



Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
		BILL NO 4.1				
		<u>SWITCHING STATION SS 1A1</u>				
		<u>CIVIL WORKS</u>				
4.1.1		(a) Make provision for temporary works to accommodate existing cables during extension of the switching station building	Sum	1		
		<u>BUILDINGS</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				
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		
		<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		
					Carried Forward	

			Brought Forward	
		<u>EARTHING</u>		
		<u>Main Earthgrid</u>		
		<u>Extend the existing switching station's earthgrid to cover the switching station building's</u>		
		(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
		<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
			Carried Forward	

			Brought Forward	
	<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.			
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	<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	
	<u>Install 160mm dia. Class 6 sleeves</u>			
4.1.44	.1 Supply	m	300	
4.1.45	.2 Install	m	300	
	<u>Install 110mm dia. Class 6 sleeves</u>			
4.1.46	.1 Supply	m	180	
4.1.47	.2 Install	m	180	
	<u>Make-off 11 kV 240mm² three core Cu XLPE cable indoor shrouded termination</u>			
4.1.48	.1 Supply	ea	4	
4.1.49	.2 Install	ea	4	
	<u>Make-off 11 kV 240mm² three core Cu XLPE SWA cold shrink cable joint</u>			
4.1.50	.1 Supply	ea	5	
4.1.51	.2 Install	ea	5	
	<u>Install 2 x 70mm² BCEW ECC including joints, termination and other accessories</u>			
4.1.52	.1 Supply	m	2600	
4.1.53	.2 Install	m	2600	
	<u>Install 120mm² BCEW ECC including joints, termination and other accessories</u>			
4.1.54	.1 Supply	m	1	
4.1.55	.2 Install	m	1	
			Carried Forward	

				Brought Forward		
		<u>Concrete Cable Route Markers</u>				
4.1.56		.1 Supply	no	9		
4.1.57		.2 Install	no	9		
		<u>Danger Tape: Orange/Yellow PVC material (300mm above cable)</u>				
4.1.58		.1 Supply	m	1300		
4.1.59		.2 Install	m	1300		
		<u>Built of a complete 800 x 800 mm brick manhole with concrete lid as indicated on the drawing</u>				
4.1.60		.1 Supply	no	4		
4.1.61		.2 Install	no	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 1250A Circuit Breaker (outgoing feeder)</u>				
4.1.62		.1 Supply	ea	2		
4.1.63		.2 Install	ea	2		
		<u>11kV 1250A Circuit Breaker 's 320mm Deep extension box</u>				
4.1.64		.1 Supply	ea	2		
4.1.65		.2 Install	ea	2		
		<u>CONTROL PLANT</u>				
		<u>Design, supply and install all protection, metering, control, telecom-</u>				
		<u>Make provision for new AC/DC Panel (3x3Phase Circuit, 6x1Phase Circuits, 9 DC circuits) with</u>	sum	1		
		Make provision for 110V Charger & Batteries (54 cells 161 Ah lead acid cells), 30A charger	sum	1		
		Integration of the new board to the existing or existing AC/DC source including any upgrade	lot	1		
		<u>MISCELLANEOUS</u>				
		<u>Pipes and Sleeves</u>				
		<u>160mm 6m PE pipe/sleeve, include sealing and draw wires</u>				
4.1.69		.1 Supply	Item	2		
4.1.70		.2 Install	Item	2		
		<u>110mm 6m PE pipe/sleeve, include sealing and draw wires</u>				
4.1.71		.1 Supply	Item	2		
4.1.72		.2 Install	Item	2		
		<u>Testing</u>				
		<u>Testing of power cables</u>				
4.1.73		.1 Supply	Item	-		
4.1.74		.2 Install	Item	2		
		<u>Earth continuity test between structure and earthgrid</u>				
4.1.75		.1 Supply	Item	-		
4.1.76		.2 Install	Item	2		
				Carried Forward		

				Brought Forward		
		<u>Resistance test of Switching Station earthgrid with report</u>				
4.1.77	.1	Supply	Item	-		
4.1.78	.2	Install	Item	1		
		<u>Signs/Notices</u>				
		<u>Station labels (safety/danger/access/medical/identification)</u>				
4.1.79	.1	Supply	Lot	2		
4.1.80	.2	Install	Lot	2		
		<u>Equipment labels</u>				
4.1.81	.1	Supply	Lot	13		
4.1.82	.2	Install	Lot	13		
		<u>Excavations</u>				
		<u>Excavations - pickable soil</u>				
4.1.83	.1	Supply	m ³	-		
4.1.84	.2	Install	m ³	1144		
		<u>Excavations - Intermediate soil</u>				
4.1.85	.1	Supply	m ³	-		
4.1.86	.2	Install	m ³	686.4		
		<u>Excavations - soft rock (machine)</u>				
4.1.87	.1	Supply	m ³	-		
4.1.88	.2	Install	m ³	228.8		
		<u>Excavations - hard rock (machine)</u>				
4.1.89	.1	Supply	m ³	-		
4.1.90	.2	Install	m ³	228.8		
		<u>Side wall protection of 1.2m to 2m deep trenches</u>				
4.1.91	.1	Supply	m ²	1		
4.1.92	.2	Install	m ²	1		
		<u>Imported bedding sand/ riversand for bedding & backfilling materials</u>				
4.1.93	.1	Supply	m ³	65		
4.1.94	.2	Install	m ³	65		
		<u>Removal of excavated material (rock, etc.) and spoil not suitable for backfilling and</u>				
4.1.95	.1	Supply	m ³	65		
4.1.96	.2	Install	m ³	65		
		<u>Drill pit (For drilling underneath road)</u>				
4.1.97	.1	Supply	m ³	12		
4.1.98	.2	Install	m ³	12		
		<u>Horizontal drilling (soft soil)</u>				
4.1.99	.1	Supply	m ³	2.9		
4.1.100	.2	Install	m ³	2.9		
		<u>Horizontal drilling (hard rock)</u>				
4.1.101	.1	Supply	m ³	2.9		
4.1.102	.2	Install	m ³	2.9		
				Carried Forward		

			Brought Forward	
		<u>Boulders – Class A</u>		
4.1.103	.1	Supply	m ³	3
4.1.104	.2	Install	m ³	3
		<u>Concrete works</u>		
		Stone (19mm stone size)		
4.1.105	.1	Supply	m ³	5
4.1.106	.2	Install	m ³	5
		<u>Sand</u>		
4.1.107	.1	Supply	m ³	5
4.1.108	.2	Install	m ³	5
		<u>50kg pockets of 25MPa cement</u>		
4.1.109	.1	Supply	ea	25
4.1.110	.2	Install	ea	25
		<u>Building services</u>		
		<u>Bricks</u>		
4.1.111	.1	Supply	m ²	45
4.1.112	.2	Install	m ²	45
		<u>Brickforce</u>		
4.1.113	.1	Supply	m	36
4.1.114	.2	Install	m	36
		<u>Concrete Lintol (1,2m)</u>		
4.1.115	.1	Supply	m	2
4.1.116	.2	Install	m	2
		<u>Concrete Lintol (2,4m)</u>		
4.1.117	.1	Supply	m	1
4.1.118	.2	Install	m	1
		<u>Paint (20 litre)</u>		
4.1.119	.1	Supply	ea	5
4.1.120	.2	Install	ea	5
		<u>Tools (brick laying, shovels/markings/waterpas/mixer)</u>		
4.1.121	.1	Supply	Lot	1
4.1.122	.2	Install	Lot	1
		<u>Truck (1 Ton)</u>	km	300
		<u>4 x 4 LDV</u>	km	300
		<u>Other please specify:</u>	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
4.1.115	.1	Install OPTEX (purpose designed) duct system for 7 cores optic fibre Supply	m	650
4.1.116	.2	Install	m	650
		BILL NO 4.1		
		SWITCHING STATION SS 1A1		
Carried forward to Summary of Bills			Total	