7.1.94	.2	Install	m ³	2.9	
		<u>Horizontal drilling (hard rock)</u>			
7.1.95	.1	Supply	m ³	2.9	
7.1.96	.2	Install	m ³	2.9	
		<u>Boulders – Class A</u>			
7.1.97	.1	Supply	m ³	3	
7.1.98	.2	Install	m ³	3	
		<u>Concrete works</u>			
		<u>Stone (19mm stone size)</u>			
7.1.99	.1	Supply	m ³	5	
7.1.100	.2	Install	m ³	5	
			Carried Forward		

			Brought Forward		
		Sand			
7.1.101	.1	Supply	m ³	5	
7.1.102	.2	Install	m ³	5	
		50kg pockets of 25MPa cement			
7.1.103	.1	Supply	ea	25	
7.1.104	.2	Install	ea	25	
		<u>Building services</u>			
		Bricks			
7.1.105	.1	Supply	m ²	45	
7.1.106	.2	Install	m ²	45	
		Brickforce			
7.1.107	.1	Supply	m	36	
7.1.108	.2	Install	m	36	
		Concrete Lintol (1,2m)			
7.1.109	.1	Supply	m	2	
7.1.110	.2	Install	m	2	
		Concrete Lintol (2,4m)			
7.1.111	.1	Supply	m	1	
7.1.112	.2	Install	m	1	
		Paint (20 litre)			
7.1.113	.1	Supply	ea	5	
7.1.114	.2	Install	ea	5	
		Tools (brick laying, shovels/markings/waterpas/mixer)			
7.1.115	.1	Supply	Lot	1	
7.1.116	.2	Install	Lot	1	
		Truck (1 Ton)	km	300	
		4 x 4 LDV	km	300	
		Other please specify:	Item	1	
		Make provision for the architectural design of the switching station extension	Sum	1	
		Make provision for the civil design of the switching station extension	Sum	1	
		BILL NO 7.1			
		SWITCHING STATION SS 1A4			
Carried forward to Summary of Bills			Total		



Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
		<u>BILL NO 8</u> <u>MINIATURE SUBSTATION</u>				
		Supply miniature substations. Transport to site as per specs. Large Frame MCCB panel included for up to 6 MCCBs. Danger signs and labels (Name of substation, etc. as per specifications) to be included. All civil works and earthing are included. TYPE A MINISUB: No built-in RMU TYPE B MINISUB: With built-in RMU				
		(a) 630 kVA Type B Minature substation				
8.1		.1 Supply	ea	15		
8.2		.2 Install	ea	0		
		(b) 800 kVA Type B Minature substation				
8.3		.1 Supply	ea	2		
8.4		.2 Install	ea	0		
		(c) 1000 kVA Type B Minature substation				
8.5		.1 Supply	ea	3		
8.6		.2 Install	ea	0		
		(d) Provision for 1000V, 4C PVC,PVC, SWA, PVC cable works				
8.7		.1 Supply	lot	1		
8.8		.2 Install	lot	1		
		<u>BILL NO 8</u> <u>MINIATURE SUBSTATION</u>				
		Carried forward to Summary of Bills			Total	