REFURBISHEMNT OF NATIONAL HEALTH LABORATORY SERVICE SAVP BUILDING

ELECTRICAL INSTALLATION BILL OF QUANTITIES

BILL NO1: PRELIMINARY AND GENERAL

ITEM	DESCRIPTION	UNIT	QTY	MATERIAL	LABOUR	TOTAL
1	In accordance with the Conditions of Contract, provide for all expenses, obligations and general items pertaining to such conditions and all items not specifically specified or mentioned to enable the works to be completed in a satisfactory manner. The estimated contract period is 9 months					
1.1	Fixed Portion	Item	1			
1.2	Variable with contract period	Item	1			
1.3	Variable with contract price	Item	1			
2	**SECURITY**					
2.1	Security for the full contract period	Item	1			
3	**STAFF CLOTHING**					
3.1	The Bidder must price for his staff to wear distinctive overalls / work clothes, bibs and hard hats at all times on site, for the duration of the contract, name tags must be provided to all the employees on site, whether in work clothes or not.	item	1			
4	**HEALTH AND SAFETY PLAN**					
4.1	Provide a Health and Safety Plan in accordance with the OHS Act Construction. Regulations, attend H&S meetings as required, report on compliance with H&S Plan, appoint H&S representative and manage H&S Plan for the duration of the contract.	item	1			
5	**CONTRACT MANAGEMENT**					
5.1	Full time contract management and supervision of the works including liaison with consultants, employer, other Subcontractors, meetings and submission of installation programme including weekly revisions thereto from time to time or as may be required by the consultants or Employer.	item	1			
6	**AS-BUILT DRAWINGS with OPERATIONS AND MAINTENANCE MANUALS**					
6.1	Provide a complete set of As-build drawings and provide three sets of O&M The Sub Contractor must produce a complete set of drawing with all changes made on the latest revised drawings issued by the Electrical Engineer. The contractor must arrange for a meeting with the Electrical Engineer to discuss the mark-up drawings. The Electrical contractor as well as the Foreman on site that was responsible for the works on site. **All devices, device addresses, isolator positions and cable configuration must be indicated in the drawings**	item	1			
7	**CLEAN AND RESTORATION OF SITE**					
7.1	Cleaning and restoration of the site during construction and after completion to the satisfaction of the Engineer and client.	item	1			
8	**COC CERTIFICATES**					
8.1	On completion of each distribution board installation etc. as required in terms of the regulations, issue a Certificate of Compliance for each of the installations provided.	item	1			
9	**GUARANTEE and MAINTENANCE PERIOD**					
9.1	Allow for free maintenance during the guarantee period of 12 months for all defects in equipment, material and workmanship excluding wear and tear and normal maintenance. (excluding replacement of lamps)	item	1			
	TOTAL CARRIED TO SUMMARY PAGE					

REFURBISHEMNT OF NATIONAL HEALTH LABORATORY SERVICE SAVP BUILDING

ELECTRICAL INSTALLATION BILL OF QUANTITIES

BILL NO2: CABLE RETICULATION FOR UPS INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	MATERIAL	LABOUR	TOTAL
NOTE:	**The complete installation must comply SANS 0142 specifications and the Quality specifications. Therefore Tenders are advised to study the specification and drawings before the Bill is to be priced.**					
1	**CABLES, CONDUCTORS & SLEEVES (CABLES ARE REMEASURABLE)**					
1.1	**Supply and install PVC insulated amoured copper cables**					
1.1	70mm^2 4 x core PVC insulated copper cable	meter	60			
1.2	35mm^2 4 x core PVC insulated copper cable	meter	300			
1.3	25mm^2 4 x core PVC insulated copper cable	meter	100			
1.4	16mm^2 4 core PVC insulated copper cable	meter	300			
1.5	16mm^2 3 core PVC insulated copper cable	meter	100			
1.2	**Supply and install bare copper earth conductor**					
1.2.1	70mm^2 bare copper earth cable	meter	20			
1.2.2	16mm^2 bare copper earth cable	meter	400			
1.2.3	10mm^2 bare copper earth cable	meter	400			
1.3	**GLANDS AND SHROUDS**					
1.3.1	70mm^2 4 x core PVC insulated copper cable	each	6			
1.3.2	35mm^2 4 core PVC insulated copper cable	each	12			
1.3.3	25mm^2 4 core PVC insulated copper cable	each	4			
1.3.4	16mm^2 4 core PVC insulated copper cable	each	12			
1.3.5	16mm^2 3 core PVC insulated copper cable	each	4			
1.4	**GLANDS AND SHROUDS (Earth bare)**					
1.4.1	70mm^2 bare copper earth cable	each	6			
1.4.2	16mm^2 bare copper earth cable	each	16			
1.4.3	10mm^2 bare copper earth cable	each	16			
3	**CABLE MARKERS & WARNING TAPES**					
3.1	Cable markers for cable routes indication	each	4			
3.2	Cable warning tape	meter	100			
4	**SUPPLY & INSTALL PVC SLEEVES**					
4.1	110 diameter	meter	100			
4.2	50 diameter	meter	100			
5	**TRENCHING AND EXCAVATIONS** (600mm wide & 800mm deep). Rate to include bedding and backfilling					
5.1	Pickable soil	m^3	48			
5.2	Soft rock	m^3	10			
5.3	Hard rock	m^3	10			
5.4	Install 600x600x800mm manhole (provision)	each	2			
6	**SUPPLY & INSTALL MEDIUM DUTY CABLE TRAY**					
	Medium duty cable tray suspended from structure in the roof. Fixings not to exceed 2m (Rates to include: Fixing to roof trusses, hangers, Tees, Bends, 4 ways, ends,and all other accessories).					
6.1	100mm x 50mm (wxh)	m	200			
7.1	200mm x 50mm (wxh)	m	200			
8.1	300mm x 50mm (wxh)	m	200			
	TOTAL CARRIED TO SUMMARY PAGE					

REFURBISHEMNT OF NATIONAL HEALTH LABORATORY SERVICE SAVP BUILDING

ELECTRICAL INSTALLATION BILL OF QUANTITIES

BILL NO3 : BUILDING INSTALLATION: ELECTRICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	MATERIAL	LABOUR	TOTAL
NOTE:	**The complete installation must comply SANS 0142 specifications and the Quality specifications. Therefore Tenders are advised to study the specification and drawings before the Bill is to be priced.**					
1	**DISTRIBUTION BOARDS (Refer to schematic diagrams). Supply and installation of distribution boards, replacement of circuits breakers, tracing of existing circuits, identification of existing cables and conductors sizes, inspection, testing and issuing of certificate of compliance**					
1.1	SDB-C (remove the existing recessed distribution board, supply and installation of new recessed distribution board to replace the existing distribution board. The distribtion board to be placed exactly where the existing one is). The rate shall include the removal of the existing distribution board	each	1			
1.2	Tracing of all the existing circuits of SDB-C as indicated on the single line diagram	each	1			
1.3	SDB-C1/1 (remove the existing recessed distribution board, supply and installation of new recessed distribution board to replace the existing distribution board. The distribtion board to be placed exactly where the existing one is).The rate shall include the removal of the existing distribution board	each	1			
1.4	Tracing of all the existing circuits of SDB-C1/1 as indicated on the single line diagram	each	1			
1.5	ESDB-E2 (remove the existing recessed distribution board, supply and installation of new recessed distribution board to replace the existing distribution board. The distribtion board to be placed exactly where the existing one is).The rate shall include the removal of the existing distribution board	each	1			
1.6	Tracing of all the existing circuits of ESDB-E2 as indicated on the single line diagram	each	1			
1.7	ESDB-E1 (remove the existing recessed distribution board, supply and installation of new recessed distribution board to replace the existing distribution board. The distribtion board to be placed exactly where the existing one is).The rate shall include the removal of the existing distribution board	each	1			
1.8	Tracing of all the existing circuits of ESDB-E1 as indicated on the single line diagram	each	1			
1.9	ESDB-E4 (remove the existing recessed distribution board, supply and installation of new recessed distribution board to replace the existing distribution board. The distribtion board to be placed exactly where the existing one is).The rate shall include the removal of the existing distribution board	each	1			
1.10	Tracing of all the existing circuits of ESDB-E4 as indicated on the single line diagram	each	1			
1.11	ESDB-CN (remove the existing recessed distribution board, supply and installation of new recessed distribution board to replace the existing distribution board. The distribtion board to be placed exactly where the existing one is).The rate shall include the removal of the existing distribution board	each	1			
1.12	Tracing of all the existing circuits of ESDB-CN as indicated on the single line diagram	each	1			
1.13	ESDB-C (remove the existing recessed distribution board, supply and installation of new recessed distribution board to replace the existing distribution board. The distribtion board to be placed exactly where the existing one is).The rate shall include the removal of the existing distribution board	each	1			
1.14	Tracing of all the existing circuits of ESDB-C as indicated on the single line diagram	each	1			
1.15	COMPRESSOR DB (Remove the existing distribution board, supply and installation of new recessed distribution board to replace the existing distribution board. The distribtion board to be placed exactly where the existing one is).The rate shall include the removal of the existing distribution board	each	1			
1.16	Tracing of all the existing circuits of COMPRESSOR DB as indicated on the single line diagram	each	1			
1.17	ESDB-E (partial rewiring of the existing DB using the existing circuit breakers and earth leakages)	each	1			
1.18	Tracing of all the existing circuits of ESDB-E as indicated on the single line diagram	each	1			
	AMOUNT CARRIED FORWARD					

REFURBISHEMNT OF NATIONAL HEALTH LABORATORY SERVICE SAVP BUILDING

ELECTRICAL INSTALLATION BILL OF QUANTITIES

BILL NO3 : BUILDING INSTALLATION: ELECTRICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	MATERIAL	LABOUR	TOTAL
	AMOUNT BROUGHT FORWARD					
2	**PROVISION OF CONDUCTORS**					
2.1	**Supply and install 600/1000Volt PVC insulated stranded copper conductors drawn into conduits, etc.** (Wiring for lighting circuits is to be carried out with 2,5mm² conductors and 2,5mm² earth conductors. For socket outlet circuits the wiring shall comprise of 4 mm² conductors with 2, 5mm² earth conductors)					
2.1.1	2.5mm^2	meter	2500			
2.1.2	4mm^2	meter	4000			
2.1.3	6mm^2	meter	1000			
2.2	**Earth Wire**					
2.2.1	2.5mm^2	meter	3250			
2.2.2	4mm^2	meter	500			
3	**SOCKETS OUTLETS**					
	Supply, install and connect socket outlets in flush wall mounted boxes, power skirting, trunking or surface if required complete with cover plates and all necessary accessories:					
3.1	Supply and install 230V, 16A combination switched socket outlets (with 1 x standard 16A round 3 pin socket + 1 x 3 pin ZA plug socket combined) flush mounted on the wall c/w steel cover plate suitable to accommodate SANS 164-1 & SANS 164-2 socket outlets.	each	20			
3.2	Supply and install 230V, 16A standard round 3-pin switched socket outlets flush mounted on the power skirting c/w steel cover plate suitable to accommodate SANS 164-1 socket outlets.	each	10			
3.3	Supply and install 230V, 16A dedicated round 2-pin + shapped earth pin switched socket outlets flush mounted on the power skirting c/w steel cover plate suitable to accommodate SANS 164-1 socket outlets.	each	20			
3.4	Supply and install 230V, 16A 3-pin ZA plug switched socket outlets flush mounted on the power skirting c/w steel cover plate suitable to accommodate SANS 164-2 socket outlets.	each	20			
3.5	Supply and install 5 Amp single un-switched Socket outlet (complete with 60mm pvc round box for light fittings). The socket to be mounted on the trunking or somewhere else in the celing void.	each	10			
4	**SWITCHES**					
	Supply, install and connect light switches in flush wall mounted boxes, complete with cover plates and all necessary accessories:					
4.1	Supply and install 16A one lever one way light switch flush mounted on the wall	each	5			
4.2	Supply and install 16A two lever one way light switch flush mounted on the wall	each	5			
4.3	Supply and install 16A one lever two way light switch flush mounted on the wall	each	2			
4.4	Supply and install Day light switch/photocell	each	2			
5	**ISOLATORS**					
	Supply, install and connect isolators in flush wall mounted boxes or surface, complete with cover plates and all necessary accessories (Isolators to be mounted within one meter of the equiment to be controlled).					
5.1	Supply and install 230V, 30A double pole isolator surface mounted in the ceiling void or wall. Rates to include 4 inch x 4 inch extension box	each	10			
5.2	Supply and install 230V, 60A double pole isolator surface mounted in the ceiling void or wall. Rates to include 4 inch x 4 inch extension box	each	10			
5.3	Supply and install 4000V, 30A Three phase isolator mounted on the waal or ceiling void. Rates to include 4 inch x 4 inch extension box	each	10			
5.4	Supply and install 4000V, 60A Three phase isolator mounted on the waal or ceiling void. Rates to include 4 inch x 4 inch extension box	each	10			
5.5	Supply and install 4000V, 80A Three phase isolator mounted on the waal or ceiling void. Rates to include 4 inch x 4 inch extension box	each	10			
5.6	Supply and install 4000V, 100A Three phase isolator mounted on the waal or ceiling void. Rates to include 4 inch x 4 inch extension box	each	10			
	AMOUNT CARRIED FORWARD					

REFURBISHEMNT OF NATIONAL HEALTH LABORATORY SERVICE SAVP BUILDING

ELECTRICAL INSTALLATION BILL OF QUANTITIES

BILL NO3 : BUILDING INSTALLATION: ELECTRICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	MATERIAL	LABOUR	TOTAL
	AMOUNT BROUGHT FORWARD					
6	**TRACING AND TESTING OF EXISTING SWITCHED SOCKET OUTLETS**					
6.1	Tracing and testing of existing switched socket outlets	each	100			
7	**CONTACTORS, TIMERS AND BREAKERS**					
7.1	Supply and install 60A, 3pole contactors	each	4			
7.2	Supply and install 30A, timer switch	each	4			
7.3	Supply and install 20A, SP,5kA circuit breaker	each	5			
7.4	Supply and install 60A, TP,5kA circuit breaker	each	5			
7.5	Supply and install 60A, 2P, earth leakage	each	2			
8	**PROVISION AMOUNT**					
8.1	Allow amount of R500,000.00 for unseen services that might be discovered during construction on site for health and safety compliances of existing services and UPS installation requirements	Prov	1	R 500,000.00		
9	**TESTING AND COMMISSIONING**					
9.1	Inspections, testing and handing over of the complete installation in the presence of the Engineer and certify the results on the *Certificate of compliances by an accredited person and drawings mark ups.*	item	10			
	TOTAL CARRIED TO SUMMARY PAGE					

REFURBISHEMNT OF NATIONAL HEALTH LABORATORY SERVICE SAVP BUILDING

ELECTRICAL INSTALLATION BILL OF QUANTITIES

BILL NO4 : UPS: ELECTRICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	MATERIAL	LABOUR	TOTAL
1	**UNINTERRUBLE POWER SUPPLY**					
	Supply and install an uninteruptible power supply system. Work to include placing UPS, wiring of UPS, termination of cables, installation of power cable & earthing where required :-					
1.1	Supply, Installation, testing and commissioning free standing Uninteruble Power Supply (UPS) system of 200kVA, 400V, 3-phase for > 0.99 pf. n+1 type with individual 15-30 mins battery back up and as per specification of tender.	Each	1			
2	**UPS DISTRIBUTION BOARD**					
2.1	Supply and installation of a new floor standing UPS distribution board	Each	1			
2.2	Supply and installation of a new circuit breaker in the existing main low voltage panel in the substation (300A, 25kA, 3pole)	Each	1			
	TOTAL CARRIED TO SUMMARY PAGE					

REFURBISHEMNT OF NATIONAL HEALTH LABORATORY SERVICE SAVP BUILDING

ELECTRICAL INSTALLATION BILL OF QUANTITIES

BILL NO5 : 4 YEAR MAINTENANCE PLAN: ELECTRICAL INSTALLATION

ITEM	DESCRIPTION	UNIT	QTY	MATERIAL	LABOUR	TOTAL
	The complete installation must comply SANS 0142 specifications and the Quality specifications. Therefore Tenders are advised to study the specification and drawings before the Bill is to be priced.					
	This maintenance kicks after 12 month defect liability period					
1.1	Contractor to price for the provison for 4 year maintenance of the electrical installation that includes regular scanning of distribution boards, maintenance and servicing of the UPS and servicing of other electrical components covered in this project.	month	48			
1.2	Allow an amount of R400,000.00 for any additional materials that might be required during maintenance period.	Prov	1	R 400,000.00		
	TOTAL CARRIED TO SUMMARY PAGE					

REFURBISHEMNT OF NATIONAL HEALTH LABORATORY SERVICE SAVP BUILDING

ELECTRICAL INSTALLATION BILL OF QUANTITIES

SUMMARY PAGE

BILL NO	DESCRIPTION	TOTAL
1	PRELIMINARY & GENERALS	
2	CABLE RETICULATION	
3	BUILDING INSTALLATION: ELECTRICAL INSTALLATION	
4	UPS : ELECTRICAL INSTALLATION	
5	4 YEAR MAINTENANCE PLAN	
	SUB-TOTAL	
	CONTINGENCIES @10%	
	SUB-TOTAL	
	VAT (15%)	
	TOTAL (AMOUNT TO BE TRANSFERRED TO TENDER OFFER)	