



**Ministry Of Water
Sanitation And
Irrigation**



County Water Department of Wajir



Wajir Water and Sewerage
Company (WAJWASCO)

Bills of Quantities for Construction, Rehabilitation and Expansion of Groundwater – Based Rural Water Supply Schemes - Batch 1 Schemes in Wajir County

Lot 3: Dadaja Dulla, Tesorai, Haragal, Masalale and Riba

RFB No: *KE-WAJIR-503206-CW-RFB-LOT 3*

Project: *The Horn of Africa Groundwater for Resilience Project, Kenya (P174867)*

Employer: **County Government of Wajir – Wajir Water and Sewerage Company (WAJWASCO)**

Country: **Kenya**

Issued on: **5th August 2025**

THE HORN OF AFRICA GROUNDWATER FOR RESILIENCE PROJECT,

KENYA (P174867)

SCHEDULE OF BILLS OF QUANTITIES – WAJIR COUNTY, LOT 3

SCHEME NO.	RURAL WATER SUPPLY SCHEME (RWSS)
1	DADAJA BULLA RURAL WATER SUPPLY SCHEME
2	TESORAI RURAL WATER SUPPLY SCHEME
3	HARAGAL RURAL WATER SUPPLY SCHEME
4	MASALALE RURAL WATER SUPPLY SCHEME
5	RIBA RURAL WATER SUPPLY SCHEME

WAJIR COUNTY - LOT 3

BILL No. 1:
PRELIMINARIES AND
GENERAL ITEMS

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL NO. 1: PRELIMINARIES AND GENERAL ITEMS				
	Preliminaries and General Items				
	SECTION A1: GENERAL ITEMS				
1.1	Contractor's camp(s)				
1.1.1	Allow for renting/ construction of contractors' campsites at for the entire contract period. Rate to include demolition once works are completed	Sum	1		
1.2	Setting Out				
1.2.2	Allow for setting out of the works to the Engineer's satisfaction	Item	1		
1.3	Attendance Upon The Engineer and His Staff				
1.3.1	Provide Resident Engineer's accommodation, a 2 bedroom house in approved location and to approved quality of finishes for the duration of the contract. All to the Engineer's approval.	Month	6	40,000.00	240,000.00
1.3.2	Provide Assistant Resident Engineer's accommodation 1 No. 1 bedroom house in approved location and to approved quality of finishes for the duration of the assignment. All to the Engineer's approval.	Month	12	30,000.00	360,000.00
1.3.3	Ditto but for each of the 1Nr. Inspector of Works, 1Nr Environmentalist, 1Nr. Sociologist, 1 Nr. Electromechanical Engineer and 1Nr. Surveyor	Months	42	20,000.00	840,000.00
1.3.4	E.O. on items 1.3.1 to 1.3.3 for contractor's profits and overhead	%			
1.4	Establishment of site office for the RE				
1.4.1	Provide for rehabilitation and repair of Resident Engineer's office from the former WAJWASCO office building.	PS	1	5,000,000.00	5,000,000.00
1.4.2	Provide Resident Engineer's office with equipment and furniture (as listed in the technical specifications). The office furniture and equipment will be transferred to the client at the end of the contract.	PS	1	750,000.00	750,000.00
1.4.3	Maintenance of Engineer's office equipment including consumables e.g. cartridges, reams of paper, water, electricity, cooling, and refreshment.	Month	12	50,000.00	600,000.00
1.4.4	E.O. on items 1.4.1 to 1.4.3 for contractor's profits and overhead	%			
1.5	Transport Facilities for the RE's Staff				
1.5.1	Provisional Sum for purchase of 1No. New 4WD Double Cab Pick-up vehicles (brand new), of engine capacity upto 3000 CC for use by the RE's staff. Ownership to revert to the Counties/WSP at the end of the contract.	No	1	8,000,000.00	8,000,000.00
1.5.2	Add a percentage to item item 1.5.1 above to cater for Contractor's profits, administration, remission of statutory duties and overheads.	%			
1.5.3	Allow for maintenance, running, servicing and insurance costs of the project vehicles, as directed by the Engineer	km	40,000		
1.6	Attendance Upon Resident Engineer's Support Staff				
	Employ and provide the following support Staff for the Resident Engineer's Office as per the Contract Specifications. (Note: The Staff to be employed by the Contractor but to be under the exclusive day to day instruction of the Resident Engineer. The staff may be engaged on need basis).				
1.6.1	3 Nr Survey Assistants @ Kes. 30,000 for 12 months.	month	36	30,000.00	1,080,000.00
1.6.2	1 Nr Office Administrator @ Kes 30,000 for 12 months.	month	12	30,000.00	360,000.00
1.6.3	2 Nr Drivers @ Kes 25,000 for 12 months.	month	24	25,000.00	600,000.00
1.6.4	Provisional sum for payment of the RE's staff overtime allowances and RE's Staff expenses on Duty Trips outside project area, to be administered as per the Contract Specifications.	Item	1	500,000.00	500,000.00
1.6.5	Add a percentage to items 1.6.1 to 1.6.4 above to cater for Contractor's profits, administration, remission of statutory duties and overheads.	%			
	Sub Total Carried forward to next Page				

DADAJA BULLA WATER SUPPLY SCHEME

PROJECT SUMMARY

DADAJA BULLA WATER SUPPLY SCHEME, WAJIR COUNTY**MAIN SUMMARY**

BILL	DESCRIPTION	AMOUNT
1	PRELIMINARIES AND GENERAL ITEMS	
2	BOREHOLES, PUMPS AND POWER SUPPLY	
3	FENCING AND GATES	
4	WATER KIOSKS	
5	OPERATOR'S BUILDING	
6	PIT LATRINES	
7	WATER TROUGHS	
8	PIPEWORKS	
9	ELEVATED STEEL TANK	
10	ELEVATED PLASTIC TANK	
11	GROUND MASONRY TANK	
12	WATER TREATMENT	
13	GENERATOR HOUSE	
TOTAL FOR DADAJA BULLA WATER SUPPLY SCHEME		

BILL No. 2:
BOREHOLES, PUMPS AND
POWER SUPPLY

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY				
	DADAJA BULLA MAIN BH1				
	SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	SECTION 1:	Carried to			
	MOBILIZATION AND SETTING UP	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe),Class E	Lm	190		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 50mm diameter rising main GMS water pipe, Class C.	Lm	190		
2.2.7	50mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	50mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	Supply, install & connect all incoming and outgoing cables to make the pump set work				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	300		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	600		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	Solar panels Cleaning - Sprinklers system				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	BOREHOLE PUMP				
2.2.19	Provide the Maintenance & Rehabilitation of the existing Borehole Pump to include Pulling out, testing, checking of controller & cable connections, re-installation, test and commissioning	Ls	1		
	SECTION 2:	Carried to			
	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM <i>Supply, install, test and commission the following Data Acquisition & Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i> Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - -20 to 80 degrees and Conductivity 0 to 30 0r 12mS/cm2 Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal DXT -Cable - AS2xxx with standard lengths of 300m Allow for Testing, User Training and Commissioning the Monitoring system	No	1		
2.3.1		No	1		
2.3.2		No	1		
2.3.3		m	300		
2.3.4		Ls	1		
SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM				Carried to Main Summary	

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 4: SOLAR POWER				
2.4.1	Supply, install, test and commission of an array of solar with the following specifications: 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 15kW on a bright sunny day at midday taking into account the system losses. (4400W -To add to the existing solar Panels)	No.	8		
2.4.2	Allow for Maintenance and Rehabilitation of the existing Solar Panels to involve cleaning of the solar panels, checking for any faults/cracks, Cable connections, Testing output and performance, Re-positioning for maximum efficiency. The cost to include the rehabilitation of the existing mounting structures to include but not limited to spray painting, anchoring and reinforcing loose supports.	PS	1		
2.4.3	Supply, installation and furnishing support structures with the following specifications: Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.4	Supply, Install, Test and Commission a 15kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz IP66 20kW 31A complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemecanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.5	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.6	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.7	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.8	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.9	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.10	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.11	Allow for 12 months Defects Peroid Maintenance including training of User operators and technicians.	Ls	1		
2.4.12	Stand alone Solar Powered Security Lights Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	SECTION 4: SOLAR POWER	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 5: GENERATOR POWER BACK-UP				
2.5.1	Supply, Deliver, Install, Test and Commission New 25 KVA Power Back up Generator	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	Fire Fighting Equipment				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	SECTION 5:	Carried to			
	GENERATOR POWER BACK UP	Main Summary			
SEC	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u>				
	DADAJA BULLA MAIN BH1				
	<u>SUMMARY</u>				
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY				
	DADAJA BULLA ORAHEY BH2				
	SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	SECTION 1: MOBILIZATION AND SETTING UP	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe),Class E	Lm	190		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 50mm diameter rising main GMS water pipe, Class C.	Lm	190		
2.2.7	50mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	50mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	Supply, install & connect all incoming and outgoing cables to make the pump set work				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	300		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	600		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	Solar panels Cleaning - Sprinklers system				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	BOREHOLE PUMP				
2.2.19	Supply & install 9.2KW Submersible Multistage centrifugal borehole stainless steel Pump and Motor, continuously rated and capable of pumping 11.2m³/hr of water against a total head of 180m. The pump shall have in-built non-return valve, tail strainer, cable guard, etc.. The pump to be supplied complete with water tight cable splicing kit and connection ripple. The contractor to attach catalogs and 5years minimum Warranty for the pumps model proposed	No	1		
	SECTION 2: REHABILITATION, INSTALLATION & TESTING OF BOREHOLE	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM <i>Supply, install, test and commission the following Data Acquisition & Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i> Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - -20 to 80 degrees and Conductivity 0 to 30 Or 12mS/cm2 Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal 2.3.3 DXT -Cable - AS2xxx with standard lengths of 300m 2.3.4 Allow for Testing, User Training and Commissioning the Monitoring system	No	1		
		No	1		
		m	300		
		Ls	1		
SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM					Carried to Main Summary

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 4: SOLAR POWER				
2.4.1	Supply, install, test and commission of an array of solar with the following specifications: 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 20kW on a bright sunny day at midday taking into account the system losses. (6600W -To add to the existing solar Panels)	No	12		
2.4.2	Allow for Maintenance and Rehabilitation of the existing Solar Panels to involve cleaning of the solar panels, checking for any faults/cracks, Cable connections, Testing output and performance, Re-positioning for maximum efficiency. The cost to include the rehabilitation of the existing mounting structures to include but not limited to spray painting, anchoring and reinforcing loose supports.	PS	1	100,000	100,000
2.4.3	Supply, installation and furnishing support structures with the following specifications: Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.4	Supply, Install, Test and Commission a 20kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz IP66 20kW 31A complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemecanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.5	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.6	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.7	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.8	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.9	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.10	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.11	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.12	Stand alone Solar Powered Security Lights Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	SECTION 4: SOLAR POWER	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)

SECTION 5: GENERATOR POWER BACK-UP					
2.5.1	Supply, Deliver, Install, Test and Commission New 30 KVA Power Back up Generator	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
Fire Fighting Equipment					
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
SECTION 5:		Carried to			
GENERATOR POWER BACK UP		Main Summary			
SEC	DESCRIPTION				AMOUNT (KSHS)
<u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u>					
DADAJA BULLA ORAHEY BH2					
<u>SUMMARY</u>					
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY				
	DADAJA BULLA INSHALLAH BH3				
	SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	SECTION 1:	Carried to			
	MOBILIZATION AND SETTING UP	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe),Class E	Lm	190		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN63mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 63mm diameter rising main GMS water pipe, Class C.	Lm	190		
2.2.7	63mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	63mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 63 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	Supply, install & connect all incoming and outgoing cables to make the pump set work				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	300		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	600		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	Solar panels Cleaning - Sprinklers system				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	BOREHOLE PUMP				
2.2.19	Supply & install 15KW Submersible Multistage centrifugal borehole stainless steel Pump and Motor, continuously rated and capable of pumping 21m³/hr of water against a total head of 220m. The pump shall have in-built non-return valve, tail strainer, cable guard, etc.. The pump to be supplied complete with water tight cable splicing kit and connection ripple. The contractor to attach catalogs and 5years minimum Warranty for the pumps model proposed	No	1		
	SECTION 2:	Carried to			
	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM <i>Supply, install, test and commission the following Data Acquisition & Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i> Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - - 20 to 80 degrees and Conductivity 0 to 30 Or 12mS/cm2 Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal DXT -Cable - AS2xxx with standard lengths of 300m Allow for Testing, User Training and Commissioning the Monitoring system	No	1		
2.3.1					
2.3.2		No	1		
2.3.3		m	300		
2.3.4		Ls	1		
SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM					Carried to Main Summary

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 4: SOLAR POWER				
2.4.1	Supply, install, test and commission of an array of solar with the following specifications: 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 30kW on a bright sunny day at midday taking into account the system losses. (33,000W -To add to the existing solar Panels)	PS	60	20,000	20,000
2.4.2	Supply, installation and furnishing support structures with the following specifications: Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.3	Supply, Install, Test and Commission a 30kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz IP66 20kW 31A complete with accessories.The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemecanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection,phase failure protection,short circuit protection.The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.4	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.5	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.6	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.7	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.8	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.9	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.10	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.11	Stand alone Solar Powered Security Lights Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
SECTION 4: SOLAR POWER		Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 5: GENERATOR POWER BACK-UP				
2.5.1	Supply, Deliver, Install, Test and Commission New 35 KVA Power Back up Generator	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	Fire Fighting Equipment				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	SECTION 5: GENERATOR POWER BACK UP	Carried to Main Summary			
SEC	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u>				
	DADAJA BULLA INSHALLAH BH3				
	<u>SUMMARY</u>				
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 3:
FENCING AND GATE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 3 - FENCING AND GATE BH				
	SECTION 1: GATES AND GATE ENTRANCE				
	<u>Excavations and Earthworks</u> <i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<u>Concrete works</u> <i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<u>Reinforcement (Provisional)</u> <i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<u>Formwork</u> <i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<u>Coping</u> <i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: CHAIN-LINK FENCING				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	77.35		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	6		
	SECTION 2:	Carried to			
	CHAIN-LINK FENCING	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: STORMWATER DRAINS				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	SECTION 3:	Carried to			
	STORMWATER DRAINS	Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 3 - FENCING AND GATE BH</u>				
	<u>SUMMARY</u>				
1	GATES AND GATE ENTRANCE				
2	CHAIN-LINK FENCING				
3	STORMWATER DRAINS				
TOTAL FOR BILL 3 CARRIED FORWARD TO PROJECT SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 3 - FENCING AND GATE BH				
	SECTION 1: GATES AND GATE ENTRANCE				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<u>Formwork</u>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<u>Coping</u>				
	<i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<u>Finishes</u>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<u>Gates</u>				
	<i><u>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</u></i>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to Pedestrian gate: overall size 1,300 x 2,400 mm high	No	1		
	<u>Painting and decoration</u>				
	<i><u>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</u></i>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<i><u>Prepare and apply two finishing coats of super gloss enamel paint to:</u></i>				
3.1.17	General surfaces of metal gates (measured on both sides)	Sm	25.44		
	SECTION 1:	Carried to			
	GATES AND GATE ENTRANCE	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: CHAIN-LINK FENCING				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	77.35		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	6		
	SECTION 2:	Carried to			
	CHAIN-LINK FENCING	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: STORMWATER DRAINS				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	SECTION 3:	Carried to			
	STORMWATER DRAINS	Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 3 - FENCING AND GATE BH</u>				
	<u>SUMMARY</u>				
1	GATES AND GATE ENTRANCE				
2	CHAIN-LINK FENCING				
3	STORMWATER DRAINS				
TOTAL FOR BILL 3 CARRIED FORWARD TO PROJECT SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 3 - FENCING AND GATE BH				
	SECTION 1: GATES AND GATE ENTRANCE				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<u>Formwork</u>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<u>Coping</u>				
	<i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<u>Finishes</u>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<u>Gates</u>				
	<i><u>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</u></i>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to Pedestrian gate: overall size 1,300 x 2,400 mm high	No	1		
	<u>Painting and decoration</u>				
	<i><u>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</u></i>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<i><u>Prepare and apply two finishing coats of super gloss enamel paint to:</u></i>				
3.1.17	General surfaces of metal gates (measured on both sides)	Sm	25.44		
	SECTION 1:	Carried to			
	GATES AND GATE ENTRANCE	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: CHAIN-LINK FENCING				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	154.7		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	10		
	SECTION 2:	Carried to			
	CHAIN-LINK FENCING	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: STORMWATER DRAINS				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	SECTION 3:	Carried to			
	STORMWATER DRAINS	Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 3 - FENCING AND GATE BH</u>				
	<u>SUMMARY</u>				
1	GATES AND GATE ENTRANCE				
2	CHAIN-LINK FENCING				
3	STORMWATER DRAINS				
TOTAL FOR BILL 3 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 4:
WATER KIOSKS

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
4.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	16.35		
4.1.2	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	4.86		
4.1.3	Excavate for Strip footing pits not exceeding 1.0 metres deep, starting from reduced levels	Cm	3.12		
4.1.4	Extra over for excavation in rock of all classes	Cm	3.99		
	<i>Disposal</i>				
4.1.5	Return, fill and ram selected excavated material around foundations.	Cm	3.72		
4.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	4.26		
	<i>Hardcore or other approved filling, as described</i>				
4.1.7	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	4.91		
4.1.8	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	16.35		
	<u>Anti-termite treatment</u>				
4.1.9	Chemical anti-termite treatment executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	16.35		
	<u>Damp-proof Membrane</u>				
4.1.10	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	16.35		
	<u>Concrete works</u>				
	<i>Plain concrete class 15: in</i>				
4.1.11	50 mm thick blinding under Column bases	Sm	3.24		
4.1.12	Ditto: under Strip footings	Sm	3.12		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
4.1.13	Column bases	Cm	1.33		
4.1.14	Columns	Cm	0.19		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
4.1.15	100 mm thick floor Slab	Cm	1.16		
4.1.16	Ditto: to sloping ramp slabs	Cm	0.69		
4.1.17	Strip footings	Cm	0.62		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.1.18	Assorted bars (D8 - D16)	Kg	128.88		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 25/20: as described in</i>				
4.2.1	Beams	Cm	0.59		
4.2.2	Roof slab, 150 mm thick	Cm	1.23		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.2.3	Assorted bars (D8 - D16)	Kg	129		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
4.2.4	Vertical sides and soffits of beams	Sm	5.88		
4.2.5	Vertical sides of columns	Sm	6.72		
4.2.6	Horizontal soffits of suspended slabs	Sm	8.19		
4.2.7	Edge of suspended slabs over 75 mm but not exceeding 150 mm girth	Sm	2.20		
	SECTION 2: Carried to SUPERSTRUCTURE Main Summary				-
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.3.1	200 mm thick walling	Sm	15.60		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
4.3.2	200 mm wide; levelled and bedded under wall	Lm	14.66		
	<u>Coping</u>				
	<i>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</i>				
4.3.3	Size 200 x 75 mm coping; twice weathered and throated	Lm	2.30		
	SECTION 3: Carried to WALLING Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 4: EXTERNAL FINISHES</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
4.4.1	Concrete surfaces externally; finished smooth	Sm	2.95		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
4.4.2	Masonry surfaces externally; finished smooth	Sm	12.64		
	<u>Steps and Ramp finishes</u>				
	<i>Cement and sand (1:3) screeds, backings, beds etc; coloured to approval: finished in smooth steel float</i>				
4.4.3	Treads to steps, 300 mm wide	Lm	6		
4.4.4	Risers to steps, 150 mm high	Lm	6		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
4.4.5	Rendered concrete surfaces, externally	Sm	3.0		
	<u>SECTION 4:</u>				
	EXTERNAL FINISHES				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>SECTION 5: INTERNAL WALL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
4.5.1	Concrete surfaces, internally	Sm	2.95		
4.5.2	Masonry surfaces, internally	Sm	12.64		
4.5.3	Jambs and reveals: 100 - 200 mm girth	Lm	10.40		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
4.5.4	25 mm thick screeds on floors to steel trowel finish	Sm	7		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint: as described on</i>				
4.5.5	Plastered concrete surfaces, internally	Sm	3		
4.5.6	Plastered walls surfaces, internally	Sm	13		
4.5.7	Jambs and reveals: 100 - 200 mm girth	Lm	10		
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of brilliant white plastic emulsion paint as: as described on</i>				
4.5.8	Plastered soffits of slabs, internally	Sm	8		
	<u>SECTION 5 :</u>				
	INTERNAL FINISHES				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 6: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
4.6.1	Door: Overall Size 900 x 2100 mm high, in single leaf; complete with purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Architectural design and details	No	1		
4.6.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.6.3	General surfaces of metal doors (measured on both sides)	Sm	4		
	SECTION 6 Carried to DOORS Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 7: WINDOWS</u>				
	<u>Steel Windows</u>				
	<u>The following to Water Kiosk:-</u>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule: as described to</i>				
4.7.1	Window overall size: 1000 x 1200 mm high: in two equal leaves; complete with advert pockets in 500 x 600 mm perspex covers; details to Engineer's design and details	No	1		
	<u>Painting & Decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.7.2	General surfaces of metal windows (measured on both sides)	Sm	3.12		
	SECTION 7 Carried to WINDOWS Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	SECTION 8: PLASTIC WATER TANK AND WATER KIOSK ATM				
	<u>5,000 litres Elevated Plastic Tank</u>				
4.8.1	Provide for the purchase, supply and installation of a 5m3 plastic tank & fix all the necessary fittings including inlets, outs, and taps as directed by the supervising Engineer	No	1		
4.8.2	Supply, Install and Commission a 25mm diameter water meter.	No	1		
4.8.3	25mm Gate valves	No	7		
	<u>Tank Roof</u>				
	<i>Sawn cypress first grade; pressure impregnated; thoroughly seasoned and treated with anti-termite; and other jointing accessories to structural engineer's details; timber to meet the following minimum strength criteria, bending 5N/mm2, tension 3N/mm2 and compression 6N/mm2</i>				
4.8.4	50 x 50 x 3mm thick steel stanchion fixed to the reinforced concrete column to approval	Lm	10		
4.8.5	75 x 50 mm timber rafter fixed to the steel stanchions	Lm	12		
4.8.6	50 x 50 mm timber batten fixed to the rafter to approval	Lm	9		
4.8.7	MRM box profile sheets available in white and clear; 12,000mm length x 810mm width.	Sm	7		
	<u>Water ATM</u>				
4.8.8	Supply, install, test, and commission smart card-operated water ATM system including cabinet, dispenser, solar power unit, piping, fittings, control unit, and user training, complete as per specifications.	Ls	1		
4.8.9	Provide all materials and install high level MDF shelves inside water kiosks, as shown on the drawings.	Ls	1		
	SECTION 8 Carried to <u>PLASTIC WATER TANK</u> Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	SECTION 9: SOAK AWAY PIT				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
4.9.1	Excavate for soak away pit, 1.5m diameter, 2.7m depth, in normal soil	Cm	4.77		
4.9.2	Extra over for excavation in rock material	Cm	1.43		
4.9.3	Return, fill and ram selected excavated material around to 0.3m depth	Cm	0.53		
4.9.4	Load, wheel and deposit surplus excavated material away from site	Cm	4.24		
	<u>Hardcore or other approved filling, as described</u>				
4.9.5	300 mm thick handpacked h/core material in filling to 2.4m height, compacted in layers n.e. 150mm thick.	Cm	4.24		
	<u>Plastic Sheet Lining</u>				
4.9.6	1000 gauge polythene or other equal and approved plastic sheet lining, laid over hardcore.	Sm	1.77		
	<u>Drain Pipe</u>				
4.9.7	Supply and install 150mm dia uPVC drain pipe, 5m length	m	5.00		
	SECTION 9 Carried to <u>SOAK AWAY PIT</u> Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 10: GULLEY TRAP</u>				
	<u>Excavations and Earthworks</u>				
4.10.1	Excavate for gulley trap, 0.6m x 0.6m x 0.5m depth, in normal soil	Cm	0.22		
4.10.2	Load, wheel and deposit surplus excavated material away from site	Cm	0.22		
	<u>Concrete</u>				
4.10.3	Supply and place 50mm thick mass concrete blinding under base slab; class 15/20 for gulley trap (0.6m x 0.6m)	Cm	0.02		
4.10.4	Supply and place 100mm thick mass concrete base class 20/20 for gulley trap (0.6m x 0.6m)	Cm	0.04		
	<u>Blockwork</u>				
4.10.5	Supply and lay 150mm thick masonry blockwork walls in cement mortar joints, as approved (0.4m high)	Sm	0.7		
4.10.6	Plaster external and internal walls with 15mm thick cement:sand (1:4) render	Sm	1.44		
	<u>Fittings</u>				
4.10.7	Supply and install 50mm thick 400mm x 400mm precast concrete top cover slab for gully trap (reinforced with A142 mesh fabric)	No.	1		
	SECTION 10: GULLEY TRAP	Carried to Main Summary			
ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 1</u>				
	<u>SUMMARY</u>				
4.1	Substructure (Provisional)				
4.2	R.C. Superstructure				
4.3	Walling				
4.4	External Wall Finishes				
4.5	Internal Finishes				
4.6	Doors				
4.7	Windows				
4.8	Plastic Water Tank and Water Kiosk ATM				
4.9	Soak Away Pit				
4.10	Gulley Trap				
	TOTAL FOR 1No. WATER KIOSK				
	TOTAL FOR 7No. WATER KIOSKS	NO.	7	Kes. Kes.	
TOTAL FOR BILL 4 CARRIED FORWARD TO PROJECT SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
4.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	14.56		
4.1.2	Excavate for strip footing pits not exceeding 1.5 metres deep, starting from reduced levels	Cm	12.00		
4.1.3	Extra over for excavation in rock of all classes	Cm	3.60		
	<i><u>Disposal</u></i>				
4.1.4	Return, fill and ram selected excavated material around foundations.	Cm	6.99		
4.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	5.01		
	<i><u>Hardcore or other approved filling, as described</u></i>				
4.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	4.37		
4.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	14.56		
	<u>Anti-termite treatment</u>				
4.1.8	Chemical anti-termite treatment executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	14.56		
	<u>Damp-proof Membrane</u>				
4.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	14.56		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
4.1.10	50 mm thick blinding unde Strip footings	Sm	8.00		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.11	100 mm Thick floor slab	Cm	1.31		
4.1.12	Ditto; to sloping ramp slabs	Cm	0.69		
4.1.13	Strip footings	Cm	1.60		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
4.1.14	Assorted bars (D8 - D16)	Kg	96.00		
	<i><u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</u></i>				
4.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	13.77		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
4.1.16	Edges; over 75 mm but not exceeding 100 mm high, to slab	Lm	14.66		
4.1.17	Ditto: to edges of ramp	Lm	4.00		
	<u>Foundation walling</u>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.1.18	200 mm thick foundation walling	Sm	12.36		
	<u>Plinth finishes</u>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
4.1.19	Concrete surfaces externally; finished smooth	Sm	8.40		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint as supplied by "Crown Paints" or approved equivalent: as described on</i>				
4.1.20	Rendered surfaces, externally	Sm	8.40		
	<u>Paving slabs</u>				
	<i>Size 600 x 600 x 50mm Thick precast concrete paving slabs as supplied by Kenya Builders or equal and approved; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</i>				
4.1.21	Paving slabs, around building (one row); including all excavations and earthworks	Sm	8.80		
	Carried to Collection				
	<u>Collection Page</u>				
	From Page 1				
	From Page above				
	SECTION 1:				
	SUBSTRUCTURES				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
4.2.1	Beams	Cm	0.49		
	<u>Reinforcement</u> (Provisional)				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.2.2	Assorted bars (D8 - D16)	Kg	29		
	<u>Formwork</u>				
	<i>Sawn formwork; including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
4.2.3	Vertical sides and soffits of beams	Sm	5.05		
4.2.4	Vertical sides of columns	Sm	6.72		
4.2.5	Horizontal soffits of suspended slabs	Sm	8.19		
4.2.6	Edge of suspended slabs over 75 mm but not exceeding 150 mm girth	Sm	2.29		
	SECTION 2: Carried to SUPERSTRUCTURE Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.3.1	200 mm thick walling	Sm	15.60		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
4.3.2	200 mm wide; levelled and bedded under wall	Lm	14.66		
	<u>Coping</u>				
	<i>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</i>				
4.3.3	Size 200 x 75 mm coping; twice weathered and throated	Lm	2.30		
	SECTION 3: Carried to WALLING Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 4: EXTERNAL FINISHES</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
4.4.1	Concrete surfaces externally; finished smooth	Sm	2.95		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
4.4.2	Masonry surfaces externally; finished smooth	Sm	12.64		
	<u>Steps and Ramp finishes</u>				
	<i>Cement and sand (1:3) screeds, backings, beds etc; coloured to approval: finished in smooth steel float</i>				
4.4.3	Treads to steps, 300 mm wide	Lm	6		
4.4.4	Risers to steps, 150 mm high	Lm	6		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as supplied by "Crown Paints" or approved equivalent: as described on</i>				
4.4.5	Rendered concrete surfaces, externally	Sm	3.0		
	SECTION 4: EXTERNAL FINISHES	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>SECTION 5: INTERNAL WALL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
4.5.1	Concrete surfaces, internally	Sm	2.95		
4.5.2	Masonry surfaces, internally	Sm	12.64		
4.5.3	Jambs and reveals: 100 - 200 mm girth	Lm	10.40		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc; in</i>				
4.5.4	25 mm thick screeds on floors to steel trowel finish	Sm	7		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint: as described on</i>				
4.5.5	Plastered concrete surfaces, internally	Sm	3		
4.5.6	Plastered walls surfaces, internally	Sm	13		
4.5.7	Jambs and reveals: 100 - 200 mm girth	Lm	10		
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of brilliant white plastic emulsion paint as: as described on</i>				
4.5.8	Plastered soffites of slabs, internally	Sm	8		
	SECTION 5 : INTERNAL FINISHES	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 6: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
4.6.1	Door: Overall Size 900 x 2100 mm high, in single leaf; complete with purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Architectural design and details	No	1		
	<u>Ironmongery</u>				
	<i>Supply and fix the following ironmongery complete with matching screws: as described to</i>				
4.6.2	Steel door lock complete with handles	No	1		
4.6.3	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.6.4	General surfaces of metal doors (measured on both sides)	Sm	4		
	<u>SECTION 6</u>	Carried to			
	<u>DOORS</u>	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 7: WINDOWS</u>				
	<u>Steel Windows</u>				
	<u>The following to Water Kiosk:-</u>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule; as described to</i>				
4.7.1	Window overall size: 1200 x 1000 mm high: in two equal leaves; complete with advert pockets in 500 x 600 mm perspex covers; details to Engineer's design and details	No	1		
	<u>Painting & Decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.7.2	General surfaces of metal windows (measured on both sides)	Sm	3		
	<u>SECTION 7</u>	Carried to			
	<u>WINDOWS</u>	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 2</u>				
	SECTION 8: PLUMBING AND WATER KIOSK ATM				
4.8.1	Supply, install and commission a 32mm diameter water meter.	No	1		
4.8.2	Supply, Install and Commission a 25mm diameter water meter.	No	1		
4.8.3	25mm Gate valves	No	7		
	Water ATM				
4.8.4	Supply, install, test, and commission smart card-operated water ATM system including cabinet, dispenser, solar power unit, piping, fittings, control unit, and user training, complete as per specifications.	Ls	1		
4.8.5	Provide all materials and install high level MDF shelves inside water kiosks, as shown on the drawings.	Ls	1		
	SECTION 8	Carried to			
	PLUMBING	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 2</u>				
	<u>SECTION 9: ROOFING</u>				
	<u>Roof Structure (Provisional)</u>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
4.9.1	Rafters: 150 x50	m	16.00		
4.9.2	Purlins: 50 x 50	m	13.50		
4.9.3	Wall plate: 150 x 50	m	5.40		
	<u>Eaves Finishes</u>				
	<i>Fascia Board: in 2mm thick mild steel</i>				
4.9.4	Fascia/Barge boards 250x25 mm thick sawn cypress and planed to approval	Lm	11.80		
	<u>Roof covering</u>				
	<i>Gauge 28 IT5 Pre-painted box-profiled roofing sheets</i>				
4.9.5	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	8.64		
	<i>Heavy duty roof insulation complete with polythylene foam core that provides a radiant barrier, reflective insulation and moisture barrier; fixed in accordance to manufacturer's printed instructions: as described to</i>				
4.9.6	10 mm thick double-sided reflective foil insulation; underlay	Sm	8.64		
	SECTION 9	Carried to			
	ROOFING	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 10: SOAK AWAY PIT</u>				
	<u>Excavations and Earthworks</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
4.10.1	Excavate for soak away pit, 1.5m diameter, 2.7m depth, in normal soil	Cm	4.77		
4.10.2	Extra over for excavation in rock material	Cm	1.43		
4.10.3	Return, fill and ram selected excavated material around to 0.3m depth	Cm	0.53		
4.10.4	Load, wheel and deposit surplus excavated material away from site	Cm	4.24		
	<u>Hardcore or other approved filling, as described</u>				
4.10.5	300 mm thick handpacked h/core material in filling to 2.4m height, compacted in layers n.e. 150mm thick.	Cm	4.24		
	<u>Plastic Sheet Lining</u>				
4.10.6	1000 gauge polythene or other equal and approved plastic sheet lining, laid over hardcore.	Sm	1.77		
	<u>Drain Pipe</u>				
4.10.7	Supply and install 150mm dia uPVC drain pipe, 5m length	m	5.00		
	<u>SECTION 10</u>				
	Carried to				
	SOAK AWAY PIT				
	Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 11: GULLEY TRAP</u>				
	<u>Excavations and Earthworks</u>				
4.11.1	Excavate for gulley trap, 0.6m x 0.6m x 0.5m depth, in normal soil	Cm	0.22		
4.11.2	Load, wheel and deposit surplus excavated material away from site	Cm	0.22		
	<u>Concrete</u>				
4.11.3	Supply and place 50mm thick mass concrete blinding under base slab; class 15/20 for gulley trap (0.6m x 0.6m)	Cm	0.02		
4.11.4	Supply and place 100mm thick mass concrete base class 20/20 for gulley trap (0.6m x 0.6m)	Cm	0.04		
	<u>Blockwork</u>				
4.11.5	Supply and lay 150mm thick masonry blockwork walls in cement mortar joints, as approved (0.4m high)	Sm	0.7		
4.11.6	Plaster external and internal walls with 15mm thick cement:sand (1:4) render	Sm	1.44		
	<u>Fittings</u>				
4.11.7	Supply and install 50mm thick 400mm x 400mm precast concrete top cover slab for gully trap (reinforced with A142 mesh fabric)	No	1		
	<u>SECTION 9</u>				
	Carried to				
	ROOFING				
	Main Summary				

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 2</u>				
	<u>SUMMARY</u>				
4.1	Substructure (Provisional)				
4.2	R.C. Superstructure				
4.3	Walling				
4.4	External Wall Finishes				
4.5	Internal Finishes				
4.6	Doors				
4.7	Windows				
4.8	Plumbing and Water Kiosk ATM				
4.9	Roofing				
4.10	Soak Away Pit				
4.11	Gulley Trap				
	TOTAL FOR 1No. WATER KIOSK	No.	1	Kes.	
	TOTAL FOR 1 No. WATER KIOSKS			Kes.	
TOTAL FOR BILL 4 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 5:
OPERATOR'S BUILDING AND
GUARD HOUSE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL No. 5: OPERATOR'S BUILDING</u>				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
5.1.1	Oversite excavation 200 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Cm	6.54		
5.1.2	Excavate for trench foundations not exceeding 1.50 metres deep, starting from reduced levels	Cm	20.52		
5.1.3	Extra over for excavation in rock of all classes	Cm	6.16		
	<i>Disposal</i>				
5.1.4	Return, fill and ram selected excavated material around foundations.	Cm	11.88		
5.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	8.64		
	<i>Hardcore or other approved filling, as described</i>				
5.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	9.80		
5.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	32.68		
	<u>Anti - termite treatment</u>				
5.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	32.68		
	<u>Damp-proof membrane</u>				
5.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	32.68		
	<u>Concrete works</u>				
	<i>Plain concrete class 15: in</i>				
5.1.10	50 mm thick blinding under strip foundations	Sm	16.20		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
5.1.11	Strip footings	Cm	3.24		
5.1.12	150 mm Thick Surface beds	Cm	4.90		
5.1.13	Ditto; to sloping ramp slabs	Sm	0.54		
5.1.14	Extra over ramp slabs for formation of herringbone pattern; tamping to top surface of concrete slabs during casting	Sm	0.54		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S S/S.2003, including all bending wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:</i>				
5.1.15	Assorted bars (D8 - D16)	Kg	162.00		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
5.1.16	<p><i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</i></p> <p>Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.</p> <p><u>Formwork</u></p> <p><i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i></p>	Sm	36.28		
5.1.17	Vertical sides of strip footings	Sm	10.80		
5.1.18	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	23.00		
5.1.19	Ditto: but sloping, to ramps	Lm	9.80		
	<u>Foundation walling</u>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
5.1.20	150 mm thick foundation walling	Sm	36.00		
	<u>Plinth finishes</u>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
5.1.21	Concrete and masonry surfaces externally; finished smooth	Sm	10.35		
	<i>Repair surfaces and apply three coats of first quality black bituminous paint, as described to</i>				
5.1.22	Rendered surfaces, externally	Sm	10.35		
	<u>Paving slabs</u>				
	<i>Size 600 x 600 x 50mm thick precast concrete paving slabs, laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</i>				
5.1.23	Paving slabs, around building (one row); including all excavations and earthworks	Sm	13.80		
	Carried to Collection				
	<u>Collection Page</u>				
	From Page 1				
	From Page above				
SECTION 1: Carried to SUBSTRUCTURES Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<u>BILL No. 5: OPERATOR'S BUILDING</u>				
	<u>SECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
5.2.1	Beams	Cm	1.01		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 515.2002, including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to</i>				
5.2.2	Assorted bars (D8 - D16)	Kg	0.51		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
5.2.3	Vertical sides and soffites of beams	Sm	22.50		
	<u>SECTION 2:</u>	Carried to			
	<u>R.C SUPERSTRUCTURE</u>	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<u>BILL No. 5: OPERATOR'S BUILDING</u>				
	<u>SECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
5.3.1	150 mm thick walling	Sm	36.90		
5.3.2	Ditto: to Gable walling	Sm	23.26		
	<i>pression based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
5.3.3	150 mm wide; levelled and bedded under wall	Lm	23.00		
	<u>Internal Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
5.3.4	150 mm thick walling	Sm	8.40		
	<i>pression based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
5.3.5	150 mm wide; levelled and bedded under wall	Lm	4		
	<u>SECTION 3:</u>	Carried to			
	<u>WALLING</u>	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	<u>SECTION 4: ROOFING</u>				
	<u>Roof Structure (Provisional)</u>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
5.4.1	Tie beam: 75 x50	m	18.80		
5.4.2	King Post: 75x50	m	4.40		
5.4.3	Struts: 75x50	m	10.40		
5.4.4	Purlins: 50 x 50	m	97.99		
5.4.5	Wall plate: 150x50mm	m	16		
5.4.6	Rafters: 75x50	m	25		
	<u>Eaves Finishes</u>				
	<i>Fascia Board: in 2mm thick mild steel</i>				
5.4.7	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	28.33		
	<u>Roof covering</u>				
	<i>Gauge 28 IT5 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions: as described to</i>				
5.4.8	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	48.99		
5.4.9	Ridge cap to match	Lm	8.17		
	<u>Painting & Decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.4.10	Metal surfaces: 200 - 300mm girth	Lm	4.20		
	<u>SECTION 4</u>				
	<u>ROOFING</u>				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	<u>SECTION 5: EXTERNAL FINISHES</u>				
	<u>External wall finishes</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
5.5.1	Concrete surfaces externally; finished smooth	Sm	6.90		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
5.5.2	Masonry surfaces externally; finished smooth	Sm	60.16		
	<u>Steps and Ramp finishes</u>				
	<i>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</i>				
5.5.3	Surfaces of ramps, sloping	Sm	3.60		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
5.5.4	Rendered concrete surfaces, externally	Sm	6.90		
	<u>SECTION 5</u>				
	EXTERNAL FINISHES				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	<u>SECTION 6: INTERNAL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
5.6.1	Concrete surfaces, internally	Sm	9.30		
5.6.2	Masonry surfaces, internally	Sm	76.96		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
5.6.3	32 mm Thick bed screed on floor to steel trowel finish level	Sm	32.68		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint as "Crown Paints" or approved equivalent: as described on</i>				
5.6.4	Plastered concrete surfaces, internally	Sm	9.30		
5.6.5	Plastered walls surfaces, internally	Sm	76.96		
	<u>SECTION 6</u>				
	INTERNAL FINISHES				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	<u>SECTION 7: DOORS</u>				
	<u>Metal Doors</u>				
	<i>supply, assemble and fix the following purpose made metal doors, mild steel smooth welded together; one shop coat grey aluminium primer; building in lugs on jambs and plugging and screwing to head; complete with purpose made ironmongery; as described</i>				
5.7.1	Overall size 1000 x 2100 mm high; details as per architectural drawings	No	2		
5.7.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	3		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.7.3	General surfaces of metal doors (measured on both sides)	Sm	4.20		
	<u>SECTION 7 DOORS</u>	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<u>BILL No. 5: OPERATOR'S BUILDING</u>				
	<u>SECTION 8: WINDOWS</u>				
	<u>Window Sill</u>				
	<i>Precast concrete class 20 fair faced all exposed surfaces bedded and jointed cement and sand (1:3) mortar</i>				
5.8.1	Size 175 x 75 mm thick window sill once rebated and throated; laid and jointed in cement and sand (1:3) mortar	Lm	6.40		
	<u>Steel Casement Windows</u>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges including all necessary cutting, welding and grinding: ironmongery hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule; as described to</i>				
5.8.2	Window overall size: 1500 x 1175 mm high: details to Architect's design and details	No	2		
5.8.3	Window overall size: 2000 x 1175 mm high: details to Architect's design and details	No	2		
	<u>Painting & Decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.8.4	General surfaces of metal windows (measured on both sides)	Sm	8		
	<u>SECTION 8 WINDOWS</u>	Carried to Main Summary			

BILL No. 6:
PIT LATRINE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 6: PIT LATRINES				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
6.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	4.35		
6.1.2	Excavate for Strip footing pits not exceeding 1.5 metres deep, starting from reduced levels.	Cm	9.23		
6.1.3	Excavate for underground pit (size 1.5x 2.0 m), depth upto 6 m	Cm	18.00		
6.1.4	Extra over for excavation in rock of all classes	Cm	8.17		
	<i><u>Disposal</u></i>				
6.1.5	Return, fill and ram selected excavated material around foundations.	Cm	18.61		
6.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	16.78		
	<i><u>Hardcore or other approved filling, as described</u></i>				
6.1.7	Imported inert h/core material in filling to make up levels, compacted in layers n.e. 150 mm thick with a vibratory roller to the satisfaction and approval of the Structural Engineer (S.E)	Cm	1.30		
6.1.8	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	4.35		
6.1.9	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	4.35		
	<u>Anti-termite treatment</u>				
6.1.10	Chemical anti-termite treatment as <i>Termidor 96 SC</i> or aproved equivalent, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	4.35		
	<u>Damp-proof Membrane</u>				
6.1.11	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	4.35		
	<u>Concrete works</u>				
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
6.1.12	150 mm Thick floor Slab	Cm	1.38		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
6.1.13	Strip footings	Cm	1.23		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
6.1.14	Assorted bars (D8 - D16)	Kg	74		
	<i><u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</u></i>				
6.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	9.23		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>Formwork</u>				
	<u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u>				
6.1.16	Edges; over 75 mm but not exceeding 100 mm high, to slab	Lm	10.25		
	<u>Foundation walling</u>				
	<u>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</u>				
6.1.17	150 mm thick foundation walling	Sm	15.38		
6.1.18	150 mm thick walling for the pit	Sm	8.40		
	<u>Plinth finishes</u>				
	<u>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar; wood floated; on masonry or concrete surfaces: as described to</u>				
6.1.19	Concrete surfaces externally; finished smooth	Sm	15.38		
	<u>Prepare surfaces and apply three coats of first quality Black Bituminous paint as described on</u>				
6.1.20	Rendered surfaces, externally	Sm	15.38		
	Carried to Collection				
	<u>Collection Page</u>				
	From Page 1				
	From Page Above				
SECTION 1					
SUBSTRUCTURES					
Carried to Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
6.2.1	BILL NO. 6: PIT LATRINES <u>SECTION 2: SUPERSTRUCTURE</u> <u>R.C Frame</u> <u>Concrete</u> <i>Vibrated reinforced concrete class 20/20: as described in</i>	Cm	0.51		
	Beams				
	<u>Reinforcement</u> (Provisional) <i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
	Assorted bars (D8 - D16)				
6.2.2	<u>Formwork</u> <i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>	Kg	31		
	Vertical sides and soffits of beams				
6.2.3		Sm	5.13		
SECTION 2 Carried to SUPERSTRUCTURE Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
6.3.1	BILL NO. 6: PIT LATRINES <u>SECTION 3: WALLING</u> <u>External Walling</u> <i>Masonry Blocks: as described to</i>	Sm	12.63		
	150 mm thick walling				
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
	150 mm wide; levelled and bedded under wall				
6.3.2		Lm	10.25		
SECTION 3 Carried to WALLING Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 6: PIT LATRINES				
	<u>SECTION 4: EXTERNAL FINISHES</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
6.4.1	Concrete surfaces externally; finished smooth	Sm	3		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
6.4.2	Rendered concrete surfaces, externally	Sm	3		
	<u>SECTION 4</u>				
	EXTERNAL FINISHES				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>SECTION 5: INTERNAL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
6.5.1	Concrete surfaces, internally	Sm	5		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
6.5.2	25 mm thick screed on floor to finished level	Sm	3		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <u>matt emulsion</u> paint as described on</i>				
6.5.3	Plastered concrete surfaces, internally	Sm	5		
	<u>SECTION NO. 5</u>				
	INTERNAL FINISHES				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 6: PIT LATRINES SECTION 6: DOORS Wooden Doors <i>Supply, assemble and fix the following purpose made wooden doors: hardwood smoothly joined together; one shop coat of wood preservative primer; building in lugs on jambs and plugging and screwing to head; complete with purpose made ironmongery: as described to.</i> 6.6.1 Wooden door: overall size 900 x1800 mm high, in single leaf; complete with hardwood frames, purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Standard Drawings and details. Ironmongery <i>Supply and fix the following ironmongery complete with matching screws: as described to</i> 6.6.2 Rubber door stop; fixed to floor or wall in rawl bolt Painting and decoration <i>Prepare and apply two finishing coats of super gloss finished paint to:</i> 6.6.3 General surfaces of wooden doors (measured on both sides)	No	2		
		No	2		
		Sm	6		
	SECTION 6 DOORS	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 6: PIT LATRINES SECTION 7: WINDOWS Steel Windows <i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Architect's schedule; as described to</i> 6.7.1 Window overall size: 600 x 600 mm high: in single leaf; details to Standard drawings and details. Painting & Decoration <i>Prepare and apply two finishing coats of super gloss finished paint to:</i> 6.7.2 General surfaces of metal windows (measured on both sides)	No	2		
		Sm	1		
	SECTION 7 WINDOWS	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 6: PIT LATRINES</u> <u>SECTION 8: ROOFING</u> <u>Roof Structure (Provisional)</u> <i>structural timber to be second grade sawn and planed celcured cypress to approval.</i> 6.8.1 Rafters: 150 x50 6.8.2 Purlins: 50 x 50 6.8.3 Wall plate: 150x50 <u>Eaves Finishes</u> <i>Fascia Board as described to:</i> 6.8.4 Fascia/Barge boards 250x25 mm thick sawn cypress and planed to approval <u>Roof covering</u> <u>Gauge 28 IT5 Pre-painted box-profiled roofing sheets</u> 6.8.5 Roof covering not exceeding 15° from the horizontal: including all necessary fixtures				
	<u>SECTION 8</u> <u>ROOFING</u>				
	Carried to Main Summary				
ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL NO. 6: PIT LATRINES</u> <u>SUMMARY</u> 6.1 Substructure (Provisional) 6.2 R.C. Superstructure 6.3 Walling 6.4 External Wall Finishes 6.5 Internal Finishes 6.6 Doors 6.7 Windows 6.8 Roofing				
	TOTAL FOR 1No. PIT LATRINE			Kes.	
	TOTAL FOR 5No. PIT LATRINES	No.	5	Kes.	
TOTAL FOR BILL 6 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 7:
WATER TROUGHS

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 7: WATER TROUGHS				
	<u>Section 1: Water Troughs for Camels and Cattle</u>				
	Excavations				
7.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	81.2		
7.1.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	14.64		
7.1.3	Return, fill and ram selected excavated material around foundations.	Cm	9.76		
	Hardcore filling				
7.1.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	81.2		
	Concrete Work				
7.1.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	19.44		
7.1.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.944		
7.1.7	Timber shattering provided to sides of floor slab	Lm	25.2		
7.1.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	19.44		
	Walling for substructure				
7.1.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	24.4		
	Walling for superstructure				
7.1.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	21.96		
	Wall finishes				
	<u>Cement and sand (1:3) render as described in:</u>				
7.1.11	12mm Thick with finish to masonry walling	Sm	43.92		
7.1.12	25mm thick floor finish	Sm	19.44		
	40mm diameter GI pipes and fittings for inlet pipeworks				
7.1.13	GI PN10 pipe	m	10		
7.1.14	GI Barrel Nipples	No	6		
7.1.15	GI Sockets	No	4		
7.1.16	GI Unions	No	3		
7.1.17	GI Gate Valves	No	2		
7.1.18	GI Ball valve	No	1		
7.1.19	GI Elbows	No	4		
7.1.20	2m wide stone masonry riprap all round the water trough	Sm	63.2		
	Subtotal for one (1) No Water Trough				
	Total for (3) No water troughs	No	3		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 7: WATER TROUGHS				
	<u>Section 2: Water Troughs for Sheep and Goats</u>				
	Excavations				
7.2.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	64.67		
7.2.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	11.22		
7.2.3	Return, fill and ram selected excavated material around foundations.	Cm	7.48		
	Hardcore filling				
7.2.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	64.67		
	Concrete Work				
7.2.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	14.31		
7.2.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.431		
7.2.7	Timber shattering provided to sides of floor slab	Lm	19.5		
7.2.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	14.31		
	Walling for substructure				
7.2.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	18.7		
	Walling for superstructure				
7.2.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	10.005		
	Wall finishes				
	<u>Cement and sand (1:3) render as described in:</u>				
7.2.11	12mm Thick with finish to masonry walling	Sm	20.01		
7.2.12	25mm thick floor finish	Sm	14.31		
	40mm diameter GI pipes and fittings for inlet pipeworks				
7.2.13	GI PN10 pipe	m	10		
7.2.14	GI Barrel Nipples	No	6		
7.2.15	GI Sockets	No	4		
7.2.16	GI Unions	No	3		
7.2.17	GI Gate Valves	No	2		
7.2.18	GI Ball valve	No	1		
7.2.19	GI Elbows	No	4		
7.2.20	2m wide stone masonry riprap all round the water trough	Sm	51.8		
	Subtotal for one (1) No Water Trough				
	Total for (4) No water troughs	No	4		
TOTAL FOR BILL 7 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 8: PIPEWORK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 8: PIPE WORK SECTION 1: RISING MAIN <i>Refer to Construction Drawings</i> Site Clearance <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.1.1	General clearance along pipeline route	Lm	2,150		
8.1.2	Removal of trees of girth 600 to 900mm	No	2		
	Trench Excavation				
8.1.3	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	2,150		
8.1.4	Extra Over for excavation in rock of all types	Cm	206		
	Pipework <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<u>HDPE Pipes</u>				
8.1.5	HDPE pipes OD25mm PN10	m	29		
8.1.6	HDPE pipes OD32mm PN10	m	171		
8.1.8	HDPE pipes OD63mm PN10	m	55		
8.1.9	HDPE pipes OD75mm PN10	m	451		
8.1.10	HDPE pipes OD90mm PN10	m	958		
8.1.11	HDPE pipes OD125mm PN10	m	486		
	<u>Air valves</u>				
8.1.12	Various dia. flanged single orifice air valves PN10. Include all the required pipework and fittings.	No	4		
	<u>Wash outs</u>				
8.1.13	Various dia. GI washout valves.	No	1		
	<u>Water Meters</u>				
8.1.14	Supply and install a DN 50mm dia master meter. Rate to include all jointing materials.	No	3		
	Valve Chambers <i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.1.15	Air valve chambers, as per the detailed drawings	No	4		
8.1.16	Wash out chambers with outfall structure, as per drawings	No	1		
8.1.17	Gate valve and meter chambers, as per the detailed drawings	No	3		
8.1.18	Extra Over for excavation in rock of all types, for chambers	Cm	2.07		
	Other Pipework Ancillaries <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.1.19	Pipeline marker posts	No	11		
8.1.20	Air valve marker posts	No	4		
8.1.21	Washout marker posts	No	1		
8.1.22	Gate valve marker posts	No	3		
	Reinstatements				
8.1.23	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	SECTION 1:	Carried to			
	RISING MAIN	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: GRAVITY MAIN <i>Refer to Construction Drawings</i> Site Clearance <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.2.1	General clearance along pipeline route	Lm	2469		
8.2.2	Removal of trees of girth 600 to 900mm	No	5		
	Trench Excavation				
8.2.3	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	2469		
8.2.4	Extra Over for excavation in rock of all types	Lm	237.024		
	Pipework <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<u>HDPE Pipes</u>				
8.2.5	HDPE pipes OD25mm PN10	m	1366		
8.2.6	HDPE pipes OD40mm, PN10	m	203		
8.2.7	HDPE pipes OD50mm PN10	m	417		
8.2.8	HDPE pipes OD63mm PN10	m	35		
8.2.9	HDPE pipes OD75mm PN10	m	63		
8.2.10	HDPE pipes OD90mm, PN10	m	113		
8.2.11	HDPE pipes OD110mm PN10	m	185		
8.2.12	HDPE pipes OD125mm PN10	m	87		
	<u>Air valves</u>				
8.2.13	Various dia. flanged single orifice air valves PN 10. Include all the required pipework and fittings.	No	6		
	<u>Wash outs</u>				
8.2.14	Various dia. GI washout valves.	No	7		
	Valve Chambers				
	<i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.2.15	Air valve chambers, as per the detailed drawings	No	6		
8.2.16	Wash out chambers with outfall structure, as per drawings	No	7		
8.2.17	Extra Over for excavation in rock of all types, for chambers	Cm	3.37		
	Other Pipework Ancillaries				
	<i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.2.18	Pipeline marker posts	No	12		
8.2.19	Air valve marker posts	No	6		
8.2.20	Washout marker posts	No	7		
	PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION				
	Reinstatements				
8.2.21	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	SECTION 2:	Carried to			
	GRAVITY MAIN	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: DISTRIBUTION NETWORK <i>Refer to Construction Drawings</i> Site Clearance <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.3.1	General clearance along pipeline route	Lm	8,945		
8.3.2	Removal of trees of girth 600 to 900mm	No	11		
	Trench Excavation				
8.3.3	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	8,945		
8.3.4	Extra Over for excavation in rock of all types	Cm	858.72		
	Pipework <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<u>HDPE Pipes</u>				
8.3.5	HDPE pipes OD25mm PN10	m	5228		
8.3.6	HDPE pipes OD32mm, PN10	m	291		
8.3.7	HDPE pipes OD40mm PN10	m	2,033		
8.3.8	HDPE pipes OD50mm PN10	m	937		
8.3.9	HDPE pipes OD63mm PN10	m	456		
	Water Meters				
8.3.10	Supply and install water meters for the existing I.Cs.	No.	281		
	<u>Other Pipework Ancillaries</u> <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.3.11	Pipeline marker posts	No	91		
	PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION				
	Reinstatements				
8.3.12	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	SECTION 3: DISTRIBUTION NETWORK	Carried to Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	BILL No. 8: PIPE WORK				
	<u>SUMMARY</u>				
1	RISING MAIN				
2	GRAVITY MAIN				
3	DISTRIBUTION NETWORK				
	TOTAL				
TOTAL FOR BILL 8 CARRIED FORWARD TO PROJECT SUMMARY					

**BILL No. 9:
ELEVATED STEEL TANK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 9: ELEVATED STEEL TANKS				
	<i>Earth works, concrete works and Tank construction to be done in line with EST drawing</i>				
	Excavations and Earthworks				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
9.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	25		
9.1.2	Excavate for Column pits not exceeding 1.50 metres deep, starting from reduced levels	Cm	37.5		
9.1.3	Extra over for excavation in rock of all classes	Cm	11.25		
9.1.4	Return, fill and ram selected excavated material around foundations.	Cm	19.2		
	Tank Construction				
9.1.5	Supply and place reinforced concrete Class C20/20 as foundation for tank tower. Rate to include for reinforcement bars for the foundation, and formwork as necessary	Cm	19.58		
9.1.6	Allow for compliance to other foundation requirements as recommended by the manufacturer	Sum	1		
9.1.7	Supply all materials, tools and equipment and erect a 100m ² steel sectional tank of the Braithwaite type or equally approved standard include a tank tower of 15 meters, ladder with ladder guard inside ladder, walkway with walkway guard, water level gauge and tank cover, provision of air vent, support rails, inlets and outlet for pipes etc., for complete installation	No.	1		
	Pipes and Specials				
	<i>All pipes and specials shall comply with the requirements of BS 5950. Allow for gaskets, nuts, washers, bolts, cutting and threading on site</i>				
	Provide, fix and test following : (All screwed flanges listed separately)				
	Inlet				
9.1.8	100mm G.I. flanged socket adaptor, all flanged	No	1		
9.1.9	100mm 65 G.I. 90° bend, all flanged	No	4		
9.1.10	100mm all flanged gate valve	No.	1		
9.1.11	100mm G.I flanged pipe	m	18		
9.1.12	DN 50mm float valve	No.	1		
	Overflow				
9.1.13	100mm G.I 90° flanged bend	No.	4		
9.1.14	100mm flanged equal tee	No.	1		
9.1.15	100mm flanged sluice Valve	No.	1		
9.1.16	100mm G.I flanged pipe	m	5		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	BILL No. 9: ELEVATED STEEL TANKS				
	Outlet				
9.1.17	100mm flanged G.I steel 90° duck foot bend	No.	4		
9.1.18	100mm flanged G.I steel, length 8500mm	No.	1		
9.1.19	100mm steel flanged spigot adaptor	No.	1		
9.1.20	G.I pipe diameter 100mm	m	15		
9.1.21	100mm diameter rose strainer or equivalent	No.	1		
9.1.22	100mm Gate valve	No.	1		
9.1.23	100mm Bulk water meter on the main outlet pipeline	No.	1		
9.1.24	Lockable water meter and gate valve chamber	Ls	1		
	Wash out				
9.1.25	80mm wash out valve	No.	1		
9.1.26	80mm GI pipe for wash	m	5		
9.1.27	80mm flanged G.I steel 90° bend	No	1		
9.1.28	80mmx80mm equal tee for joining to the overflow pipe	No.	1		
	Painting				
9.1.29	Allow for the complete installation to be painted as recommended by the manufacturers or the engineer	Ls	1		
	Testing and Sterilizing				
9.1.30	Test and sterilize tank including the necessary chemicals	Ls	1		
TOTAL FOR BILL 9 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 10:
ELEVATED PLASTIC TANK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 10: INSTALLATION OF 10,000L UPVC TANK AND CONSTRUCTION OF A 3M ELEVATED STEEL PLATFORM				
	Storage				
10.1.1	Supply plastic tank of capacity 10,000ltrs. Rate to include transport to site and overheads	No	1		
	Construction Steel Tower Platform				
10.1.2	Clear of all bushes and shrubs and remove debris from tank site	Sm	25		
10.1.3	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	8.64		
10.1.4	Extra over for excavation in rock of all classes	Cm	2.592		
10.1.5	Fabricate, supply and install at site a metal tower, 2.5m x 2.5 , 3 m high from ground with a platform to receive the tank, walkway, rail guard to prevent the tank from falling and cat ladder. Rate to include transport of all materials to site, fabricating, erecting and overheads. Using 100mm X 100mm x4mm RHS and 70mm x 70mm x 4mm RSA for the internal member	Item	1		
10.1.6	Concrete Class 20/20 to tank stand bases and columns	Cm	3.852		
10.1.7	Formwork to bases and sides of columns	Sm	18.24		
	Piping works				
10.1.8	Inlet pipe of PPR 50mm DN	m	10		
	Fittings and Appurtenances				
10.1.9	2 inch GI Elbow	No	5		
10.1.10	2 inch GI long nipple	No	2		
10.1.11	2 inch GI back nuts	No	4		
10.1.12	2 inch gate valve	No	1		
10.1.13	2 inch GI sockets	No	5		
10.1.14	2 inch float valve	No	1		
10.1.15	Other installation sundries including 5 thread tapes,tangent glue	Item	1		
10.1.16	Construction of a masonry lockable inspection chambers at the tank base 1000mm by 1000mm by 1000mm	No	1		
	INSTALLATION OF 1No.TANK AND TOWER FRAME	No.	6		
	INSTALLATION OF 6No.TANK AND TOWER FRAME				
	TOTAL FOR ELEVATED PLASTIC TANKS				
TOTAL FOR BILL 10 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 11:
GROUND MASONRY TANK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 11: GROUND MASONRY TANK				
	SECTION 1: CONSTRUCTION OF NEW 50M3 MASONRY TANK				
	Earthworks (All Provisional)				
11.1.1	Demolition and disposal of the 50m3 existing masonry tank at Main BH to allow for the construction of a new one	Sum	1		
11.1.2	Strip top soil 150mm from ground level over the area of tank and remove all the soil to a temporary soil heap	Sm	23.76		
11.1.3	Trim ,spread and level the ground around the tank to form suitable drainage of surface water	Item	L/s		
11.1.4	Excavate from the stripped level to a depth not exceeding 1.5m deep	Cm	15.55		
11.1.5	Extra over for excavation in rock of all classes	Cm	4.67		
11.1.6	Return, fill and ram selected excavated material around foundations.	Cm	8.29		
	Hardcore Filling as Specifications				
11.1.7	Provide, place and compact hardcore using, 300mm thick to make up levels.	Sm	23.76		
11.1.8	50 mm thick quarry dust or approved murram blinding layer to surface of hardcore to make up levels under floor slab.	Sm	23.758		
11.1.9	Provide and place 1000 gauge polythene sheet to the surface of the blinded hardcore	Sm	23.76		
	Walling				
11.1.10	200 mm thick foundation walling	Sm	10.3673		
	Concrete Works. <i>Provide materials, handle, mix and place.</i>				
11.1.11	50 mm thick blinding under strip foundations	Sm	10.3673		
11.1.12	Vibrated Class 20/20 concrete mix as described to strip footings	Cm	3.11018		
11.1.13	Vibrated Class 20/20 concrete mix as described to 150mm thick floor slab.	Cm	3.56		
11.1.14	Vibrated Class 25/20 concrete mix as described to 150mm thick roof slab	Cm	3.56		
11.1.15	Ditto to column	Cm	0.2925		
11.1.16	Vibrated Class 20/20 concrete mix as described to outlet /inlet pipes anchorage including inlet and outlet valve chambers and column.	Cm	0.5		
	Reinforcement (Provisional)				
	<u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u>				
11.1.17	Assorted bars (D6 - D12)	Kg	1032.52		
	Shuttering/formwork				
11.1.18	Provide sawn timber form work to soffit of roof slab including the inlet/outlet valve chambers and columns	Sm	23.76		
11.1.19	Provide cut and fix ply wood to the edges of 150mm thick floor slab	Sm	2.59		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
11.1.20	Ditto to edges of roof slab	Sm	2.59		
11.1.21	Ditto to sides of column	Sm	3.9		
11.1.22	Sawn timber formwork 150mm wide to the edges of manhole opening including the outlet and inlet valve chambers.	m	10		
	Masonry Walling <i>Provide all materials, handle, mix mortar as per specification and construct the following.</i>				
11.1.23	9"x9"x1' quarry stone walling in 1:1:3 cement: water proof cement: sand mortar ration between the joints.	Sm	56.16		
11.1.24	Provide and install bondex seal in the joints as per the instruction	Item	L/s		
11.1.25	Install double layer of bitumen coat between surface of masonry wall and floor/roof slab	Item	L/s		
11.1.26	Construct and complete valve chamber in concrete masonry block measuring 1500mmx1500mmx1000mm deep complete with steel plate cover including locking device.	No	2		
	Finishes				
11.1.27	Provide all materials, handle, mix and apply 25mm thick 1:3 cement: sand mortar screed including water proof cement to floor slab	Sm	19.63		
11.1.28	Provide all materials, handle, mix and apply 15mm thick 1:3 cement: sand mortar screed including water proof cement to the interior surface of the concrete block walls	Sm	51.05		
11.1.29	Ditto to the exterior surface of block walls including water proof cement.	Sm	56.16		
11.1.30	20mm thick 1:3 cement: sand mortar screed to the exterior surface of the roof slab	Sm	23.76		
	Metal Work and Miscellaneous Items				
11.1.31	Supply and install internal and external tank ladder fabricated on stainless steel tubing and include provision and fixing of 25mm G.S Pipes extension of ladder top as directed by the Engineer.	No	2		
11.1.32	Supply and install tank manhole cover size 600mmx 450mm fabricated on 3mm thick steel plate including locking device and good quality padlock.	No	1		
11.1.33	Supply and install 100mmΦ GI bend to air vent as per the drawing	No	4		
11.1.34	100mmΦ G.S pipe threaded on one side and side lugged and fixed to the top concrete cover slab.	m	3		
	Painting				
11.1.35	Apply undercoat to external walling	Sm	56.16		
11.1.36	Ditto cream paint	Sm	56.16		
11.1.37	Ditto Bermuda blue paint 600mm from bottom of tank and 600mm from top of tank	Sm	20.73		
11.1.38	Provide and tie mosquito gauze to the G.S bend opening to air vents above the tank roof cover slap.	No	3		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	Tank-Associated Pipework <i>Provide, handle cut and fix the following pipe fittings as per the drawing.</i>				
	Inlet				
11.1.39	50mmΦ G.I pipe	m	5		
11.1.40	50mmΦ G.I bend	No	3		
11.1.41	50mmΦ G.I Socket	No	1		
11.1.42	50mmΦ G.I nipple	No	1		
11.1.43	50mmΦ G.I elbow	No	3		
11.1.44	Float valve	No.	1		
	Outlet				
11.1.45	50mmΦ G.I pipe	m	5		
11.1.46	50mm ΦG.I tee	No	2		
11.1.47	50mmΦ bend	No	3		
11.1.48	3mm thick rubber gasket	No	1		
11.1.49	50mm x 40mmΦ G.I reducing bush	No	3		
11.1.50	50mmΦ gate valve	No	1		
	Overflow Pipe				
11.1.51	50mmΦ G.I pipe	m	2		
11.1.52	50mmΦ G.I socket	No	1		
11.1.53	50mmΦ G.I Plain flange	No	1		
11.1.54	50mmΦ G.I bend	No	2		
	Scour Pipe				
11.1.55	50mmΦ G.I pipe	m	3		
11.1.56	50mmΦ plain G.I flange	No	1		
11.1.57	50mm ΦG.I nipple	No	2		
11.1.58	50mmΦG.I bend	No	1		
11.1.59	50mmΦ G.I socket	No	2		
11.1.60	50mmΦG.I union	No	1		
11.1.61	50mmΦ gate valve	No	1		
	Pipes and Fittings.				
11.1.62	Supply and lay 2" HDPE pipes	m	500		
11.1.63	Supply and lay 2" G.I pipes class B	m	24		
	SECTION 1: CONSTRUCTION OF NEW GROUND MASONRY TANK	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: -REHABILITATION OF EXISTING GROUND MASONRY TANK				
	General Items:				
11.2.1	Site clearance and preparation	Sum	1		
	Structural Rehabilitation:				
11.2.2	Hacking damaged or loose plaster from internal and external surfaces	Sm	102		
11.2.3	Preparing surfaces and applying new cement-sand plaster (1:3 mix) on internal and external surface	Sm	102		
11.2.4	Application of waterproofing treatment on the internal surface using approved waterproofing compounds	Sm	51		
11.2.5	Repairing cracks using non-shrink grout	Sm	51		
	Pipeworks and Fittings:				
11.2.6	Supply and install new inlet pipe (GI) of 50mm diameter	m	5		
11.2.7	Supply and install new outlet pipe (GI) of 50mm diameter	m	5		
11.2.8	Repair and replace internal and external pipe connections	Sum	1		
	Valves and Accessories:				
11.2.9	Supply and install new gate valve of 50mm diameter	No	1		
11.2.10	Supply and install new non-return valve 50mm diameter	No	1		
11.2.11	Replacement of air release valve	No	1		
	Roof Rehabilitation:				
11.2.12	Repairing and sealing cracks on the roof slab	Sm	20		
11.2.13	Application of waterproofing membrane on the roof	Sm	20		
11.2.14	Replacement of tank access cover with lockable steel cover	No	1		
	Test and Commissioning:				
11.2.15	Leak testing and structural integrity assessment after rehabilitation	Sum	L/s		
11.2.16	Cleaning, disinfection, and commissioning of the rehabilitated tank	Sum	L/s		
	SECTION 2:				
	REHABILITATION OF EXISTING MASONRY TANK	Carried to Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 11: GROUND MASONRY TANK</u>				
	<u>SUMMARY</u>				
1	CONSTRUCTION OF NEW 50M3 GROUND MASONRY TANK				
2	REHABILITATION OF EXISTING MASONRY TANK				
	TOTAL				
TOTAL FOR BILL 11 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 12:
WATER TREATMENT

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 12: WATER TREATMENT PLANT AND REVERSE OSMOSIS SYSTEM				
	SECTION 1: CHLORINATION UNITS				
12.1.1	Chlorination House Provide all materials, fabricate and install a 2mx2m steel structure for housing the inline chlorine dosing system, all as detailed in the drawings.	LS	1		
	Chlorination Equipment				
12.1.2	Supply, install, and commission of a complete inline chlorination system, designed for a flow rate of up to 30 m³/hr, comprising a high-capacity Dosatron D8RE3000 proportional dosing pump (0.2–2% adjustable dosing), 100-litre GRP dosing tank with outlet and stand, suction hose kit with integrated filter and non-return valve, inline pressure regulator (5–6 bar), 2-inch non-return valve and Y-strainer, all necessary fittings and accessories, including installation, testing, and operator training.	LS	1		
	Total for Water Treatment (Chlorination Unit) for 1No Borehole Total for Water Treatment (Chlorination Unit) for 3No Boreholes				
	SECTION 1: CHLORINATION UNIT	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: ro WATER TREATMENT PLANT				
12.2.1	Supply and Install 1m³/hr water treatment plant consisting of pre-treatment (ultrafiltration) unit and a reverse osmosis unit for maximum TDS 5,000 PPM	No	1		
	uPVC Water Storage Tanks				
12.2.2	Supply and install 1Nr. UPVC water tank of capacity 5,000ltrs. Rate to include transport to site, preparation of holding base, installation and connection to the inlets and outlet pipework - for treated water storage	No	1		
12.2.3	Supply and install 2Nr. UPVC water tanks of capacity 10,000ltrs. Rate to include transport to site, construction of holding base, installation and connection to inlet and outlet pipework- for raw water storage and pretreated raw water storage	No	2		
	Plumbing				
12.2.4	Supply and install all necessary pipework and fittings for connection between the water storage tanks and the water treatment plant units.	m	5		
	RO Operation and Maintenance Services				
12.2.5	Operation and Maintenance (O&M) of Reverse Osmosis (RO) Water Treatment Plant for 36 months, including provision of skilled personnel, routine servicing, repairs, consumables, spare parts, performance monitoring, and reporting, in accordance with the technical specifications and manufacturer's guidelines.	Item	1		
	SECTION 2: REVERSE OSMOSIS UNIT	Carried to Main Summary			

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ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 4: SOLAR POWER				
12.4.1	Supply, install, test and commission of an array of solar with the following specifications: 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 15kW on a bright sunny day at midday taking into account the system losses.	No.	30		
12.4.2	Supply, installation and furnishing support structures with the following specifications: Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
12.4.3	Supply, install, test and commission a 15kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 15kW 31A complete with accessories. The inverter to be installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54.	Set	1		
12.4.4	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
12.4.5	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
12.4.6	Supply, install, test and commission 6mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	Lm	100		
12.4.7	Supply, install, test and commission weather monitoring system	No	1		
12.4.8	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
12.4.9	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
12.4.10	Allow for 12 months after sale service including training of operators and technicians.	Ls	1		
12.4.11	Stand alone Solar Powered Security Lights Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
12.4.12	Booster Pump To WK Supply & install a Surface Multistage centrifugal Pump and Motor, continuously rated and capable of pumping 1m³/hr of water against a total head of 5m. The pump set to be duty and stand-by with automamic switch and controls	No.	1		
SECTION 4:		Carried to			
SOLAR POWER		Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	SECTION 5: RO UNIT PLANT ROOM				
	<u>SUBSECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks (Provisional)</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
12.5.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	19.36		
12.5.2	Excavate for trench foundations for strip footings not exceeding 1.50 metres deep, starting from reduced levels	Cm	15.84		
12.5.3	Extra over for excavation in rock of all classes	Cm	4.75		
	<i>Disposal</i>				
12.5.4	Return, fill and ram selected excavated material around foundations.	Cm	9.15		
12.5.5	Load, wheel and deposit surplus excavated material away from site	Cm	6.69		
	<i>Hardcore or other approved filling, as described</i>				
12.5.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	19.36		
12.5.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	19.36		
	<u>Anti - termite treatment</u>				
12.5.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore (m/s)	Sm	19.36		
	<u>Damp-proof membrane</u>				
12.5.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	19.36		
	<u>Concrete works</u>				
	<i>Plain concrete class 15: in</i>				
12.5.10	50 mm thick blinding under strip foundations	Sm	10.56		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
12.5.11	Strip footings	Cm	2.11		
12.5.12	150 mm Thick Surface beds	Cm	2.90		
12.5.13	Ditto; to sloping ramp slabs at the door entrance	Cm	0.18		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
12.5.14	Assorted bars (D8 - D16)	Kg	62.98		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</i>				
12.5.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	19.36		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
12.5.16	Vertical sides of strip footings	Sm	35.20		
12.5.17	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	17.60		
12.5.18	Ditto: but sloping, to ramp	Lm	4.00		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>Foundation walling</u>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
12.5.19	200 mm thick foundation walling	Sm	28.16		
	<u>Plinth finishes</u>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar; wood floated; on masonry or concrete surfaces: as described to</i>				
12.5.20	Concrete and masonry surfaces externally; finished smooth	Sm	7.92		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</i>				
12.5.21	Rendered surfaces, externally	Sm	7.92		
	<u>SUBSECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 25/20: as described in</i>				
12.5.22	Beams	Cm	1.06		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
12.5.23	Assorted bars (D8 - D16)	Kg	100.89		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
12.5.24	Vertical sides and soffits of beams	Sm	10.56		
	<u>SUBSECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
12.5.25	200 mm thick walling	Sm	23.82		
12.5.26	Ditto: to Gable walling	Sm	4.40		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
12.5.27	200 mm wide; levelled and bedded under wall	Lm	17.60		
	<u>Ventilation</u>				
12.5.28	Supply and install 300 x 200 x 200mm concrete louvre blocks and place in 1:3 cement/sand as shall be directed.	Sm	2.00		
	<u>SUBSECTION 4: ROOFING</u>				
	<u>Roof Structure (Provisional)</u>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
12.5.29	Purlins: 50 x 50	m	24.00		
12.5.30	Wall plate: 150x50mm	m	17.60		
12.5.31	Rafters: 150x50	m	24.00		
	<u>Eaves Finishes</u>				
12.5.32	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	19.20		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>Roof covering</u>				
	<i>Gauge 24 IT4 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</i>				
12.5.33	Roof covering: including all necessary fixtures	Sm	23.04		
	<i>Heavy duty roof insulation complete with polythylene foam core that provides a radiant barrier, reflective insulation and moisture barrier; fixed in accordance to manufacturer's printed instructions; as described to</i>				
12.5.34	10 mm thick double-sided reflective foil insulation; underlay	Sm	23.04		
	<u>SUBSECTION 5: EXTERNAL FINISHES</u>				
	<u>External wall finishes</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
12.5.35	Concrete surfaces externally; finished smooth	Sm	5.28		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
12.5.36	Masonry surfaces externally; finished smooth	Sm	28.22		
	<u>Ramp finishes</u>				
	<i>25 mm thick screeds: Cement and sand (1:3) mortar: steel trowelled: as described to</i>				
12.5.37	Surfaces of ramps, sloping	Sm	1.80		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
12.5.38	Rendered concrete surfaces, externally	Sm	5.28		
	<u>SUBSECTION 6: INTERNAL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
12.5.39	Concrete surfaces, internally	Sm	5.28		
12.5.40	Masonry surfaces, internally	Sm	28.22		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
12.5.41	25 mm thick screeds in floors to steel trowel finish	Sm	19.36		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint as described on</i>				
12.5.42	Plastered concrete surfaces, internally	Sm	5.28		
12.5.43	Plastered walls surfaces, internally	Sm	28.22		
	<u>SUBSECTION 7: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
12.5.44	Overall size 900 x 2100 mm high; details as per standard drawings No GW4R-WJR-STD-14.01	No	1		
12.5.45	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
12.5.46	General surfaces of metal doors (measured on both sides)	Sm	1.89		
	SUBSECTION 8: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)				
	<u>Builder's work in connection with Electrical Installations:</u>				
12.5.47	Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	SECTION 5				
	RO UNIT PLANT ROOM				
	Carried to Main Summary				
ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 12: WATER TREATMENT PLANT AND REVERSE OSMOSIS SYSTEM</u>				
	<u>SUMMARY</u>				
1	CHLORINATION UNITS				
2	REVERSE OSMOSIS				
3	EVAPORATION POND				
4	SOLAR POWER & SURFACE PUMP				
5	PLANT ROOM				
	Total for 1No. RO Unit				
	Total for Water Treatment for Dadaja Bulla Scheme				-
TOTAL FOR BILL 12 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 13:
GENERATOR HOUSE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u>				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks (Provisional)</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
13.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	23.76		
13.1.2	Excavate for trench foundations for strip footings not exceeding 1.50 metres deep, starting from reduced levels	Cm	17.64		
13.1.3	Extra over for excavation in rock of all classes	Cm	5.29		
	<i>Disposal</i>				
13.1.4	Return, fill and ram selected excavated material around foundations.	Cm	10.19		
13.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	7.45		
	<i>Hardcore or other approved filling, as described</i>				
13.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	23.76		
13.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	23.76		
	<u>Anti - termite treatment</u>				
13.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	23.76		
	<u>Damp-proof membrane</u>				
13.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	23.76		
	<u>Concrete works</u>				
	<i>Plain concrete class 15: in</i>				
13.1.10	50 mm thick blinding under strip foundations	Sm	11.76		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
13.1.11	Strip footings	Cm	2.35		
13.1.12	150 mm Thick Surface beds	Cm	3.56		
13.1.13	Ditto; to sloping ramp slabs at the door entrance	Cm	0.32		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
13.1.14	Assorted bars (D8 - D16)	Kg	70.14		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</i>				
13.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	23.76		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
13.1.16	Vertical sides of strip footings	Sm	39.20		
13.1.17	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	19.60		
13.1.18	Ditto: but sloping, to ramp	Lm	4.00		
	<u>Foundation walling</u>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
13.1.19	200 mm thick foundation walling	Sm	31.36		
	<u>Plinth finishes</u>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
13.1.20	Concrete and masonry surfaces externally; finished smooth	Sm	8.82		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</i>				
13.1.21	Rendered surfaces, externally	Sm	8.82		
	<u>Paving Slabs</u>				
	<i>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</i>				
13.1.22	Paving slabs, around building (one row); including all excavations and earthworks	Sm	11.76		
SECTION 1: Carried to SUBSTRUCTURES Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u>					
<u>SECTION 2: SUPERSTRUCTURE</u>					
<u>R.C Frame</u>					
<u>Concrete</u>					
<i>Vibrated reinforced concrete class 20/20: as described in</i>					
13.2.1	Beams	Cm	1.76		
<u>Reinforcement</u> (Provisional)					
<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>					
13.2.2	Assorted bars (D8 - D16)	Kg	112.36		
<u>Formwork</u>					
<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>					
13.2.3	Vertical sides and soffits of beams	Sm	17.64		
<u>SECTION 2:</u>		Carried to			
R.C SUPERSTRUCTURE		Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<u>SECTION 3: WALLING</u>					
<u>External Walling</u>					
<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>					
13.3.1	200 mm thick walling	Sm	22.26		
13.3.2	Ditto: to Gable walling	Sm	6.68		
<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>					
13.3.3	200 mm wide; levelled and bedded under wall	Lm	19.60		
<u>Ventilation</u>					
13.3.4	Supply and install 300 x 200 x 200mm concrete louvre blocks and place in 1:3 cement/sand as shall be directed.	Sm	15.54		
<u>SECTION 3:</u>		Carried to			
WALLING		Main Summary			

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ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE				
	<u>SECTION 5: EXTERNAL FINISHES</u>				
	<u>External wall finishes</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
13.5.1	Concrete surfaces externally; finished smooth	Sm	8.82		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
13.5.2	Masonry surfaces externally; finished smooth	Sm	28.94		
	<u>Ramp finishes</u>				
	<i>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</i>				
13.5.3	Surfaces of ramps, sloping	Sm	3.20		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
13.5.4	Rendered concrete surfaces, externally	Sm	8.82		
	<u>SECTION 5</u>	Carried to			
	EXTERNAL FINISHES	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<u>SECTION 6: INTERNAL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
13.6.1	Concrete surfaces, internally	Sm	8.82		
13.6.2	Masonry surfaces, internally	Sm	28.94		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
13.6.3	25 mm thick screeds on floor to finish level	Sm	23.76		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint as described on</i>				
13.6.4	Plastered concrete surfaces, internally	Sm	8.82		
13.6.5	Plastered walls surfaces, internally	Sm	28.94		
	<u>SECTION 6</u>	Carried to			
	INTERNAL FINISHES	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE <u>SECTION 7: DOORS</u> <u>Metal Doors</u> <i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
13.7.1	Overall size 1600 x 2100 mm high; details as per standard drawings No GW4R-MDR-STD-05	No	1		
13.7.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<u>Painting and decoration</u> <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
13.7.3	General surfaces of metal doors (measured on both sides)	Sm	6.72		
	SECTION 7 Carried to DOORS Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<u>SECTION 8: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u> <u>Builder's work in connection with Electrical Installations:</u> Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided				
13.8.1		Item	1		
	SECTION NO. 8 Carried to B.W.I.C WITH SERVICES Main Summary				

ITEM	DESCRIPTION				AMOUNT
	<u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u>				
	<u>SUMMARY</u>				
1	Substructure (Provisional)				
2	R.C. Superstructure				
3	Walling				
4	Roofing				
5	External Finishes				
6	Internal Finishes				
7	Doors				
8	Builders' Work in Connection with Services (Provisional)				
	TOTAL FOR 1No. GENERATOR HOUSE				
	TOTAL FOR 2No. GENERATOR HOUSE		2		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
13.9.1	<u>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</u>				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Paving Slabs</u>				
	<i>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar including all necessary site preparation, excavations and earthworks around the existing building to achieve required levels and alignment; as described to</i>				
13.9.1	Paving slabs, around building (one row); including all excavations and earthworks	Sm	12.00		
	<u>SECTION 1:</u>	Carried to			
	<u>SUBSTRUCTURES</u>	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.10.1	<u>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</u>				
	<u>SECTION 2: WINDOWS/GRILLES</u>				
	<u>Steel Casement Windows/Grilles</u>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows or metal grilles, as necessary in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery hinges, fasteners and stays: one coat aluminium grey primer before fixing: all to Engineer's schedule and/or direction; as described to</i>				
13.10.1	Provide and fix window/grilles to match existing, including all necessary frames, ironmongery, glazing, and finishes, all as directed by the Engineer	No	4		
13.10.2	Carefully rehabilitate to match existing window, including repair or replacement of damaged components such as frames, glazing, ironmongery, and finishes,	No	4		
	<u>Painting & Decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
	General surfaces of metal windows/grilles (measured on both sides)	Sm	8		
	<u>SECTION 2</u>	Carried To			
	<u>WINDOWS/METAL GRILLES</u>	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 13: REHABILITATION OF GENERATOR HOUSE <u>SECTION 3: ROOFING</u> <u>Eaves Finishes</u> 13.11.1 Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval <u>Roof covering</u> <i>Gauge 28 IT4 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</i> 13.11.2 Roof covering not exceeding 15° from the horizontal: including all necessary fixtures 13.11.3 Ridge cap to match	Lm	28.00		
		Sm	48.00		
		Lm	6.00		
	<u>SECTION 3</u> ROOFING	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 13: REHABILITATION OF GENERATOR HOUSE <u>SECTION 4: EXTERNAL FINISHES</u> <u>Ramp finishes</u> <i>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</i> 13.12.1 Surfaces of ramps, sloping <u>Painting and decorating</u> <i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i> 13.12.2 Rendered concrete surfaces, externally	Sm	3.20		
		Sm	50.00		
	<u>SECTION 4</u> EXTERNAL FINISHES	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
BILL No. 13: REHABILITATION OF GENERATOR HOUSE <u>SECTION 5: INTERNAL FINISHES</u>					
<u>Wall Finishes</u> <i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>					
13.13.1	Masonry surfaces, internally	Sm	50.00		
<u>Floor Finishes</u> <i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>					
13.13.2	25 mm thick screeds on floor to finish level	Sm	24.00		
<u>Painting and decoration</u> <i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <u>matt emulsion paint as described on</u></i>					
13.13.3	Plastered walls surfaces, internally	Sm	50.00		
<u>SECTION 5</u> Carried to INTERNAL FINISHES Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
BILL No. 13: REHABILITATION OF GENERATOR HOUSE <u>SECTION 7: DOORS</u>					
<u>Metal Door</u> <i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>					
13.14.1	Overall size 1600 x 2100 mm high; details as per standard drawings	No	1		
13.14.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
<u>Painting and decoration</u> <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>					
13.14.3	General surfaces of metal doors (measured on both sides)	Sm	6.72		
<u>SECTION 7</u> Carried to DOORS Main Summary					

SEC	DESCRIPTION				AMOUNT (KSHS)
	<u>SUMMARY</u>				
1	CONSTRUCTION OF NEW GENERATOR HOUSE				
2	REHABILITATION OF GENERATOR HOUSE				
	TOTAL				
TOTAL FOR BILL 13 CARRIED FORWARD TO PROJECT SUMMARY					

TESORAI WATER SUPPLY SCHEME

PROJECT SUMMARY

TESORAI WATER SUPPLY SCHEME, WAJIR COUNTY

MAIN SUMMARY

BILL	DESCRIPTION	AMOUNT
1	PRELIMINARIES AND GENERAL ITEMS	
2	BOREHOLES, PUMPS AND POWER SUPPLY	
3	FENCING AND GATES	
4	WATER KIOSKS	
5	OPERATOR'S BUILDING	
6	PIT LATRINES	
7	WATER TROUGHS	
8	PIPEWORKS	
9	ELEVATED STEEL TANK	
10	ELEVATED PLASTIC TANK	
11	GROUND MASONRY TANK	
12	WATER TREATMENT	
13	GENERATOR HOUSE	
TOTAL FOR TESORAI WATER SUPPLY SCHEME		

BILL No. 2:
BOREHOLES, PUMPS AND
POWER SUPPLY

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY				
	TESORAI BH1				
	SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	SECTION 1:	Carried to			
	MOBILIZATION AND SETTING UP	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe),Class E	Lm	150		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 50mm diameter rising main GMS water pipe, Class C.	Lm	150		
2.2.7	50mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	50mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	Supply, install & connect all incoming and outgoing cables to make the pump set work				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	300		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	400		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	Solar panels Cleaning - Sprinklers system				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	BOREHOLE PUMP				
2.2.19	Provide the Maintence & Rehabilitation of the existing Borehole Pump to include Pulling out, testing, checking of controller & cable connections, re-installation, test and commissioing	No	1		
	SECTION 2:	Carried to			
	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM				
	<i>Supply, install, test and commission the following Data Acquisition & Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i>				
2.3.1	Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - -20 to 80 degrees and Conductivity 0 to 30 0r 12mS/cm2	No	1		
2.3.2	Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal	No	1		
2.3.3	DXT -Cable - AS2xxx with standard lengths of 300m	m	300		
2.3.4	Allow for Testing, User Training and Commissioning the Monitoring system	Ls	1		
SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM		Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 4: SOLAR POWER				
2.4.1	Allow for Maintenance and Rehabilitation of the existing Solar Panels to involve cleaning of the solar panels, checking for any faults/cracks, Cable connections, Testing output and performance, Re-positioning for maximum efficiency. The cost to include the rehabilitation of the existing mounting structures to include but not limited to spray painting, anchoring and reinforcing loose supports.	PS	1	100,000	100,000
2.4.2	Supply, installation and furnishing support structures with the following specifications: Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.3	Supply, Install, Test and Commission a 13kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz IP66 20kW 31A complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemechanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.4	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.5	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.6	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.7	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.8	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.9	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.10	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.11	Stand alone Solar Powered Security Lights Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	SECTION 4:	Carried to			
	SOLAR POWER	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
SECTION 5: GENERATOR POWER BACK-UP					
2.5.1	Supply, Deliver, Install, Test and Commission New 30 KVA Power Back up Generator	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
Fire Fighting Equipment					
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
SECTION 5: GENERATOR POWER BACK UP					Carried to Main Summary
SEC	DESCRIPTION				AMOUNT (KSHS)
<u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u>					
TESORAI BH1					
<u>SUMMARY</u>					
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY				
	TESORAI BH2				
	SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	SECTION 1:	Carried to			
	MOBILIZATION AND SETTING UP	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe), Class E	Lm	150		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 50mm diameter rising main GMS water pipe, Class C.	Lm	150		
2.2.7	50mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	50mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	Supply, install & connect all incoming and outgoing cables to make the pump set work				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	300		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	400		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	Solar panels Cleaning - Sprinklers system				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	BOREHOLE PUMP				
2.2.19	Supply & install 7.5KW Submersible Multistage centrifugal borehole stainless steel Pump and Motor, continuously rated and capable of pumping 7 m³/hr of water against a total head of 185m. The pump shall have in-built non-return valve, tail strainer, cable guard, etc.. The pump to be supplied complete with water tight cable splicing kit and connection ripple. The contractor to attach catalogs and 5years minimum Warranty for the pumps model proposed	No	1		
	SECTION 2:	Carried to			
	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM					
<i>Supply, install, test and commission the following Data Acquisition & Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i>					
2.3.1	Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - -20 to 80 degrees and Conductivity 0 to 30 Or 12mS/cm2	No	1		
2.3.2	Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal	No	1		
2.3.3	DXT -Cable - AS2xxx with standard lengths of 300m	m	300		
2.3.4	Allow for Testing, User Training and Commissioning the Monitoring system	Ls	1		
SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM					Carried to Main Summary

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 4: SOLAR POWER				
2.4.1	Supply, install, test and commission of an array of solar with the following specifications: 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 13kW on a bright sunny day at midday taking into account the system losses. (11,000W -To add to the existing solar Panels)	No	20		
2.4.2	Supply, installation and furnishing support structures with the following specifications: Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.3	Supply, Install, Test and Commission a 13kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz IP66 20kW 31A complete with accessories.The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemechanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection,phase failure protection,short circuit protection.The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.4	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.5	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.6	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complte with IP66 rated enclosure.	No	1		
2.4.7	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.8	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.9	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.10	Allow for 12 months Defects Peroid Maintenance including training of User operators and technicians.	Ls	1		
2.4.11	Stand alone Solar Powered Security Lights Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10 12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	SECTION 4: SOLAR POWER	Carried to Main Summary			

BILL No. 3:
FENCING AND GATE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 3 - FENCING AND GATE BH				
	SECTION 1: GATES AND GATE ENTRANCE				
	<u>Excavations and Earthworks</u> <i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<u>Disposal</u>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<u>Concrete works</u>				
	<u>Plain concrete class 15: in</u>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<u>Vibrated Reinforced Concrete class 20/20: as described in</u>				
3.1.6	Column bases	Cm	1.296		
	<u>Vibrated Reinforced Concrete class 25/20: as described in</u>				
3.1.7	Columns	Cm	0.972		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<u>Formwork</u>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<u>Coping</u>				
	<i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<u>Finishes</u>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<u>Gates</u>				
	<i><u>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</u></i>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to <i>Pedestrian</i> gate: overall size 1,300 x 2,400 mm high	No	1		
	<u>Painting and decoration</u>				
	<i><u>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</u></i>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<i><u>Prepare and apply two finishing coats of super gloss enamel paint to:</u></i>				
3.1.17	General surfaces of metal gates (<i>measured on both sides</i>)	Sm	25.44		
SECTION 1: GATES AND GATE ENTRANCE				Carried to Main Summary	

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: CHAIN-LINK FENCING				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	77.35		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	6		
	SECTION 2:	Carried to			
	CHAIN-LINK FENCING	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: STORMWATER DRAINS				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	SECTION 3:	Carried to			
	STORMWATER DRAINS	Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 3 - FENCING AND GATE BH</u>				
	<u>SUMMARY</u>				
1	GATES AND GATE ENTRANCE				
2	CHAIN-LINK FENCING				
3	STORMWATER DRAINS				
TOTAL FOR BILL 3 CARRIED FORWARD TO PROJECT SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 3 - FENCING AND GATE BH				
	SECTION 1: GATES AND GATE ENTRANCE				
	<u>Excavations and Earthworks</u> <i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<u>Concrete works</u> <i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<u>Reinforcement (Provisional)</u> <i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<u>Formwork</u> <i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<u>Coping</u> <i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<u>Finishes</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<u>Gates</u>				
	<i>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</i>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to Pedestrian gate: overall size 1,300 x 2,400 mm high	No	1		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</i>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<i>Prepare and apply two finishing coats of super gloss enamel paint to:</i>				
3.1.17	General surfaces of metal gates (measured on both sides)	Sm	25.44		
<u>SECTION 1:</u> GATES AND GATE ENTRANCE				Carried to Main Summary	

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: CHAIN-LINK FENCING				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	77.35		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	6		
	SECTION 2:	Carried to			
	CHAIN-LINK FENCING	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: STORMWATER DRAINS				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	SECTION 3:	Carried to			
	STORMWATER DRAINS	Main Summary			

BILL No. 4:
WATER KIOSKS

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
4.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	16.35		
4.1.2	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	4.86		
4.1.3	Excavate for Strip footing pits not exceeding 1.0 metres deep, starting from reduced levels	Cm	3.12		
4.1.4	Extra over for excavation in rock of all classes	Cm	3.99		
	<i><u>Disposal</u></i>				
4.1.5	Return, fill and ram selected excavated material around foundations.	Cm	3.72		
4.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	4.26		
	<i><u>Hardcore or other approved filling, as described</u></i>				
4.1.7	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	4.91		
4.1.8	50 mm thick quarry dust or approved murrum blinding layer to surfaces of hardcore m.s	Sm	16.35		
	<u>Anti-termite treatment</u>				
4.1.9	Chemical anti-termite treatment executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	16.35		
	<u>Damp-proof Membrane</u>				
4.1.10	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	16.35		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
4.1.11	50 mm thick blinding under Column bases	Sm	3.24		
4.1.12	Ditto: under Strip footings	Sm	3.12		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.13	Column bases	Cm	1.33		
4.1.14	Columns	Cm	0.19		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.15	100 mm thick floor Slab	Cm	1.16		
4.1.16	Ditto; to sloping ramp slabs	Cm	0.69		
4.1.17	Strip footings	Cm	0.62		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.1.18	Assorted bars (D8 - D16)	Kg	128.88		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</i>				
4.1.19	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	12.26		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
4.1.20	Vertical sides of column bases	Sm	4.32		
4.1.21	Vertical sides of columns	Sm	3.84		
4.1.22	Edges; over 75 mm but not exceeding 100 mm high, to slab	Lm	14.66		
4.1.23	Ditto: to edges of ramp	Lm	4.00		
	<u>Foundation walling</u>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.1.24	200 mm thick foundation walling	Sm	12.36		
	<u>Plinth finishes</u>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
4.1.25	Concrete surfaces externally; finished smooth	Sm	8.40		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint as supplied by "Crown Paints" or approved equivalent: as described on</i>				
4.1.26	Rendered surfaces, externally	Sm	8.40		
	<u>Paving slabs</u>				
	<i>Size 600 x 600 x 50mm Thick precast concrete paving slabs laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</i>				
4.1.27	Paving slabs, around building (one row); including all excavations and earthworks	Sm	8.80		
	Carried to Collection				
	<u>Collection Page</u>				
	From Page 1				
	From Page 2				
	From Page above				
	SECTION I:	Carried to			
	SUBSTRUCTURES	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 25/20: as described in</i>				
4.2.1	Beams	Cm	0.59		
4.2.2	Roof slab, 150 mm thick	Cm	1.23		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.2.3	Assorted bars (D8 - D16)	Kg	129		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
4.2.4	Vertical sides and soffits of beams	Sm	5.88		
4.2.5	Vertical sides of columns	Sm	6.72		
4.2.6	Horizontal soffits of suspended slabs	Sm	8.19		
4.2.7	Edge of suspended slabs over 75 mm but not exceeding 150 mm girth	Sm	2.20		
	SECTION 2: Carried to SUPERSTRUCTURE Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.3.1	200 mm thick walling	Sm	15.60		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
4.3.2	200 mm wide; levelled and bedded under wall	Lm	14.66		
	<u>Coping</u>				
	<i>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</i>				
4.3.3	Size 200 x 75 mm coping; twice weathered and throated	Lm	2.30		
	SECTION 3: Carried to WALLING Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 4: EXTERNAL FINISHES</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
4.4.1	Concrete surfaces externally; finished smooth	Sm	2.95		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
4.4.2	Masonry surfaces externally; finished smooth	Sm	12.64		
	<u>Steps and Ramp finishes</u>				
	<i>Cement and sand (1:3) screeds, backings, beds etc; coloured to approval: finished in smooth steel</i>				
4.4.3	Treads to steps, 300 mm wide	Lm	6		
4.4.4	Risers to steps, 150 mm high	Lm	6		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
4.4.5	Rendered concrete surfaces, externally	Sm	3.0		
	SECTION 4:				
	EXTERNAL FINISHES				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>SECTION 5: INTERNAL WALL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
4.5.1	Concrete surfaces, internally	Sm	2.95		
4.5.2	Masonry surfaces, internally	Sm	12.64		
4.5.3	Jambs and reveals: 100 - 200 mm girth	Lm	10.40		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
4.5.4	25 mm thick screeds on floors to steel trowel finish	Sm	7		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality. matt emulsion paint: as described on</i>				
4.5.5	Plastered concrete surfaces, internally	Sm	3		
4.5.6	Plastered walls surfaces, internally	Sm	13		
4.5.7	Jambs and reveals: 100 - 200 mm girth	Lm	10		
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of brilliant white plastic emulsion paint as: as described on</i>				
4.5.8	Plastered soffites of slabs, internally	Sm	8		
	SECTION 5 :				
	INTERNAL FINISHES				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1 <u>SECTION 6: DOORS</u> <u>Metal Doors</u> <i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
4.6.1	Door: Overall Size 900 x 2100 mm high, in single leaf; complete with purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Architectural design	No	1		
4.6.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<u>Painting and decoration</u> <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.6.3	General surfaces of metal doors (measured on both sides)	Sm	4		
	<u>SECTION 6</u> <u>DOORS</u>	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1 <u>SECTION 7: WINDOWS</u> <u>Steel Windows</u> <i>The following to Water Kiosk:-</i> <i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule; as described to</i>				
4.7.1	Window overall size: 1000 x 1200 mm high: in two equal leaves; complete with advert pockets in 500 x 600 mm perspex covers; details to Engineer's design and details	No	1		
	<u>Painting & Decoration</u> <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.7.2	General surfaces of metal windows (measured on both sides)	Sm	3.12		
	<u>SECTION 7</u> <u>WINDOWS</u>	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	SECTION 8: PLASTIC WATER TANK AND WATER KIOSK ATM				
	<u>5,000 litres Elevated Plastic Tank</u>				
4.8.1	Provide for the purchase, supply and installation of a 5m ³ plastic tank & fix all the necessary fittings including inlets, outs, and taps as directed by the supervising Engineer	No	1		
4.8.2	Supply, Install and Commission a 25mm diameter water meter.	No	1		
4.8.3	25mm Gate valves	No	7		
	<u>Tank Roof</u>				
	<i>Sawn cypress first grade; pressure impregnated; thoroughly seasoned and treated with anti-termite; and other jointing accessories to structural engineer's details; timber to meet the following minimum strength criteria, bending 5N/mm², tension 3N/mm² and compression 6N/mm²</i>				
4.8.4	50 x 50 x 3mm thick steel stanchion fixed to the reinforced concrete column to approval	Lm	10		
4.8.5	75 x 50 mm timber rafter fixed to the steel stanchions	Lm	12		
4.8.6	50 x 50 mm timber batten fixed to the rafter to approval	Lm	9		
4.8.7	MRM box profile sheets available in white and clear; 12,000mm length x 810mm width.	Sm	7		
4.8.8	Water ATM dispenser, solar power unit, piping, fittings, control unit, and user training, complete as per specifications.	Ls	1		
4.8.9	Provide all materials and install high level MDF shelves inside water kiosks, as shown on the	Ls	1		
	SECTION 8 Carried to PLASTIC WATER TANK Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	SECTION 9: SOAK AWAY PIT				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
4.9.1	Excavate for soak away pit, 1.5m diameter, 2.7m depth, in normal soil	Cm	4.77		
4.9.2	Extra over for excavation in rock material	Cm	1.43		
4.9.3	Return, fill and ram selected excavated material around to 0.3m depth	Cm	0.53		
4.9.4	Load, wheel and deposit surplus excavated material away from site	Cm	4.24		
4.9.5	<u>Hardcore or other approved filling, as described</u> 300 mm thick handpacked h/core material in filling to 2.4m height, compacted in layers n.e. 150mm	Cm	4.24		
4.9.6	<u>Plastic Sheet Lining</u> 1000 gauge polythene or other equal and approved plastic sheet lining, laid over hardcore.	Sm	1.77		
4.9.7	<u>Drain Pipe</u> Supply and install 150mm dia uPVC drain pipe, 5m length	m	5.00		
	SECTION 9 Carried to SOAK AWAY PIT Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 10: GULLEY TRAP</u>				
	<u>Excavations and Earthworks</u>				
4.10.1	Excavate for gulley trap, 0.6m x 0.6m x 0.5m depth, in normal soil	Cm	0.22		
4.10.2	Load, wheel and deposit surplus excavated material away from site	Cm	0.22		
	<u>Concrete</u>				
4.10.3	Supply and place 50mm thick mass concrete blinding under base slab; class 15/20 for gulley trap (0.6m x 0.6m)	Cm	0.02		
4.10.4	Supply and place 100mm thick mass concrete base class 20/20 for gulley trap (0.6m x 0.6m)	Cm	0.04		
	<u>Blockwork</u>				
4.10.5	Supply and lay 150mm thick masonry blockwork walls in cement mortar joints, as approved (0.4m	Sm	0.7		
4.10.6	Plaster external and internal walls with 15mm thick cement:sand (1:4) render	Sm	1.44		
	<u>Fittings</u>				
4.10.7	Supply and install 50mm thick 400mm x 400mm precast concrete top cover slab for gulley trap (reinforced with A142 mesh fabric)	No.	1		
	SECTION 10: Carried to GULLEY TRAP Main Summary				
ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 1</u>				
	<u>SUMMARY</u>				
4.1	Substructure (Provisional)				
4.2	R.C. Superstructure				
4.3	Walling				
4.4	External Wall Finishes				
4.5	Internal Finishes				
4.6	Doors				
4.7	Windows				
4.8	Plastic Water Tank and Water Kiosk ATM				
4.9	Soak Away Pit				
4.10	Gulley Trap				
	TOTAL FOR 1No. WATER KIOSK			Kes.	
	TOTAL FOR 8 No. WATER KIOSKS	NO.	8	Kes.	
TOTAL FOR BILL 4 CARRIED FORWARD TO PROJECT SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
4.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	14.56		
4.1.2	Excavate for strip footing pits not exceeding 1.5 metres deep, starting from reduced levels	Cm	12.00		
4.1.3	Extra over for excavation in rock of all classes	Cm	3.60		
	<i>Disposal</i>				
4.1.4	Return, fill and ram selected excavated material around foundations.	Cm	6.99		
4.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	5.01		
	<i>Hardcore or other approved filling, as described</i>				
4.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	4.37		
4.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	14.56		
	<u>Anti-termite treatment</u>				
4.1.8	Chemical anti-termite treatment executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	14.56		
	<u>Damp-proof Membrane</u>				
4.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	14.56		
	<u>Concrete works</u>				
	<i>Plain concrete class 15: in</i>				
4.1.10	50 mm thick blinding unde Strip footings	Sm	8.00		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
4.1.11	100 mm Thick floor slab	Cm	1.31		
4.1.12	Ditto; to sloping ramp slabs	Cm	0.69		
4.1.13	Strip footings	Cm	1.60		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.1.14	Assorted bars (D8 - D16)	Kg	96.00		
	Carried to Collection				

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ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
4.2.1	Beams	Cm	0.49		
	<u>Reinforcement</u> (Provisional)				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.2.2	Assorted bars (D8 - D16)	Kg	29		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
4.2.3	Vertical sides and soffits of beams	Sm	5.05		
4.2.4	Vertical sides of columns	Sm	6.72		
4.2.5	Horizontal soffits of suspended slabs	Sm	8.19		
4.2.6	Edge of suspended slabs over 75 mm but not exceeding 150 mm girth	Sm	2.29		
	SECTION 2: Carried to SUPERSTRUCTURE Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.3.1	200 mm thick walling	Sm	15.60		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
4.3.2	200 mm wide; levelled and bedded under wall	Lm	14.66		
	<u>Coping</u>				
	<i>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</i>				
4.3.3	Size 200 x 75 mm coping; twice weathered and throated	Lm	2.30		
	SECTION 3: Carried to WALLING Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
SECTION 5: INTERNAL WALL FINISHES					
Wall Finishes					
<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>					
4.5.1	Concrete surfaces, internally	Sm	2.95		
4.5.2	Masonry surfaces, internally	Sm	12.64		
4.5.3	Jambs and reveals: 100 - 200 mm girth	Lm	10.40		
Floor Finishes					
<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>					
4.5.4	25 mm thick screeds on floors to steel trowel finish	Sm	7		
Painting and decoration					
<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint: as described on</i>					
4.5.5	Plastered concrete surfaces, internally	Sm	3		
4.5.6	Plastered walls surfaces, internally	Sm	13		
4.5.7	Jambs and reveals: 100 - 200 mm girth	Lm	10		
<i>Prepare surfaces, skim and apply one undercoat and two final coats of brilliant white plastic emulsion paint as: as described on</i>					
4.5.8	Plastered soffites of slabs, internally	Sm	8		
SECTION 5 : Carried to INTERNAL FINISHES Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
BILL NO. 4: WATER KIOSK TYPE 2					
SECTION 6: DOORS					
Metal Doors					
<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>					
4.6.1	Door: Overall Size 900 x 2100 mm high, in single leaf; complete with purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Architectural design and details	No	1		
Ironmongery					
<i>Supply and fix the following ironmongery complete with matching screws: as described to</i>					
4.6.2	Steel door lock complete with handles	No	1		
4.6.3	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
Painting and decoration					
<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>					
4.6.4	General surfaces of metal doors (measured on both sides)	Sm	4		
SECTION 6 Carried to DOORS Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 2</u> <u>SECTION 7: WINDOWS</u> <u>Steel Windows</u> <u>The following to Water Kiosk:-</u> <i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule; as described to</i>				
4.7.1	Window overall size: 1200 x 1000 mm high: in two equal leaves; complete with advert pockets in 500 x 600 mm perspex covers; details to Engineer's design and details	No	1		
	<u>Painting & Decoration</u> <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.7.2	General surfaces of metal windows (measured on both sides)	Sm	3		
	<u>SECTION 7</u> <u>WINDOWS</u>	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 2</u> <u>SECTION 8: PLUMBING AND WATER KIOSK ATM</u>				
4.8.1	Supply, install and commission a 32mm diameter water meter.	No	1		
4.8.2	Supply, Install and Commission a 25mm diameter water meter.	No	1		
4.8.3	25mm Gate valves	No	7		
	<u>Water ATM</u> Supply, install, test, and commission smart card-operated water ATM system including cabinet, dispenser, solar power unit, piping, fittings, control unit, and user training, complete as per specifications.	Ls	1		
4.8.5	Provide all materials and install high level MDF shelves inside water kiosks, as shown on the drawings.	Ls	1		
	<u>SECTION 8</u> <u>PLUMBING</u>	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	SECTION 9: ROOFING				
	<u>Roof Structure (Provisional)</u>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
4.9.1	Rafters: 150 x50	m	16.00		
4.9.2	Purlins: 50 x 50	m	13.50		
4.9.3	Wall plate: 150 x 50	m	5.40		
	<u>Eaves Finishes</u>				
	<i>Fascia Board: in 2mm thick mild steel</i>				
4.9.4	Fascia/Barge boards 250x25 mm thick sawn cypress and planed to approval	Lm	11.80		
	<u>Roof covering</u>				
	<u>Gauge 28 IT5 Pre-painted box-profiled roofing sheets</u>				
4.9.5	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	8.64		
	<i>Heavy duty roof insulation complete with polythylene foam core that provides a radiant barrier, reflective insulation and moisture barrier; fixed in accordance to manufacturer's printed instructions: as described to</i>				
4.9.6	10 mm thick double-sided reflective foil insulation; underlay	Sm	8.64		
	SECTION 9	Carried to			
	ROOFING	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	SECTION 10: SOAK AWAY PIT				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
4.10.1	Excavate for soak away pit, 1.5m diameter, 2.7m depth, in normal soil	Cm	4.77		
4.10.2	Extra over for excavation in rock material	Cm	1.43		
4.10.3	Return, fill and ram selected excavated material around to 0.3m depth	Cm	0.53		
4.10.4	Load, wheel and deposit surplus excavated material away from site	Cm	4.24		
	<u>Hardcore or other approved filling, as described</u>				
4.10.5	300 mm thick handpacked h/core material in filling to 2.4m height, compacted in layers n.e. 150mm thick.	Cm	4.24		
	<u>Plastic Sheet Lining</u>				
4.10.6	1000 gauge polythene or other equal and approved plastic sheet lining, laid over hardcore.	Sm	1.77		
	<u>Drain Pipe</u>				
4.10.7	Supply and install 150mm dia uPVC drain pipe, 5m length	m	5.00		
	SECTION 10	Carried to			
	SOAK AWAY PIT	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 11: GULLEY TRAP</u>				
	<u>Excavations and Earthworks</u>				
4.11.1	Excavate for gulley trap, 0.6m x 0.6m x 0.5m depth, in normal soil	Cm	0.22		
4.11.2	Load, wheel and deposit surplus excavated material away from site	Cm	0.22		
	<u>Concrete</u>				
4.11.3	Supply and place 50mm thick mass concrete blinding under base slab; class 15/20 for gulley trap (0.6m x 0.6m)	Cm	0.02		
4.11.4	Supply and place 100mm thick mass concrete base class 20/20 for gulley trap (0.6m x 0.6m)	Cm	0.04		
	<u>Blockwork</u>				
4.11.5	Supply and lay 150mm thick masonry blockwork walls in cement mortar joints, as approved (0.4m high)	Sm	0.7		
4.11.6	Plaster external and internal walls with 15mm thick cement:sand (1:4) render	Sm	1.44		
	<u>Fittings</u>				
4.11.7	Supply and install 50mm thick 400mm x 400mm precast concrete top cover slab for gully trap (reinforced with A142 mesh fabric)	No	1		
	<u>SECTION 9</u>	Carried to Main Summary			
	<u>ROOFING</u>				
ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 2</u>				
	<u>SUMMARY</u>				
4.1	Substructure (Provisional)				
4.2	R.C. Superstructure				
4.3	Walling				
4.4	External Wall Finishes				
4.5	Internal Finishes				
4.6	Doors				
4.7	Windows				
4.8	Plumbing and Water Kiosk ATM				
4.9	Roofing				
4.10	Soak Away Pit				
4.11	Gulley Trap				
	TOTAL FOR 1No. WATER KIOSK			Kes.	
	TOTAL FOR 2 No. WATER KIOSKS	No.	2	Kes.	
TOTAL FOR BILL 4 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 5:
OPERATOR'S BUILDING AND
GUARD HOUSE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL No. 5: OPERATOR'S BUILDING</u>				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
5.1.1	Oversite excavation 200 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Cm	6.54		
5.1.2	Excavate for trench foundations not exceeding 1.50 metres deep, starting from reduced levels	Cm	20.52		
5.1.3	Extra over for excavation in rock of all classes	Cm	6.16		
	<i>Disposal</i>				
5.1.4	Return, fill and ram selected excavated material around foundations.	Cm	11.88		
5.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	8.64		
	<i>Hardcore or other approved filling, as described</i>				
5.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	9.80		
5.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	32.68		
	<u>Anti - termite treatment</u>				
5.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	32.68		
	<u>Damp-proof membrane</u>				
5.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	32.68		
	<u>Concrete works</u>				
	<i>Plain concrete class 15: in</i>				
5.1.10	50 mm thick blinding under strip foundations	Sm	16.20		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
5.1.11	Strip footings	Cm	3.24		
5.1.12	150 mm Thick Surface beds	Cm	4.90		
5.1.13	Ditto; to sloping ramp slabs	Sm	0.54		
5.1.14	Extra over ramp slabs for formation of herringbone pattern; tamping to top surface of concrete slabs during casting	Sm	0.54		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<u>Reinforcement (Provisional)</u> <u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u>				
5.1.15	Assorted bars (D8 - D16)	Kg	162.00		
	<u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</u>				
5.1.16	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	36.28		
	<u>Formwork</u> <u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u>				
5.1.17	Vertical sides of strip footings	Sm	10.80		
5.1.18	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	23.00		
5.1.19	Ditto: but sloping, to ramps	Lm	9.80		
	<u>Foundation walling</u> <u>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</u>				
5.1.20	150 mm thick foundation walling	Sm	36.00		
	<u>Plinth finishes</u> <u>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</u>				
5.1.21	Concrete and masonry surfaces externally; finished smooth	Sm	10.35		
	<u>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</u>				
5.1.22	Rendered surfaces, externally	Sm	10.35		
	<u>Paving slabs</u> <u>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</u>				
5.1.23	Paving slabs, around building (one row); including all excavations and earthworks	Sm	13.80		
	<p style="text-align: right;">Carried to Collection</p> <p style="text-align: center;"><u>Collection Page</u></p> <p style="text-align: center;">From Page 1</p> <p style="text-align: center;">From Page 2</p> <p style="text-align: center;">From Page above</p>				
	SECTION 1: SUBSTRUCTURES	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	SECTION 2: SUPERSTRUCTURE				
	R.C Frame				
	Concrete				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
5.2.1	Beams	Cm	1.01		
	Reinforcement (Provisional)				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
5.2.2	Assorted bars (D8 - D16)	Kg	0.51		
	Formwork				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
5.2.3	Vertical sides and soffites of beams	Sm	22.50		
	SECTION 2: R.C SUPERSTRUCTURE	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	SECTION 3: WALLING				
	External Walling				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
5.3.1	150 mm thick walling	Sm	36.90		
5.3.2	Ditto: to Gable walling	Sm	23.26		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
5.3.3	150 mm wide; levelled and bedded under wall	Lm	23.00		
	Internal Walling				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
5.3.4	150 mm thick walling	Sm	8.40		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
5.3.5	150 mm wide; levelled and bedded under wall	Lm	4		
	SECTION 3: WALLING	Carried to Main Summary			

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ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	<u>SECTION 5: EXTERNAL FINISHES</u>				
	<u>External wall finishes</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
5.5.1	Concrete surfaces externally; finished smooth	Sm	6.90		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
5.5.2	Masonry surfaces externally; finished smooth	Sm	60.16		
	<u>Steps and Ramp finishes</u>				
	<i>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</i>				
5.5.3	Surfaces of ramps, sloping	Sm	3.60		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
5.5.4	Rendered concrete surfaces, externally	Sm	6.90		
	SECTION 5 Carried to				
	EXTERNAL FINISHES Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	<u>SECTION 6: INTERNAL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
5.6.1	Concrete surfaces, internally	Sm	9.30		
5.6.2	Masonry surfaces, internally	Sm	76.96		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
5.6.3	32 mm Thick bed screed on floor to steel trowel finish level	Sm	32.68		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint as "Crown Paints" or approved equivalent: as described on</i>				
5.6.4	Plastered concrete surfaces, internally	Sm	9.30		
5.6.5	Plastered walls surfaces, internally	Sm	76.96		
	SECTION 6 Carried to				
	INTERNAL FINISHES Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING SECTION 7: DOORS <u>Metal Doors</u> <i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
5.7.1	Overall size 1000 x 2100 mm high; details as per architectural drawings	No	2		
5.7.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	3		
	<u>Painting and decoration</u> <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.7.3	General surfaces of metal doors (measured on both sides)	Sm	4.20		
	SECTION 7 DOORS				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BILL No. 5: OPERATOR'S BUILDING SECTION 8: WINDOWS <u>Window Sill</u> <i>Precast concrete class 20 fair faced all exposed surfaces bedded and jointed cement and sand (1:3) mortar</i>				
5.8.1	Size 175 x 75 mm thick window sill once rebated and throated; laid and jointed in cement and sand (1:3) mortar	Lm	6.40		
	<u>Steel Casement Windows</u> <i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule; as described to</i>				
5.8.2	Window overall size: 1500 x 1175 mm high; details to Architect's design and details	No	2		
5.8.3	Window overall size: 2000 x 1175 mm high; details to Architect's design and details	No	2		
	<u>Painting & Decoration</u> <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.8.4	General surfaces of metal windows (measured on both sides)	Sm	8		
	SECTION 8 WINDOWS				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<u>BILL No. 5: OPERATOR'S BUILDING</u> <u>SECTION 9: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u> <u>Builder's work in connection with Electrical Installations:</u> Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided <u>Builder's work in connection with plumbing and drainage installations:</u> Provide sum for cutting, making good and attendance in all trades on the subcontractor installing plumbing, drainage and fire-fighting installations: to include sanitary and fire-fighting fittings, wastes under floor slabs, supply pipes fixed on walls including cutting holes, chases and making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided				
5.9.1		Item	1		
5.9.2		Item	1		
	<u>SECTION NO. 9</u> <u>B.W.L.C WITH SERVICES</u>	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<u>BILL 5: OPERATOR'S BUILDING</u> <u>SUMMARY</u> 5.1 Substructure (Provisional) 5.2 R.C. Superstructure 5.3 Walling 5.4 Roofing 5.5 External Finishes 5.6 Internal Finishes 5.7 Doors 5.8 Windows 5.9 Builders' Work in Connection with Services (Provisional)				
	TOTAL FOR 1No. OPERATOR'S BUILDING TOTAL FOR 1 No. OPERATOR'S BUILDING	No.	1	Kes. Kes.	
TOTAL FOR BILL 5 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 6:
PIT LATRINE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 6: PIT LATRINES				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
6.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	4.35		
6.1.2	Excavate for Strip footing pits not exceeding 1.5 metres deep, starting from reduced levels.	Cm	9.23		
6.1.3	Excavate for underground pit (size 1.5x 2.0 m), depth upto 6 m	Cm	18.00		
6.1.4	Extra over for excavation in rock of all classes	Cm	8.17		
	<i>Disposal</i>				
6.1.5	Return, fill and ram selected excavated material around foundations.	Cm	18.61		
6.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	16.78		
	<i>Hardcore or other approved filling, as described</i>				
6.1.7	Imported inert h/core material in filling to make up levels, compacted in layers n.e. 150 mm thick with a vibratory roller to the satisfaction and approval of the Structural Engineer (S.E)	Cm	1.30		
6.1.8	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	4.35		
6.1.9	50 mm thick quarry dust or approved murrum blinding layer to surfaces of hardcore m.s	Sm	4.35		
	<u>Anti-termite treatment</u>				
6.1.10	Chemical anti-termite treatment as <i>Termidor 96 SC</i> or aproved equivalent, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	4.35		
	<u>Damp-proof Membrane</u>				
6.1.11	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	4.35		
	<u>Concrete works</u>				
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
6.1.12	150 mm Thick floor Slab	Cm	1.38		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
6.1.13	Strip footings	Cm	1.23		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
6.1.14	Assorted bars (D8 - D16)	Kg	74		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</i>				
6.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	9.23		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
6.2.1	BILL NO. 6: PIT LATRINES				
	<u>SECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
6.2.1	Beams	Cm	0.51		
6.2.2	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval; as described to:-</i>				
6.2.2	Assorted bars (D8 - D16)	Kg	31		
6.2.3	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
6.2.3	Vertical sides and soffits of beams	Sm	5.13		
SECTION 2 Carried to SUPERSTRUCTURE Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
6.3.1	BILL NO. 6: PIT LATRINES				
	<u>SECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Masonry Blocks: as described to</i>				
	150 mm thick walling	Sm	12.63		
6.3.2	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
	150 mm wide; levelled and bedded under wall	Lm	10.25		
SECTION 3 Carried to WALLING Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
BILL NO. 6: PIT LATRINES					
SECTION 4: EXTERNAL FINISHES					
<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>					
6.4.1	Concrete surfaces externally; finished smooth	Sm	3		
Painting and decorating					
<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>					
6.4.2	Rendered concrete surfaces, externally	Sm	3		
SECTION 4 Carried to EXTERNAL FINISHES Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
SECTION 5: INTERNAL FINISHES					
Wall Finishes					
<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>					
6.5.1	Concrete surfaces, internally	Sm	5		
Floor Finishes					
<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>					
6.5.2	25 mm thick screed on floor to finished level	Sm	3		
Painting and decoration					
<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint as described on</i>					
6.5.3	Plastered concrete surfaces, internally	Sm	5		
SECTION NO. 5 Carried to INTERNAL FINISHES Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 6: PIT LATRINES SECTION 6: DOORS Wooden Doors <i>Supply, assemble and fix the following purpose made wooden doors: hardwood smoothly joined together; one shop coat of wood preservative primer; building in lugs on jambs and plugging and screwing to head; complete with purpose made ironmongery: as described to.</i> 6.6.1 Wooden door: overall size 900 x1800 mm high, in single leaf; complete with hardwood frames, purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Standard Drawings and details. Ironmongery <i>Supply and fix the following ironmongery complete with matching screws: as described to</i> 6.6.2 Rubber door stop; fixed to floor or wall in rawl bolt Painting and decoration <i>Prepare and apply two finishing coats of super gloss finished paint to:</i> 6.6.3 General surfaces of wooden doors (measured on both sides)	No	2		
		No	2		
		Sm	6		
	SECTION 6 DOORS	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 6: PIT LATRINES SECTION 7: WINDOWS Steel Windows <i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Architect's schedule; as described to</i> 6.7.1 Window overall size: 600 x 600 mm high: in single leaf; details to Standard drawings and details. Painting & Decoration <i>Prepare and apply two finishing coats of super gloss finished paint to:</i> 6.7.2 General surfaces of metal windows (measured on both sides)	No	2		
		Sm	1		
	SECTION 7 WINDOWS	Carried to Main Summary			

BILL No. 7:
WATER TROUGHS

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 7: WATER TROUGHS				
	<u>Section 1: Water Troughs for Camels and Cattle</u>				
	Excavations				
7.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	81.2		
7.1.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	14.64		
7.1.3	Return, fill and ram selected excavated material around foundations.	Cm	9.76		
	Hardcore filling				
7.1.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	81.2		
	Concrete Work				
7.1.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	19.44		
7.1.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.944		
7.1.7	Timber shattering provided to sides of floor slab	Lm	25.2		
7.1.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	19.44		
	Walling for substructure				
7.1.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	24.4		
	Walling for superstructure				
7.1.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	21.96		
	Wall finishes				
	<u>Cement and sand (1:3) render as described in:</u>				
7.1.11	12mm Thick with finish to masonry walling	Sm	43.92		
7.1.12	25mm thick floor finish	Sm	19.44		
	40mm diameter GI pipes and fittings for inlet pipeworks				
7.1.13	GI PN10 pipe	m	10		
7.1.14	GI Barrel Nipples	No	6		
7.1.15	GI Sockets	No	4		
7.1.16	GI Unions	No	3		
7.1.17	GI Gate Valves	No	2		
7.1.18	GI Ball valve	No	1		
7.1.19	GI Elbows	No	4		
7.1.20	2m wide stone masonry riprap all round the water trough	Sm	63.2		
	Subtotal for one (1) No Water Trough				
	Total for (4) No water troughs	No	4		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 7: WATER TROUGHS				
	<u>Section 2: Water Troughs for Sheep and Goats</u>				
	Excavations				
7.2.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	64.67		
7.2.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	11.22		
7.2.3	Return, fill and ram selected excavated material around foundations.	Cm	7.48		
	Hardcore filling				
7.2.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	64.67		
	Concrete Work				
7.2.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	14.31		
7.2.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.431		
7.2.7	Timber shattering provided to sides of floor slab	Lm	19.5		
7.2.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	14.31		
	Walling for substructure				
7.2.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	18.7		
	Walling for superstructure				
7.2.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	10.005		
	Wall finishes				
	<u>Cement and sand (1:3) render as described in:</u>				
7.2.11	12mm Thick with finish to masonry walling	Sm	20.01		
7.2.12	25mm thick floor finish	Sm	14.31		
	40mm diameter GI pipes and fittings for inlet pipeworks				
7.2.13	GI PN10 pipe	m	10		
7.2.14	GI Barrel Nipples	No	6		
7.2.15	GI Sockets	No	4		
7.2.16	GI Unions	No	3		
7.2.17	GI Gate Valves	No	2		
7.2.18	GI Ball valve	No	1		
7.2.19	GI Elbows	No	4		
7.2.20	2m wide stone masonry riprap all round the water trough	Sm	51.8		
	Subtotal for one (1) No Water Trough				
	Total for (4) No water troughs	No	4		
TOTAL FOR BILL 7 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 8: PIPEWORK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 8: PIPE WORK SECTION 1: RISING MAIN <i>Refer to Construction Drawings</i> Site Clearance <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.1.1	General clearance along pipeline route	Lm	617		
	Trench Excavation				
8.1.2	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	617		
8.1.3	Extra Over for excavation in rock of all types	Cm	59		
	Pipework <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<u>HDPE Pipes</u>				
8.1.4	HDPE pipes OD25mm PN10	m	20		
8.1.5	HDPE pipes OD32mm, PN10	m	10		
8.1.6	HDPE pipes OD50mm PN10	m	21		
8.1.7	HDPE pipes OD63mm PN10	m	566		
	<u>Air valves</u>				
8.1.8	Various dia. flanged single orifice air valves PN 10. Include all the required pipework and fittings.	No	1		
	<u>Water Meters</u>				
8.1.9	Supply and install a DN 50mm dia master meter. Rate to include all jointing materials.	No	2		
	Valve Chambers <i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.1.10	Air valve chambers, as per the detailed drawings	No	1		
8.1.11	Gate valve and meter chambers, as per the detailed drawings	No	2		
8.1.12	Extra Over for excavation in rock of all types, for chambers	Cm	0.52		
	Other Pipework Ancillaries <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.1.13	Pipeline marker posts	No	3		
8.1.14	Gate valve marker posts	No	2		
8.1.15	Air valve marker posts	No	1		
	Reinstatements				
8.1.16	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	SECTION 1:	Carried to			
	RISING MAIN	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: GRAVITY MAIN <i>Refer to Construction Drawings</i> Site Clearance <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.2.1	General clearance along pipeline route	Lm	1497		
8.2.2	Removal of trees of girth not exceeding 600mm	No	2		
	Trench Excavation				
8.2.3	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	1497		
8.2.4	Extra Over for excavation in rock of all types	Lm	144		
	Pipework <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<u>HDPE Pipes</u>				
8.2.5	HDPE pipes OD25mm PN10	m	358		
8.2.6	HDPE pipes OD32mm, PN10	m	519		
8.2.7	HDPE pipes OD40mm, PN10	m	272		
8.2.8	HDPE pipes OD50mm PN10	m	238		
8.2.9	HDPE pipes OD90mm, PN10	m	110		
	<u>Air valves</u>				
8.2.10	Various dia. flanged single orifice air valves PN 10. Include all the required pipework and fittings.	No	1		
	Valve Chambers <i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.2.11	Air valve chambers, as per the detailed drawings	No	1		
8.2.12	Extra Over for excavation in rock of all types, for chambers	Cm	0.26		
	Other Pipework Ancillaries <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.2.13	Pipeline marker posts	No	7		
8.2.14	Air valve marker posts	No	1		
	PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION				
	Reinstatements				
8.2.15	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	SECTION 2:	Carried to			
	GRAVITY MAIN	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: DISTRIBUTION NETWORK <i>Refer to Construction Drawings</i> Site Clearance <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.3.1	General clearance along pipeline route	Lm	4,319		
8.3.2	Removal of trees of girth not exceeding 600mm	No	4		
	Trench Excavation				
8.3.3	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	4,319		
8.3.4	Extra Over for excavation in rock of all types	Cm	414.58		
	Pipework <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<u>HDPE Pipes</u>				
8.3.5	HDPE pipes OD25mm PN10	m	1,845		
8.3.6	HDPE pipes OD32mm, PN10	m	463		
8.3.7	HDPE pipes OD40mm PN10	m	301		
8.3.8	HDPE pipes OD50mm PN10	m	1,418		
8.3.9	HDPE pipes OD63mm PN10	m	292		
	Water Meters				
8.3.10	Supply and install water meters for the existing I.Cs.	No.	152		
	<i>Other Pipework Ancillaries</i> <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.3.11	Pipeline marker posts	No	22		
	PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION				
	Reinstatements				
8.3.12	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	SECTION 3:	Carried to			
	DISTRIBUTION NETWORK	Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	BILL No. 8: PIPE WORK				
	<u>SUMMARY</u>				
1	RISING MAIN				
2	GRAVITY MAIN				
3	DISTRIBUTION NETWORK				
	TOTAL				
TOTAL FOR BILL 8 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 9:
ELEVATED STEEL TANK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 9: ELEVATED STEEL TANKS <u>Earth works, concrete works and Tank construction to be done in line with EST drawing</u> Excavations and Earthworks <u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u>				
9.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	25		
9.1.2	Excavate for Column pits not exceeding 1.50 metres deep, starting from reduced levels	Cm	37.5		
9.1.3	Extra over for excavation in rock of all classes	Cm	11.25		
9.1.4	Return, fill and ram selected excavated material around foundations.	Cm	19.2		
	Tank Construction Supply and place reinforced concrete Class C20/20 as foundation for tank tower. Rate to include for reinforcement bars for the foundation, and formwork as necessary	Cm	19.58		
9.1.6	Allow for compliance to other foundation requirements as recommended by the manufacturer	Sum	1		
9.1.7	Supply all materials, tools and equipment and erect a 50m ³ steel sectional tank of the Braithwaite type or equally approved standard include a tank tower of 15 meters, ladder with ladder guard inside ladder, walkway with walkway guard, water level gauge and tank cover, provision of air vent, support rails, inlets and outlet for pipes etc., for complete installation	No.	1		
	Pipes and Specials <i>All pipes and specials shall comply with the requirements of BS 5950. Allow for gaskets, nuts, washers, bolts, cutting and threading on site</i> Provide, fix and test following : (All screwed flanges listed separately)				
	Inlet				
9.1.8	100mm G.I. flanged socket adaptor, all flanged	No	1		
9.1.9	100mm 65 G.I. 90° bend, all flanged	No	4		
9.1.10	100mm all flanged gate valve	No.	1		
9.1.11	100mm G.I flanged pipe	m	18		
9.1.12	DN 50mm float valve	No.	1		
	Overflow				
9.1.13	100mm G.I 90° flanged bend	No.	4		
9.1.14	100mm flanged equal tee	No.	1		
9.1.15	100mm flanged sluice Valve	No.	1		
9.1.16	100mm G.I flanged pipe	m	5		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	BILL No. 9: ELEVATED STEEL TANKS				
	Outlet				
9.1.17	100mm flanged G.I steel 90° duck foot bend	No.	4		
9.1.18	100mm flanged G.I steel, length 8500mm	No.	1		
9.1.19	100mm steel flanged spigot adaptor	No.	1		
9.1.20	G.I pipe diameter 100mm	m	15		
9.1.21	100mm diameter rose strainer or equivalent	No.	1		
9.1.22	100mm Gate valve	No.	1		
9.1.23	100mm Bulk water meter on the main outlet pipeline	No.	1		
9.1.24	Lockable water meter and gate valve chamber	Ls	1		
	Wash out				
9.1.25	80mm wash out valve	No.	1		
9.1.26	80mm GI pipe for wash	m	5		
9.1.27	80mm flanged G.I steel 90° bend	No	1		
9.1.28	80mmx80mm equal tee for joining to the overflow pipe	No.	1		
	Painting				
9.1.29	Allow for the complete installation to be painted as recommended by the manufacturers or the engineer	Ls	1		
	Testing and Sterilizing				
9.1.30	Test and sterilize tank including the necessary chemicals	Ls	1		
TOTAL FOR BILL 9 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 10:
ELEVATED PLASTIC TANK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 10: INSTALLATION OF 10,000L UPVC TANK AND CONSTRUCTION OF A 3M ELEVATED STEEL PLATFORM				
	Storage				
10.1.1	Supply plastic tank of capacity 10,000ltrs. Rate to include transport to site and overheads	No	1		
	Construction Steel Tower Platform				
10.1.2	Clear of all bushes and shrubs and remove debris from tank site	Sm	25		
10.1.3	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	8.64		
10.1.4	Extra over for excavation in rock of all classes	Cm	2.592		
10.1.5	Fabricate, supply and install at site a metal tower, 2.5m x 2.5 , 3 m high from ground with a platform to receive the tank, walkway, rail guard to prevent the tank from falling and cat ladder. Rate to include transport of all materials to site, fabricating, erecting and overheads. Using 100mm X 100mm x4mm RHS and 70mm x 70mm x 4mm RSA for the internal member	Item	1		
10.1.6	Concrete Class 20/20 to tank stand bases and columns	Cm	3.852		
10.1.7	Formwork to bases and sides of columns	Sm	18.24		
	Piping works				
10.1.8	Inlet pipe of PPR 50mm DN	m	10		
	Fittings and Appurtenances				
10.1.9	2 inch GI Elbow	No	5		
10.1.10	2 inch GI long nipple	No	2		
10.1.11	2 inch GI back nuts	No	4		
10.1.12	2 inch gate valve	No	1		
10.1.13	2 inch GI sockets	No	5		
10.1.14	2 inch float valve	No	1		
10.1.15	Other installation sundries including 5 thread tapes,tangent glue	Item	1		
10.1.16	Construction of a masonry lockable inspection chambers at the tank base 1000mm by 1000mm by 1000mm	No	1		
	INSTALLATION OF 1No.TANK AND TOWER FRAME	No.	7		
	INSTALLATION OF 7No.TANK AND TOWER FRAME				
	TOTAL FOR ELEVATED PLASTIC TANKS				
TOTAL FOR BILL 10 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 11:
GROUND MASONRY TANK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 11: GROUND MASONRY TANK				
	SECTION 1: CONSTRUCTION OF NEW 50M3 MASONRY TANK				
	Earthworks (All Provisional)				
11.1.1	Demolition and disposal of the 50m3 existing masonry tank at Main BH to allow for the construction of a new one	Sum	1		
11.1.2	Strip top soil 150mm from ground level over the area of tank and remove all the soil to a temporary soil heap	Sm	23.76		
11.1.3	Trim ,spread and level the ground around the tank to form suitable drainage of surface water	Item	L/s		
11.1.4	Excavate from the stripped level to a depth not exceeding 1.5m deep	Cm	15.55		
11.1.5	Extra over for excavation in rock of all classes	Cm	4.67		
11.1.6	Return, fill and ram selected excavated material around foundations.	Cm	8.29		
	Hardcore Filling as Specifications				
11.1.7	Provide, place and compact hardcore using, 300mm thick to make up levels.	Sm	23.76		
11.1.8	50 mm thick quarry dust or approved murram blinding layer to surface of hardcore to make up levels under floor slab.	Sm	23.758		
11.1.9	Provide and place 1000 gauge polythene sheet to the surface of the blinded hardcore	Sm	23.76		
	Walling				
11.1.10	200 mm thick foundation walling	Sm	10.3673		
	Concrete Works. <i>Provide materials, handle, mix and place.</i>				
11.1.11	50 mm thick blinding under strip foundations	Sm	10.3673		
11.1.12	Vibrated Class 20/20 concrete mix as described to strip footings	Cm	3.11018		
11.1.13	Vibrated Class 20/20 concrete mix as described to 150mm thick floor slab.	Cm	3.56		
11.1.14	Vibrated Class 25/20 concrete mix as described to 150mm thick roof slab	Cm	3.56		
11.1.15	Ditto to column	Cm	0.2925		
11.1.16	Vibrated Class 20/20 concrete mix as described to outlet /inlet pipes anchorage including inlet and outlet valve chambers and column.	Cm	0.5		
	Reinforcement (Provisional)				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
11.1.17	Assorted bars (D6 - D12)	Kg	1032.52		
	Shuttering/formwork				
11.1.18	Provide sawn timber form work to soffit of roof slab including the inlet/outlet valve chambers and columns	Sm	23.76		
11.1.19	Provide cut and fix ply wood to the edges of 150mm thick floor slab	Sm	2.59		
11.1.20	Ditto to edges of roof slab	Sm	2.59		
11.1.21	Ditto to sides of column	Sm	3.9		
11.1.22	Sawn timber formwork 150mm wide to the edges of manhole opening including the outlet and inlet valve chambers.	m	10		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	Masonry Walling <i>Provide all materials, handle, mix mortar as per specification and construct the following.</i>				
11.1.23	9"x9"x1' quarry stone walling in 1:1:3 cement: water proof cement: sand mortar ration between the joints.	Sm	56.16		
11.1.24	Provide and install bondex seal in the joints as per the instruction	Item	L/s		
11.1.25	Install double layer of bitumen coat between surface of masonry wall and floor/roof slab	Item	L/s		
11.1.26	Construct and complete valve chamber in concrete masonry block measuring 1500mmx1500mmx1000mm deep complete with steel plate cover including locking device.	No	2		
	Finishes				
11.1.27	Provide all materials, handle, mix and apply 25mm thick 1:3 cement: sand mortar screed including water proof cement to floor slab	Sm	19.63		
11.1.28	Provide all materials, handle, mix and apply 15mm thick 1:3 cement: sand mortar screed including water proof cement to the interior surface of the concrete block walls	Sm	51.05		
11.1.29	Ditto to the exterior surface of block walls including water proof cement.	Sm	56.16		
11.1.30	20mm thick 1:3 cement: sand mortar screed to the exterior surface of the roof slab	Sm	23.76		
	Metal Work and Miscellaneous Items				
11.1.31	Supply and install internal and external tank ladder fabricated on stainless steel tubing and include provision and fixing of 25mm G.S Pipes extension of ladder top as directed by the Engineer.	No	2		
11.1.32	Supply and install tank manhole cover size 600mmx 450mm fabricated on 3mm thick steel plate including locking device and good quality padlock.	No	1		
11.1.33	Supply and install 100mmΦ GI bend to air vent as per the drawing	No	4		
11.1.34	100mmΦ G.S pipe threaded on one side and side lugged and fixed to the top concrete cover slab.	m	3		
	Painting				
11.1.35	Apply undercoat to external walling	Sm	56.16		
11.1.36	Ditto cream paint	Sm	56.16		
11.1.37	Ditto Bermuda blue paint 600mm from bottom of tank and 600mm from top of tank	Sm	20.73		
11.1.38	Provide and tie mosquito gauze to the G.S bend opening to air vents above the tank roof cover slap.	No	3		
	Tank-Associated Pipework <i>Provide, handle cut and fix the following pipe fittings as per the drawing.</i>				
	Inlet				
11.1.39	50mmΦ G.I pipe	m	5		
11.1.40	50mmΦ G.I bend	No	3		
11.1.41	50mmΦ G.I Socket	No	1		
11.1.42	50mmΦ G.I nipple	No	1		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
11.1.43	50mmΦ G.I elbow	No	3		
11.1.44	Float valve	No.	1		
	Outlet				
11.1.45	50mmΦ G.I pipe	m	5		
11.1.46	50mm ΦG.I tee	No	2		
11.1.47	50mmΦ bend	No	3		
11.1.48	3mm thick rubber gasket	No	1		
11.1.49	50mm x 40mmΦ G.I reducing bush	No	3		
11.1.50	50mmΦ gate valve	No	1		
	Overflow Pipe				
11.1.51	50mmΦ G.I pipe	m	2		
11.1.52	50mmΦ G.I socket	No	1		
11.1.53	50mmΦ G.I Plain flange	No	1		
11.1.54	50mmΦ G.I bend	No	2		
	Scour Pipe				
11.1.55	50mmΦ G.I pipe	m	3		
11.1.56	50mmΦ plain G.I flange	No	1		
11.1.57	50mm ΦG.I nipple	No	2		
11.1.58	50mmΦG.I bend	No	1		
11.1.59	50mmΦ G.I socket	No	2		
11.1.60	50mmΦG.I union	No	1		
11.1.61	50mmΦ gate valve	No	1		
	Pipes and Fittings.				
11.1.62	Supply and lay 2" HDPE pipes	m	500		
11.1.63	Supply and lay 2" G.I pipes class B	m	24		
TOTAL FOR BILL 11 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 12:
WATER TREATMENT

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 12: WATER TREATMENT PLANT AND REVERSE OSMOSIS SYSTEM				
	SECTION 1: CHLORINATION UNITS				
12.1.1	Chlorination House Provide all materials, fabricate and install a 2mx2m steel structure for housing the inline chlorine dosing system, all as detailed in the drawings.	LS	1		
12.1.2	Chlorination Equipment Supply, install, and commission of a complete inline chlorination system, designed for a flow rate of up to 30 m³/hr, comprising a high-capacity Dosatron D8RE3000 proportional dosing pump (0.2–2% adjustable dosing), 100-litre GRP dosing tank with outlet and stand, suction hose kit with integrated filter and non-return valve, inline pressure regulator (5–6 bar), 2-inch non-return valve and Y-strainer, all necessary fittings and accessories, including installation, testing, and operator training.	LS	1		
	Total for Water Treatment (Chlorination Unit) for 1No Borehole Total for Water Treatment (Chlorination Unit) for 2No Boreholes				
	SECTION 1: CHLORINATION UNIT	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: WATER TREATMENT PLANT				
12.2.1	Supply and Install 1m³/hr water treatment plant consisting of pre-treatment (ultrafiltration) unit and a reverse osmosis unit for maximum TDS 5,000 PPM	No	1		
12.2.2	uPVC Water Storage Tanks Supply and install 1Nr. UPVC water tank of capacity 5,000ltrs. Rate to include transport to site, preparation of holding base, installation and connection to the inlets and outlet pipework - for treated water storage	No	1		
12.2.3	Supply and install 2Nr. UPVC water tanks of capacity 10,000ltrs. Rate to include transport to site, construction of holding base, installation and connection to inlet and outlet pipework- for raw water storage and pretreated raw water storage	No	2		
12.2.4	Plumbing Supply and install all necessary pipework and fittings for connection between the water storage tanks and the water treatment plant units.	m	5		
12.2.5	RO Operation and Maintenance Services Operation and Maintenance (O&M) of Reverse Osmosis (RO) Water Treatment Plant for 36 months, including provision of skilled personnel, routine servicing, repairs, consumables, spare parts, performance monitoring, and reporting, in accordance with the technical specifications and manufacturer's guidelines.	Item	1		
	SECTION 2: REVERSE OSMOSIS UNIT	Carried to Main Summary			

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ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 4: SOLAR POWER				
12.4.1	Supply, install, test and commission of an array of solar with the following specifications: 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 15kW on a bright sunny day at midday taking into account the system losses.	No.	30		
12.4.2	Supply, installation and furnishing support structures with the following specifications: Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
12.4.3	Supply, install, test and commission a 15kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 15kW 31A complete with accessories. The inverter to be installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54.	Set	1		
12.4.4	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
12.4.5	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
12.4.6	Supply, install, test and commission 6mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	Lm	100		
12.4.7	Supply, install, test and commission weather monitoring system	No	1		
12.4.8	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
12.4.9	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
12.4.10	Allow for 12 months after sale service including training of operators and technicians.	Ls	1		
12.4.11	Stand alone Solar Powered Security Lights Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
12.4.12	Booster Pump To WK Supply & install a Surface Multistage centrifugal Pump and Motor, continuously rated and capable of pumping 1m³/hr of water against a total head of 5m. The pump set to be duty and stand-by with automamic switch and controls	No.	1		
	SECTION 4:	Carried to			
	SOLAR POWER	Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	SECTION 5: RO UNIT PLANT ROOM				
	<u>SUBSECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks (Provisional)</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
12.5.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	19.36		
12.5.2	Excavate for trench foundations for strip footings not exceeding 1.50 metres deep, starting from reduced levels	Cm	15.84		
12.5.3	Extra over for excavation in rock of all classes	Cm	4.75		
	<i><u>Disposal</u></i>				
12.5.4	Return, fill and ram selected excavated material around foundations.	Cm	9.15		
12.5.5	Load, wheel and deposit surplus excavated material away from site	Cm	6.69		
	<i><u>Hardcore or other approved filling, as described</u></i>				
12.5.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	19.36		
12.5.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	19.36		
	<u>Anti - termite treatment</u>				
12.5.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore (m/s)	Sm	19.36		
	<u>Damp-proof membrane</u>				
12.5.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	19.36		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
12.5.10	50 mm thick blinding under strip foundations	Sm	10.56		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
12.5.11	Strip footings	Cm	2.11		
12.5.12	150 mm Thick Surface beds	Cm	2.90		
12.5.13	Ditto; to sloping ramp slabs at the door entrance	Cm	0.18		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005: including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
12.5.14	Assorted bars (D8 - D16)	Kg	62.98		
	<i><u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</u></i>				
12.5.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	19.36		
	<u>Formwork</u>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
12.5.16	Vertical sides of strip footings	Sm	35.20		
12.5.17	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	17.60		
12.5.18	Ditto: but sloping, to ramp	Lm	4.00		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>Foundation walling</u>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
12.5.19	200 mm thick foundation walling	Sm	28.16		
	<u>Plinth finishes</u>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar; wood floated: on masonry or concrete surfaces: as described to</i>				
12.5.20	Concrete and masonry surfaces externally; finished smooth	Sm	7.92		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</i>				
12.5.21	Rendered surfaces, externally	Sm	7.92		
	<u>SUBSECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 25/20: as described in</i>				
12.5.22	Beams	Cm	1.06		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
12.5.23	Assorted bars (D8 - D16)	Kg	100.89		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork: as described to:-</i>				
12.5.24	Vertical sides and soffites of beams	Sm	10.56		
	<u>SUBSECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
12.5.25	200 mm thick walling	Sm	23.82		
12.5.26	Ditto: to Gable walling	Sm	4.40		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
12.5.27	200 mm wide; levelled and bedded under wall	Lm	17.60		
	<u>Ventilation</u>				
12.5.28	Supply and install 300 x 200 x 200mm concrete louvre blocks and place in 1:3 cement/sand as shall be directed.	Sm	2.00		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>SUBSECTION 4: ROOFING</u>				
	<u>Roof Structure (Provisional)</u>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
12.5.29	Purlins: 50 x 50	m	24.00		
12.5.30	Wall plate: 150x50mm	m	17.60		
12.5.31	Rafters: 150x50	m	24.00		
	<u>Eaves Finishes</u>				
12.5.32	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	19.20		
	<u>Roof covering</u>				
	<i>Gauge 24 IT4 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</i>				
12.5.33	Roof covering: including all necessary fixtures	Sm	23.04		
	<i>Heavy duty roof insulation complete with polythylene foam core that provides a radiant barrier, reflective insulation and moisture barrier; fixed in accordance to manufacturer's printed instructions: as described to</i>				
12.5.34	10 mm thick double-sided reflective foil insulation; underlay	Sm	23.04		
	<u>SUBSECTION 5: EXTERNAL FINISHES</u>				
	<u>External wall finishes</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
12.5.35	Concrete surfaces externally; finished smooth	Sm	5.28		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
12.5.36	Masonry surfaces externally; finished smooth	Sm	28.22		
	<u>Ramp finishes</u>				
	<i>25 mm thick screeds: Cement and sand (1:3) mortar: steel trowelled: as described to</i>				
12.5.37	Surfaces of ramps, sloping	Sm	1.80		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
12.5.38	Rendered concrete surfaces, externally	Sm	5.28		
	<u>SUBSECTION 6: INTERNAL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
12.5.39	Concrete surfaces, internally	Sm	5.28		
12.5.40	Masonry surfaces, internally	Sm	28.22		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
12.5.41	25 mm thick screeds in floors to steel trowel finish	Sm	19.36		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <u>mat emulsion paint</u> as described on</i>				
12.5.42	Plastered concrete surfaces, internally	Sm	5.28		
12.5.43	Plastered walls surfaces, internally	Sm	28.22		
	<u>SUBSECTION 7: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
12.5.44	Overall size 900 x 2100 mm high; details as per standard drawings No GW4R-WJR-STD-14.01	No	1		
12.5.45	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
12.5.46	General surfaces of metal doors (measured on both sides)	Sm	1.89		
	<u>SUBSECTION 8: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u>				
	<u>Builder's work in connection with Electrical Installations;</u>				
12.5.47	Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<u>SECTION 5</u>				
	RO UNIT PLANT ROOM				
	Carried to Main Summary				
ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 12: WATER TREATMENT PLANT AND REVERSE OSMOSIS SYSTEM</u>				
	<u>SUMMARY</u>				
1	CHLORINATION UNITS				
2	REVERSE OSMOSIS				
3	EVAPORATION POND				
4	SOLAR POWER & SURFACE PUMP				
5	PLANT ROOM				
	Total for 1No. RO Unit				
	Total for Water Treatment for Tesorai Scheme				
TOTAL FOR BILL 12 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 13:
GENERATOR HOUSE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
13.1.1	<u>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</u>				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Paving Slabs</u>				
	<i>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar including all necessary site preparation, excavations and earthworks around the existing building to achieve required levels and alignment; as described to</i>				
13.1.1	Paving slabs, around building (one row); including all excavations and earthworks	Sm	12.00		
SECTION 1: Carried to SUBSTRUCTURES Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.2.1	<u>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</u>				
	<u>SECTION 2: WINDOWS/GRILLES</u>				
	<u>Steel Casement Windows/Grilles</u>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows or metal grilles, as necessary in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery hinges, fasteners and stays: one coat aluminium grey primer before fixing: all to Engineer's schedule and/or direction; as described to</i>				
13.2.1	Provide and fix window/grilles to match existing, including all necessary frames, ironmongery, glazing, and finishes, all as directed by the Engineer	No	4		
13.2.2	Carefully rehabilitate to match existing window, including repair or replacement of damaged components such as frames, glazing, ironmongery, and finishes,	No	4		
13.2.3	<u>Painting & Decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
13.2.3	General surfaces of metal windows/grilles (measured on both sides)	Sm	8		
SECTION 2 Carried To WINDOWS/METAL GRILLES Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.3.1	BILL No. 13: REHABILITATION OF GENERATOR HOUSE				
	<u>SECTION 3: ROOFING</u>				
	<u>Eaves Finishes</u>				
	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	28.00		
	<u>Roof covering</u>				
13.3.2	<i><u>Gauge 28 IT4 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</u></i>				
	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	48.00		
	Ridge cap to match	Lm	6.00		
SECTION 3 Carried to ROOFING Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.4.1	BILL No. 13: REHABILITATION OF GENERATOR HOUSE				
	<u>SECTION 4: EXTERNAL FINISHES</u>				
	<u>Ramp finishes</u>				
	<i><u>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</u></i>				
	Surfaces of ramps, sloping	Sm	3.20		
13.4.2	<u>Painting and decorating</u>				
	<i><u>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</u></i>				
	Rendered concrete surfaces, externally	Sm	50.00		
SECTION 4 Carried to EXTERNAL FINISHES Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
BILL No. 13: REHABILITATION OF GENERATOR HOUSE SECTION 5: INTERNAL FINISHES <u>Wall Finishes</u> <i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>					
13.5.1	Masonry surfaces, internally	Sm	50.00		
<u>Floor Finishes</u> <i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>					
13.5.2	25 mm thick screeds on floor to finish level	Sm	24.00		
<u>Painting and decoration</u> <i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality: matt emulsion paint as described on</i>					
13.5.3	Plastered walls surfaces, internally	Sm	50.00		
SECTION 5 Carried to INTERNAL FINISHES Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
BILL No. 13: REHABILITATION OF GENERATOR HOUSE SECTION 6: DOORS <u>Metal Door</u> <i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>					
13.6.1	Overall size 1600 x 2100 mm high; details as per standard drawings	No	1		
13.6.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
<u>Painting and decoration</u> <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>					
13.6.3	General surfaces of metal doors (measured on both sides)	Sm	6.72		
SECTION 6 Carried to DOORS Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
13.7.1	<u>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</u>				
	<u>SECTION 7: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u>				
	<u>Builder's work in connection with Electrical Installations;</u> Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<u>SECTION NO. 7</u> <u>B.W.I.C WITH SERVICES</u>	Carried to Main Summary			
ITEM	DESCRIPTION				AMOUNT
	<u>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</u>				
	<u>SUMMARY</u>				
	1 Substructure (Provisional)				
	2 Windows/Grills				
	3 Roofing				
	4 External Finishes				
	5 Internal Finishes				
	6 Doors				
	7 Builders' Work in Connection with Services (Provisional)				
	TOTAL FOR 1No. GENERATOR HOUSE TOTAL FOR 2No. GENERATOR HOUSE		2		
TOTAL FOR BILL 13 CARRIED FORWARD TO PROJECT SUMMARY					

HARAGAL WATER SUPPLY SCHEME

PROJECT SUMMARY

HARAGAL WATER SUPPLY SCHEME, WAJIR COUNTY

MAIN SUMMARY

BILL	DESCRIPTION	AMOUNT
1	PRELIMINARIES AND GENERAL ITEMS	
2	BOREHOLES, PUMPS AND POWER SUPPLY	
3	FENCING AND GATES	
4	WATER KIOSKS	
5	OPERATOR'S BUILDING	
6	PIT LATRINES	
7	WATER TROUGHS	
8	PIPEWORKS	
9	ELEVATED STEEL TANK	
10	ELEVATED PLASTIC TANK	
11	GROUND MASONRY TANK	
12	WATER TREATMENT	
13	GENERATOR HOUSE	
TOTAL FOR HARAGAL WATER SUPPLY SCHEME		

BILL No. 2:
BOREHOLES, PUMPS AND
POWER SUPPLY

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY				
	HARAGAL BH				
	SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	SECTION 1:	Carried to			
	MOBILIZATION AND SETTING UP	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.1	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.2	Supply and install 25mm diameter pvc water pipe (observation pipe),Class E	Lm	150		
2.2.3	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.4	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.5	Supply and install 50mm diameter rising main GMS water pipe, Class C.	Lm	150		
2.2.6	50mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.7	50mm diameter galvanised steel bend	No	4		
2.2.8	Provide, install, test and commission an electromagnetic Master flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	Supply, install & connect all incoming and outgoing cables to make the pump set work				
2.2.9	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	250		
2.2.10	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	400		
2.2.11	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.12	Electrode probe pair	No	2		
2.2.13	6mm2 Twin Flat earth cable	Lm	30		
2.2.14	Earth rod Complete with earth lead Clamp	Set	1		
2.2.15	8mm thick borehole cover complete with sundries	Ls	1		
2.2.16	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	Solar panels Cleaning - Sprinklers system				
2.2.17	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	BOREHOLE PUMP				
2.2.18	Supply & install 5.5KW Submersible Multistage centrifugal borehole stainless steel Pump and Motor, continuously rated and capable of pumping 7 m³/hr of water against a total head of 185m. The pump shall have in-built non-return valve, tail strainer, cable guard, etc.. The pump to be supplied complete with water tight cable splicing kit and connection ripple. The contractor to attach catalogs and 5years minimum Warranty for the pumps model proposed	No	1		
	SECTION 2:	Carried to			
	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM <i>Supply, install, test and commission the following Data Acquisition & Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i> Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - - 20 to 80 degrees and Conductivity 0 to 30 Or 12mS/cm2 Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal DXT -Cable - AS2xxx with standard lengths of 300m Allow for Testing, User Training and Commissioning the Monitoring system	No	1		
2.3.1		No	1		
2.3.2		No	1		
2.3.3		m	300		
2.3.4		Ls	1		
SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM					Carried to Main Summary

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 4: SOLAR POWER				
2.4.1	Supply, install, test and commission of an array of solar with the following specifications: 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 15kW on a bright sunny day at midday taking into account the system losses. (6000W -To add to the existing solar Panels)	No	12		
2.4.2	Allow for Maintenance and Rehabilitation of the existing Solar Panels to involve cleaning of the solar panels, checking for any faults/cracks, Cable connections, Testing output and performance, Re-positioning for maximum efficiency. The cost to include the rehabilitation of the existing mounting structures to include but not limited to spray painting, anchoring and reinforcing loose supports.	PS	1	100,000	100,000
2.4.3	Supply, installation and furnishing support structures with the following specifications: Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.4	Supply, Install, Test and Commission a 15kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz IP66 Complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemechanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.5	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.6	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.7	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.8	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.9	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.10	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.11	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.12	Stand alone Solar Powered Security Lights Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	SECTION 4: SOLAR POWER	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 5: GENERATOR POWER BACK-UP				
2.5.1	Supply, Deliver, Install, Test and Commission New 20 KVA Power Back up Generator	No	1		
2.5.2	Solar and Generator Power Intergration --Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	Fire Fighting Equipment				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	SECTION 5:				
	GENERATOR POWER BACK UP				
	Carried to Main Summary				
SEC	DESCRIPTION	DESCRIPTION			AMOUNT (KSHS)
	<u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u>				
	HARAGAL BH				
1	<u>SUMMARY</u>				
2	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
3	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
4	DATA ACQUISITION AND MONITORING SYSTEM				
5	SOLAR POWER				
	GENERATOR POWER BACK-UP				
SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 3:
FENCING AND GATE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 3 - FENCING AND GATE BH				
	SECTION 1: GATES AND GATE ENTRANCE				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<u>Formwork</u>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<u>Coping</u>				
	<i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<u>Finishes</u>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<u>Gates</u>				
	<i><u>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</u></i>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to Pedestrian gate: overall size 1,300 x 2,400 mm high	No	1		
	<u>Painting and decoration</u>				
	<i><u>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</u></i>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<i><u>Prepare and apply two finishing coats of super gloss enamel paint to:</u></i>				
3.1.17	General surfaces of metal gates (measured on both sides)	Sm	25.44		
	SECTION 1:	Carried to			
	GATES AND GATE ENTRANCE	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: CHAIN-LINK FENCING				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	154.7		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	10		
	SECTION 2:	Carried to			
	CHAIN-LINK FENCING	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: STORMWATER DRAINS				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	SECTION 3:	Carried to			
	STORMWATER DRAINS	Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 3 - FENCING AND GATE BH</u>				
	<u>SUMMARY</u>				
1	GATES AND GATE ENTRANCE				
2	CHAIN-LINK FENCING				
3	STORMWATER DRAINS				
TOTAL FOR BILL 3 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 4:
WATER KIOSKS

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
4.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	16.35		
4.1.2	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	4.86		
4.1.3	Excavate for Strip footing pits not exceeding 1.0 metres deep, starting from reduced levels	Cm	3.12		
4.1.4	Extra over for excavation in rock of all classes	Cm	3.99		
	<i><u>Disposal</u></i>				
4.1.5	Return, fill and ram selected excavated material around foundations.	Cm	3.72		
4.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	4.26		
	<i><u>Hardcore or other approved filling, as described</u></i>				
4.1.7	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	4.91		
4.1.8	50 mm thick quarry dust or approved murrum blinding layer to surfaces of hardcore m.s	Sm	16.35		
	<u>Anti-termite treatment</u>				
4.1.9	Chemical anti-termite treatment executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	16.35		
	<u>Damp-proof Membrane</u>				
4.1.10	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	16.35		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
4.1.11	50 mm thick blinding under Column bases	Sm	3.24		
4.1.12	Ditto: under Strip footings	Sm	3.12		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.13	Column bases	Cm	1.33		
4.1.14	Columns	Cm	0.19		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.15	100 mm thick floor Slab	Cm	1.16		
4.1.16	Ditto: to sloping ramp slabs	Cm	0.69		
4.1.17	Strip footings	Cm	0.62		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
4.1.18	Assorted bars (D8 - D16)	Kg	128.88		
	Carried to Collection				

[illegible]

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 25/20: as described in</i>				
4.2.1	Beams	Cm	0.59		
4.2.2	Roof slab, 150 mm thick	Cm	1.23		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.2.3	Assorted bars (D8 - D16)	Kg	129		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
4.2.4	Vertical sides and soffits of beams	Sm	5.88		
4.2.5	Vertical sides of columns	Sm	6.72		
4.2.6	Horizontal soffits of suspended slabs	Sm	8.19		
4.2.7	Edge of suspended slabs over 75 mm but not exceeding 150 mm girth	Sm	2.20		
	SECTION 2: Carried to SUPERSTRUCTURE Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.3.1	200 mm thick walling	Sm	15.60		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
4.3.2	200 mm wide; levelled and bedded under wall	Lm	14.66		
	<u>Coping</u>				
	<i>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</i>				
4.3.3	Size 200 x 75 mm coping; twice weathered and throated	Lm	2.30		
	SECTION 3: Carried to WALLING Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 4: EXTERNAL FINISHES</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
4.4.1	Concrete surfaces externally; finished smooth	Sm	2.95		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
4.4.2	Masonry surfaces externally; finished smooth	Sm	12.64		
	<u>Steps and Ramp finishes</u>				
	<i>Cement and sand (1:3) screeds, backings, beds etc; coloured to approval: finished in smooth steel</i>				
4.4.3	Treads to steps, 300 mm wide	Lm	6		
4.4.4	Risers to steps, 150 mm high	Lm	6		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
4.4.5	Rendered concrete surfaces, externally	Sm	3.0		
	SECTION 4: EXTERNAL FINISHES				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>SECTION 5: INTERNAL WALL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
4.5.1	Concrete surfaces, internally	Sm	2.95		
4.5.2	Masonry surfaces, internally	Sm	12.64		
4.5.3	Jambs and reveals: 100 - 200 mm girth	Lm	10.40		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
4.5.4	25 mm thick screeds on floors to steel trowel finish	Sm	7		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint: as described on</i>				
4.5.5	Plastered concrete surfaces, internally	Sm	3		
4.5.6	Plastered walls surfaces, internally	Sm	13		
4.5.7	Jambs and reveals: 100 - 200 mm girth	Lm	10		
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of brilliant white plastic emulsion paint as: as described on</i>				
4.5.8	Plastered soffites of slabs, internally	Sm	8		
	SECTION 5 : INTERNAL FINISHES				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 6: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
4.6.1	Door: Overall Size 900 x 2100 mm high, in single leaf; complete with purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Architectural design	No	1		
4.6.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.6.3	General surfaces of metal doors (measured on both sides)	Sm	4		
	<u>SECTION 6</u>	Carried to			
	<u>DOORS</u>	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 7: WINDOWS</u>				
	<u>Steel Windows</u>				
	<u>The following to Water Kiosk:-</u>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule; as described to</i>				
4.7.1	Window overall size: 1000 x 1200 mm high: in two equal leaves; complete with advert pockets in 500 x 600 mm perspex covers; details to Engineer's design and details	No	1		
	<u>Painting & Decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.7.2	General surfaces of metal windows (measured on both sides)	Sm	3.12		
	<u>SECTION 7</u>	Carried to			
	<u>WINDOWS</u>	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	SECTION 8: PLASTIC WATER TANK AND WATER KIOSK ATM				
	<u>5,000 litres Elevated Plastic Tank</u>				
4.8.1	Provide for the purchase, supply and installation of a 5m3 plastic tank & fix all the necessary fittings including inlets, outs, and taps as directed by the supervising Engineer	No	1		
4.8.2	Supply, Install and Commission a 25mm diameter water meter.	No	1		
4.8.3	25mm Gate valves	No	7		
	<u>Tank Roof</u>				
	<i><u>Sawn cypress first grade; pressure impregnated; thoroughly seasoned and treated with anti-termite; and other jointing accessories to structural engineer's details; timber to meet the following minimum strength criteria, bending 5N/mm2, tension 3N/mm2 and compression 6N/mm2</u></i>				
4.8.4	50 x 50 x 3mm thick steel stanchion fixed to the reinforced concrete column to approval	Lm	10		
4.8.5	75 x 50 mm timber rafter fixed to the steel stanchions	Lm	12		
4.8.6	50 x 50 mm timber batten fixed to the rafter to approval	Lm	9		
4.8.7	MRM box profile sheets available in white and clear; 12,000mm length x 810mm width.	Sm	7		
	<u>Water ATM</u>				
4.8.8	dispenser, solar power unit, piping, fittings, control unit, and user training, complete as per specifications.	Ls	1		
4.8.9	Provide all materials and install high level MDF shelves inside water kiosks, as shown on the	Ls	1		
	SECTION 8				
	<u>PLASTIC WATER TANK</u>				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 9: SOAK AWAY PIT</u>				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
4.9.1	Excavate for soak away pit, 1.5m diameter, 2.7m depth, in normal soil	Cm	4.77		
4.9.2	Extra over for excavation in rock material	Cm	1.43		
4.9.3	Return, fill and ram selected excavated material around to 0.3m depth	Cm	0.53		
4.9.4	Load, wheel and deposit surplus excavated material away from site	Cm	4.24		
	<u>Hardcore or other approved filling, as described</u>				
4.9.5	300 mm thick handpacked h/core material in filling to 2.4m height, compacted in layers n.e.	Cm	4.24		
	<u>Plastic Sheet Lining</u>				
4.9.6	1000 gauge polythene or other equal and approved plastic sheet lining, laid over hardcore.	Sm	1.77		
	<u>Drain Pipe</u>				
4.9.7	Supply and install 150mm dia uPVC drain pipe, 5m length	m	5.00		
	<u>SECTION 9</u>				
	<u>SOAK AWAY PIT</u>				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 10: GULLEY TRAP</u>				
	<u>Excavations and Earthworks</u>				
4.10.1	Excavate for gulley trap, 0.6m x 0.6m x 0.5m depth, in normal soil	Cm	0.22		
4.10.2	Load, wheel and deposit surplus excavated material away from site	Cm	0.22		
	<u>Concrete</u>				
4.10.3	Supply and place 50mm thick mass concrete blinding under base slab; class 15/20 for gulley trap (0.6m x 0.6m)	Cm	0.02		
4.10.4	Supply and place 100mm thick mass concrete base class 20/20 for gulley trap (0.6m x 0.6m)	Cm	0.04		
	<u>Blockwork</u>				
4.10.5	Supply and lay 150mm thick masonry blockwork walls in cement mortar joints, as approved (0.4m	Sm	0.7		
4.10.6	Plaster external and internal walls with 15mm thick cement:sand (1:4) render	Sm	1.44		
	<u>Fittings</u>				
4.10.7	Supply and install 50mm thick 400mm x 400mm precast concrete top cover slab for gully trap (reinforced with A142 mesh fabric)	No.	1		
	<u>SECTION 10:</u>				
	<u>GULLEY TRAP</u>				
	Carried to Main Summary				

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 1</u>				
	<u>SUMMARY</u>				
4.1	Substructure (Provisional)				
4.2	R.C. Superstructure				
4.3	Walling				
4.4	External Wall Finishes				
4.5	Internal Finishes				
4.6	Doors				
4.7	Windows				
4.8	Plastic Water Tank and Water Kiosk ATM				
4.9	Soak Away Pit				
4.10	Gulley Trap				
	TOTAL FOR 1No. WATER KIOSK			Kes.	
	TOTAL FOR 9 No. WATER KIOSKS	NO.	9	Kes.	
TOTAL FOR BILL 4 CARRIED FORWARD TO PROJECT SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
4.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	14.56		
4.1.2	Excavate for strip footing pits not exceeding 1.5 metres deep, starting from reduced levels	Cm	12.00		
4.1.3	Extra over for excavation in rock of all classes	Cm	3.60		
	<i>Disposal</i>				
4.1.4	Return, fill and ram selected excavated material around foundations.	Cm	6.99		
4.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	5.01		
	<i>Hardcore or other approved filling, as described</i>				
4.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	4.37		
4.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	14.56		
	<u>Anti-termite treatment</u>				
4.1.8	Chemical anti-termite treatment executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	14.56		
	<u>Damp-proof Membrane</u>				
4.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	14.56		
	<u>Concrete works</u>				
	<i>Plain concrete class 15: in</i>				
4.1.10	50 mm thick blinding unde Strip footings	Sm	8.00		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
4.1.11	100 mm Thick floor slab	Cm	1.31		
4.1.12	Ditto; to sloping ramp slabs	Cm	0.69		
4.1.13	Strip footings	Cm	1.60		
	<u>Reinforcement (Provisional)</u>				
	<i>high yield steel ribbed reinforcement bars to R.S 275,2005, including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described in</i>				
4.1.14	Assorted bars (D8 - D16)	Kg	96.00		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</i>				
4.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	13.77		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
4.2.1	Beams	Cm	0.49		
	<u>Reinforcement (Provisional)</u>				
	<i>high yield steel ribbed reinforcement bars to R.S 275.2002, including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.2.2	Assorted bars (D8 - D16)	Kg	29		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
4.2.3	Vertical sides and soffits of beams	Sm	5.05		
4.2.4	Vertical sides of columns	Sm	6.72		
4.2.5	Horizontal soffits of suspended slabs	Sm	8.19		
4.2.6	Edge of suspended slabs over 75 mm but not exceeding 150 mm girth	Sm	2.29		
	SECTION 2: Carried to SUPERSTRUCTURE Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.3.1	200 mm thick walling	Sm	15.60		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
4.3.2	200 mm wide; levelled and bedded under wall	Lm	14.66		
	<u>Coping</u>				
	<i>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip</i>				
4.3.3	Size 200 x 75 mm coping; twice weathered and throated	Lm	2.30		
	SECTION 3: Carried to WALLING Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 4: EXTERNAL FINISHES</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
4.4.1	Concrete surfaces externally; finished smooth	Sm	2.95		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
4.4.2	Masonry surfaces externally; finished smooth	Sm	12.64		
	<u>Steps and Ramp finishes</u>				
	<i>Cement and sand (1:3) screeds, backings, beds etc; coloured to approval: finished in smooth steel float</i>				
4.4.3	Treads to steps, 300 mm wide	Lm	6		
4.4.4	Risers to steps, 150 mm high	Lm	6		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as supplied by "Crown Paints" or approved equivalent: as described on</i>				
4.4.5	Rendered concrete surfaces, externally	Sm	3.0		
	SECTION 4: EXTERNAL FINISHES				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>SECTION 5: INTERNAL WALL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
4.5.1	Concrete surfaces, internally	Sm	2.95		
4.5.2	Masonry surfaces, internally	Sm	12.64		
4.5.3	Jambs and reveals: 100 - 200 mm girth	Lm	10.40		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
4.5.4	25 mm thick screeds on floors to steel trowel finish	Sm	7		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality. matt emulsion paint: as described on</i>				
4.5.5	Plastered concrete surfaces, internally	Sm	3		
4.5.6	Plastered walls surfaces, internally	Sm	13		
4.5.7	Jambs and reveals: 100 - 200 mm girth	Lm	10		
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of brilliant white plastic emulsion paint as: as described on</i>				
4.5.8	Plastered soffits of slabs, internally	Sm	8		
	SECTION 5 :				
	INTERNAL FINISHES				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 6: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
4.6.1	Door: Overall Size 900 x 2100 mm high, in single leaf; complete with purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Architectural design and details	No	1		
	<u>Ironmongery</u>				
	<i>Supply and fix the following ironmongery complete with matching screws: as described to</i>				
4.6.2	Steel door lock complete with handles	No	1		
4.6.3	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.6.4	General surfaces of metal doors (measured on both sides)	Sm	4		
	<u>SECTION 6</u>	Carried to Main Summary			
	<u>DOORS</u>				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 7: WINDOWS</u>				
	<u>Steel Windows</u>				
	<u>The following to Water Kiosk:-</u>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule; as described to</i>				
4.7.1	Window overall size: 1200 x 1000 mm high: in two equal leaves; complete with advert pockets in 500 x 600 mm perspex covers; details to Engineer's design and details	No	1		
	<u>Painting & Decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.7.2	General surfaces of metal windows (measured on both sides)	Sm	3		
	<u>SECTION 7</u>	Carried to Main Summary			
	<u>WINDOWS</u>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 2</u>				
	SECTION 8: PLUMBING AND WATER KIOSK ATM				
4.8.1	Supply, install and commission a 32mm diameter water meter.	No	1		
4.8.2	Supply, Install and Commission a 25mm diameter water meter.	No	1		
4.8.3	25mm Gate valves	No	7		
	Water ATM				
4.8.4	Supply, install, test, and commission smart card-operated water ATM system including cabinet, dispenser, solar power unit, piping, fittings, control unit, and user training, complete as per specifications.	Ls	1	200,000.00	200,000.00
4.8.5	Provide all materials and install high level MDF shelves inside water kiosks, as shown on the drawings.	Ls	1	20,000.00	20,000.00
	SECTION 8	Carried to			
	PLUMBING	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 2</u>				
	<u>SECTION 9: ROOFING</u>				
	<u>Roof Structure (Provisional)</u>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
4.9.1	Rafters: 150 x50	m	16.00		
4.9.2	Purlins: 50 x 50	m	13.50		
4.9.3	Wall plate: 150 x 50	m	5.40		
	<u>Eaves Finishes</u>				
	<i>Fascia Board: in 2mm thick mild steel</i>				
4.9.4	Fascia/Barge boards 250x25 mm thick sawn cypress and planed to approval	Lm	11.80		
	<u>Roof covering</u>				
	<i>Gauge 28 IT5 Pre-painted box-profiled roofing sheets</i>				
4.9.5	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	8.64		
	<i>Heavy duty roof insulation complete with polythylene foam core that provides a radiant barrier, reflective insulation and moisture barrier; fixed in accordance to manufacturer's printed instructions: as described to</i>				
4.9.6	10 mm thick double-sided reflective foil insulation; underlay	Sm	8.64		
	SECTION 9	Carried to			
	ROOFING	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 10: SOAK AWAY PIT</u>				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
4.10.1	Excavate for soak away pit, 1.5m diameter, 2.7m depth, in normal soil	Cm	4.77		
4.10.2	Extra over for excavation in rock material	Cm	1.43		
4.10.3	Return, fill and ram selected excavated material around to 0.3m depth	Cm	0.53		
4.10.4	Load, wheel and deposit surplus excavated material away from site	Cm	4.24		
	<u>Hardcore or other approved filling, as described</u>				
4.10.5	300 mm thick handpacked h/core material in filling to 2.4m height, compacted in layers n.e. 150mm thick.	Cm	4.24		
	<u>Plastic Sheet Lining</u>				
4.10.6	1000 gauge polythene or other equal and approved plastic sheet lining, laid over hardcore.	Sm	1.77		
	<u>Drain Pipe</u>				
4.10.7	Supply and install 150mm dia uPVC drain pipe, 5m length	m	5.00		
	SECTION 10 Carried to				
	SOAK AWAY PIT Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 11: GULLEY TRAP</u>				
	<u>Excavations and Earthworks</u>				
4.11.1	Excavate for gulley trap, 0.6m x 0.6m x 0.5m depth, in normal soil	Cm	0.22		
4.11.2	Load, wheel and deposit surplus excavated material away from site	Cm	0.22		
	<u>Concrete</u>				
4.11.3	Supply and place 50mm thick mass concrete blinding under base slab; class 15/20 for gulley trap (0.6m x 0.6m)	Cm	0.02		
4.11.4	Supply and place 100mm thick mass concrete base class 20/20 for gulley trap (0.6m x 0.6m)	Cm	0.04		
	<u>Blockwork</u>				
4.11.5	Supply and lay 150mm thick masonry blockwork walls in cement mortar joints, as approved (0.4m high)	Sm	0.7		
4.11.6	Plaster external and internal walls with 15mm thick cement:sand (1:4) render	Sm	1.44		
	<u>Fittings</u>				
4.11.7	Supply and install 50mm thick 400mm x 400mm precast concrete top cover slab for gulley trap (reinforced with A142 mesh fabric)	No	1		
	SECTION 11 Carried to				
	GULLEY TRAP Main Summary				

BILL No. 5:
OPERATOR'S BUILDING AND
GUARD HOUSE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL No. 5: OPERATOR'S BUILDING</u>				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
5.1.1	Oversite excavation 200 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Cm	6.54		
5.1.2	Excavate for trench foundations not exceeding 1.50 metres deep, starting from reduced levels	Cm	20.52		
5.1.3	Extra over for excavation in rock of all classes	Cm	6.16		
	<i>Disposal</i>				
5.1.4	Return, fill and ram selected excavated material around foundations.	Cm	11.88		
5.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	8.64		
	<i>Hardcore or other approved filling, as described</i>				
5.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	9.80		
5.1.7	50 mm thick quarry dust or approved murrum blinding layer to surfaces of hardcore m.s	Sm	32.68		
	<u>Anti - termite treatment</u>				
5.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	32.68		
	<u>Damp-proof membrane</u>				
5.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	32.68		
	<u>Concrete works</u>				
	<i>Plain concrete class 15: in</i>				
5.1.10	50 mm thick blinding under strip foundations	Sm	16.20		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
5.1.11	Strip footings	Cm	3.24		
5.1.12	150 mm Thick Surface beds	Cm	4.90		
5.1.13	Ditto; to sloping ramp slabs	Sm	0.54		
5.1.14	Extra over ramp slabs for formation of herringbone pattern; tamping to top surface of concrete slabs during casting	Sm	0.54		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
5.1.15	Assorted bars (D8 - D16)	Kg	162.00		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</i>				
5.1.16	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	36.28		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<u>Formwork</u> <i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
5.1.17	Vertical sides of strip footings	Sm	10.80		
5.1.18	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	23.00		
5.1.19	Ditto: but sloping, to ramps	Lm	9.80		
	<u>Foundation walling</u> <i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
5.1.20	150 mm thick foundation walling	Sm	36.00		
	<u>Plinth finishes</u> <i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
5.1.21	Concrete and masonry surfaces externally; finished smooth	Sm	10.35		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</i>				
5.1.22	Rendered surfaces, externally	Sm	10.35		
	<u>Paving slabs</u> <i>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</i>				
5.1.23	Paving slabs, around building (one row); including all excavations and earthworks	Sm	13.80		
	Carried to Collection				
	<u>Collection Page</u> From Page 1 From Page above				
	<u>SECTION 1:</u> SUBSTRUCTURES	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	SECTION 2: SUPERSTRUCTURE				
	R.C Frame				
	Concrete				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
5.2.1	Beams	Cm	1.01		
	Reinforcement (Provisional)				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
5.2.2	Assorted bars (D8 - D16)	Kg	0.51		
	Formwork				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
5.2.3	Vertical sides and soffits of beams	Sm	22.50		
	SECTION 2: R.C SUPERSTRUCTURE	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	SECTION 3: WALLING				
	External Walling				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
5.3.1	150 mm thick walling	Sm	36.90		
5.3.2	Ditto: to Gable walling	Sm	23.26		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
5.3.3	150 mm wide; levelled and bedded under wall	Lm	23.00		
	Internal Walling				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
5.3.4	150 mm thick walling	Sm	8.40		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
5.3.5	150 mm wide; levelled and bedded under wall	Lm	4		
	SECTION 3: WALLING	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	<u>SECTION 5: EXTERNAL FINISHES</u>				
	<u>External wall finishes</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
5.5.1	Concrete surfaces externally; finished smooth	Sm	6.90		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
5.5.2	Masonry surfaces externally; finished smooth	Sm	60.16		
	<u>Steps and Ramp finishes</u>				
	<i>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s): including plastic dividing strips cast in screeds: as described to</i>				
5.5.3	Surfaces of ramps, sloping	Sm	3.60		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
5.5.4	Rendered concrete surfaces, externally	Sm	6.90		
	<u>SECTION 5</u>				
	EXTERNAL FINISHES	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	<u>SECTION 6: INTERNAL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
5.6.1	Concrete surfaces, internally	Sm	9.30		
5.6.2	Masonry surfaces, internally	Sm	76.96		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
5.6.3	32 mm Thick bed screed on floor to steel trowel finish level	Sm	32.68		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint as "Crown Paints" or approved equivalent: as described on</i>				
5.6.4	Plastered concrete surfaces, internally	Sm	9.30		
5.6.5	Plastered walls surfaces, internally	Sm	76.96		
	<u>SECTION 6</u>				
	INTERNAL FINISHES	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	<u>SECTION 7: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
5.7.1	Overall size 1000 x 2100 mm high; details as per architectural drawings	No	2		
5.7.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	3		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.7.3	General surfaces of metal doors (measured on both sides)	Sm	4.20		
	<u>SECTION 7</u>	Carried to			
	<u>DOORS</u>	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<u>BILL No. 5: OPERATOR'S BUILDING</u>				
	<u>SECTION 8: WINDOWS</u>				
	<u>Window Sill</u>				
	<i>Precast concrete class 20 fair faced all exposed surfaces bedded and jointed cement and sand (1:3) mortar</i>				
5.8.1	Size 175 x 75 mm thick window sill once rebated and throated; laid and jointed in cement and sand (1:3) mortar	Lm	6.40		
	<u>Steel Casement Windows</u>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule: as described to</i>				
5.8.2	Window overall size: 1500 x 1175 mm high: details to Architect's design and details	No	2		
5.8.3	Window overall size: 2000 x 1175 mm high: details to Architect's design and details	No	2		
	<u>Painting & Decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.8.4	General surfaces of metal windows (measured on both sides)	Sm	8		
	<u>SECTION 8</u>	Carried to			
	<u>WINDOWS</u>	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5.9.1	<u>BILL No. 5: OPERATOR'S BUILDING</u>				
	<u>SECTION 9: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u>				
	<u>Builder's work in connection with Electrical Installations:</u> Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<u>Builder's work in connection with plumbing and drainage installations:</u> Provide sum for cutting, making good and attendance in all trades on the subcontractor installing plumbing, drainage and fire-fighting installations: to include sanitary and fire-fighting fittings, wastes under floor slabs, supply pipes fixed on walls including cutting holes, chases and making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
<u>SECTION NO. 9</u> Carried to <u>B.W.I.C WITH SERVICES</u> Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5.1	<u>BILL 5: OPERATOR'S BUILDING</u>				
	<u>SUMMARY</u>				
	Substructure (Provisional)				
	R.C. Superstructure				
	Walling				
	Roofing				
	External Finishes				
	Internal Finishes				
	Doors				
	Windows				
5.9	Builders' Work in Connection with Services (Provisional)				
TOTAL FOR 1No. OPERATOR'S BUILDING TOTAL FOR 1 No. OPERATOR'S BUILDING					Kes. Kes.
TOTAL FOR BILL 5 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 6:
PIT LATRINE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 6: PIT LATRINES				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
6.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	4.35		
6.1.2	Excavate for Strip footing pits not exceeding 1.5 metres deep, starting from reduced levels.	Cm	9.23		
6.1.3	Excavate for underground pit (size 1.5x 2.0 m), depth upto 6 m	Cm	18.00		
6.1.4	Extra over for excavation in rock of all classes	Cm	8.17		
	<i><u>Disposal</u></i>				
6.1.5	Return, fill and ram selected excavated material around foundations.	Cm	18.61		
6.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	16.78		
	<i><u>Hardcore or other approved filling, as described</u></i>				
6.1.7	Imported inert h/core material in filling to make up levels, compacted in layers n.e. 150 mm thick with a vibratory roller to the satisfaction and approval of the Structural Engineer (S.E)	Cm	1.30		
6.1.8	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	4.35		
6.1.9	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	4.35		
	<u>Anti-termite treatment</u>				
6.1.10	Chemical anti-termite treatment as <i>Termidor 96 SC</i> or aproved equivalent, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	4.35		
	<u>Damp-proof Membrane</u>				
6.1.11	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	4.35		
	<u>Concrete works</u>				
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
6.1.12	150 mm Thick floor Slab	Cm	1.38		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
6.1.13	Strip footings	Cm	1.23		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
6.1.14	Assorted bars (D8 - D16)	Kg	74		
	<i><u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</u></i>				
6.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	9.23		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>Formwork</u> <i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
6.1.16	Edges; over 75 mm but not exceeding 100 mm high, to slab	Lm	10.25		
	<u>Foundation walling</u> <i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
6.1.17	150 mm thick foundation walling	Sm	15.38		
6.1.18	150 mm thick walling for the pit	Sm	8.40		
	<u>Plinth finishes</u> <i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
6.1.19	Concrete surfaces externally; finished smooth	Sm	15.38		
	<i>Prepare surfaces and apply three coats of first quality black aluminium paint as described to</i>				
6.1.20	Rendered surfaces, externally	Sm	15.38		
	Carried to Collection				
	<u>Collection Page</u>				
	From Page 1				
	From Page Above				
SECTION 1 SUBSTRUCTURES	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
6.2.1	BILL NO. 6: PIT LATRINES				
	<u>SECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
6.2.1	Beams	Cm	0.51		
6.2.2	<u>Reinforcement (Provisional)</u>				
	<i>high yield steel ribbed reinforcement bars to B.S 513:2002, including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described in</i>				
6.2.2	Assorted bars (D8 - D16)	Kg	31		
6.2.3	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
6.2.3	Vertical sides and soffites of beams	Sm	5.13		
<u>SECTION 2</u> Carried to Main Summary					
<u>SUPERSTRUCTURE</u>					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
6.3.1	BILL NO. 6: PIT LATRINES				
	<u>SECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Masonry Blocks: as described to</i>				
	150 mm thick walling	Sm	12.63		
6.3.2	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
	150 mm wide; levelled and bedded under wall	Lm	10.25		
<u>SECTION 3</u> Carried to Main Summary					
<u>WALLING</u>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 6: PIT LATRINES				
	<u>SECTION 4: EXTERNAL FINISHES</u>				
	<i>render/backings, 12 mm coat of cement/sand (1:3) mortar, wood floated, on exposed concrete surfaces as described on</i>				
6.4.1	Concrete surfaces externally; finished smooth	Sm	3		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacrete Gura Gura (with silicone) as described on</i>				
6.4.2	Rendered concrete surfaces, externally	Sm	3		
<u>SECTION 4</u> Carried to Main Summary					
EXTERNAL FINISHES					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>SECTION 5: INTERNAL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6); 3mm second coat of cement/lime/putty (1:6); steel trowelled: as described to</i>				
6.5.1	Concrete surfaces, internally	Sm	5		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
6.5.2	25 mm thick screed on floor to finished level	Sm	3		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <u>matt emulsion</u> paint as described on</i>				
6.5.3	Plastered concrete surfaces, internally	Sm	5		
<u>SECTION NO. 5</u> Carried to Main Summary					
INTERNAL FINISHES					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
BILL NO. 6: PIT LATRINES SECTION 6: DOORS Wooden Doors <i>Supply, assemble and fix the following purpose made wooden doors: hardwood smoothly joined together; one shop coat of wood preservative primer; building in lugs on jambs and plugging and screwing to head; complete with purpose made ironmongery: as described to.</i> 6.6.1 wooden door, overall size 700 x 1000 mm high, in single leaf, complete with hardwood frames, purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Standard Drawings and details.					
		No	2		
Ironmongery <i>Supply and fix the following ironmongery complete with matching screws: as described to</i> 6.6.2 Rubber door stop; fixed to floor or wall in rawl bolt					
		No	2		
Painting and decoration <i>Prepare and apply two finishing coats of super gloss finished paint to:</i> 6.6.3 General surfaces of wooden doors (measured on both sides)					
		Sm	6		
SECTION 6 Carried to DOORS Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
BILL NO. 6: PIT LATRINES SECTION 7: WINDOWS Steel Windows <i>supply and fix the following purpose made heavy duty mild steel framed windows in m.s. sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Architect's schedules as described to</i> 6.7.1 Window overall size: 600 x 600 mm high: in single leaf; details to Standard drawings and details.					
		No	2		
Painting & Decoration <i>Prepare and apply two finishing coats of super gloss finished paint to:</i> 6.7.2 General surfaces of metal windows (measured on both sides)					
		Sm	1		
SECTION 7 Carried to WINDOWS Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 6: PIT LATRINES</u>				
	<u>SECTION 8: ROOFING</u>				
	<u>Roof Structure (Provisional)</u>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
6.8.1	Rafters: 150 x50	m	14.70		
6.8.3	Wall plate: 150x50	m	10.25		
	<u>Eaves Finishes</u>				
	<i>Fascia Board as described to:</i>				
6.8.4	Fascia/Barge boards 250x25 mm thick sawn cypress and planed to approval	Lm	5.04		
	<u>Roof covering</u>				
	<i>Gauge 28 IT5 Pre-painted box-profiled roofing sheets</i>				
6.8.5	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	7.23		
	SECTION 8	Carried to			
	ROOFING	Main Summary			
ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL NO. 6: PIT LATRINES</u>				
SEC	<u>SUMMARY</u>				
6.1	Substructure (Provisional)				
6.2	R.C. Superstructure				
6.3	Walling				
6.4	External Wall Finishes				
6.5	Internal Finishes				
6.6	Doors				
6.7	Windows				
6.8	Roofing				
	TOTAL FOR 1No. PIT LATRINE			Kes.	
	TOTAL FOR 3No. PIT LATRINES	No.	3	Kes.	
TOTAL FOR BILL 6 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 7:
WATER TROUGHS

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 7: WATER TROUGHS				
	<u>Section 1: Water Troughs for Camels and Cattle</u>				
	Excavations				
7.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	81.2		
7.1.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	14.64		
7.1.3	Return, fill and ram selected excavated material around foundations.	Cm	9.76		
	Hardcore filling				
7.1.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	81.2		
	Concrete Work				
7.1.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	19.44		
7.1.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.944		
7.1.7	Timber shattering provided to sides of floor slab	Lm	25.2		
7.1.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	19.44		
	Walling for substructure				
7.1.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	24.4		
	Walling for superstructure				
7.1.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	21.96		
	Wall finishes				
	<u>Cement and sand (1:3) render as described in:</u>				
7.1.11	12mm Thick with finish to masonry walling	Sm	43.92		
7.1.12	25mm thick floor finish	Sm	19.44		
	40mm diameter GI pipes and fittings for inlet pipeworks				
7.1.13	GI PN10 pipe	m	10		
7.1.14	GI Barrel Nipples	No	6		
7.1.15	GI Sockets	No	4		
7.1.16	GI Unions	No	3		
7.1.17	GI Gate Valves	No	2		
7.1.18	GI Ball valve	No	1		
7.1.19	GI Elbows	No	4		
7.1.20	2m wide stone masonry riprap all round the water trough	Sm	63.2		
	Subtotal for one (1) No Water Trough				
	Total for (2) No water troughs	No	2		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 7: WATER TROUGHS				
	<u>Section 2: Water Troughs for Sheep and Goats</u>				
	Excavations				
7.2.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	64.67		
7.2.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	11.22		
7.2.3	Return, fill and ram selected excavated material around foundations.	Cm	7.48		
	Hardcore filling				
7.2.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	64.67		
	Concrete Work				
7.2.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	14.31		
7.2.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.431		
7.2.7	Timber shattering provided to sides of floor slab	Lm	19.5		
7.2.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	14.31		
	Walling for substructure				
7.2.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	18.7		
	Walling for superstructure				
7.2.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	10.005		
	Wall finishes				
	<u>Cement and sand (1:3) render as described in:</u>				
7.2.11	12mm Thick with finish to masonry walling	Sm	20.01		
7.2.12	25mm thick floor finish	Sm	14.31		
	40mm diameter GI pipes and fittings for inlet pipeworks				
7.2.13	GI PN10 pipe	m	10		
7.2.14	GI Barrel Nipples	No	6		
7.2.15	GI Sockets	No	4		
7.2.16	GI Unions	No	3		
7.2.17	GI Gate Valves	No	2		
7.2.18	GI Ball valve	No	1		
7.2.19	GI Elbows	No	4		
7.2.20	2m wide stone masonry riprap all round the water trough	Sm	51.8		
	Subtotal for one (1) No Water Trough				
	Total for (2) No water troughs	No	2		
TOTAL FOR BILL 7 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 8: PIPEWORK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 8: PIPE WORK SECTION 1: RISING MAIN <i>Refer to Construction Drawings</i> Site Clearance <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.1.1	General clearance along pipeline route	Lm	221		
8.1.2	Removal of trees of girth 600 to 900mm	No	2		
	Trench Excavation				
8.1.3	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	221		
8.1.4	Extra Over for excavation in rock of all types	Cm	21		
	Pipework <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<u>HDPE Pipes</u>				
8.1.5	HDPE pipes OD50mm PN10	m	3		
8.1.6	HDPE pipes OD63mm PN10	m	218		
	Gate Valves				
8.1.7	DN 50mm gate valves. Include all fittings for connection to HDPE or GI pipes as appropriate	No	1		
	Water Meters				
8.1.8	Supply and install a DN 63mm dia master meter. Rate to include all jointing materials.	No.	1		
	<u>Valve Chambers</u> <i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.1.9	Gate valve and meter chambers, as per the detailed drawings	No	2		
8.1.10	Extra Over for excavation in rock of all types, for chambers	Cm	0.52		
	<u>Other Pipework Ancillaries</u> <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.1.11	Pipeline marker posts	No	1		
8.1.12	Gate valve marker posts	No	2		
	PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION				
	<u>Concrete stools and thrust blocks</u>				
8.1.13	Provide and place mass concrete (class 15/20) for anchor blocks and stools in valves, bends etc. Rate to include excavation and necessary formwork (provisional).	Cm	0.2		
	Reinstatements				
8.1.14	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	SECTION 1:	Carried to			
	RISING MAIN	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: GRAVITY MAIN <i>Refer to Construction Drawings</i> Site Clearance <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.2.1	General clearance along pipeline route	Lm	2,663		
8.2.2	Removal of trees of girth 600 to 900mm	No	2		
	Trench Excavation				
8.2.3	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	2,663		
8.2.4	Extra Over for excavation in rock of all types	Cm	256		
	Pipework <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<u>HDPE Pipes</u>				
8.2.5	HDPE pipes OD32mm PN10	m	555		
8.2.6	HDPE pipes OD40mm, PN10	m	1,025		
8.2.7	HDPE pipes OD63mm PN10	m	153		
8.2.8	HDPE pipes OD75mm PN10	m	550		
8.2.9	HDPE pipes OD90mm PN10	m	278		
8.2.10	HDPE pipes OD110mm PN10	m	102		
	Air valves				
8.2.11	Various dia. flanged single orifice air valves PN 10. Include all the required pipework and fittings.	No	3		
	<u>Valve Chambers</u> <i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.2.12	Air valve chambers, as per the detailed drawings	No	3		
8.2.13	Extra Over for excavation in rock of all types, for chambers	Cm	0.78		
	<u>Other Pipework Ancillaries</u> <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.2.14	Pipeline marker posts	No	13		
8.2.15	Air valve marker posts	No	3		
	PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION				
	Reinstatements				
8.2.16	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not excc. 300mm (Provisional)	m	100		
	SECTION 2:	Carried to			
	GRAVITY MAIN	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: DISTRIBUTION NETWORK <i>Refer to Construction Drawings</i> Site Clearance <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.3.1	General clearance along pipeline route	Lm	1,294		
8.3.2	Removal of trees of girth 600 to 900mm	No	3		
	Trench Excavation				
8.3.3	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	1,294		
8.3.4	Extra Over for excavation in rock of all types	Cm	124		
	Pipework <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	HDPE Pipes				
8.3.5	HDPE pipes OD32mm, PN10	m	61		
8.3.6	HDPE pipes OD40mm PN10	m	767		
8.3.7	HDPE pipes OD50mm PN10	m	466		
	Water Meters				
8.3.8	Supply and install water meters for the existing I.Cs.	No.	4		
	Other Pipework Ancillaries <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.3.9	Pipeline marker posts	No.	6		
	PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION <u>Concrete stools and thrust blocks</u>				
8.3.10	Provide and place mass concrete (class 15/20) for anchor blocks and stools in valves, bends etc. Rate to include excavation and necessary formwork (provisional).	Cm	0.4		
	Reinstatements				
8.3.11	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	SECTION 3:	Carried to			
	DISTRIBUTION NETWORK	Main Summary			

BILL No. 9:
ELEVATED STEEL TANK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 9: ELEVATED STEEL TANKS <i>Earth works, concrete works and Tank construction to be done in line with EST drawing</i>				
	Excavations and Earthworks <i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
9.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	25		
9.1.2	Excavate for Column pits not exceeding 1.50 metres deep, starting from reduced levels	Cm	37.5		
9.1.3	Extra over for excavation in rock of all classes	Cm	11.25		
9.1.4	Return, fill and ram selected excavated material around foundations.	Cm	19.2		
	Tank Construction Supply and place reinforced concrete Class C20/20 as foundation for tank tower. Rate to include for reinforcement bars for the foundation, and formwork as necessary	Cm	19.58		
9.1.6	Allow for compliance to other foundation requirements as recommended by the manufacturer	Sum	1		
9.1.7	Supply all materials, tools and equipment and erect a 75m ³ steel sectional tank of the Braithwaite type or equally approved standard include a tank tower of 15 meters, ladder with ladder guard inside ladder, walkway with walkway guard, water level gauge and tank cover, provision of air vent, support rails, inlets and outlet for pipes etc., for complete installation	No.	1		
	Pipes and Specials <i>All pipes and specials shall comply with the requirements of BS 5950. Allow for gaskets, nuts, washers, bolts, cutting and threading on site</i> Provide, fix and test following : (All screwed flanges listed separately)				
	Inlet				
9.1.8	100mm G.I. flanged socket adaptor, all flanged	No	1		
9.1.9	100mm 65 G.I. 90° bend, all flanged	No	4		
9.1.10	100mm all flanged gate valve	No.	1		
9.1.11	100mm G.I flanged pipe	m	18		
9.1.12	DN 50mm float valve	No.	1		
	Overflow				
9.1.13	100mm G.I 90° flanged bend	No.	4		
9.1.14	100mm flanged equal tee	No.	1		
9.1.15	100mm flanged sluice Valve	No.	1		
9.1.16	100mm G.I flanged pipe	m	5		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	BILL No. 9: ELEVATED STEEL TANKS				
	Outlet				
9.1.17	100mm flanged G.I steel 90° duck foot bend	No.	4		
9.1.18	100mm flanged G.I steel, length 8500mm	No.	1		
9.1.19	100mm steel flanged spigot adaptor	No.	1		
9.1.20	G.I pipe diameter 100mm	m	15		
9.1.21	100mm diameter rose strainer or equivalent	No.	1		
9.1.22	100mm Gate valve	No.	1		
9.1.23	100mm Bulk water meter on the main outlet pipeline	No.	1		
9.1.24	Lockable water meter and gate valve chamber	Ls	1		
	Wash out				
9.1.25	80mm wash out valve	No.	1		
9.1.26	80mm GI pipe for wash	m	5		
9.1.27	80mm flanged G.I steel 90° bend	No.	1		
9.1.28	80mmx80mm equal tee for joining to the overflow pipe	No.	1		
	Painting				
9.1.29	Allow for the complete installation to be painted as recommended by the manufacturers or the engineer	Ls	1		
	Testing and Sterilizing				
9.1.30	Test and sterilize tank including the necessary chemicals	Ls	1		
TOTAL FOR BILL 9 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 10:
ELEVATED PLASTIC TANK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 10: INSTALLATION OF 10,000L UPVC TANK AND CONSTRUCTION OF A 3M ELEVATED STEEL PLATFORM				
	Storage				
10.1.1	Supply plastic tank of capacity 10,000ltrs. Rate to include transport to site and overheads	No	1		
	Construction Steel Tower Platform				
10.1.2	Clear of all bushes and shrubs and remove debris from tank site	Sm	25		
10.1.3	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	8.64		
10.1.4	Extra over for excavation in rock of all classes	Cm	2.592		
10.1.5	Fabricate, supply and install at site a metal tower, 2.5m x 2.5 , 3 m high from ground with a platform to receive the tank, walkway, rail guard to prevent the tank from falling and cat ladder. Rate to include transport of all materials to site, fabricating, erecting and overheads. Using 100mm X 100mm x4mm RHS and 70mm x 70mm x 4mm RSA for the internal member	Item	1		
10.1.6	Concrete Class 20/20 to tank stand bases and columns	Cm	3.852		
10.1.7	Formwork to bases and sides of columns	Sm	18.24		
	Piping works				
10.1.8	Inlet pipe of PPR 50mm DN	m	10		
	Fittings and Appurtenances				
10.1.9	2 inch GI Elbow	No	5		
10.1.10	2 inch GI long nipple	No	2		
10.1.11	2 inch GI back nuts	No	4		
10.1.12	2 inch gate valve	No	1		
10.1.13	2 inch GI sockets	No	5		
10.1.14	2 inch float valve	No	1		
10.1.15	Other installation sundries including 5 thread tapes,tangent glue	Item	1		
10.1.16	Construction of a masonry lockable inspection chambers at the tank base 1000mm by 1000mm by 1000mm	No	1		
	INSTALLATION OF 1No.TANK AND TOWER FRAME				
	INSTALLATION OF 5No.TANK AND TOWER FRAME	No.	5		
	TOTAL FOR ELEVATED PLASTIC TANKS				
TOTAL FOR BILL 10 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 11:
GROUND MASONRY TANK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 11: GROUND MASONRY TANK				
	SECTION 1: -REHABILITATION OF EXISTING GROUND MASONRY TANK				
	General Items:				
11.1.1	Site clearance and preparation	Sum	1		
	Structural Rehabilitation:				
11.1.2	Hacking damaged or loose plaster from internal and external surfaces	Sm	102		
11.1.3	Preparing surfaces and applying new cement-sand plaster (1:3 mix) on internal and external surface	Sm	102		
11.1.4	Application of waterproofing treatment on the internal surface using approved waterproofing compounds	Sm	51		
11.1.5	Repairing cracks using non-shrink grout	Sm	51		
	Pipeworks and Fittings:				
11.1.6	Supply and install new inlet pipe (GI) of 50mm diameter	m	5		
11.1.7	Supply and install new outlet pipe (GI) of 50mm diameter	m	5		
11.1.8	Repair and replace internal and external pipe connections	Sum	1		
	Valves and Accessories:				
11.1.9	Supply and install new gate valve of 50mm diameter	No	1		
11.1.10	Supply and install new non-return valve 50mm diameter	No	1		
11.1.11	Replacement of air release valve	No	1		
	Roof Rehabilitation:				
11.1.12	Repairing and sealing cracks on the roof slab	Sm	20		
11.1.13	Application of waterproofing membrane on the roof	Sm	20		
11.1.14	Replacement of tank access cover with lockable steel cover	No	1		
	Test and Comissioning:				
11.1.15	Leak testing and structural integrity assessment after rehabilitation	Sum	L/s		
11.1.16	Cleaning, disinfection, and commissioning of the rehabilitated tank	Sum	L/s		
	Rehabilitation of 1 No. Masonry Tank				
	Rehabilitation of 1 No. Masonry Tank		1		
TOTAL FOR BILL 11 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 12:
WATER TREATMENT

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 12: WATER TREATMENT PLANT AND REVERSE OSMOSIS SYSTEM				
	SECTION 1: CHLORINATION UNITS				
12.1.1	Chlorination House Provide all materials, fabricate and install a 2mx2m steel structure for housing the inline chlorine dosing system, all as detailed in the drawings.	LS	1		
12.1.2	Chlorination Equipment Supply, install, and commission of a complete inline chlorination system, designed for a flow rate of up to 30 m³/hr, comprising a high-capacity Dosatron D8RE3000 proportional dosing pump (0.2–2% adjustable dosing), 100-litre GRP dosing tank with outlet and stand, suction hose kit with integrated filter and non-return valve, inline pressure regulator (5–6 bar), 2-inch non-return valve and Y-strainer, all necessary fittings and accessories, including installation, testing, and operator training.	LS	1		
	SECTION 1: CHLORINATION UNIT	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: WATER TREATMENT PLANT				
12.2.1	Supply and Install 1m³/hr water treatment plant consisting of pre-treatment (ultrafiltration) unit and a reverse osmosis unit for maximum TDS 5,000 PPM	No	1		
12.2.2	uPVC Water Storage Tanks Supply and install 1Nr. UPVC water tank of capacity 5,000ltrs. Rate to include transport to site, preparation of holding base, installation and connection to the inlets and outlet pipework - for treated water storage	No	1		
12.2.3	Supply and install 2Nr. UPVC water tanks of capacity 10,000ltrs. Rate to include transport to site, construction of holding base, installation and connection to inlet and outlet pipework- for raw water storage and pretreated raw water storage	No	2		
12.2.4	Plumbing Supply and install all necessary pipework and fittings for connection between the water storage tanks and the water treatment plant units.	m	5		
12.2.5	RO Operation and Maintenance Services Operation and Maintenance (O&M) of Reverse Osmosis (RO) Water Treatment Plant for 36 months, including provision of skilled personnel, routine servicing, repairs, consumables, spare parts, performance monitoring, and reporting, in accordance with the technical specifications and manufacturer's guidelines.	Item	1		
	SECTION 2: REVERSE OSMOSIS UNIT	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: BRINE DISPOSAL - EVAPORATION POND				
	Site Clearance				
12.3.1	Site clearance over 1,500 m² area including disposal of cleared material and minor grading.	Sm	1,500		
	Excavation & Compaction				
12.3.2	Excavation of pond to 0.7m depth across 1,000 m² with proper side slopes, disposal or reuse of excavated material.	Sm	1,000		
12.3.3	Preparation of base and side slopes including compaction using mechanical methods to the approval of the Engineer, for installation the geomebrane liner.	Sm	128		
	HDPE Geomembrane Liner				
12.3.4	Supply and installation of 1.5mm thick approved HDPE geomebrane liner complete with welding, leak testing and anchoring in trenches.	Sm	1,200		
12.3.5	Excavation and backfilling of anchor trenches for HDPE geoemembrane liner anchoring (1m wide x 0.3m deep).	Cm	2		
12.3.6	Construction of 1.5m x 1.5m x 1m salt collection concrete sump at pond base with raised edges.	No.	1		
	Fencing of Pond Yard				
12.3.7	Supply and installation of 2.4m high chain-link fence with precast concrete fencing posts, strainers and gate, all as per drawings.	m	160		
	Hazard Signages				
12.3.8	Provision and installation of weather-resistant hazard signages at visible locations around the fenced area.	No.	4		
	Environmental Safeguards				
12.3.9	Provision for environmental safeguards – salt removal protocol, berms, and storm diversion works.	Item	1		
	Brine Discharge Pipe				
12.3.10	Excavation, laying, backfilling and compaction of pipeline trenches for the brine conveyance pipeline (depth not exceeding 0.8m).	m	500		
12.3.11	Supply and laying of 50mm HDPE PN10 brine conveyance pipeline from the water treatment plant to the evaporation pond	m	500		
12.3.12	Construction of washout valves at major depressions and along the pipeline at every 500m.	No	2		
12.3.13	Construction of washout valves chambers with masonry walls and precast concrete cover slabs, as per the drawings.	No.	2		
12.3.14	Installation of precast concrete marker posts at all wash out valves and along the pipeline at 200m intervals	No.	5		
12.3.15	Class 15/20 mass concrete surround for pipe protection at road crossing points.	Cm	2.0		
	SECTION 3:	Carried to			
	EVAPORATION PONDS	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 4: SOLAR POWER				
12.4.1	Supply, install, test and commission of an array of solar with the following specifications: 550W solar panels, Monocrystalline Silicon PV as JinKo or JA or Equivalent and appoved, with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 15kW on a bright sunny day at midday taking into account the system losses.	No.	30		
12.4.2	Supply, installation and furnishing support structures with the following specifications: 60mm x 40mm (minimum) aluminium angle plates using stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 2.5 m above the ground for the low height side and a maximum of 3m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output. The Contractor to provide shop drawings for approval by the Engineer	Ls	1		
12.4.3	Supply, install, test and commission a 15kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 15kW 31A as Grundfos or approved equivalent complete with accessories. The inverter to be installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54.	Set	1		
12.4.4	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
12.4.5	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
12.4.6	Supply, install, test and commission 6mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	Lm	100		
12.4.7	Supply, install, test and commission weather monitoring system	No	1		
12.4.8	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
12.4.9	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
12.4.10	Allow for 12 months after sale service including training of operators and technicians.	Ls	1		
12.4.11	Stand alone Solar Powered Security Lights Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
12.4.12	Booster Pump To WK Supply & install a Surface Multistage centrifugal Pump and Motor, continuously rated and capable of pumping 1m³/hr of water against a total head of 5m. The pump set to be duty and stand-by with automamic switch and controls	No.	1		
	SECTION 4:	Carried to			
	SOLAR POWER	Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	SECTION 5: RO UNIT PLANT ROOM				
	<u>SUBSECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks (Provisional)</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
12.5.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	19.36		
12.5.2	Excavate for trench foundations for strip footings not exceeding 1.50 metres deep, starting from reduced levels	Cm	15.84		
12.5.3	Extra over for excavation in rock of all classes	Cm	4.75		
	<i><u>Disposal</u></i>				
12.5.4	Return, fill and ram selected excavated material around foundations.	Cm	9.15		
12.5.5	Load, wheel and deposit surplus excavated material away from site	Cm	6.69		
	<i><u>Hardcore or other approved filling, as described</u></i>				
12.5.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	19.36		
12.5.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	19.36		
	<u>Anti - termite treatment</u>				
12.5.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore (m/s)	Sm	19.36		
	<u>Damp-proof membrane</u>				
12.5.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	19.36		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
12.5.10	50 mm thick blinding under strip foundations	Sm	10.56		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
12.5.11	Strip footings	Cm	2.11		
12.5.12	150 mm Thick Surface beds	Cm	2.90		
12.5.13	Ditto; to sloping ramp slabs at the door entrance	Cm	0.18		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
12.5.14	Assorted bars (D8 - D16)	Kg	62.98		
	<i><u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</u></i>				
12.5.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	19.36		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
12.5.16	Vertical sides of strip footings	Sm	35.20		
12.5.17	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	17.60		
12.5.18	Ditto: but sloping, to ramp	Lm	4.00		
	<u>Foundation walling</u>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
12.5.19	200 mm thick foundation walling	Sm	28.16		
	<u>Plinth finishes</u>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
12.5.20	Concrete and masonry surfaces externally; finished smooth	Sm	7.92		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</i>				
12.5.21	Rendered surfaces, externally	Sm	7.92		
	<u>SUBSECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 25/20: as described in</i>				
12.5.22	Beams	Cm	1.06		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
12.5.23	Assorted bars (D8 - D16)	Kg	100.89		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
12.5.24	Vertical sides and soffites of beams	Sm	10.56		
	<u>SUBSECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
12.5.25	200 mm thick walling	Sm	23.82		
12.5.26	Ditto: to Gable walling	Sm	4.40		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</u>				
12.5.27	200 mm wide; levelled and bedded under wall	Lm	17.60		
	<u>Ventilation</u>				
12.5.28	Supply and install 300 x 200 x 200mm concrete louvre blocks and place in 1:3 cement/sand as shall be directed.	Sm	2.00		
	<u>SUBSECTION 4: ROOFING</u>				
	<u>Roof Structure (Provisional)</u>				
	<u>structural timber to be second grade sawn and planed celcured cypress to approval.</u>				
12.5.29	Purlins: 50 x 50	m	24.00		
12.5.30	Wall plate: 150x50mm	m	17.60		
12.5.31	Rafters: 150x50	m	24.00		
	<u>Eaves Finishes</u>				
12.5.32	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	19.20		
	<u>Roof covering</u>				
	<u>Gauge 24 IT4 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</u>				
12.5.33	Roof covering: including all necessary fixtures	Sm	23.04		
	<u>Heavy duty roof insulation complete with polythylene foam core that provides a radiant barrier, reflective insulation and moisture barrier; fixed in accordance to manufacturer's printed instructions: as described to</u>				
12.5.34	10 mm thick double-sided reflective foil insulation; underlay	Sm	23.04		
	<u>SUBSECTION 5: EXTERNAL FINISHES</u>				
	<u>External wall finishes</u>				
	<u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u>				
12.5.35	Concrete surfaces externally; finished smooth	Sm	5.28		
	<u>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</u>				
12.5.36	Masonry surfaces externally; finished smooth	Sm	28.22		
	<u>Ramp finishes</u>				
	<u>25 mm thick screeds: Cement and sand (1:3) mortar: steel trowelled: as described to</u>				
12.5.37	Surfaces of ramps, sloping	Sm	1.80		
	<u>Painting and decorating</u>				
	<u>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</u>				
12.5.38	Rendered concrete surfaces, externally	Sm	5.28		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>SUBSECTION 6: INTERNAL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
12.5.39	Concrete surfaces, internally	Sm	5.28		
12.5.40	Masonry surfaces, internally	Sm	28.22		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
12.5.41	25 mm thick screeds in floors to steel trowel finish	Sm	19.36		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality: <u>matt emulsion</u> paint as described on</i>				
12.5.42	Plastered concrete surfaces, internally	Sm	5.28		
12.5.43	Plastered walls surfaces, internally	Sm	28.22		
	<u>SUBSECTION 7: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together: one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
12.5.44	Overall size 900 x 2100 mm high; details as per standard drawings No GW4R-WJR-STD-14.01	No	1		
12.5.45	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
12.5.46	General surfaces of metal doors (measured on both sides)	Sm	1.89		
	<u>SUBSECTION 8: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u>				
	<u>Builder's work in connection with Electrical Installations:</u>				
12.5.47	Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	SECTION 5	Carried to			
	RO UNIT PLANT ROOM	Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 12: WATER TREATMENT PLANT AND REVERSE OSMOSIS SYSTEM</u>				
	<u>SUMMARY</u>				
1	CHLORINATION UNITS				
2	REVERSE OSMOSIS				
3	EVAPORATION POND				
4	SOLAR POWER & SURFACE PUMP				
5	PLANT ROOM				
	Total for 1No. RO Unit				
	Total for Water Treatment for Haragal Scheme				
TOTAL FOR BILL 12 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 13:
GENERATOR HOUSE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u>				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks (Provisional)</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
13.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	23.76		
13.1.2	Excavate for trench foundations for strip footings not exceeding 1.50 metres deep, starting from reduced levels	Cm	17.64		
13.1.3	Extra over for excavation in rock of all classes	Cm	5.29		
	<i><u>Disposal</u></i>				
13.1.4	Return, fill and ram selected excavated material around foundations.	Cm	10.19		
13.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	7.45		
	<i><u>Hardcore or other approved filling, as described</u></i>				
13.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	23.76		
13.1.7	50 mm thick quarry dust or approved murrum blinding layer to surfaces of hardcore m.s	Sm	23.76		
	<u>Anti - termite treatment</u>				
13.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	23.76		
	<u>Damp-proof membrane</u>				
13.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	23.76		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
13.1.10	50 mm thick blinding under strip foundations	Sm	11.76		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
13.1.11	Strip footings	Cm	2.35		
13.1.12	150 mm Thick Surface beds	Cm	3.56		
13.1.13	Ditto; to sloping ramp slabs at the door entrance	Cm	0.32		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
13.1.14	Assorted bars (D8 - D16)	Kg	70.14		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</u>				
13.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	23.76		
	<u>Formwork</u>				
	<u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork: as described to:-</u>				
13.1.16	Vertical sides of strip footings	Sm	39.20		
13.1.17	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	19.60		
13.1.18	Ditto: but sloping, to ramp	Lm	4.00		
	<u>Foundation walling</u>				
	<u>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</u>				
13.1.19	200 mm thick foundation walling	Sm	31.36		
	<u>Plinth finishes</u>				
	<u>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</u>				
13.1.20	Concrete and masonry surfaces externally; finished smooth	Sm	8.82		
	<u>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</u>				
13.1.21	Rendered surfaces, externally	Sm	8.82		
	<u>Paving Slabs</u>				
	<u>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</u>				
13.1.22	Paving slabs, around building (one row); including all excavations and earthworks	Sm	11.76		
SECTION 1:				Carried to	
SUBSTRUCTURES				Main Summary	

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u>				
	<u>SECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
13.2.1	Beams	Cm	1.76		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
13.2.2	Assorted bars (D8 - D16)	Kg	112.36		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
13.2.3	Vertical sides and soffits of beams	Sm	17.64		
	<u>SECTION 2:</u>				
	<u>R.C SUPERSTRUCTURE</u>				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<u>SECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
13.3.1	200 mm thick walling	Sm	22.26		
13.3.2	Ditto: to Gable walling	Sm	6.68		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
13.3.3	200 mm wide; levelled and bedded under wall	Lm	19.60		
	<u>Ventilation</u>				
13.3.4	Supply and install 300 x 200 x 200mm concrete louvre blocks and place in 1:3 cement/sand as shall be directed.	sm	15.54		
	<u>SECTION 3:</u>				
	<u>WALLING</u>				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE				
	<u>SECTION 4: ROOFING</u>				
	<u>Roof Structure (Provisional)</u>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
13.4.1	Tie beam: 100 x50	m	22		
13.4.2	King Post: 100x50	m	6.35		
13.4.3	Struts: 75x50	m	19.10		
13.4.4	Purlins: 50 x 50	m	46.40		
13.4.5	Wall plate: 150x50mm	m	47.52		
13.4.6	Rafters: 100x50	m	30.60		
	<u>Eaves Finishes</u>				
13.4.7	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	23.82		
	<u>Roof covering</u>				
	<i>Gauge 28 IT4 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</i>				
13.4.8	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	35.43		
13.4.9	Ridge cap to match	Lm	5.80		
	<u>SECTION 4</u>	Carried to			
	<u>ROOFING</u>	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE				
	<u>SECTION 5: EXTERNAL FINISHES</u>				
	<u>External wall finishes</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
13.5.1	Concrete surfaces externally; finished smooth	Sm	8.82		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
13.5.2	Masonry surfaces externally; finished smooth	Sm	28.94		
	<u>Ramp finishes</u>				
	<i>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</i>				
13.5.3	Surfaces of ramps, sloping	Sm	3.20		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply tthree coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
13.5.4	Rendered concrete surfaces, externally	Sm	8.82		
	<u>SECTION 5</u>	Carried to			
	<u>EXTERNAL FINISHES</u>	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	SECTION 6: INTERNAL FINISHES				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
13.6.1	Concrete surfaces, internally	Sm	8.82		
13.6.2	Masonry surfaces, internally	Sm	28.94		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
13.6.3	25 mm thick screeds on floor to finish level	Sm	23.76		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <u>matt emulsion</u> paint as described on</i>				
13.6.4	Plastered concrete surfaces, internally	Sm	8.82		
13.6.5	Plastered walls surfaces, internally	Sm	28.94		
	SECTION 6 Carried to INTERNAL FINISHES Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE				
	<u>SECTION 7: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
13.7.1	Overall size 1600 x 2100 mm high; details as per standard drawings No GW4R-MDR-STD-05	No	1		
13.7.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
13.7.3	General surfaces of metal doors (measured on both sides)	Sm	6.72		
	SECTION 7 Carried to DOORS Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<u>SECTION 8: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u> <u>Builder's work in connection with Electrical Installations:</u> Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided				
13.8.1		Item	1		
	<u>SECTION NO. 8</u> <u>B.W.I.C WITH SERVICES</u>	Carried to Main Summary			
ITEM	DESCRIPTION				AMOUNT
	<u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u> <u>SUMMARY</u> 1 Substructure (Provisional) 2 R.C. Superstructure 3 Walling 4 Roofing 5 External Finishes 6 Internal Finishes 7 Doors 8 Builders' Work in Connection with Services (Provisional)				
	TOTAL FOR 1No. GENERATOR HOUSE				
	TOTAL FOR 1No. GENERATOR HOUSE		1		
TOTAL FOR BILL 13 CARRIED FORWARD TO PROJECT SUMMARY					

MASALALE WATER SUPPLY SCHEME

PROJECT SUMMARY

MASALALE WATER SUPPLY SCHEME, WAJIR COUNTY

MAIN SUMMARY

BILL	DESCRIPTION	AMOUNT
1	PRELIMINARIES AND GENERAL ITEMS	
2	BOREHOLES, PUMPS AND POWER SUPPLY	
3	FENCING AND GATES	
4	WATER KIOSKS	
5	OPERATOR'S BUILDING	
6	PIT LATRINES	
7	WATER TROUGHS	
8	PIPEWORKS	
9	ELEVATED STEEL TANK	
10	ELEVATED PLASTIC TANK	
11	GROUND MASONRY TANK	
12	WATER TREATMENT	
13	GENERATOR HOUSE	
TOTAL FOR MASALALE WATER SUPPLY SCHEME		

BILL No. 2:
BOREHOLES, PUMPS AND
POWER SUPPLY

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY				
	MASALALE BH1				
	SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	SECTION 1:	Carried to			
	MOBILIZATION AND SETTING UP	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe),Class E	Lm	180		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 50mm diameter rising main GMS water pipe, Class C.	Lm	180		
2.2.7	50mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	50mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	Supply, install & connect all incoming and outgoing cables to make the pump set work				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	280		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	400		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	Solar panels Cleaning - Sprinklers system				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	BOREHOLE PUMP				
2.2.19	Supply & install 7.5KW Submersible Multistage centrifugal borehole stainless steel Pump and Motor, continuously rated and capable of pumping 9.8 m³/hr of water against a total head of 208m. The pump shall have in-built non-return valve, tail strainer, cable guard, etc.. The pump to be supplied complete with water tight cable splicing kit and connection ripple. The contractor to attach catalogs and 5years minimum Warranty for the pumps model proposed	No	1		
	SECTION 2:	Carried to			
	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM <i>Supply, install, test and commission the following Data Acquisition & Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i> Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - -20 to 80 degrees and Conductivity 0 to 30 0r 12mS/cm2				
2.3.1		No	1		
2.3.2	Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal	No	1		
2.3.3	DXT -Cable - AS2xxx with standard lengths of 300m	m	300		
2.3.4	Allow for Testing, User Training and Commissioning the Monitoring system	Ls	1		
SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM		Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 4: SOLAR POWER				
2.4.1	Supply, install, test and commission of an array of solar with the following specifications: 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 13kW on a bright sunny day at midday taking into account the system losses. (16,500W -To add to the existing solar Panels)	No.	30		
2.4.2	Supply, installation and furnishing support structures with the following specifications: Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.3	Supply, Install, Test and Commission a 20kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemechanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.4	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.5	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.6	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.7	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.8	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.9	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.10	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.11	Stand alone Solar Powered Security Lights Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	SECTION 4:	Carried to			
	SOLAR POWER	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 5: GENERATOR POWER BACK-UP				
2.5.1	Supply, Deliver, Install, Test and Commission New 25 KVA Power Back up Generator	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	Fire Fighting Equipment				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	SECTION 5:	Carried to			
	GENERATOR POWER BACK UP	Main Summary			
SEC	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u>				
	MASALALE BH1				
	<u>SUMMARY</u>				
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY				
	MASALALE BH1				
	SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	SECTION 1:	Carried to			
	MOBILIZATION AND SETTING UP	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe),Class E	Lm	180		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 50mm diameter rising main GMS water pipe, Class C.	Lm	180		
2.2.7	50mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	50mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	Supply, install & connect all incoming and outgoing cables to make the pump set work				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	280		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	400		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	Solar panels Cleaning - Sprinklers system				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	BOREHOLE PUMP				
2.2.19	Supply & install 7.5KW Submersible Multistage centrifugal borehole stainless steel Pump and Motor, continuously rated and capable of pumping 9.8 m³/hr of water against a total head of 208m. The pump shall have in-built non-return valve, tail strainer, cable guard, etc.. The pump to be supplied complete with water tight cable splicing kit and connection ripple. The contractor to attach catalogs and 5years minimum Warranty for the pumps model proposed	No	1		
	SECTION 2:	Carried to			
	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM <i>Supply, install, test and commission the following Data Acquisition & Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i> Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - -20 to 80 degrees and Conductivity 0 to 30 0r 12mS/cm2				
2.3.1		No	1		
2.3.2	Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal	No	1		
2.3.3	DXT -Cable - AS2xxx with standard lengths of 300m	m	300		
2.3.4	Allow for Testing, User Training and Commissioning the Monitoring system	Ls	1		
SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM					Carried to Main Summary

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 4: SOLAR POWER				
2.4.1	Supply, install, test and commission of an array of solar with the following specifications: 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 15kW on a bright sunny day at midday taking into account the system losses. (5,500W -To add to the existing solar Panels)	No.	10		
2.4.2	Allow for Maintenance and Rehabilitation of the existing Solar Panels to involve cleaning of the solar panels, checking for any faults/cracks, Cable connections, Testing output and performance, Re-positioning for maximum efficiency. The cost to include the rehabilitation of the existing mounting structures to include but not limited to spray painting, anchoring and reinforcing loose supports.	PS	1	100,000	100,000
2.4.3	Supply, installation and furnishing support structures with the following specifications: Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.4	Supply, Install, Test and Commission a 20kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemechanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of at least IP54.	Set	1		
2.4.5	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.6	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.7	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.8	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.9	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.10	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.11	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.12	Stand alone Solar Powered Security Lights Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
SECTION 4: Carried to Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 5: GENERATOR POWER BACK-UP				
2.5.1	Supply, Deliver, Install, Test and Commission New 25 KVA Power Back up Generator	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	Fire Fighting Equipment				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	SECTION 5:	Carried to			
	GENERATOR POWER BACK UP	Main Summary			
SEC	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u>				
	MASALALE BH1				
	<u>SUMMARY</u>				
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 3:
FENCING AND GATE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 3 - FENCING AND GATE BH				
	SECTION 1: GATES AND GATE ENTRANCE				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<u>Formwork</u>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<u>Coping</u>				
	<i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<u>Finishes</u>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<u>Gates</u>				
	<i><u>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</u></i>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to Pedestrian gate: overall size 1,300 x 2,400 mm high	No	1		
	<u>Painting and decoration</u>				
	<i><u>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</u></i>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<i><u>Prepare and apply two finishing coats of super gloss enamel paint to:</u></i>				
3.1.17	General surfaces of metal gates (measured on both sides)	Sm	25.44		
	SECTION 1:	Carried to			
	GATES AND GATE ENTRANCE	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: CHAIN-LINK FENCING				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	154.7		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	10		
	SECTION 2:	Carried to			
	CHAIN-LINK FENCING	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: STORMWATER DRAINS				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	SECTION 3:	Carried to			
	STORMWATER DRAINS	Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 3 - FENCING AND GATE BH</u>				
	<u>SUMMARY</u>				
1	GATES AND GATE ENTRANCE				
2	CHAIN-LINK FENCING				
3	STORMWATER DRAINS				
TOTAL FOR BILL 3 CARRIED FORWARD TO PROJECT SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 3 - FENCING AND GATE BH				
	SECTION 1: GATES AND GATE ENTRANCE				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<u>Formwork</u>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<u>Coping</u>				
	<i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<u>Finishes</u>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<u>Gates</u>				
	<i><u>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</u></i>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to <i>Pedestrian</i> gate: overall size 1,300 x 2,400 mm high	No	1		
	<u>Painting and decoration</u>				
	<i><u>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</u></i>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<i><u>Prepare and apply two finishing coats of super gloss enamel paint to:</u></i>				
3.1.17	General surfaces of metal gates (<i>measured on both sides</i>)	Sm	25.44		
	SECTION 1:	Carried to			
	GATES AND GATE ENTRANCE	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: CHAIN-LINK FENCING				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	154.7		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	10		
	SECTION 2:	Carried to			
	CHAIN-LINK FENCING	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: STORMWATER DRAINS				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	SECTION 3:	Carried to			
	STORMWATER DRAINS	Main Summary			

[illegible]

BILL No. 4:
WATER KIOSKS

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
4.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	16.35		
4.1.2	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	4.86		
4.1.3	Excavate for Strip footing pits not exceeding 1.0 metres deep, starting from reduced levels	Cm	3.12		
4.1.4	Extra over for excavation in rock of all classes	Cm	3.99		
	<i><u>Disposal</u></i>				
4.1.5	Return, fill and ram selected excavated material around foundations.	Cm	3.72		
4.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	4.26		
	<i><u>Hardcore or other approved filling, as described</u></i>				
4.1.7	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	4.91		
4.1.8	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	16.35		
	<u>Anti-termite treatment</u>				
4.1.9	Chemical anti-termite treatment executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	16.35		
	<u>Damp-proof Membrane</u>				
4.1.10	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	16.35		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
4.1.11	50 mm thick blinding under Column bases	Sm	3.24		
4.1.12	Ditto: under Strip footings	Sm	3.12		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.13	Column bases	Cm	1.33		
4.1.14	Columns	Cm	0.19		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.15	100 mm thick floor Slab	Cm	1.16		
4.1.16	Ditto: to sloping ramp slabs	Cm	0.69		
4.1.17	Strip footings	Cm	0.62		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
4.1.18	Assorted bars (D8 - D16)	Kg	128.88		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 25/20: as described in</i>				
4.2.1	Beams	Cm	0.59		
4.2.2	Roof slab, 150 mm thick	Cm	1.23		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.2.3	Assorted bars (D8 - D16)	Kg	129		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
4.2.4	Vertical sides and soffits of beams	Sm	5.88		
4.2.5	Vertical sides of columns	Sm	6.72		
4.2.6	Horizontal soffits of suspended slabs	Sm	8.19		
4.2.7	Edge of suspended slabs over 75 mm but not exceeding 150 mm girth	Sm	2.20		
	SECTION 2: Carried to SUPERSTRUCTURE Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.3.1	200 mm thick walling	Sm	15.60		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
4.3.2	200 mm wide; levelled and bedded under wall	Lm	14.66		
	<u>Coping</u>				
	<i>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</i>				
4.3.3	Size 200 x 75 mm coping; twice weathered and throated	Lm	2.30		
	SECTION 3: Carried to WALLING Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 4: EXTERNAL FINISHES</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
4.4.1	Concrete surfaces externally; finished smooth	Sm	2.95		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
4.4.2	Masonry surfaces externally; finished smooth	Sm	12.64		
	<u>Steps and Ramp finishes</u>				
	<i>Cement and sand (1:3) screeds, backings, beds etc; coloured to approval: finished in smooth steel float</i>				
4.4.3	Treads to steps, 300 mm wide	Lm	6		
4.4.4	Risers to steps, 150 mm high	Lm	6		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
4.4.5	Rendered concrete surfaces, externally	Sm	3.0		
	<u>SECTION 4:</u>				
	EXTERNAL FINISHES				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>SECTION 5: INTERNAL WALL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
4.5.1	Concrete surfaces, internally	Sm	2.95		
4.5.2	Masonry surfaces, internally	Sm	12.64		
4.5.3	Jambs and reveals: 100 - 200 mm girth	Lm	10.40		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
4.5.4	25 mm thick screeds on floors to steel trowel finish	Sm	7		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint: as described on</i>				
4.5.5	Plastered concrete surfaces, internally	Sm	3		
4.5.6	Plastered walls surfaces, internally	Sm	13		
4.5.7	Jambs and reveals: 100 - 200 mm girth	Lm	10		
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of brilliant white plastic emulsion paint as: as described on</i>				
4.5.8	Plastered soffites of slabs, internally	Sm	8		
	<u>SECTION 5 :</u>				
	INTERNAL FINISHES				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	SECTION 8: PLASTIC WATER TANK AND WATER KIOSK ATM				
	<u>5,000 litres Elevated Plastic Tank</u>				
4.8.1	Provide for the purchase, supply and installation of a 5m3 plastic tank & fix all the necessary fittings including inlets, outs, and taps as directed by the supervising Engineer	No	1		
4.8.2	Supply, Install and Commission a 25mm diameter water meter.	No	1		
4.8.3	25mm Gate valves	No	7		
	<u>Tank Roof</u>				
	<i>Sawn cypress first grade; pressure impregnated; thoroughly seasoned and treated with anti-termite; and other jointing accessories to structural engineer's details; timber to meet the following minimum strength criteria, bending 5N/mm2, tension 3N/mm2 and compression 6N/mm2</i>				
4.8.4	50 x 50 x 3mm thick steel stanchion fixed to the reinforced concrete column to approval	Lm	10		
4.8.5	75 x 50 mm timber rafter fixed to the steel stanchions	Lm	12		
4.8.6	50 x 50 mm timber batten fixed to the rafter to approval	Lm	9		
4.8.7	MRM box profile sheets available in white and clear; 12,000mm length x 810mm width.	Sm	7		
	<u>Water ATM</u>				
4.8.8	Supply, install, test, and commission smart card-operated water ATM system including cabinet, dispenser, solar power unit, piping, fittings, control unit, and user training, complete as per specifications.	Ls	1		
4.8.9	Provide all materials and install high level MDF shelves inside water kiosks, as shown on the drawings.	Ls	1		
	SECTION 8 Carried to				
	<u>PLASTIC WATER TANK</u> Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	SECTION 9: SOAK AWAY PIT				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
4.9.1	Excavate for soak away pit, 1.5m diameter, 2.7m depth, in normal soil	Cm	4.77		
4.9.2	Extra over for excavation in rock material	Cm	1.43		
4.9.3	Return, fill and ram selected excavated material around to 0.3m depth	Cm	0.53		
4.9.4	Load, wheel and deposit surplus excavated material away from site	Cm	4.24		
	<u>Hardcore or other approved filling, as described</u>				
4.9.5	300 mm thick handpacked h/core material in filling to 2.4m height, compacted in layers n.e. 150mm thick.	Cm	4.24		
	<u>Plastic Sheet Lining</u>				
4.9.6	1000 gauge polythene or other equal and approved plastic sheet lining, laid over hardcore.	Sm	1.77		
	<u>Drain Pipe</u>				
4.9.7	Supply and install 150mm dia uPVC drain pipe, 5m length	m	5.00		
	SECTION 9 Carried to				
	<u>SOAK AWAY PIT</u> Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 10: GULLEY TRAP</u>				
	<u>Excavations and Earthworks</u>				
4.10.1	Excavate for gulley trap, 0.6m x 0.6m x 0.5m depth, in normal soil	Cm	0.22		
4.10.2	Load, wheel and deposit surplus excavated material away from site	Cm	0.22		
	<u>Concrete</u>				
4.10.3	Supply and place 50mm thick mass concrete blinding under base slab; class 15/20 for gulley trap (0.6m x 0.6m)	Cm	0.02		
4.10.4	Supply and place 100mm thick mass concrete base class 20/20 for gulley trap (0.6m x 0.6m)	Cm	0.04		
	<u>Blockwork</u>				
4.10.5	Supply and lay 150mm thick masonry blockwork walls in cement mortar joints, as approved (0.4m high)	Sm	0.7		
4.10.6	Plaster external and internal walls with 15mm thick cement:sand (1:4) render	Sm	1.44		
	<u>Fittings</u>				
4.10.7	Supply and install 50mm thick 400mm x 400mm precast concrete top cover slab for gully trap (reinforced with A142 mesh fabric)	No.	1		
	SECTION 10: Carried to GULLEY TRAP Main Summary				
ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 1</u>				
	<u>SUMMARY</u>				
4.1	Substructure (Provisional)				
4.2	R.C. Superstructure				
4.3	Walling				
4.4	External Wall Finishes				
4.5	Internal Finishes				
4.6	Doors				
4.7	Windows				
4.8	Plastic Water Tank and Water Kiosk ATM				
4.9	Soak Away Pit				
4.10	Gulley Trap				
	TOTAL FOR 1No. WATER KIOSK				
	TOTAL FOR 7 No. WATER KIOSKS	NO.	7	Kes. Kes.	
TOTAL FOR BILL 4 CARRIED FORWARD TO PROJECT SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
4.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	14.56		
4.1.2	Excavate for strip footing pits not exceeding 1.5 metres deep, starting from reduced levels	Cm	12.00		
4.1.3	Extra over for excavation in rock of all classes	Cm	3.60		
	<i><u>Disposal</u></i>				
4.1.4	Return, fill and ram selected excavated material around foundations.	Cm	6.99		
4.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	5.01		
	<i><u>Hardcore or other approved filling, as described</u></i>				
4.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	4.37		
4.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	14.56		
	<u>Anti-termite treatment</u>				
4.1.8	Chemical anti-termite treatment executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	14.56		
	<u>Damp-proof Membrane</u>				
4.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	14.56		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
4.1.10	50 mm thick blinding unde Strip footings	Sm	8.00		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.11	100 mm Thick floor slab	Cm	1.31		
4.1.12	Ditto; to sloping ramp slabs	Cm	0.69		
4.1.13	Strip footings	Cm	1.60		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
4.1.14	Assorted bars (D8 - D16)	Kg	96.00		
	<i><u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</u></i>				
4.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	13.77		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>Formwork</u> <i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
4.1.16	Edges; over 75 mm but not exceeding 100 mm high, to slab	Lm	14.66		
4.1.17	Ditto: to edges of ramp	Lm	4.00		
	<u>Foundation walling</u> <i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.1.18	200 mm thick foundation walling	Sm	12.36		
	<u>Plinth finishes</u> <i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
4.1.19	Concrete surfaces externally; finished smooth	Sm	8.40		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint as supplied by "Crown Paints" or approved equivalent: as described on</i>				
4.1.20	Rendered surfaces, externally	Sm	8.40		
	<u>Paving slabs</u> <i>Size 600 x 600 x 50mm Thick precast concrete paving slabs as supplied by Kenya Builders or equal and approved; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</i>				
4.1.21	Paving slabs, around building (one row); including all excavations and earthworks	Sm	8.80		
	Carried to Collection				
	<u>Collection Page</u> From Page 1 From Page above				
SECTION 1:	Carried to				
SUBSTRUCTURES	Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 20/20; as described in</i>				
4.2.1	Beams	Cm	0.49		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.2.2	Assorted bars (D8 - D16)	Kg	29		
	<u>Formwork</u>				
	<i>Sawn formwork; including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
4.2.3	Vertical sides and soffits of beams	Sm	5.05		
4.2.4	Vertical sides of columns	Sm	6.72		
4.2.5	Horizontal soffits of suspended slabs	Sm	8.19		
4.2.6	Edge of suspended slabs over 75 mm but not exceeding 150 mm girth	Sm	2.29		
	SECTION 2: Carried to SUPERSTRUCTURE Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course; as described to</i>				
4.3.1	200 mm thick walling	Sm	15.60		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
4.3.2	200 mm wide; levelled and bedded under wall	Lm	14.66		
	<u>Coping</u>				
	<i>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</i>				
4.3.3	Size 200 x 75 mm coping; twice weathered and throated	Lm	2.30		
	SECTION 3: Carried to WALLING Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
BILL NO. 4: WATER KIOSK TYPE 2					
<u>SECTION 4: EXTERNAL FINISHES</u>					
<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>					
4.4.1	Concrete surfaces externally; finished smooth	Sm	2.95		
<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>					
4.4.2	Masonry surfaces externally; finished smooth	Sm	12.64		
<u>Steps and Ramp finishes</u>					
<i>Cement and sand (1:3) screeds, backings, beds etc; coloured to approval: finished in smooth steel float</i>					
4.4.3	Treads to steps, 300 mm wide	Lm	6		
4.4.4	Risers to steps, 150 mm high	Lm	6		
<u>Painting and decorating</u>					
<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as supplied by "Crown Paints" or approved equivalent: as described on</i>					
4.4.5	Rendered concrete surfaces, externally	Sm	3.0		
<u>SECTION 4:</u>		Carried to			
EXTERNAL FINISHES		Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<u>SECTION 5: INTERNAL WALL FINISHES</u>					
<u>Wall Finishes</u>					
<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>					
4.5.1	Concrete surfaces, internally	Sm	2.95		
4.5.2	Masonry surfaces, internally	Sm	12.64		
4.5.3	Jambs and reveals: 100 - 200 mm girth	Lm	10.40		
<u>Floor Finishes</u>					
<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>					
4.5.4	25 mm thick screeds on floors to steel trowel finish	Sm	7		
<u>Painting and decoration</u>					
<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint: as described on</i>					
4.5.5	Plastered concrete surfaces, internally	Sm	3		
4.5.6	Plastered walls surfaces, internally	Sm	13		
4.5.7	Jambs and reveals: 100 - 200 mm girth	Lm	10		
<i>Prepare surfaces, skim and apply one undercoat and two final coats of brilliant white plastic emulsion paint as: as described on</i>					
4.5.8	Plastered soffits of slabs, internally	Sm	8		
<u>SECTION 5 :</u>		Carried to			
INTERNAL FINISHES		Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 6: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
4.6.1	Door: Overall Size 900 x 2100 mm high, in single leaf; complete with purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Architectural design and details	No	1		
	<u>Ironmongery</u>				
	<i>Supply and fix the following ironmongery complete with matching screws: as described to</i>				
4.6.2	Steel door lock complete with handles	No	1		
4.6.3	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.6.4	General surfaces of metal doors (measured on both sides)	Sm	4		
	<u>SECTION 6</u>	Carried to			
	DOORS	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 7: WINDOWS</u>				
	<u>Steel Windows</u>				
	<u>The following to Water Kiosk:-</u>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule; as described to</i>				
4.7.1	Window overall size: 1200 x 1000 mm high: in two equal leaves; complete with advert pockets in 500 x 600 mm perspex covers; details to Engineer's design and details	No	1		
	<u>Painting & Decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.7.2	General surfaces of metal windows (measured on both sides)	Sm	3		
	<u>SECTION 7</u>	Carried to			
	WINDOWS	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 2</u>				
	SECTION 8: PLUMBING AND WATER KIOSK ATM				
4.8.1	Supply, install and commission a 32mm diameter water meter.	No	1		
4.8.2	Supply, Install and Commission a 25mm diameter water meter.	No	1		
4.8.3	25mm Gate valves	No	7		
	Water ATM				
4.8.4	Supply, install, test, and commission smart card-operated water ATM system including cabinet, dispenser, solar power unit, piping, fittings, control unit, and user training, complete as per specifications.	Ls	1		
4.8.5	Provide all materials and install high level MDF shelves inside water kiosks, as shown on the drawings.	Ls	1		
	SECTION 8	Carried to			
	PLUMBING	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 2</u>				
	<u>SECTION 9: ROOFING</u>				
	<u>Roof Structure (Provisional)</u>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
4.9.1	Rafters: 150 x50	m	16.00		
4.9.2	Purlins: 50 x 50	m	13.50		
4.9.3	Wall plate: 150 x 50	m	5.40		
	<u>Eaves Finishes</u>				
	<i>Fascia Board: in 2mm thick mild steel</i>				
4.9.4	Fascia/Barge boards 250x25 mm thick sawn cypress and planed to approval	Lm	11.80		
	<u>Roof covering</u>				
	<i>Gauge 28 IT5 Pre-painted box-profiled roofing sheets</i>				
4.9.5	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	8.64		
	<i>Heavy duty roof insulation complete with polythylene foam core that provides a radiant barrier, reflective insulation and moisture barrier; fixed in accordance to manufacturer's printed instructions: as described to</i>				
4.9.6	10 mm thick double-sided reflective foil insulation; underlay	Sm	8.64		
	SECTION 9	Carried to			
	ROOFING	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 10: SOAK AWAY PIT</u>				
	<u>Excavations and Earthworks</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
4.10.1	Excavate for soak away pit, 1.5m diameter, 2.7m depth, in normal soil	Cm	4.77		
4.10.2	Extra over for excavation in rock material	Cm	1.43		
4.10.3	Return, fill and ram selected excavated material around to 0.3m depth	Cm	0.53		
4.10.4	Load, wheel and deposit surplus excavated material away from site	Cm	4.24		
	<u>Hardcore or other approved filling, as described</u>				
4.10.5	300 mm thick handpacked h/core material in filling to 2.4m height, compacted in layers n.e. 150mm thick.	Cm	4.24		
	<u>Plastic Sheet Lining</u>				
4.10.6	1000 gauge polythene or other equal and approved plastic sheet lining, laid over hardcore.	Sm	1.77		
	<u>Drain Pipe</u>				
4.10.7	Supply and install 150mm dia uPVC drain pipe, 5m length	m	5.00		
	<u>SECTION 10</u>				
	<u>SOAK AWAY PIT</u>				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 11: GULLEY TRAP</u>				
	<u>Excavations and Earthworks</u>				
4.11.1	Excavate for gulley trap, 0.6m x 0.6m x 0.5m depth, in normal soil	Cm	0.22		
4.11.2	Load, wheel and deposit surplus excavated material away from site	Cm	0.22		
	<u>Concrete</u>				
4.11.3	Supply and place 50mm thick mass concrete blinding under base slab; class 15/20 for gulley trap (0.6m x 0.6m)	Cm	0.02		
4.11.4	Supply and place 100mm thick mass concrete base class 20/20 for gulley trap (0.6m x 0.6m)	Cm	0.04		
	<u>Blockwork</u>				
4.11.5	Supply and lay 150mm thick masonry blockwork walls in cement mortar joints, as approved (0.4m high)	Sm	0.7		
4.11.6	Plaster external and internal walls with 15mm thick cement:sand (1:4) render	Sm	1.44		
	<u>Fittings</u>				
4.11.7	Supply and install 50mm thick 400mm x 400mm precast concrete top cover slab for gulley trap (reinforced with A142 mesh fabric)	No	1		
	<u>SECTION 9</u>				
	<u>ROOFING</u>				
	Carried to Main Summary				

BILL No. 5:
OPERATOR'S BUILDING AND
GUARD HOUSE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL No. 5: OPERATOR'S BUILDING</u>				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
5.1.1	Oversite excavation 200 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Cm	6.54		
5.1.2	Excavate for trench foundations not exceeding 1.50 metres deep, starting from reduced levels	Cm	20.52		
5.1.3	Extra over for excavation in rock of all classes	Cm	6.16		
	<i><u>Disposal</u></i>				
5.1.4	Return, fill and ram selected excavated material around foundations.	Cm	11.88		
5.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	8.64		
	<i><u>Hardcore or other approved filling, as described</u></i>				
5.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	9.80		
5.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	32.68		
	<u>Anti - termite treatment</u>				
5.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	32.68		
	<u>Damp-proof membrane</u>				
5.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	32.68		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
5.1.10	50 mm thick blinding under strip foundations	Sm	16.20		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
5.1.11	Strip footings	Cm	3.24		
5.1.12	150 mm Thick Surface beds	Cm	4.90		
5.1.13	Ditto; to sloping ramp slabs	Sm	0.54		
5.1.14	Extra over ramp slabs for formation of herringbone pattern; tamping to top surface of concrete slabs during casting	Sm	0.54		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
5.1.15	Assorted bars (D8 - D16)	Kg	162.00		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
5.1.16	<p><u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</u></p> <p>Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.</p> <p>Formwork</p> <p><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></p>	Sm	36.28		
5.1.17	Vertical sides of strip footings	Sm	10.80		
5.1.18	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	23.00		
5.1.19	Ditto: but sloping, to ramps	Lm	9.80		
	Foundation walling				
	<u>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</u>				
5.1.20	150 mm thick foundation walling	Sm	36.00		
	Plinth finishes				
	<u>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</u>				
5.1.21	Concrete and masonry surfaces externally; finished smooth	Sm	10.35		
	<u>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</u>				
5.1.22	Rendered surfaces, externally	Sm	10.35		
	Paving slabs				
	<u>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</u>				
5.1.23	Paving slabs, around building (one row); including all excavations and earthworks	Sm	13.80		
Carried to Collection					
<p>Collection Page</p> <p>From Page 1</p> <p>From Page above</p>					
<p>SECTION 1: Carried to SUBSTRUCTURES Main Summary</p>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING SECTION 2: SUPERSTRUCTURE R.C Frame Concrete <i>Vibrated reinforced concrete class 20/20: as described in</i>				
5.2.1	Beams	Cm	1.01		
	Reinforcement (Provisional) <i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
5.2.2	Assorted bars (D8 - D16)	Kg	0.51		
	Formwork <i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
5.2.3	Vertical sides and soffits of beams	Sm	22.50		
	SECTION 2: R.C SUPERSTRUCTURE	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING SECTION 3: WALLING External Walling <i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
5.3.1	150 mm thick walling	Sm	36.90		
5.3.2	Ditto: to Gable walling	Sm	23.26		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
5.3.3	150 mm wide; levelled and bedded under wall	Lm	23.00		
	Internal Walling <i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
5.3.4	150 mm thick walling	Sm	8.40		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
5.3.5	150 mm wide; levelled and bedded under wall	Lm	4		
	SECTION 3: WALLING	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	<u>SECTION 5: EXTERNAL FINISHES</u>				
	<u>External wall finishes</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
5.5.1	Concrete surfaces externally; finished smooth	Sm	6.90		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
5.5.2	Masonry surfaces externally; finished smooth	Sm	60.16		
	<u>Steps and Ramp finishes</u>				
	<i>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</i>				
5.5.3	Surfaces of ramps, sloping	Sm	3.60		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
5.5.4	Rendered concrete surfaces, externally	Sm	6.90		
	SECTION 5 Carried to EXTERNAL FINISHES Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	<u>SECTION 6: INTERNAL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
5.6.1	Concrete surfaces, internally	Sm	9.30		
5.6.2	Masonry surfaces, internally	Sm	76.96		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
5.6.3	32 mm Thick bed screed on floor to steel trowel finish level	Sm	32.68		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint as "Crown Paints" or approved equivalent: as described on</i>				
5.6.4	Plastered concrete surfaces, internally	Sm	9.30		
5.6.5	Plastered walls surfaces, internally	Sm	76.96		
	SECTION 6 Carried to INTERNAL FINISHES Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	<u>SECTION 7: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer; building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
5.7.1	Overall size 1000 x 2100 mm high; details as per architectural drawings	No	2		
5.7.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	3		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.7.3	General surfaces of metal doors (measured on both sides)	Sm	4.20		
	<u>SECTION 7</u>	Carried to			
	<u>DOORS</u>	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<u>BILL No. 5: OPERATOR'S BUILDING</u>				
	<u>SECTION 8: WINDOWS</u>				
	<u>Window Sill</u>				
	<i>Precast concrete class 20 fair faced all exposed surfaces bedded and jointed cement and sand (1:3) mortar</i>				
5.8.1	Size 175 x 75 mm thick window sill once rebated and throated; laid and jointed in cement and sand (1:3) mortar	Lm	6.40		
	<u>Steel Casement Windows</u>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule; as described to</i>				
5.8.2	Window overall size: 1500 x 1175 mm high: details to Architect's design and details	No	2		
5.8.3	Window overall size: 2000 x 1175 mm high: details to Architect's design and details	No	2		
	<u>Painting & Decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.8.4	General surfaces of metal windows (measured on both sides)	Sm	8		
	<u>SECTION 8</u>	Carried to			
	<u>WINDOWS</u>	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BILL No. 5: OPERATOR'S BUILDING SECTION 9: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL) Builder's work in connection with Electrical Installations: Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided Builder's work in connection with plumbing and drainage installations: Provide sum for cutting, making good and attendance in all trades on the subcontractor installing plumbing, drainage and fire-fighting installations: to include sanitary and fire-fighting fittings, wastes under floor slabs, supply pipes fixed on walls including cutting holes, chases and making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
5.9.1					
5.9.2		Item	1		
SECTION NO. 9 Carried to Main Summary B.W.I.C WITH SERVICES					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	BILL 5: OPERATOR'S BUILDING SUMMARY				
5.1	Substructure (Provisional)				
5.2	R.C. Superstructure				
5.3	Walling				
5.4	Roofing				
5.5	External Finishes				
5.6	Internal Finishes				
5.7	Doors				
5.8	Windows				
5.9	Builders' Work in Connection with Services (Provisional)				
TOTAL FOR 1No. OPERATOR'S BUILDING					
TOTAL FOR 1 No. OPERATOR'S BUILDING					Kes.
					Kes.
TOTAL FOR BILL 5 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 6:
PIT LATRINE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 6: PIT LATRINES				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
6.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	4.35		
6.1.2	Excavate for Strip footing pits not exceeding 1.5 metres deep, starting from reduced levels.	Cm	9.23		
6.1.3	Excavate for underground pit (size 1.5x 2.0 m), depth upto 6 m	Cm	18.00		
6.1.4	Extra over for excavation in rock of all classes	Cm	8.17		
	<u>Disposal</u>				
6.1.5	Return, fill and ram selected excavated material around foundations.	Cm	18.61		
6.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	16.78		
	<u>Hardcore or other approved filling, as described</u>				
6.1.7	Imported inert h/core material in filling to make up levels, compacted in layers n.e. 150 mm thick with a vibratory roller to the satisfaction and approval of the Structural Engineer (S.E)	Cm	1.30		
6.1.8	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	4.35		
6.1.9	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	4.35		
	<u>Anti-termite treatment</u>				
6.1.10	Chemical anti-termite treatment as <i>Termidor 96 SC</i> or aproved equivalent, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	4.35		
	<u>Damp-proof Membrane</u>				
6.1.11	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	4.35		
	<u>Concrete works</u>				
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
6.1.12	150 mm Thick floor Slab	Cm	1.38		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
6.1.13	Strip footings	Cm	1.23		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
6.1.14	Assorted bars (D8 - D16)	Kg	74		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</i>				
6.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	9.23		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork: as described to:-</i>				
6.1.16	Edges; over 75 mm but not exceeding 100 mm high, to slab	Lm	10.25		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
6.2.1	BILL NO. 6: PIT LATRINES				
	SECTION 2: SUPERSTRUCTURE				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
	Beams	Cm	0.51		
	<u>Reinforcement</u> (Provisional)				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
	Assorted bars (D8 - D16)	Kg	31		
	<u>Formwork</u>				
6.2.2	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
	Vertical sides and soffits of beams	Sm	5.13		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
BILL NO. 6: PIT LATRINES					
SECTION 4: EXTERNAL FINISHES					
<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>					
6.4.1	Concrete surfaces externally; finished smooth	Sm	3	488.88	
Painting and decorating					
<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>					
6.4.2	Rendered concrete surfaces, externally	Sm	3		
SECTION 4 EXTERNAL FINISHES Carried to Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
SECTION 5: INTERNAL FINISHES					
Wall Finishes					
<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>					
6.5.1	Concrete surfaces, internally	Sm	5		
Floor Finishes					
<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>					
6.5.2	25 mm thick screed on floor to finished level	Sm	3		
Painting and decoration					
<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint as described on</i>					
6.5.3	Plastered concrete surfaces, internally	Sm	5		
SECTION NO. 5 INTERNAL FINISHES Carried to Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
BILL NO. 6: PIT LATRINES					
SECTION 6: DOORS					
Wooden Doors					
<i>Supply, assemble and fix the following purpose made wooden doors: hardwood smoothly joined together; one shop coat of wood preservative primer; building in lugs on jambs and plugging and screwing to head; complete with purpose made ironmongery: as described to.</i>					
6.6.1	Wooden door: overall size 900 x1800 mm high, in single leaf; complete with hardwood frames, purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Standard Drawings and details.	No	2		
Ironmongery					
<i>Supply and fix the following ironmongery complete with matching screws: as described to</i>					
6.6.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	2		
Painting and decoration					
<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>					
6.6.3	General surfaces of wooden doors (measured on both sides)	Sm	6		
SECTION 6 DOORS Carried to Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 6: PIT LATRINES</u> <u>SECTION 7: WINDOWS</u> <u>Steel Windows</u> <i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Architect's schedule: as described to</i>				
6.7.1	Window overall size: 600 x 600 mm high: in single leaf; details to Standard drawings and details.	No	2		
	<u>Painting & Decoration</u> <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
6.7.2	General surfaces of metal windows (measured on both sides)	Sm	1		
	<u>SECTION 7 WINDOWS</u>	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 6: PIT LATRINES</u> <u>SECTION 8: ROOFING</u> <u>Roof Structure (Provisional)</u> <i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
6.8.1	Rafters: 150 x50	m	14.70		
6.8.2	Purlins: 50 x 50	m	17.70		
6.8.3	Wall plate: 150x50	m	10.25		
	<u>Eaves Finishes</u> <i>Fascia Board as described to:</i>				
6.8.4	Fascia/Barge boards 250x25 mm thick sawn cypress and planed to approval	Lm	5.04		
	<u>Roof covering</u> <i>Gauge 28 IT5 Pre-painted box-profiled roofing sheets</i>				
6.8.5	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	7.23		
	<u>SECTION 8 ROOFING</u>	Carried to Main Summary			

BILL No. 7:
WATER TROUGHS

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 7: WATER TROUGHS				
	<u>Section 1: Water Troughs for Camels and Cattle</u>				
	Excavations				
7.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	81.2		
7.1.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	14.64		
7.1.3	Return, fill and ram selected excavated material around foundations.	Cm	9.76		
	Hardcore filling				
7.1.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	81.2		
	Concrete Work				
7.1.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	19.44		
7.1.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.944		
7.1.7	Timber shattering provided to sides of floor slab	Lm	25.2		
7.1.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	19.44		
	Walling for substructure				
7.1.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	24.4		
	Walling for superstructure				
7.1.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	21.96		
	Wall finishes				
	<u>Cement and sand (1:3) render as described in:</u>				
7.1.11	12mm Thick with finish to masonry walling	Sm	43.92		
7.1.12	25mm thick floor finish	Sm	19.44		
	40mm diameter GI pipes and fittings for inlet pipeworks				
7.1.13	GI PN10 pipe	m	10		
7.1.14	GI Barrel Nipples	No	6		
7.1.15	GI Sockets	No	4		
7.1.16	GI Unions	No	3		
7.1.17	GI Gate Valves	No	2		
7.1.18	GI Ball valve	No	1		
7.1.19	GI Elbows	No	4		
7.1.20	2m wide stone masonry riprap all round the water trough	Sm	63.2		
	Subtotal for one (1) No Water Trough				
	Total for (1) No water troughs	No	1		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 7: WATER TROUGHS				
	<u>Section 2: Water Troughs for Sheep and Goats</u>				
	Excavations				
7.2.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	64.67		
7.2.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	11.22		
7.2.3	Return, fill and ram selected excavated material around foundations.	Cm	7.48		
	Hardcore filling				
7.2.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	64.67		
	Concrete Work				
7.2.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	14.31		
7.2.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.431		
7.2.7	Timber shattering provided to sides of floor slab	Lm	19.5		
7.2.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	14.31		
	Walling for substructure				
7.2.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	18.7		
	Walling for superstructure				
7.2.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	10.005		
	Wall finishes				
	<u>Cement and sand (1:3) render as described in:</u>				
7.2.11	12mm Thick with finish to masonry walling	Sm	20.01		
7.2.12	25mm thick floor finish	Sm	14.31		
	40mm diameter GI pipes and fittings for inlet pipeworks				
7.2.13	GI PN10 pipe	m	10		
7.2.14	GI Barrel Nipples	No	6		
7.2.15	GI Sockets	No	4		
7.2.16	GI Unions	No	3		
7.2.17	GI Gate Valves	No	2		
7.2.18	GI Ball valve	No	1		
7.2.19	GI Elbows	No	4		
7.2.20	2m wide stone masonry riprap all round the water trough	Sm	51.8		
	Subtotal for one (1) No Water Trough				
	Total for (2) No water troughs	No	2		
TOTAL FOR BILL 7 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 8: PIPEWORK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 8: PIPE WORK SECTION 1: RISING MAIN <i>Refer to Construction Drawings</i> Site Clearance <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.1.1	General clearance along pipeline route	Lm	1,378		
8.1.2	Removal of trees of girth not exceeding 600mm	No	7		
8.1.3	Removal of trees of girth 600 to 900mm	No	2		
	Trench Excavation Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	1,378		
8.1.5	Extra Over for excavation in rock of all types	Cm	132		
	Pipework <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	HDPE Pipes				
8.1.6	HDPE pipes OD40mm PN16	m	6		
8.1.7	HDPE pipes OD50mm PN16	m	12		
8.1.8	HDPE pipes OD63mm PN16	m	143		
8.1.9	HDPE pipes OD90mm PN16	m	1,217		
	Air valves				
8.1.10	Various dia. flanged single orifice air valves PN10. Include all the required pipework and fittings.	No	1		
	Wash outs				
8.1.11	Various dia. mm GI washout valves.	No	3		
	Gate Valves				
8.1.12	DN 50mm gate valves. Include all fittings for connection to HDPE or GI pipes as appropriate	No	1		
	Water Meters				
8.1.13	Supply and install a DN 63mm dia master meter. Rate to include all jointing materials.	No	1		
	Valve Chambers <i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.1.14	Gate valve and meter chambers, as per the detailed drawings	No	2		
8.1.15	Air valve and washout chambers, as per the detailed drawings	No	4		
8.1.16	Extra Over for excavation in rock of all types, for chambers	Cm	1.56		
	Other Pipework Ancillaries <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.1.17	Pipeline marker posts	No	6		
8.1.18	Air valve and washout marker posts	No	4		
8.1.19	Gate valve marker posts	No	2		
	PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND <u>Concrete stools and thrust blocks</u>				
8.1.20	Provide and place mass concrete (class 15/20) for anchor blocks and stools in valves, bends etc. Rate to include excavation and necessary formwork (provisional).	Cm	0.2		
	Crossings <i>Rate to include all necessary materials, and fittings for anchoring pipes across rivers, laghas</i>				
8.1.21	River or lagha crossing, width 3 - 10m, pipe bore not exce. 300mm	No	2		
	Reinstatements				
8.1.22	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm	m	100		
	SECTION 1: RISING MAIN	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: GRAVITY MAIN <i>Refer to Construction Drawings</i> Site Clearance <i>The clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level.</i>				
8.2.1	General clearance along pipeline route	Lm	2,994		
8.2.2	Removal of trees of girth not exceeding 600mm	No	2		
8.2.3	Removal of trees of girth 600 to 900mm	No	1		
	Trench Excavation				
8.2.4	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	2,994		
8.2.5	Extra Over for excavation in rock of all types	Cm	287		
	Pipework <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	HDPE Pipes				
8.2.6	HDPE pipes OD40mm PN10	m	450		
8.2.7	HDPE pipes OD50mm, PN10	m	335		
8.2.8	HDPE pipes OD63mm PN10	m	83		
8.2.9	HDPE pipes OD110mm PN10	m	2,126		
8.2.10	Air valves <i>Various dia. hanged single office air valves etc. include all the required pipework and fittings.</i>	No	7		
8.2.11	Wash outs Various dia. GI washout valves.	No	2		
	Valve Chambers <i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.2.12	Air valve and washout chambers, as per the detailed drawings	No	9		
8.2.13	Extra Over for excavation in rock of all types, for chambers	Cm	2.33		
	Other Pipework Ancillaries <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.2.14	Pipeline marker posts	No	15		
8.2.15	Air valve and washout marker posts	No	9		
	Concrete stools and thrust blocks				
8.2.16	Provide and place mass concrete (class 15/20) for anchor blocks and stools in valves, bends etc. Rate to include excavation and necessary formwork (provisional).	Cm	0.7		
	Reinstatements				
8.2.17	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm	m	100		
	SECTION 2:				
	GRAVITY MAIN				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: DISTRIBUTION NETWORK <i>Refer to Construction Drawings</i> Site Clearance <i>The clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level.</i>				
8.3.1	General clearance along pipeline route	Lm	1,718		
	Trench Excavation				
8.3.2	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	1,718		
8.3.3	Extra Over for excavation in rock of all types	Cm	165		
	Pipework <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	HDPE Pipes				
8.3.4	HDPE pipes OD32mm PN10	m	393		
8.3.5	HDPE pipes OD40mm, PN10	m	852		
8.3.6	HDPE pipes OD50mm PN10	m	237		
8.3.7	HDPE pipes OD63mm PN10	m	236		
	Water Meters				
8.3.8	Supply and install water meters for the existing I.Cs.	No.	90		
	Other Pipework Ancillaries <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.3.9	Pipeline marker posts	No	9		
	PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND <u>Concrete stools and thrust blocks</u>				
8.3.10	Provide and place mass concrete (class 15/20) for anchor blocks and stools in valves, bends etc. Rate to include excavation and necessary formwork (provisional).	Cm	9		
	Reinstatements				
8.3.11	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm	m	100		
	SECTION 3:	Carried to			
	DISTRIBUTION NETWORK	Main Summary			
ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 8: PIPE WORK</u>				
	<u>SUMMARY</u>				
1	RISING MAIN				
2	GRAVITY MAIN				
3	DISTRIBUTION NETWORK				
	TOTAL				
TOTAL FOR BILL 8 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 9:
ELEVATED STEEL TANK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 9: ELEVATED STEEL TANKS <u>Earth works, concrete works and Tank construction to be done in line with EST drawing</u> Excavations and Earthworks <u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u>				
9.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	25		
9.1.2	Excavate for Column pits not exceeding 1.50 metres deep, starting from reduced levels	Cm	37.5		
9.1.3	Extra over for excavation in rock of all classes	Cm	11.25		
9.1.4	Return, fill and ram selected excavated material around foundations.	Cm	19.2		
	Tank Construction Supply and place reinforced concrete Class C20/20 as foundation for tank tower.				
9.1.5	Rate to include for reinforcement bars for the foundation, and formwork as necessary	Cm	19.58		
9.1.6	Allow for compliance to other foundation requirements as recommended by the manufacturer	Sum	1		
9.1.7	Supply all materials, tools and equipment and erect a 50m ³ steel sectional tank of the Braithwaite type or equally approved standard include a tank tower of 15 meters, ladder with ladder guard inside ladder, walkway with walkway guard, water level gauge and tank cover, provision of air vent, support rails, inlets and outlet for pipes etc., for complete installation	No	1		
	Pipes and Specials All pipes and specials shall comply with the requirements of BS 5950. Allow for gaskets, nuts, washers, bolts, cutting and threading on site Provide, fix and test following : (All screwed flanges listed separately)				
	Inlet				
9.1.8	100mm G.I. flanged socket adaptor, all flanged	No	1		
9.1.9	100mm 65 G.I. 90° bend, all flanged	No	4		
9.1.10	100mm all flanged gate valve	No.	1		
9.1.11	100mm G.I flanged pipe	m	18		
9.1.12	DN 50mm float valve	No.	1		
	Overflow				
9.1.13	100mm G.I 90° flanged bend	No.	4		
9.1.14	100mm flanged equal tee	No.	1		
9.1.15	100mm flanged sluice Valve	No.	1		
9.1.16	100mm G.I flanged pipe	m	5		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	BILL No. 9: ELEVATED STEEL TANKS				
	Outlet				
9.1.17	100mm flanged G.I steel 90° duck foot bend	No.	4		
9.1.18	100mm flanged G.I steel, length 8500mm	No.	1		
9.1.19	100mm steel flanged spigot adaptor	No.	1		
9.1.20	G.I pipe diameter 100mm	m	15		
9.1.21	100mm diameter rose strainer or equivalent	No.	1		
9.1.22	100mm Gate valve	No.	1		
9.1.23	100mm Bulk water meter on the main outlet pipeline	No.	1		
9.1.24	Lockable water meter and gate valve chamber	Ls	1		
	Wash out				
9.1.25	80mm wash out valve	No.	1		
9.1.26	80mm GI pipe for wash	m	5		
9.1.27	80mm flanged G.I steel 90° bend	No	1		
9.1.28	80mmx80mm equal tee for joining to the overflow pipe	No.	1		
	Painting				
9.1.29	Allow for the complete installation to be painted as recommended by the manufacturers or the engineer	Ls	1		
	Testing and Sterilizing				
9.1.30	Test and sterilize tank including the necessary chemicals	Ls	1		
TOTAL FOR BILL 9 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 10:
ELEVATED PLASTIC TANK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 10: INSTALLATION OF 10,000L UPVC TANK AND CONSTRUCTION OF A 3M ELEVATED STEEL PLATFORM				
	Storage				
10.1.1	Supply plastic tank of capacity 10,000ltrs. Rate to include transport to site and overheads	No	1		
	Construction Steel Tower Platform				
10.1.2	Clear of all bushes and shrubs and remove debris from tank site	Sm	25		
10.1.3	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	8.64		
10.1.4	Extra over for excavation in rock of all classes	Cm	2.592		
10.1.5	Fabricate, supply and install at site a metal tower, 2.5m x 2.5 , 3 m high from ground with a platform to receive the tank, walkway, rail guard to prevent the tank from falling and cat ladder. Rate to include transport of all materials to site, fabricating, erecting and overheads. Using 100mm X 100mm x4mm RHS and 70mm x 70mm x 4mm RSA for the internal member	Item	1		
10.1.6	Concrete Class 20/20 to tank stand bases and columns	Cm	3.852		
10.1.7	Formwork to bases and sides of columns	Sm	18.24		
	Piping works				
10.1.8	Inlet pipe of PPR 50mm DN	m	10		
	Fittings and Appurtenances				
10.1.9	2 inch GI Elbow	No	5		
10.1.10	2 inch GI long nipple	No	2		
10.1.11	2 inch GI back nuts	No	4		
10.1.12	2 inch gate valve	No	1		
10.1.13	2 inch GI sockets	No	5		
10.1.14	2 inch float valve	No	1		
10.1.15	Other installation sundries including 5 thread tapes,tangent glue	Item	1		
10.1.16	Construction of a masonry lockable inspection chambers at the tank base 1000mm by 1000mm by 1000mm	No	1		
	INSTALLATION OF 1No.TANK AND TOWER FRAME	No.	5		
	INSTALLATION OF 5No.TANK AND TOWER FRAME				
	TOTAL FOR ELEVATED PLASTIC TANKS				
TOTAL FOR BILL 10 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 11:
GROUND MASONRY TANK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 11: GROUND MASONRY TANK				
	SECTION 1: CONSTRUCTION OF NEW 50M3 MASONRY TANK				
	Earthworks (All Provisional)				
11.1.1	Demolition and disposal of the 50m3 existing masonry tank at Main BH to allow for the construction of a new one	Sum	1		
11.1.2	Strip top soil 150mm from ground level over the area of tank and remove all the soil to a temporary soil heap	Sm	23.76		
11.1.3	Trim ,spread and level the ground around the tank to form suitable drainage of surface water	Item	L/s		
11.1.4	Excavate from the stripped level to a depth not exceeding 1.5m deep	Cm	15.55		
11.1.5	Extra over for excavation in rock of all classes	Cm	4.67		
11.1.6	Return, fill and ram selected excavated material around foundations.	Cm	8.29		
	Hardcore Filling as Specifications				
11.1.7	Provide, place and compact hardcore using, 300mm thick to make up levels.	Sm	23.76		
11.1.8	50 mm thick quarry dust or approved murram blinding layer to surface of hardcore to make up levels under floor slab.	Sm	23.758		
11.1.9	Provide and place 1000 gauge polythene sheet to the surface of the blinded hardcore	Sm	23.76		
	Walling				
11.1.10	200 mm thick foundation walling	Sm	10.3673		
	Concrete Works. <i>Provide materials, handle, mix and place.</i>				
11.1.11	50 mm thick blinding under strip foundations	Sm	10.3673		
11.1.12	Vibrated Class 20/20 concrete mix as described to strip footings	Cm	3.11018		
11.1.13	Vibrated Class 20/20 concrete mix as described to 150mm thick floor slab.	Cm	3.56		
11.1.14	Vibrated Class 25/20 concrete mix as described to 150mm thick roof slab	Cm	3.56		
11.1.15	Ditto to column	Cm	0.2925		
11.1.16	Vibrated Class 20/20 concrete mix as described to outlet /inlet pipes anchorage including inlet and outlet valve chambers and column.	Cm	0.5		
	Reinforcement (Provisional)				
	<u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u>				
11.1.17	Assorted bars (D6 - D12)	Kg	1032.52		
	Shuttering/formwork				
11.1.18	Provide sawn timber form work to soffit of roof slab including the inlet/outlet valve chambers and columns	Sm	23.76		
11.1.19	Provide cut and fix ply wood to the edges of 150mm thick floor slab	Sm	2.59		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
11.1.20	Ditto to edges of roof slab	Sm	2.59		
11.1.21	Ditto to sides of column	Sm	3.9		
11.1.22	Sawn timber formwork 150mm wide to the edges of manhole opening including the outlet and inlet valve chambers.	m	10		
	Masonry Walling <i>Provide all materials, handle, mix mortar as per specification and construct the following.</i>				
11.1.23	9"x9"x1' quarry stone walling in 1:1:3 cement: water proof cement: sand mortar ration between the joints.	Sm	56.16		
11.1.24	Provide and install bondex seal in the joints as per the instruction	Item	L/s		
11.1.25	Install double layer of bitumen coat between surface of masonry wall and floor/roof slab	Item	L/s		
11.1.26	Construct and complete valve chamber in concrete masonry block measuring 1500mmx1500mmx1000mm deep complete with steel plate cover including locking device.	No	2		
	Finishes				
11.1.27	Provide all materials, handle, mix and apply 25mm thick 1:3 cement: sand mortar screed including water proof cement to floor slab	Sm	19.63		
11.1.28	Provide all materials, handle, mix and apply 15mm thick 1:3 cement: sand mortar screed including water proof cement to the interior surface of the concrete block walls	Sm	51.05		
11.1.29	Ditto to the exterior surface of block walls including water proof cement.	Sm	56.16		
11.1.30	20mm thick 1:3 cement: sand mortar screed to the exterior surface of the roof slab	Sm	23.76		
	Metal Work and Miscellaneous Items				
11.1.31	Supply and install internal and external tank ladder fabricated on stainless steel tubing and include provision and fixing of 25mm G.S Pipes extension of ladder top as directed by the Engineer.	No	2		
11.1.32	Supply and install tank manhole cover size 600mmx 450mm fabricated on 3mm thick steel plate including locking device and good quality padlock.	No	1		
11.1.33	Supply and install 100mmΦ GI bend to air vent as per the drawing	No	4		
11.1.34	100mmΦ G.S pipe threaded on one side and side lugged and fixed to the top concrete cover slab.	m	3		
	Painting				
11.1.35	Apply undercoat to external walling	Sm	56.16		
11.1.36	Ditto cream paint	Sm	56.16		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
11.1.37	Ditto Bermuda blue paint 600mm from bottom of tank and 600mm from top of tank	Sm	20.73		
11.1.38	Provide and tie mosquito gauze to the G.S bend opening to air vents above the tank roof cover slap.	No	3		
	Tank-Associated Pipework <i>Provide, handle cut and fix the following pipe fittings as per the drawing.</i>				
	Inlet				
11.1.39	50mmΦ G.I pipe	m	5		
11.1.40	50mmΦ G.I bend	No	3		
11.1.41	50mmΦ G.I Socket	No	1		
11.1.42	50mmΦ G.I nipple	No	1		
11.1.43	50mmΦ G.I elbow	No	3		
11.1.44	Float valve	No.	1		
	Outlet				
11.1.45	50mmΦ G.I pipe	m	5		
11.1.46	50mm ΦG.I tee	No	2		
11.1.47	50mmΦ bend	No	3		
11.1.48	3mm thick rubber gasket	No	1		
11.1.49	50mm x 40mmΦ G.I reducing bush	No	3		
11.1.50	50mmΦ gate valve	No	1		
	Overflow Pipe				
11.1.51	50mmΦ G.I pipe	m	2		
11.1.52	50mmΦ G.I socket	No	1		
11.1.53	50mmΦ G.I Plain flange	No	1		
11.1.54	50mmΦ G.I bend	No	2		
	Scour Pipe				
11.1.55	50mmΦ G.I pipe	m	3		
11.1.56	50mmΦ plain G.I flange	No	1		
11.1.57	50mm ΦG.I nipple	No	2		
11.1.58	50mmΦG.I bend	No	1		
11.1.59	50mmΦ G.I socket	No	2		
11.1.60	50mmΦG.I union	No	1		
11.1.61	50mmΦ gate valve	No	1		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	Pipes and Fittings.				
11.1.62	Supply and lay 2" HDPE pipes	m	500		
11.1.63	Supply and lay 2" G.I pipes class B	m	24		
TOTAL FOR BILL 11 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 12:
WATER TREATMENT

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 12: WATER TREATMENT PLANT AND REVERSE OSMOSIS SYSTEM				
	SECTION 1: CHLORINATION UNITS				
12.1.1	Chlorination House Provide all materials, fabricate and install a 2mx2m steel structure for housing the inline chlorine dosing system, all as detailed in the drawings.	LS	1		
12.1.2	Chlorination Equipment Supply, install, and commission of a complete inline chlorination system, designed for a flow rate of up to 30 m³/hr, comprising a high-capacity Dosatron D8RE3000 proportional dosing pump (0.2–2% adjustable dosing), 100-litre GRP dosing tank with outlet and stand, suction hose kit with integrated filter and non-return valve, inline pressure regulator (5–6 bar), 2-inch non-return valve and Y-strainer, all necessary fittings and accessories, including installation, testing, and operator training.	LS	1		
	Total for Water Treatment (Chlorination Unit) for 1No Borehole Total for Water Treatment (Chlorination Unit) for 2No Boreholes				
	SECTION 1: CHLORINATION UNIT	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: WATER TREATMENT PLANT				
12.2.1	Supply and Install 1m³/hr water treatment plant consisting of pre-treatment (ultrafiltration) unit and a reverse osmosis unit for maximum TDS 5,000 PPM	No	1		
12.2.2	uPVC Water Storage Tanks Supply and install 1Nr. UPVC water tank of capacity 5,000ltrs. Rate to include transport to site, preparation of holding base, installation and connection to the inlets and outlet pipework - for treated water storage	No	1		
12.2.3	Supply and install 2Nr. UPVC water tanks of capacity 10,000ltrs. Rate to include transport to site, construction of holding base, installation and connection to inlet and outlet pipework- for raw water storage and pretreated raw water storage	No	2		
12.2.4	Plumbing Supply and install all necessary pipework and fittings for connection between the water storage tanks and the water treatment plant units.	m	5		
12.2.5	RO Operation and Maintenance Services Operation and Maintenance (O&M) of Reverse Osmosis (RO) Water Treatment Plant for 36 months, including provision of skilled personnel, routine servicing, repairs, consumables, spare parts, performance monitoring, and reporting, in accordance with the technical specifications and manufacturer's guidelines.	Item	1		
	SECTION 2: REVERSE OSMOSIS UNIT	Carried to Main Summary			

[illegible]

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 4: SOLAR POWER				
12.4.1	Supply, install, test and commission of an array of solar with the following specifications: 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 15kW on a bright sunny day at midday taking into account the system losses.	No.	30		
12.4.2	Supply, installation and furnishing support structures with the following specifications: Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
12.4.3	Supply, install, test and commission a 15kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 15kW 31A complete with accessories. The inverter to be installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54.	Set	1		
12.4.4	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
12.4.5	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
12.4.6	Supply, install, test and commission 6mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	Lm	100		
12.4.7	Supply, install, test and commission weather monitoring system	No	1		
12.4.8	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
12.4.9	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
12.4.10	Allow for 12 months after sale service including training of operators and technicians.	Ls	1		
12.4.11	Stand alone Solar Powered Security Lights Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
12.4.12	Booster Pump To WK Supply & install a Surface Multistage centrifugal Pump and Motor, continuously rated and capable of pumping 1m³/hr of water against a total head of 5m. The pump set to be duty and stand-by with automamic switch and controls	No.	1		
	SECTION 4: SOLAR POWER	Carried to Main Summary			
ITEM	DESCRIPTION				AMOUNT (KSHS)
	SECTION 5: RO UNIT PLANT ROOM				
	SUBSECTION 1: SUBSTRUCTURES (PROVISIONAL)				
	Excavations and Earthworks (Provisional)				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
12.5.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	19.36		
12.5.2	Excavate for trench foundations for strip footings not exceeding 1.50 metres deep, starting from reduced levels	Cm	15.84		
12.5.3	Extra over for excavation in rock of all classes	Cm	4.75		
	<i>Disposal</i>				
12.5.4	Return, fill and ram selected excavated material around foundations.	Cm	9.15		
12.5.5	Load, wheel and deposit surplus excavated material away from site	Cm	6.69		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>Hardcore or other approved filling, as described</u>				
12.5.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	19.36		
12.5.7	50 mm thick quarry dust or approved murrum blinding layer to surfaces of hardcore m.s	Sm	19.36		
	<u>Anti - termite treatment</u>				
12.5.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore (m/s)	Sm	19.36		
	<u>Damp-proof membrane</u>				
12.5.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	19.36		
	<u>Concrete works</u>				
	<u>Plain concrete class 15: in</u>				
12.5.10	50 mm thick blinding under strip foundations	Sm	10.56		
	<u>Vibrated Reinforced Concrete class 20/20: as described in</u>				
12.5.11	Strip footings	Cm	2.11		
12.5.12	150 mm Thick Surface beds	Cm	2.90		
12.5.13	Ditto; to sloping ramp slabs at the door entrance	Cm	0.18		
	<u>Reinforcement (Provisional)</u>				
	<u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u>				
12.5.14	Assorted bars (D8 - D16)	Kg	62.98		
	<u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</u>				
12.5.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	19.36		
	<u>Formwork</u>				
	<u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u>				
12.5.16	Vertical sides of strip footings	Sm	35.20		
12.5.17	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	17.60		
12.5.18	Ditto: but sloping, to ramp	Lm	4.00		
	<u>Foundation walling</u>				
	<u>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</u>				
12.5.19	200 mm thick foundation walling	Sm	28.16		
	<u>Plinth finishes</u>				
	<u>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar; wood floated; on masonry or concrete surfaces: as described to</u>				
12.5.20	Concrete and masonry surfaces externally; finished smooth	Sm	7.92		
	<u>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</u>				
12.5.21	Rendered surfaces, externally	Sm	7.92		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>SUBSECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 25/20: as described in</i>				
12.5.22	Beams	Cm	1.06		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
12.5.23	Assorted bars (D8 - D16)	Kg	100.89		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
12.5.24	Vertical sides and soffits of beams	Sm	10.56		
	<u>SUBSECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
12.5.25	200 mm thick walling	Sm	23.82		
12.5.26	Ditto: to Gable walling	Sm	4.40		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
12.5.27	200 mm wide; levelled and bedded under wall	Lm	17.60		
	<u>Ventilation</u>				
12.5.28	Supply and install 300 x 200 x 200mm concrete louvre blocks and place in 1:3 cement/sand as shall be directed.	Sm	2.00		
	<u>SUBSECTION 4: ROOFING</u>				
	<u>Roof Structure (Provisional)</u>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
12.5.29	Purlins: 50 x 50	m	24.00		
12.5.30	Wall plate: 150x50mm	m	17.60		
12.5.31	Rafters: 150x50	m	24.00		
	<u>Eaves Finishes</u>				
12.5.32	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	19.20		
	<u>Roof covering</u>				
	<i>Gauge 24 IT4 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</i>				
12.5.33	Roof covering: including all necessary fixtures	Sm	23.04		
	<i>Heavy duty roof insulation complete with polythylene foam core that provides a radiant barrier, reflective insulation and moisture barrier; fixed in accordance to manufacturer's printed instructions: as described to</i>				
12.5.34	10 mm thick double-sided reflective foil insulation; underlay	Sm	23.04		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>SUBSECTION 5: EXTERNAL FINISHES</u>				
	<u>External wall finishes</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
12.5.35	Concrete surfaces externally; finished smooth	Sm	5.28		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
12.5.36	Masonry surfaces externally; finished smooth	Sm	28.22		
	<u>Ramp finishes</u>				
	<i>25 mm thick screeds: Cement and sand (1:3) mortar: steel trowelled: as described to</i>				
12.5.37	Surfaces of ramps, sloping	Sm	1.80		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
12.5.38	Rendered concrete surfaces, externally	Sm	5.28		
	<u>SUBSECTION 6: INTERNAL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
12.5.39	Concrete surfaces, internally	Sm	5.28		
12.5.40	Masonry surfaces, internally	Sm	28.22		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
12.5.41	25 mm thick screeds in floors to steel trowel finish	Sm	19.36		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <u>matt emulsion</u> paint as described on</i>				
12.5.42	Plastered concrete surfaces, internally	Sm	5.28		
12.5.43	Plastered walls surfaces, internally	Sm	28.22		
	<u>SUBSECTION 7: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
12.5.44	Overall size 900 x 2100 mm high; details as per standard drawings No GW4R-WJR-STD-14.01	No	1		
12.5.45	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
12.5.46	General surfaces of metal doors (measured on both sides)	Sm	1.89		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>SUBSECTION 8: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u>				
	<u>Builder's work in connection with Electrical Installations;</u>				
12.5.47	Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<u>SECTION 5</u>				
	RO UNIT PLANT ROOM				
	Carried to Main Summary				
ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 12: WATER TREATMENT PLANT AND REVERSE OSMOSIS SYSTEM</u>				
	<u>SUMMARY</u>				
1	CHLORINATION UNITS				
2	REVERSE OSMOSIS				
3	EVAPORATION POND				
4	SOLAR POWER & SURFACE PUMP				
5	PLANT ROOM				
	Total for 1No. RO Unit				
	Total for Water Treatment for Masalale Scheme				
TOTAL FOR BILL 12 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 13:
GENERATOR HOUSE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u>				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks (Provisional)</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
13.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	23.76		
13.1.2	Excavate for trench foundations for strip footings not exceeding 1.50 metres deep, starting from reduced levels	Cm	17.64		
13.1.3	Extra over for excavation in rock of all classes	Cm	5.29		
	<i><u>Disposal</u></i>				
13.1.4	Return, fill and ram selected excavated material around foundations.	Cm	10.19		
13.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	7.45		
	<i><u>Hardcore or other approved filling, as described</u></i>				
13.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	23.76		
13.1.7	50 mm thick quarry dust or approved murrum blinding layer to surfaces of hardcore m.s	Sm	23.76		
	<u>Anti - termite treatment</u>				
13.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	23.76		
	<u>Damp-proof membrane</u>				
13.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	23.76		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
13.1.10	50 mm thick blinding under strip foundations	Sm	11.76		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
13.1.11	Strip footings	Cm	2.35		
13.1.12	150 mm Thick Surface beds	Cm	3.56		
13.1.13	Ditto; to sloping ramp slabs at the door entrance	Cm	0.32		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
13.1.14	Assorted bars (D8 - D16)	Kg	70.14		
	<i><u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</u></i>				
13.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	23.76		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
13.1.16	Vertical sides of strip footings	Sm	39.20		
13.1.17	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	19.60		
13.1.18	Ditto: but sloping, to ramp	Lm	4.00		
	<u>Foundation walling</u>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
13.1.19	200 mm thick foundation walling	Sm	31.36		
	<u>Plinth finishes</u>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
13.1.20	Concrete and masonry surfaces externally; finished smooth	Sm	8.82		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</i>				
13.1.21	Rendered surfaces, externally	Sm	8.82		
	<u>Paving Slabs</u>				
	<i>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</i>				
13.1.22	Paving slabs, around building (one row); including all excavations and earthworks	Sm	11.76		
	SECTION 1: Carried to				
	SUBSTRUCTURES Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u>				
	<u>SECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
13.2.1	Beams	Cm	1.76		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
13.2.2	Assorted bars (D8 - D16)	Kg	112.36		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
13.2.3	Vertical sides and soffites of beams	Sm	17.64		
	SECTION 2: Carried to				
	R.C SUPERSTRUCTURE Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<u>SECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course; as described to</i>				
13.3.1	200 mm thick walling	Sm	22.26		
13.3.2	Ditto: to Gable walling	Sm	6.68		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
13.3.3	200 mm wide; levelled and bedded under wall	Lm	19.60		
	<u>Ventilation</u>				
13.3.4	Supply and install 300 x 200 x 200mm concrete louvre blocks and place in 1:3 cement/sand as shall be directed.	Sm	15.54		
	<u>SECTION 3:</u>				
	<u>WALLING</u>				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE				
	<u>SECTION 4: ROOFING</u>				
	<u>Roof Structure (Provisional)</u>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
13.4.1	Tie beam: 100 x50	m	22		
13.4.2	King Post: 100x50	m	6.35		
13.4.3	Struts: 75x50	m	19.10		
13.4.4	Purlins: 50 x 50	m	46.40		
13.4.5	Wall plate: 150x50mm	m	47.52		
13.4.6	Rafters: 100x50	m	30.60		
	<u>Eaves Finishes</u>				
13.4.7	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	23.82		
	<u>Roof covering</u>				
	<i>Gauge 28 IT4 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</i>				
13.4.8	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	35.43		
13.4.9	Ridge cap to match	Lm	5.80		
	<u>SECTION 4</u>				
	<u>ROOFING</u>				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE				
	<u>SECTION 5: EXTERNAL FINISHES</u>				
	<u>External wall finishes</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
13.5.1	Concrete surfaces externally; finished smooth	Sm	8.82		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
13.5.2	Masonry surfaces externally; finished smooth	Sm	28.94		
	<u>Ramp finishes</u>				
	<i>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</i>				
13.5.3	Surfaces of ramps, sloping	Sm	3.20		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
13.5.4	Rendered concrete surfaces, externally	Sm	8.82		
	<u>SECTION 5</u>				
	EXTERNAL FINISHES				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<u>SECTION 6: INTERNAL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
13.6.1	Concrete surfaces, internally	Sm	8.82		
13.6.2	Masonry surfaces, internally	Sm	28.94		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
13.6.3	25 mm thick screeds on floor to finish level	Sm	23.76		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint as described on</i>				
13.6.4	Plastered concrete surfaces, internally	Sm	8.82		
13.6.5	Plastered walls surfaces, internally	Sm	28.94		
	<u>SECTION 6</u>				
	INTERNAL FINISHES				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE				
	<u>SECTION 7: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
13.7.1	Overall size 1600 x 2100 mm high; details as per standard drawings No GW4R-MDR-STD-05	No	1		
13.7.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
13.7.3	General surfaces of metal doors (measured on both sides)	Sm	6.72		
	SECTION 7 DOORS Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<u>SECTION 8: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u>				
	<u>Builder's work in connection with Electrical Installations:</u>				
13.8.1	Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<u>SECTION NO. 8 B.W.I.C WITH SERVICES</u> Carried to Main Summary				
ITEM	DESCRIPTION				AMOUNT
	<u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u>				
	<u>SUMMARY</u>				
1	Substructure (Provisional)				
2	R.C. Superstructure				
3	Walling				
4	Roofing				
5	External Finishes				
6	Internal Finishes				
7	Doors				
8	Builders' Work in Connection with Services (Provisional)				
	TOTAL FOR 1No. GENERATOR HOUSE				
	TOTAL FOR 1No. GENERATOR HOUSE		1		
TOTAL FOR BILL 13 CARRIED FORWARD TO PROJECT SUMMARY					

RIBA WATER SUPPLY SCHEME

PROJECT SUMMARY

RIBA WATER SUPPLY SCHEME, WAJIR COUNTY

MAIN SUMMARY

BILL	DESCRIPTION	AMOUNT
1	PRELIMINARIES AND GENERAL ITEMS	
2	BOREHOLES, PUMPS AND POWER SUPPLY	
3	FENCING AND GATES	
4	WATER KIOSKS	
5	OPERATOR'S BUILDING	
6	PIT LATRINES	
7	WATER TROUGHS	
8	PIPEWORKS	
9	ELEVATED STEEL TANK	
10	ELEVATED PLASTIC TANK	
11	GROUND MASONRY TANK	
12	WATER TREATMENT	
13	GENERATOR HOUSE	
TOTAL FOR RIBA WATER SUPPLY SCHEME		

**BILL No. 2:
BOREHOLES, PUMPS AND
POWER SUPPLY**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY				
	RIBA BH1				
	SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	SECTION 1:	Carried to			
	MOBILIZATION AND SETTING UP	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe),Class E	Lm	150		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 50mm diameter rising main GMS water pipe, Class C.	Lm	150		
2.2.7	50mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	50mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	Supply, install & connect all incoming and outgoing cables to make the pump set work				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	300		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	400		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	Solar panels Cleaning - Sprinklers system				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	BOREHOLE PUMP				
2.2.19	Provide the Maintenance & Rehabilitation of the existing Borehole Pump to include Pulling out, testing, checking of controller & cable connections, re-installation, test and commissioning	No	1		
	SECTION 2:	Carried to			
	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM <i>Supply, install, test and commission the following Data Acquisition & Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i> Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication- RS232 2G, 3G, 4G/LTE. Temperature range - -20 to 80 degrees and Conductivity 0 to 30 0r 12mS/cm2				
2.3.1		No	1		
2.3.2	Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal	No	1		
2.3.3	DXT -Cable - AS2xxx with standard lengths of 300m	m	300		
2.3.4	Allow for Testing, User Training and Commissioning the Monitoring system	Ls	1		
SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM					Carried to Main Summary

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 4: SOLAR POWER				
2.4.1	Supply, install, test and commission of an array of solar with the following specifications: 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 11kW on a bright sunny day at midday taking into account the system losses. (2750W -To add to the existing solar Panels)	No.	6		
2.4.2	Allow for Maintenance and Rehabilitation of the existing Solar Panels to involve cleaning of the solar panels, checking for any faults/cracks, Cable connections, Testing output and performance, Re-positioning for maximum efficiency. The cost to include the rehabilitation of the existing mounting structures to include but not limited to spray painting, anchoring and reinforcing loose supports.	PS	1	100,000	100,000
2.4.3	Supply, installation and furnishing support structures with the following specifications: Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.4	Supply, Install, Test and Commission a 11kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz IP66 20kW 31A complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemechanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.5	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.6	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.7	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.8	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.9	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.10	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.11	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.12	Stand alone Solar Powered Security Lights Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	SECTION 4:				
	SOLAR POWER	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 5: GENERATOR POWER BACK-UP				
2.5.1	Allow for Complete Maintenance of Generator Engine, Rewiring or replacement of the Alternator, Checking and repair of cooling system, fuel systems, filters, mountings, exhaust and general repairs of the existing Generators.	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	Fire Fighting Equipment				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	SECTION 5:	Carried to			
	GENERATOR POWER BACK UP	Main Summary			
SEC	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u>				
	RIBA BH1				
	<u>SUMMARY</u>				
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY				
	RIBA BH1				
	SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	SECTION 1:	Carried to			
	MOBILIZATION AND SETTING UP	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe), Class E	Lm	150		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 50mm diameter rising main GMS water pipe, Class C.	Lm	150		
2.2.7	50mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	50mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	Supply, install & connect all incoming and outgoing cables to make the pump set work				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	300		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	400		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	Solar panels Cleaning - Sprinklers system				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	BOREHOLE PUMP				
2.2.19	Provide the Maintenance & Rehabilitation of the existing Borehole Pump to include Pulling out, testing, checking of controller & cable connections, re-installation, test and commissioning	No	1		
	SECTION 2:	Carried to			
	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM <i>Supply, install, test and commission the following Data Acquisition & Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i> Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - 20 to 80 degrees and Conductivity 0 to 30 0r 12mS/cm2 Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal DXT -Cable - AS2xxx with standard lengths of 300m Allow for Testing, User Training and Commissioning the Monitoring system	No	1		
		No	1		
		m	300		
		Ls	1		
SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM					Carried to Main Summary

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 4: SOLAR POWER				
2.4.1	Allow for Maintenance and Rehabilitation of the existing Solar Panels to involve cleaning of the solar panels, checking for any faults/cracks, Cable connections, Testing output and performance, Re-positioning for maximum efficiency. The cost to include the rehabilitation of the existing mounting structures to include but not limited to spray painting, anchoring and reinforcing loose supports.	PS	1	100,000	100,000
2.4.2	Supply, installation and furnishing support structures with the following specifications: Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.3	Supply, Install, Test and Commission a 11kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz IP66 20kW 31A complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemecanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.4	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.5	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.6	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.7	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.8	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.9	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.10	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.11	Stand alone Solar Powered Security Lights Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
SECTION 4: SOLAR POWER					Carried to Main Summary

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 5: GENERATOR POWER BACK-UP				
2.6.1	Supply, Deliver, Install, Test and Commission New 30 KVA Power Back up Generator	No	1		
2.6.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.6.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.6.4	10mm2 4Core Underground Cable	m	30		
	Fire Fighting Equipment				
2.6.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	SECTION 5: GENERATOR POWER BACK UP				
	Carried to Main Summary				
SEC	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u>				
	RIBA BH1				
	<u>SUMMARY</u>				
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 3:
FENCING AND GATE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 3 - FENCING AND GATE BH				
	SECTION 1: GATES AND GATE ENTRANCE				
	<u>Excavations and Earthworks</u> <i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<u>Disposal</u>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<u>Concrete works</u>				
	<u>Plain concrete class 15: in</u>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<u>Vibrated Reinforced Concrete class 20/20: as described in</u>				
3.1.6	Column bases	Cm	1.296		
	<u>Vibrated Reinforced Concrete class 25/20: as described in</u>				
3.1.7	Columns	Cm	0.972		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<u>Formwork</u>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<u>Coping</u> <i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<u>Finishes</u>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<u>Gates</u>				
	<i><u>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</u></i>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to Pedestrian gate: overall size 1,300 x 2,400 mm high	No	1		
	<u>Painting and decoration</u>				
	<i><u>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</u></i>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<i><u>Prepare and apply two finishing coats of super gloss enamel paint to:</u></i>				
3.1.17	General surfaces of metal gates (measured on both sides)	Sm	25.44		
SECTION 1: GATES AND GATE ENTRANCE				Carried to Main Summary	

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: CHAIN-LINK FENCING				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	77.35		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	6		
	SECTION 2: CHAIN-LINK FENCING	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: STORMWATER DRAINS				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	SECTION 3: STORMWATER DRAINS	Carried to Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 3 - FENCING AND GATE BH</u>				
	<u>SUMMARY</u>				
1	GATES AND GATE ENTRANCE				
2	CHAIN-LINK FENCING				
3	STORMWATER DRAINS				
TOTAL FOR BILL 3 CARRIED FORWARD TO PROJECT SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 3 - FENCING AND GATE BH				
	SECTION 1: GATES AND GATE ENTRANCE				
	<u>Excavations and Earthworks</u> <i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<u>Concrete works</u> <i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<u>Reinforcement (Provisional)</u> <i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<u>Formwork</u> <i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<u>Coping</u> <i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<u>Finishes</u>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<u>Gates</u>				
	<i><u>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</u></i>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to Pedestrian gate: overall size 1,300 x 2,400 mm high	No	1		
	<u>Painting and decoration</u>				
	<i><u>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</u></i>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<i><u>Prepare and apply two finishing coats of super gloss enamel paint to:</u></i>				
3.1.17	General surfaces of metal gates (measured on both sides)	Sm	25.44		
<u>SECTION 1:</u> GATES AND GATE ENTRANCE				Carried to Main Summary	

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: CHAIN-LINK FENCING				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	77.35		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	6		
	SECTION 2:	Carried to			
	CHAIN-LINK FENCING	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: STORMWATER DRAINS				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	SECTION 3:	Carried to			
	STORMWATER DRAINS	Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 3 - FENCING AND GATE BH</u>				
	<u>SUMMARY</u>				
1	GATES AND GATE ENTRANCE				
2	CHAIN-LINK FENCING				
3	STORMWATER DRAINS				
TOTAL FOR BILL 3 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 4:
WATER KIOSKS

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
4.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	16.35		
4.1.2	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	4.86		
4.1.3	Excavate for Strip footing pits not exceeding 1.0 metres deep, starting from reduced levels	Cm	3.12		
4.1.4	Extra over for excavation in rock of all classes	Cm	3.99		
	<i><u>Disposal</u></i>				
4.1.5	Return, fill and ram selected excavated material around foundations.	Cm	3.72		
4.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	4.26		
	<i><u>Hardcore or other approved filling, as described</u></i>				
4.1.7	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	4.91		
4.1.8	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	16.35		
	<u>Anti-termite treatment</u>				
4.1.9	Chemical anti-termite treatment executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	16.35		
	<u>Damp-proof Membrane</u>				
4.1.10	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	16.35		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
4.1.11	50 mm thick blinding under Column bases	Sm	3.24		
4.1.12	Ditto: under Strip footings	Sm	3.12		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.13	Column bases	Cm	1.33		
4.1.14	Columns	Cm	0.19		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.15	100 mm thick floor Slab	Cm	1.16		
4.1.16	Ditto; to sloping ramp slabs	Cm	0.69		
4.1.17	Strip footings	Cm	0.62		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
4.1.18	Assorted bars (D8 - D16)	Kg	128.88		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 25/20: as described in</i>				
4.2.1	Beams	Cm	0.59		
4.2.2	Roof slab, 150 mm thick	Cm	1.23		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.2.3	Assorted bars (D8 - D16)	Kg	129		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
4.2.4	Vertical sides and soffits of beams	Sm	5.88		
4.2.5	Vertical sides of columns	Sm	6.72		
4.2.6	Horizontal soffits of suspended slabs	Sm	8.19		
4.2.7	Edge of suspended slabs over 75 mm but not exceeding 150 mm girth	Sm	2.20		
	SECTION 2: Carried to SUPERSTRUCTURE Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.3.1	200 mm thick walling	Sm	15.60		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
4.3.2	200 mm wide; levelled and bedded under wall	Lm	14.66		
	<u>Coping</u>				
	<i>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</i>				
4.3.3	Size 200 x 75 mm coping; twice weathered and throated	Lm	2.30		
	SECTION 3: Carried to WALLING Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 4: EXTERNAL FINISHES</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
4.4.1	Concrete surfaces externally; finished smooth	Sm	2.95		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
4.4.2	Masonry surfaces externally; finished smooth	Sm	12.64		
	<u>Steps and Ramp finishes</u>				
	<i>Cement and sand (1:3) screeds, backings, beds etc; coloured to approval: finished in smooth steel float</i>				
4.4.3	Treads to steps, 300 mm wide	Lm	6		
4.4.4	Risers to steps, 150 mm high	Lm	6		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
4.4.5	Rendered concrete surfaces, externally	Sm	3.0		
	SECTION 4: Carried to				
	EXTERNAL FINISHES Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>SECTION 5: INTERNAL WALL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
4.5.1	Concrete surfaces, internally	Sm	2.95		
4.5.2	Masonry surfaces, internally	Sm	12.64		
4.5.3	Jambs and reveals: 100 - 200 mm girth	Lm	10.40		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
4.5.4	25 mm thick screeds on floors to steel trowel finish	Sm	7		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint: as described on</i>				
4.5.5	Plastered concrete surfaces, internally	Sm	3		
4.5.6	Plastered walls surfaces, internally	Sm	13		
4.5.7	Jambs and reveals: 100 - 200 mm girth	Lm	10		
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of brilliant white plastic emulsion paint as: as described on</i>				
4.5.8	Plastered soffits of slabs, internally	Sm	8		
	SECTION 5 : Carried to				
	INTERNAL FINISHES Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1 <u>SECTION 6: DOORS</u> <u>Metal Doors</u> <i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i> 4.6.1 Door: Overall Size 900 x 2100 mm high, in single leaf; complete with purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Architectural design and details 4.6.2 Rubber door stop; fixed to floor or wall in rawl bolt <u>Painting and decoration</u> <i>Prepare and apply two finishing coats of super gloss finished paint to:</i> 4.6.3 General surfaces of metal doors (measured on both sides)	No	1		
		No	1		
		Sm	4		
	<u>SECTION 6</u> DOORS	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1 <u>SECTION 7: WINDOWS</u> <u>Steel Windows</u> <i>The following to Water Kiosk:-</i> <i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule: as described to</i> 4.7.1 Window overall size: 1000 x 1200 mm high: in two equal leaves; complete with advert pockets in 500 x 600 mm perspex covers; details to Engineer's design and details <u>Painting & Decoration</u> <i>Prepare and apply two finishing coats of super gloss finished paint to:</i> 4.7.2 General surfaces of metal windows (measured on both sides)	No	1		
		Sm	3.12		
	<u>SECTION 7</u> WINDOWS	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 1</u>				
	SECTION 8: PLASTIC WATER TANK AND WATER KIOSK ATM				
	<u>5,000 litres Elevated Plastic Tank</u>				
4.8.1	Provide for the purchase, supply and installation of a 5m3 plastic tank & fix all the necessary fittings including inlets, outs, and taps as directed by the supervising Engineer	No	1		
4.8.2	Supply, Install and Commission a 25mm diameter water meter.	No	1		
4.8.3	25mm Gate valves	No	7		
	<u>Tank Roof</u>				
	<i>Sawn cypress first grade; pressure impregnated; thoroughly seasoned and treated with anti-termite; and other jointing accessories to structural engineer's details; timber to meet the following minimum strength criteria, bending 5N/mm2, tension 3N/mm2 and compression 6N/mm2</i>				
4.8.4	50 x 50 x 3mm thick steel stanchion fixed to the reinforced concrete column to approval	Lm	10		
4.8.5	75 x 50 mm timber rafter fixed to the steel stanchions	Lm	12		
4.8.6	50 x 50 mm timber batten fixed to the rafter to approval	Lm	9		
4.8.7	MRM box profile sheets available in white and clear; 12,000mm length x 810mm width.	Sm	7		
	<u>Water ATM</u>				
4.8.8	Supply, install, test, and commission smart card-operated water ATM system including cabinet, dispenser, solar power unit, piping, fittings, control unit, and user training, complete as per specifications.	Ls	1		
4.8.9	Provide all materials and install high level MDF shelves inside water kiosks, as shown on the drawings.	Ls	1		
	<u>SECTION 8</u>				
	<u>PLASTIC WATER TANK</u>				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 9: SOAK AWAY PIT</u>				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
4.9.1	Excavate for soak away pit, 1.5m diameter, 2.7m depth, in normal soil	Cm	4.77		
4.9.2	Extra over for excavation in rock material	Cm	1.43		
4.9.3	Return, fill and ram selected excavated material around to 0.3m depth	Cm	0.53		
4.9.4	Load, wheel and deposit surplus excavated material away from site	Cm	4.24		
	<u>Hardcore or other approved filling, as described</u>				
4.9.5	300 mm thick handpacked h/core material in filling to 2.4m height, compacted in layers n.e. 150mm thick.	Cm	4.24		
	<u>Plastic Sheet Lining</u>				
4.9.6	1000 gauge polythene or other equal and approved plastic sheet lining, laid over hardcore.	Sm	1.77		
	<u>Drain Pipe</u>				
4.9.7	Supply and install 150mm dia uPVC drain pipe, 5m length	m	5.00		
	<u>SECTION 9</u>				
	<u>SOAK AWAY PIT</u>				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 1				
	<u>SECTION 10: GULLEY TRAP</u>				
	<u>Excavations and Earthworks</u>				
4.10.1	Excavate for gulley trap, 0.6m x 0.6m x 0.5m depth, in normal soil	Cm	0.22		
4.10.2	Load, wheel and deposit surplus excavated material away from site	Cm	0.22		
	<u>Concrete</u>				
4.10.3	Supply and place 50mm thick mass concrete blinding under base slab; class 15/20 for gulley trap (0.6m x 0.6m)	Cm	0.02		
4.10.4	Supply and place 100mm thick mass concrete base class 20/20 for gulley trap (0.6m x 0.6m)	Cm	0.04		
	<u>Blockwork</u>				
4.10.5	Supply and lay 150mm thick masonry blockwork walls in cement mortar joints, as approved (0.4m high)	Sm	0.7		
4.10.6	Plaster external and internal walls with 15mm thick cement:sand (1:4) render	Sm	1.44		
	<u>Fittings</u>				
4.10.7	Supply and install 50mm thick 400mm x 400mm precast concrete top cover slab for gulley trap (reinforced with A142 mesh fabric)	No.	1		
	<u>SECTION 10:</u>				
	<u>GULLEY TRAP</u>				
	Carried to Main Summary				

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 1</u>				
	<u>SUMMARY</u>				
4.1	Substructure (Provisional)				
4.2	R.C. Superstructure				
4.3	Walling				
4.4	External Wall Finishes				
4.5	Internal Finishes				
4.6	Doors				
4.7	Windows				
4.8	Plastic Water Tank and Water Kiosk ATM				
4.9	Soak Away Pit				
4.10	Gulley Trap				
	TOTAL FOR 1No. WATER KIOSK			Kes.	
	TOTAL FOR 6 No. WATER KIOSKS	NO.	6	Kes.	
TOTAL FOR BILL 4 CARRIED FORWARD TO PROJECT SUMMARY					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
4.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	14.56		
4.1.2	Excavate for strip footing pits not exceeding 1.5 metres deep, starting from reduced levels	Cm	12.00		
4.1.3	Extra over for excavation in rock of all classes	Cm	3.60		
	<i>Disposal</i>				
4.1.4	Return, fill and ram selected excavated material around foundations.	Cm	6.99		
4.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	5.01		
	<i>Hardcore or other approved filling, as described</i>				
4.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	4.37		
4.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	14.56		
	<u>Anti-termite treatment</u>				
4.1.8	Chemical anti-termite treatment executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	14.56		
	<u>Damp-proof Membrane</u>				
4.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	14.56		
	<u>Concrete works</u>				
	<i>Plain concrete class 15: in</i>				
4.1.10	50 mm thick blinding unde Strip footings	Sm	8.00		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
4.1.11	100 mm Thick floor slab	Cm	1.31		
4.1.12	Ditto; to sloping ramp slabs	Cm	0.69		
4.1.13	Strip footings	Cm	1.60		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.1.14	Assorted bars (D8 - D16)	Kg	96.00		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</i>				
4.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	13.77		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
4.2.1	Beams	Cm	0.49		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.2.2	Assorted bars (D8 - D16)	Kg	29		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
4.2.3	Vertical sides and soffits of beams	Sm	5.05		
4.2.4	Vertical sides of columns	Sm	6.72		
4.2.5	Horizontal soffits of suspended slabs	Sm	8.19		
4.2.6	Edge of suspended slabs over 75 mm but not exceeding 150 mm girth	Sm	2.29		
	SECTION 2:				
	SUPERSTRUCTURE				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.3.1	200 mm thick walling	Sm	15.60		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
4.3.2	200 mm wide; levelled and bedded under wall	Lm	14.66		
	<u>Coping</u>				
	<i>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</i>				
4.3.3	Size 200 x 75 mm coping; twice weathered and throated	Lm	2.30		
	SECTION 3:				
	WALLING				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 4: EXTERNAL FINISHES</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
4.4.1	Concrete surfaces externally; finished smooth	Sm	2.95		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
4.4.2	Masonry surfaces externally; finished smooth	Sm	12.64		
	<u>Steps and Ramp finishes</u>				
	<i>Cement and sand (1:3) screeds, backings, beds etc; coloured to approval: finished in smooth steel float</i>				
4.4.3	Treads to steps, 300 mm wide	Lm	6		
4.4.4	Risers to steps, 150 mm high	Lm	6		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as supplied by "Crown Paints" or approved equivalent: as described on</i>				
4.4.5	Rendered concrete surfaces, externally	Sm	3.0		
	<u>SECTION 4:</u>				
	EXTERNAL FINISHES				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>SECTION 5: INTERNAL WALL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
4.5.1	Concrete surfaces, internally	Sm	2.95		
4.5.2	Masonry surfaces, internally	Sm	12.64		
4.5.3	Jambs and reveals: 100 - 200 mm girth	Lm	10.40		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
4.5.4	25 mm thick screeds on floors to steel trowel finish	Sm	7		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint: as described on</i>				
4.5.5	Plastered concrete surfaces, internally	Sm	3		
4.5.6	Plastered walls surfaces, internally	Sm	13		
4.5.7	Jambs and reveals: 100 - 200 mm girth	Lm	10		
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of brilliant white plastic emulsion paint as: as described on</i>				
4.5.8	Plastered soffites of slabs, internally	Sm	8		
	<u>SECTION 5 :</u>				
	INTERNAL FINISHES				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 6: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
4.6.1	Door: Overall Size 900 x 2100 mm high, in single leaf; complete with purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Architectural design and details	No	1		
	<u>Ironmongery</u>				
	<i>Supply and fix the following ironmongery complete with matching screws: as described to</i>				
4.6.2	Steel door lock complete with handles	No	1		
4.6.3	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.6.4	General surfaces of metal doors (measured on both sides)	Sm	4		
	<u>SECTION 6</u>	Carried to			
	<u>DOORS</u>	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 7: WINDOWS</u>				
	<u>Steel Windows</u>				
	<u>The following to Water Kiosk:-</u>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule: as described to</i>				
4.7.1	Window overall size: 1200 x 1000 mm high: in two equal leaves; complete with advert pockets in 500 x 600 mm perspex covers; details to Engineer's design and details	No	1		
	<u>Painting & Decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.7.2	General surfaces of metal windows (measured on both sides)	Sm	3		
	<u>SECTION 7</u>	Carried to			
	<u>WINDOWS</u>	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 2</u>				
	SECTION 8: PLUMBING AND WATER KIOSK ATM				
4.8.1	Supply, install and commission a 32mm diameter water meter.	No	1		
4.8.2	Supply, Install and Commission a 25mm diameter water meter.	No	1		
4.8.3	25mm Gate valves	No	7		
	Water ATM				
4.8.4	Supply, install, test, and commission smart card-operated water ATM system including cabinet, dispenser, solar power unit, piping, fittings, control unit, and user training, complete as per specifications.	Ls	1		
4.8.5	Provide all materials and install high level MDF shelves inside water kiosks, as shown on the drawings.	Ls	1		
	SECTION 8	Carried to			
	PLUMBING	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 4: WATER KIOSK TYPE 2</u>				
	SECTION 9: ROOFING				
	<u>Roof Structure (Provisional)</u>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
4.9.1	Rafters: 150 x50	m	16.00		
4.9.2	Purlins: 50 x 50	m	13.50		
4.9.3	Wall plate: 150 x 50	m	5.40		
	<u>Eaves Finishes</u>				
	<i>Fascia Board: in 2mm thick mild steel</i>				
4.9.4	Fascia/Barge boards 250x25 mm thick sawn cypress and planed to approval	Lm	11.80		
	<u>Roof covering</u>				
	<i>Gauge 28 IT5 Pre-painted box-profiled roofing sheets</i>				
4.9.5	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	8.64		
	<i>Heavy duty roof insulation complete with polythylene foam core that provides a radiant barrier, reflective insulation and moisture barrier; fixed in accordance to manufacturer's printed instructions: as described to</i>				
4.9.6	10 mm thick double-sided reflective foil insulation; underlay	Sm	8.64		
	SECTION 9	Carried to			
	ROOFING	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 10: SOAK AWAY PIT</u>				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
4.10.1	Excavate for soak away pit, 1.5m diameter, 2.7m depth, in normal soil	Cm	4.77		
4.10.2	Extra over for excavation in rock material	Cm	1.43		
4.10.3	Return, fill and ram selected excavated material around to 0.3m depth	Cm	0.53		
4.10.4	Load, wheel and deposit surplus excavated material away from site	Cm	4.24		
	<u>Hardcore or other approved filling, as described</u>				
4.10.5	300 mm thick handpacked h/core material in filling to 2.4m height, compacted in layers n.e. 150mm thick.	Cm	4.24		
	<u>Plastic Sheet Lining</u>				
4.10.6	1000 gauge polythene or other equal and approved plastic sheet lining, laid over hardcore.	Sm	1.77		
	<u>Drain Pipe</u>				
4.10.7	Supply and install 150mm dia uPVC drain pipe, 5m length	m	5.00		
	<u>SECTION 10</u>	Carried to			
	SOAK AWAY PIT	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 4: WATER KIOSK TYPE 2				
	<u>SECTION 11: GULLEY TRAP</u>				
	<u>Excavations and Earthworks</u>				
4.11.1	Excavate for gulley trap, 0.6m x 0.6m x 0.5m depth, in normal soil	Cm	0.22		
4.11.2	Load, wheel and deposit surplus excavated material away from site	Cm	0.22		
	<u>Concrete</u>				
4.11.3	Supply and place 50mm thick mass concrete blinding under base slab; class 15/20 for gulley trap (0.6m x 0.6m)	Cm	0.02		
4.11.4	Supply and place 100mm thick mass concrete base class 20/20 for gulley trap (0.6m x 0.6m)	Cm	0.04		
	<u>Blockwork</u>				
4.11.5	Supply and lay 150mm thick masonry blockwork walls in cement mortar joints, as approved (0.4m high)	Sm	0.7		
4.11.6	Plaster external and internal walls with 15mm thick cement:sand (1:4) render	Sm	1.44		
	<u>Fittings</u>				
4.11.7	Supply and install 50mm thick 400mm x 400mm precast concrete top cover slab for gully trap (reinforced with A142 mesh fabric)	No	1		
	<u>SECTION 11</u>	Carried to			
	GULLEY TRAP	Main Summary			

BILL No. 5:
OPERATOR'S BUILDING AND
GUARD HOUSE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL No. 5: OPERATOR'S BUILDING</u>				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
5.1.1	Oversite excavation 200 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Cm	6.54		
5.1.2	Excavate for trench foundations not exceeding 1.50 metres deep, starting from reduced levels	Cm	20.52		
5.1.3	Extra over for excavation in rock of all classes	Cm	6.16		
	<i><u>Disposal</u></i>				
5.1.4	Return, fill and ram selected excavated material around foundations.	Cm	11.88		
5.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	8.64		
	<i><u>Hardcore or other approved filling, as described</u></i>				
5.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	9.80		
5.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	32.68		
	<u>Anti - termite treatment</u>				
5.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	32.68		
	<u>Damp-proof membrane</u>				
5.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	32.68		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
5.1.10	50 mm thick blinding under strip foundations	Sm	16.20		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
5.1.11	Strip footings	Cm	3.24		
5.1.12	150 mm Thick Surface beds	Cm	4.90		
5.1.13	Ditto; to sloping ramp slabs	Sm	0.54		
5.1.14	Extra over ramp slabs for formation of herringbone pattern; tamping to top surface of concrete slabs during casting	Sm	0.54		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
5.1.15	Assorted bars (D8 - D16)	Kg	162.00		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
5.1.16	<p><u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</u></p> <p>Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.</p> <p>Formwork</p> <p><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></p>	Sm	36.28		
5.1.17	Vertical sides of strip footings	Sm	10.80		
5.1.18	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	23.00		
5.1.19	Ditto: but sloping, to ramps	Lm	9.80		
	<p>Foundation walling</p> <p><u>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</u></p>				
5.1.20	150 mm thick foundation walling	Sm	36.00		
	<p>Plinth finishes</p> <p><u>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</u></p>				
5.1.21	Concrete and masonry surfaces externally; finished smooth	Sm	10.35		
	<u>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</u>				
5.1.22	Rendered surfaces, externally	Sm	10.35		
	<p>Paving slabs</p> <p><u>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</u></p>				
5.1.23	Paving slabs, around building (one row); including all excavations and earthworks	Sm	13.80		
Carried to Collection					
<p>Collection Page</p> <p>From Page 1</p> <p>From Page above</p>					
<p>SECTION 1: Carried to SUBSTRUCTURES Main Summary</p>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	SECTION 2: SUPERSTRUCTURE				
	R.C Frame				
	Concrete				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
5.2.1	Beams	Cm	1.01		
	Reinforcement (Provisional)				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
5.2.2	Assorted bars (D8 - D16)	Kg	0.51		
	Formwork				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
5.2.3	Vertical sides and soffits of beams	Sm	22.50		
	SECTION 2: R.C SUPERSTRUCTURE	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	SECTION 3: WALLING				
	External Walling				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
5.3.1	150 mm thick walling	Sm	36.90		
5.3.2	Ditto: to Gable walling	Sm	23.26		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
5.3.3	150 mm wide; levelled and bedded under wall	Lm	23.00		
	Internal Walling				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
5.3.4	150 mm thick walling	Sm	8.40		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
5.3.5	150 mm wide; levelled and bedded under wall	Lm	4		
	SECTION 3: WALLING	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	<u>SECTION 5: EXTERNAL FINISHES</u>				
	<u>External wall finishes</u>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
5.5.1	Concrete surfaces externally; finished smooth	Sm	6.90		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
5.5.2	Masonry surfaces externally; finished smooth	Sm	60.16		
	<u>Steps and Ramp finishes</u>				
	<i>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</i>				
5.5.3	Surfaces of ramps, sloping	Sm	3.60		
	<u>Painting and decorating</u>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
5.5.4	Rendered concrete surfaces, externally	Sm	6.90		
	SECTION 5 Carried to EXTERNAL FINISHES Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	<u>SECTION 6: INTERNAL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
5.6.1	Concrete surfaces, internally	Sm	9.30		
5.6.2	Masonry surfaces, internally	Sm	76.96		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
5.6.3	32 mm Thick bed screed on floor to steel trowel finish level	Sm	32.68		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint as "Crown Paints" or approved equivalent: as described on</i>				
5.6.4	Plastered concrete surfaces, internally	Sm	9.30		
5.6.5	Plastered walls surfaces, internally	Sm	76.96		
	SECTION 6 Carried to INTERNAL FINISHES Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 5: OPERATOR'S BUILDING				
	<u>SECTION 7: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer; building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
5.7.1	Overall size 1000 x 2100 mm high; details as per architectural drawings	No	2		
5.7.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	3		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.7.3	General surfaces of metal doors (measured on both sides)	Sm	4.20		
	<u>SECTION 7</u>	Carried to			
	<u>DOORS</u>	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<u>BILL No. 5: OPERATOR'S BUILDING</u>				
	<u>SECTION 8: WINDOWS</u>				
	<u>Window Sill</u>				
	<i>Precast concrete class 20 fair faced all exposed surfaces bedded and jointed cement and sand (1:3) mortar</i>				
5.8.1	Size 175 x 75 mm thick window sill once rebated and throated; laid and jointed in cement and sand (1:3) mortar	Lm	6.40		
	<u>Steel Casement Windows</u>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule; as described to</i>				
5.8.2	Window overall size: 1500 x 1175 mm high: details to Architect's design and details	No	2		
5.8.3	Window overall size: 2000 x 1175 mm high: details to Architect's design and details	No	2		
	<u>Painting & Decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.8.4	General surfaces of metal windows (measured on both sides)	Sm	8		
	<u>SECTION 8</u>	Carried to			
	<u>WINDOWS</u>	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5.9.1	<u>BILL No. 5: OPERATOR'S BUILDING</u>				
	<u>SECTION 9: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u>				
	<u>Builder's work in connection with Electrical Installations:</u> Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
5.9.2	<u>Builder's work in connection with plumbing and drainage installations:</u> Provide sum for cutting, making good and attendance in all trades on the subcontractor installing plumbing, drainage and fire-fighting installations: to include sanitary and fire-fighting fittings, wastes under floor slabs, supply pipes fixed on walls including cutting holes, chases and making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<u>SECTION NO. 9</u>	Carried to			
	<u>B.W.L.C WITH SERVICES</u>	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5.1	<u>BILL 5: OPERATOR'S BUILDING</u>				
	<u>SUMMARY</u>				
	Substructure (Provisional)				
	R.C. Superstructure				
	Walling				
	Roofing				
	External Finishes				
	Internal Finishes				
	Doors				
	Windows				
5.9	Builders' Work in Connection with Services (Provisional)				
TOTAL FOR 1No. OPERATOR'S BUILDING		No.	1	Kes.	
TOTAL FOR 1 No. OPERATOR'S BUILDING				Kes.	
TOTAL FOR BILL 5 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 6:
PIT LATRINE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL NO. 6: PIT LATRINES				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks</u>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
6.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	4.35		
6.1.2	Excavate for Strip footing pits not exceeding 1.5 metres deep, starting from reduced levels.	Cm	9.23		
6.1.3	Excavate for underground pit (size 1.5x 2.0 m), depth upto 6 m	Cm	18.00		
6.1.4	Extra over for excavation in rock of all classes	Cm	8.17		
	<u>Disposal</u>				
6.1.5	Return, fill and ram selected excavated material around foundations.	Cm	18.61		
6.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	16.78		
	<u>Hardcore or other approved filling, as described</u>				
6.1.7	Imported inert h/core material in filling to make up levels, compacted in layers n.e. 150 mm thick with a vibratory roller to the satisfaction and approval of the Structural Engineer (S.E)	Cm	1.30		
6.1.8	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	4.35		
6.1.9	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	4.35		
	<u>Anti-termite treatment</u>				
6.1.10	Chemical anti-termite treatment as <i>Termidor 96 SC</i> or aproved equivalent, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	4.35		
	<u>Damp-proof Membrane</u>				
6.1.11	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	4.35		
	<u>Concrete works</u>				
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
6.1.12	150 mm Thick floor Slab	Cm	1.38		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
6.1.13	Strip footings	Cm	1.23		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
6.1.14	Assorted bars (D8 - D16)	Kg	74		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</i>				
6.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	9.23		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork: as described to:-</i>				
6.1.16	Edges; over 75 mm but not exceeding 100 mm high, to slab	Lm	10.25		
	Carried to Collection				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
6.2.1	BILL NO. 6: PIT LATRINES				
	SECTION 2: SUPERSTRUCTURE				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
	Beams	Cm	0.51		
	<u>Reinforcement</u> (Provisional)				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
	Assorted bars (D8 - D16)	Kg	31		
	<u>Formwork</u>				
6.2.2	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
	Vertical sides and soffits of beams	Sm	5.13		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
BILL NO. 6: PIT LATRINES					
SECTION 4: EXTERNAL FINISHES					
<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>					
6.4.1	Concrete surfaces externally; finished smooth	Sm	3	488.88	
Painting and decorating					
<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>					
6.4.2	Rendered concrete surfaces, externally	Sm	3		
SECTION 4 EXTERNAL FINISHES Carried to Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
SECTION 5: INTERNAL FINISHES					
Wall Finishes					
<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>					
6.5.1	Concrete surfaces, internally	Sm	5		
Floor Finishes					
<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>					
6.5.2	25 mm thick screed on floor to finished level	Sm	3		
Painting and decoration					
<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint as described on</i>					
6.5.3	Plastered concrete surfaces, internally	Sm	5		
SECTION NO. 5 INTERNAL FINISHES Carried to Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
BILL NO. 6: PIT LATRINES					
SECTION 6: DOORS					
Wooden Doors					
<i>Supply, assemble and fix the following purpose made wooden doors: hardwood smoothly joined together; one shop coat of wood preservative primer; building in lugs on jambs and plugging and screwing to head; complete with purpose made ironmongery: as described to.</i>					
6.6.1	Wooden door: overall size 900 x1800 mm high, in single leaf; complete with hardwood frames, purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Standard Drawings and details.	No	2		
Ironmongery					
<i>Supply and fix the following ironmongery complete with matching screws: as described to</i>					
6.6.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	2		
Painting and decoration					
<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>					
6.6.3	General surfaces of wooden doors (measured on both sides)	Sm	6		
SECTION 6 DOORS Carried to Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 6: PIT LATRINES</u> <u>SECTION 7: WINDOWS</u> <u>Steel Windows</u> <i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Architect's schedule: as described to</i>				
6.7.1	Window overall size: 600 x 600 mm high: in single leaf; details to Standard drawings and details.	No	2		
	<u>Painting & Decoration</u> <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
6.7.2	General surfaces of metal windows (measured on both sides)	Sm	1		
	<u>SECTION 7 WINDOWS</u>	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL NO. 6: PIT LATRINES</u> <u>SECTION 8: ROOFING</u> <u>Roof Structure (Provisional)</u> <i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
6.8.1	Rafters: 150 x50	m	14.70		
6.8.2	Purlins: 50 x 50	m	17.70		
6.8.3	Wall plate: 150x50	m	10.25		
	<u>Eaves Finishes</u> <i>Fascia Board as described to:</i>				
6.8.4	Fascia/Barge boards 250x25 mm thick sawn cypress and planed to approval	Lm	5.04		
	<u>Roof covering</u> <i>Gauge 28 IT5 Pre-painted box-profiled roofing sheets</i>				
6.8.5	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	7.23		
	<u>SECTION 8 ROOFING</u>	Carried to Main Summary			

BILL No. 7:
WATER TROUGHS

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 7: WATER TROUGHS				
	<u>Section 1: Water Troughs for Camels and Cattle</u>				
	Excavations				
7.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	81.2		
7.1.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	14.64		
7.1.3	Return, fill and ram selected excavated material around foundations.	Cm	9.76		
	Hardcore filling				
7.1.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	81.2		
	Concrete Work				
7.1.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	19.44		
7.1.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.944		
7.1.7	Timber shattering provided to sides of floor slab	Lm	25.2		
7.1.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	19.44		
	Walling for substructure				
7.1.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	24.4		
	Walling for superstructure				
7.1.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	21.96		
	Wall finishes				
	<u>Cement and sand (1:3) render as described in:</u>				
7.1.11	12mm Thick with finish to masonry walling	Sm	43.92		
7.1.12	25mm thick floor finish	Sm	19.44		
	40mm diameter GI pipes and fittings for inlet pipeworks				
7.1.13	GI PN10 pipe	m	10		
7.1.14	GI Barrel Nipples	No	6		
7.1.15	GI Sockets	No	4		
7.1.16	GI Unions	No	3		
7.1.17	GI Gate Valves	No	2		
7.1.18	GI Ball valve	No	1		
7.1.19	GI Elbows	No	4		
7.1.20	2m wide stone masonry riprap all round the water trough	Sm	63.2		
	Subtotal for one (1) No Water Trough				
	Total for (4) No water troughs	No	4		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 7: WATER TROUGHS				
	<u>Section 2: Water Troughs for Sheep and Goats</u>				
	Excavations				
7.2.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	64.67		
7.2.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	11.22		
7.2.3	Return, fill and ram selected excavated material around foundations.	Cm	7.48		
	Hardcore filling				
7.2.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	64.67		
	Concrete Work				
7.2.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	14.31		
7.2.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.431		
7.2.7	Timber shattering provided to sides of floor slab	Lm	19.5		
7.2.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	14.31		
	Walling for substructure				
7.2.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	18.7		
	Walling for superstructure				
7.2.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	10.005		
	Wall finishes				
	<u>Cement and sand (1:3) render as described in:</u>				
7.2.11	12mm Thick with finish to masonry walling	Sm	20.01		
7.2.12	25mm thick floor finish	Sm	14.31		
	40mm diameter GI pipes and fittings for inlet pipeworks				
7.2.13	GI PN10 pipe	m	10		
7.2.14	GI Barrel Nipples	No	6		
7.2.15	GI Sockets	No	4		
7.2.16	GI Unions	No	3		
7.2.17	GI Gate Valves	No	2		
7.2.18	GI Ball valve	No	1		
7.2.19	GI Elbows	No	4		
7.2.20	2m wide stone masonry riprap all round the water trough	Sm	51.8		
	Subtotal for one (1) No Water Trough				
	Total for (1) No water troughs	No	1		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: -REHABILITATION OF EXISTING WATER TROUGHS				
	General Items:				
7.3.1	Site clearance and preparation, including removal of debris	Sm	50		
	Structural Rehabilitation:				
7.3.2	Hacking loose concrete/plaster from internal and external surfaces	Sm	44		
7.3.3	Applying new cement-sand plaster (1:3 mix) on internal and external surfaces	Sm	44		
7.3.4	Application of waterproofing treatment using approved sealants	Sm	28		
	Pipeworks and Water Supply:				
7.3.5	Replace outlet pipe to prevent water stagnation	m	10		
7.3.6	Installation of float valve to control water level	No.	1		
	Finishing and Protection:				
7.3.7	Reinforcing edges with concrete or stone pitching for durability	Sm	24		
	Testing and Commissioning:				
7.3.8	Leak testing and assessment after rehabilitation	Sum	1		
7.3.9	Cleaning, disinfection, and commissioning of the rehabilitated trough	Sum	1		
	Subtotal for one (1) No Water Trough				
	Total for (7) No water troughs	No	7		
TOTAL FOR BILL 7 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 8: PIPEWORK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 8: PIPE WORK SECTION 1: RISING MAIN <i>Refer to Construction Drawings</i> Site Clearance <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.1.1	General clearance along pipeline route	Lm	40		
8.1.2	Removal of trees of girth not exceeding 600mm	No	2		
8.1.3	Removal of trees of girth 600 to 900mm	No	1		
	Trench Excavation				
8.1.4	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	40		
8.1.5	Extra Over for excavation in rock of all types	Cm	4		
	Pipework <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<u>HDPE Pipes</u>				
8.1.6	HDPE pipes OD63mm PN10	m	40		
	<u>Gate Valves</u>				
8.1.7	DN 50mm gate valves. Include all fittings for connection to HDPE or GI pipes as appropriate	No	2		
	<u>Water Meters</u>				
8.1.8	Supply and install a DN 50mm dia master meter. Rate to include all jointing materials.	No	2		
	Valve Chambers <i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.1.9	Gate valve and meter chambers, as per the detailed drawings	No	2		
8.1.10	Extra Over for excavation in rock of all types, for chambers	Cm	0.52		
	Other Pipework Ancillaries <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.1.11	Pipeline marker posts	No	1		
8.1.12	Gate valve marker posts	No	2		
	Reinstatements				
8.1.13	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	SECTION 1:	Carried to			
	RISING MAIN	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: GRAVITY MAIN <i>Refer to Construction Drawings</i> Site Clearance <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.2.1	General clearance along pipeline route	Lm	2111		
8.2.2	Removal of trees of girth not exceeding 600mm	No	2		
8.2.3	Removal of trees of girth 600 to 900mm	No	1		
	Trench Excavation				
8.2.4	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	2111		
8.2.5	Extra Over for excavation in rock of all types	Cm	203		
	Pipework <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<u>HDPE Pipes</u>				
8.2.6	HDPE pipes OD25mm PN10	m	139		
8.2.7	HDPE pipes OD32mm, PN10	m	422		
8.2.8	HDPE pipes OD40mm, PN10	m	713		
8.2.9	HDPE pipes OD50mm PN10	m	40		
8.2.10	HDPE pipes OD75mm PN10	m	251		
8.2.11	HDPE pipes OD90mm, PN10	m	546		
	<u>Air valves</u>				
8.2.12	Various dia. flanged single orifice air valves PN 10. Include all the required pipework and fittings.	No	6		
	<u>Wash outs</u>				
8.2.13	Various dia. GI washout valves.	No	1		
	Valve Chambers				
	<i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.2.14	Air valve chambers, as per the detailed drawings	No	6		
8.2.15	Wash out chambers with outfall structure, as per drawings	No	1		
8.2.16	Extra Over for excavation in rock of all types, for chambers	Cm	1.81		
	Other Pipework Ancillaries <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.2.17	Pipeline marker posts	No	11		
8.2.18	Air valve marker posts	No	6		
8.2.19	Washout marker posts	No	1		
	PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION				
	Reinstatements				
8.2.20	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	SECTION 2: GRAVITY MAIN	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: DISTRIBUTION NETWORK <i>Refer to Construction Drawings</i> Site Clearance <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.3.1	General clearance along pipeline route	Lm	7,301		
8.3.2	Removal of trees of girth not exceeding 600mm	No	5		
	Trench Excavation				
8.3.3	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	7,301		
8.3.4	Extra Over for excavation in rock of all types	Cm	700.90		
	Pipework <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<u>HDPE Pipes</u>				
8.3.5	HDPE pipes OD25mm PN10	m	1330		
8.3.6	HDPE pipes OD32mm, PN10	m	1,263		
8.3.7	HDPE pipes OD40mm PN10	m	1,990		
8.3.8	HDPE pipes OD50mm PN10	m	653		
8.3.9	HDPE pipes OD63mm PN10	m	31		
8.3.10	HDPE pipes OD75mm PN10	m	148		
8.3.11	HDPE pipes OD90mm PN10	m	74		
8.3.12	HDPE pipes OD110mm PN10	m	1,812		
	Water Meters				
8.3.13	Supply and install water meters for the existing I.Cs.	No.	105		
	Other Pipework Ancillaries <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.3.14	Pipeline marker posts	No	37		
	PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION				
	Reinstatements				
8.3.15	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	SECTION 3: DISTRIBUTION NETWORK	Carried to Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	BILL No. 8: PIPE WORK				
	<u>SUMMARY</u>				
1	RISING MAIN				
2	GRAVITY MAIN				
3	DISTRIBUTION NETWORK				
	TOTAL				
TOTAL FOR BILL 8 CARRIED FORWARD TO PROJECT SUMMARY					

**BILL No. 9:
ELEVATED STEEL TANK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 9: ELEVATED STEEL TANKS <u>Earth works, concrete works and Tank construction to be done in line with EST drawing.</u> Excavations and Earthworks <u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u>				
9.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	25		
9.1.2	Excavate for Column pits not exceeding 1.50 metres deep, starting from reduced levels	Cm	37.5		
9.1.3	Extra over for excavation in rock of all classes	Cm	11.25		
9.1.4	Return, fill and ram selected excavated material around foundations.	Cm	19.2		
	Tank Construction Supply and place reinforced concrete Class C20/20 as foundation for tank tower. Rate to include for reinforcement bars for the foundation, and formwork as necessary	Cm	19.58		
9.1.6	Allow for compliance to other foundation requirements as recommended by the manufacturer	Sum	1		
9.1.7	Supply all materials, tools and equipment and erect a 50m ³ steel sectional tank of the Braithwaite type or equally approved standard include a tank tower of 15 meters, ladder with ladder guard inside ladder, walkway with walkway guard, water level gauge and tank cover, provision of air vent, support rails, inlets and outlet for pipes etc., for complete installation	No.	1		
	Pipes and Specials All pipes and specials shall comply with the requirements of BS 5950. Allow for gaskets, nuts, washers, bolts, cutting and threading on site Provide, fix and test following : (All screwed flanges listed separately)				
	Inlet				
9.1.8	100mm G.I. flanged socket adaptor, all flanged	No	1		
9.1.9	100mm 65 G.I. 90° bend, all flanged	No	4		
9.1.10	100mm all flanged gate valve	No.	1		
9.1.11	100mm G.I flanged pipe	m	18		
9.1.12	DN 50mm float valve	No.	1		
	Overflow				
9.1.13	100mm G.I 90° flanged bend	No.	4		
9.1.14	100mm flanged equal tee	No.	1		
9.1.15	100mm flanged sluice Valve	No.	1		
9.1.16	100mm G.I flanged pipe	m	5		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	BILL No. 9: ELEVATED STEEL TANKS				
	Outlet				
9.1.17	100mm flanged G.I steel 90° duck foot bend	No.	4		
9.1.18	100mm flanged G.I steel, length 8500mm	No.	1		
9.1.19	100mm steel flanged spigot adaptor	No.	1		
9.1.20	G.I pipe diameter 100mm	m	15		
9.1.21	100mm diameter rose strainer or equivalent	No.	1		
9.1.22	100mm Gate valve	No.	1		
9.1.23	100mm Bulk water meter on the main outlet pipeline	No.	1		
9.1.24	Lockable water meter and gate valve chamber	Ls	1		
	Wash out				
9.1.25	80mm wash out valve	No.	1		
9.1.26	80mm GI pipe for wash	m	5		
9.1.27	80mm flanged G.I steel 90° bend	No	1		
9.1.28	80mmx80mm equal tee for joining to the overflow pipe	No.	1		
	Painting				
9.1.29	Allow for the complete installation to be painted as recommended by the manufacturers or the engineer	Ls	1		
	Testing and Sterilizing				
9.1.30	Test and sterilize tank including the necessary chemicals	Ls	1		
	Construction of one (1) 50m3 Steel Elevated Tank				
	Construction of two (2) 50m3 Steel Elevated Tank		2		
TOTAL FOR BILL 9 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 10:
ELEVATED PLASTIC TANK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 10: INSTALLATION OF 10,000L UPVC TANK AND CONSTRUCTION OF A 3M ELEVATED STEEL PLATFORM				
	Storage				
10.1.1	Supply plastic tank of capacity 10,000ltrs. Rate to include transport to site and overheads	No	1		
	Construction Steel Tower Platform				
10.1.2	Clear of all bushes and shrubs and remove debris from tank site	Sm	25		
10.1.3	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	8.64		
10.1.4	Extra over for excavation in rock of all classes	Cm	2.592		
10.1.5	Fabricate, supply and install at site a metal tower, 2.5m x 2.5 , 3 m high from ground with a platform to receive the tank, walkway, rail guard to prevent the tank from falling and cat ladder. Rate to include transport of all materials to site, fabricating, erecting and overheads. Using 100mm X 100mm x4mm RHS and 70mm x 70mm x 4mm RSA for the internal member	Item	1		
10.1.6	Concrete Class 20/20 to tank stand bases and columns	Cm	3.852		
10.1.7	Formwork to bases and sides of columns	Sm	18.24		
	Piping works				
10.1.8	Inlet pipe of PPR 50mm DN	m	10		
	Fittings and Appurtenances				
10.1.9	2 inch GI Elbow	No	5		
10.1.10	2 inch GI long nipple	No	2		
10.1.11	2 inch GI back nuts	No	4		
10.1.12	2 inch gate valve	No	1		
10.1.13	2 inch GI sockets	No	5		
10.1.14	2 inch float valve	No	1		
10.1.15	Other installation sundries including 5 thread tapes,tangent glue	Item	1		
10.1.16	Construction of a masonry lockable inspection chambers at the tank base 1000mm by 1000mm by 1000mm	No	1		
	INSTALLATION OF 1No.TANK AND TOWER FRAME	No.	6		
	INSTALLATION OF 6No.TANK AND TOWER FRAME				
	TOTAL FOR ELEVATED PLASTIC TANKS				
TOTAL FOR BILL 10 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 11:
GROUND MASONRY TANK

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 11: GROUND MASONRY TANK				
	SECTION 1: -REHABILITATION OF EXISTING GROUND MASONRY TANK				
	General Items:				
11.1.1	Site clearance and preparation	Sum	1		
	Structural Rehabilitation:				
11.1.2	Hacking damaged or loose plaster from internal and external surfaces	Sm	102		
11.1.3	Preparing surfaces and applying new cement-sand plaster (1:3 mix) on internal and external surface	Sm	102		
11.1.4	Application of waterproofing treatment on the internal surface using approved waterproofing compounds	Sm	51		
11.1.5	Repairing cracks using non-shrink grout	Sm	51		
	Pipeworks and Fittings:				
11.1.6	Supply and install new inlet pipe (GI) of 50mm diameter	m	5		
11.1.7	Supply and install new outlet pipe (GI) of 50mm diameter	m	5		
11.1.8	Repair and replace internal and external pipe connections	Sum	1		
	Valves and Accessories:				
11.1.9	Supply and install new gate valve of 50mm diameter	No	1		
11.1.10	Supply and install new non-return valve 50mm diameter	No	1		
11.1.11	Replacement of air release valve	No	1		
	Roof Rehabilitation:				
11.1.12	Repairing and sealing cracks on the roof slab	Sm	20		
11.1.13	Application of waterproofing membrane on the roof	Sm	20		
11.1.14	Replacement of tank access cover with lockable steel cover	No	1		
	Test and Commissioning:				
11.1.15	Leak testing and structural integrity assessment after rehabilitation	Sum	L/s		
11.1.16	Cleaning, disinfection, and commissioning of the rehabilitated tank	Sum	L/s		
	Rehabilitation of 1 No. Masonry Tank				
	Rehabilitation of 3 No. Masonry Tank		3		
TOTAL FOR BILL 11 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 12:
WATER TREATMENT

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	BILL No. 12: WATER TREATMENT PLANT AND REVERSE OSMOSIS SYSTEM				
	SECTION 1: CHLORINATION UNITS				
12.1.1	Chlorination House Provide all materials, fabricate and install a 2mx2m steel structure for housing the inline chlorine dosing system, all as detailed in the drawings.	LS	1		
	Chlorination Equipment				
12.1.2	Supply, install, and commission of a complete inline chlorination system, designed for a flow rate of up to 30 m³/hr, comprising a high-capacity Dosatron D8RE3000 proportional dosing pump (0.2–2% adjustable dosing), 100-litre GRP dosing tank with outlet and stand, suction hose kit with integrated filter and non-return valve, inline pressure regulator (5–6 bar), 2-inch non-return valve and Y-strainer, all necessary fittings and accessories, including installation, testing, and operator training.	LS	1		
	Total for Water Treatment (Chlorination Unit) for 1No Borehole Total for Water Treatment (Chlorination Unit) for 2No Boreholes				
SECTION 1: Carried to CHLORINATION UNIT Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 2: ro WATER TREATMENT PLANT				
12.2.1	Supply and Install 1m³/hr water treatment plant consisting of pre-treatment (ultrafiltration) unit and a reverse osmosis unit for maximum TDS 5,000 PPM	No	1		
	uPVC Water Storage Tanks				
12.2.2	Supply and install 1Nr. UPVC water tank of capacity 5,000ltrs. Rate to include transport to site, preparation of holding base, installation and connection to the inlets and outlet pipework - for treated water storage	No	1		
12.2.3	Supply and install 2Nr. UPVC water tanks of capacity 10,000ltrs. Rate to include transport to site, construction of holding base, installation and connection to inlet and outlet pipework- for raw water storage and pretreated raw water storage	No	2		
	Plumbing				
12.2.4	Supply and install all necessary pipework and fittings for connection between the water storage tanks and the water treatment plant units.	m	5		
	RO Operation and Maintenance Services				
12.2.5	Operation and Maintenance (O&M) of Reverse Osmosis (RO) Water Treatment Plant for 36 months, including provision of skilled personnel, routine servicing, repairs, consumables, spare parts, performance monitoring, and reporting, in accordance with the technical specifications and manufacturer's guidelines.	Item	1		
SECTION 2: Carried to REVERSE OSMOSIS UNIT Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 3: BRINE DISPOSAL - EVAPORATION POND				
	Site Clearance				
12.3.1	Site clearance over 1,500 m² area including disposal of cleared material and minor grading.	Sm	1,500		
	Excavation & Compaction				
12.3.2	Excavation of pond to 0.7m depth across 1,000 m² with proper side slopes, disposal or reuse of excavated material.	Sm	1,000		
12.3.3	Preparation of base and side slopes including compaction using mechanical methods to the approval of the Engineer, for installation the geomebrane liner.	Sm	128		
	HDPE Geomembrane Liner				
12.3.4	Supply and installation of 1.5mm thick approved HDPE geomebrane liner complete with welding, leak testing and anchoring in trenches.	Sm	1,200		
12.3.5	Excavation and backfilling of anchor trenches for HDPE geoemembrane liner anchoring (1m wide x 0.3m deep).	Cm	2		
12.3.6	Construction of 1.5m x 1.5m x 1m salt collection concrete sump at pond base with raised edges.	No.	1		
	Fencing of Pond Yard				
12.3.7	Supply and installation of 2.4m high chain-link fence with precast concrete fencing posts, strainers and gate, all as per drawings.	m	160		
	Hazard Signages				
12.3.8	Provision and installation of weather-resistant hazard signages at visible locations around the fenced area.	No.	4		
	Environmental Safeguards				
12.3.9	Provision for environmental safeguards – salt removal protocol, berms, and storm diversion works.	Item	1		
	Brine Discharge Pipe				
12.3.10	Excavation, laying, backfilling and compaction of pipeline trenches for the brine conveyance pipeline (depth not exceeding 0.8m).	m	500		
12.3.11	Supply and laying of 50mm HDPE PN10 brine conveyance pipeline from the water treatment plant to the evaporation pond	m	500		
12.3.12	Construction of washout valves at major depressions and along the pipeline at every 500m.	No	2		
12.3.13	Construction of washout valves chambers with masonry walls and precast concrete cover slabs, as per the drawings.	No.	2		
12.3.14	Installation of precast concrete marker posts at all wash out valves and along the pipeline at 200m intervals	No.	5		
12.3.15	Class 15/20 mass concrete surround for pipe protection at road crossing points.	Cm	2.0		
	SECTION 3:	Carried to			
	EVAPORATION PONDS	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	SECTION 4: SOLAR POWER				
12.4.1	Supply, install, test and commission of an array of solar with the following specifications: 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 15kW on a bright sunny day at midday taking into account the system losses.	No.	30		
12.4.2	Supply, installation and furnishing support structures with the following specifications: Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
12.4.3	Supply, install, test and commission a 15kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 15kW 31A complete with accessories. The inverter to be installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54.	Set	1		
12.4.4	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
12.4.5	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
12.4.6	Supply, install, test and commission 6mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	Lm	100		
12.4.7	Supply, install, test and commission weather monitoring system	No	1		
12.4.8	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
12.4.9	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
12.4.10	Allow for 12 months after sale service including training of operators and technicians.	Ls	1		
12.4.11	Stand alone Solar Powered Security Lights Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
12.4.12	Booster Pump To WK Supply & install a Surface Multistage centrifugal Pump and Motor, continuously rated and capable of pumping 1m³/hr of water against a total head of 5m. The pump set to be duty and stand-by with automamic switch and controls	No.	1		
	SECTION 4:				
	SOLAR POWER				
	Carried to Main Summary				

ITEM	DESCRIPTION				AMOUNT (KSHS)
	SECTION 5: RO UNIT PLANT ROOM				
	<u>SUBSECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks (Provisional)</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
12.5.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	19.36		
12.5.2	Excavate for trench foundations for strip footings not exceeding 1.50 metres deep, starting from reduced levels	Cm	15.84		
12.5.3	Extra over for excavation in rock of all classes	Cm	4.75		
	<i><u>Disposal</u></i>				
12.5.4	Return, fill and ram selected excavated material around foundations.	Cm	9.15		
12.5.5	Load, wheel and deposit surplus excavated material away from site	Cm	6.69		
	<i><u>Hardcore or other approved filling, as described</u></i>				
12.5.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	19.36		
12.5.7	50 mm thick quarry dust or approved murrum blinding layer to surfaces of hardcore m.s	Sm	19.36		
	<u>Anti - termite treatment</u>				
12.5.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore (m/s)	Sm	19.36		
	<u>Damp-proof membrane</u>				
12.5.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	19.36		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
12.5.10	50 mm thick blinding under strip foundations	Sm	10.56		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
12.5.11	Strip footings	Cm	2.11		
12.5.12	150 mm Thick Surface beds	Cm	2.90		
12.5.13	Ditto; to sloping ramp slabs at the door entrance	Cm	0.18		
	<u>Reinforcement (Provisional)</u>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
12.5.14	Assorted bars (D8 - D16)	Kg	62.98		
	<i><u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</u></i>				
12.5.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	19.36		
	<u>Formwork</u>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
12.5.16	Vertical sides of strip footings	Sm	35.20		
12.5.17	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	17.60		
12.5.18	Ditto: but sloping, to ramp	Lm	4.00		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>Foundation walling</u>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
12.5.19	200 mm thick foundation walling	Sm	28.16		
	<u>Plinth finishes</u>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
12.5.20	Concrete and masonry surfaces externally; finished smooth	Sm	7.92		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</i>				
12.5.21	Rendered surfaces, externally	Sm	7.92		
	<u>SUBSECTION 2: SUPERSTRUCTURE</u>				
	<u>R.C Frame</u>				
	<u>Concrete</u>				
	<i>Vibrated reinforced concrete class 25/20: as described in</i>				
12.5.22	Beams	Cm	1.06		
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
12.5.23	Assorted bars (D8 - D16)	Kg	100.89		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
12.5.24	Vertical sides and soffits of beams	Sm	10.56		
	<u>SUBSECTION 3: WALLING</u>				
	<u>External Walling</u>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
12.5.25	200 mm thick walling	Sm	23.82		
12.5.26	Ditto: to Gable walling	Sm	4.40		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
12.5.27	200 mm wide; levelled and bedded under wall	Lm	17.60		
	<u>Ventilation</u>				
12.5.28	Supply and install 300 x 200 x 200mm concrete louvre blocks and place in 1:3 cement/sand as shall be directed.	Sm	2.00		
	<u>SUBSECTION 4: ROOFING</u>				
	<u>Roof Structure (Provisional)</u>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
12.5.29	Purlins: 50 x 50	m	24.00		
12.5.30	Wall plate: 150x50mm	m	17.60		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
12.5.31	Rafters: 150x50	m	24.00		
	<u>Eaves Finishes</u>				
12.5.32	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	19.20		
	<u>Roof covering</u>				
	<i><u>Gauge 24 IT4 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</u></i>				
12.5.33	Roof covering: including all necessary fixtures	Sm	23.04		
	<i><u>Heavy duty roof insulation complete with polythylene foam core that provides a radiant barrier, reflective insulation and moisture barrier; fixed in accordance to manufacturer's printed instructions: as described to</u></i>				
12.5.34	10 mm thick double-sided reflective foil insulation; underlay	Sm	23.04		
	<u>SUBSECTION 5: EXTERNAL FINISHES</u>				
	<u>External wall finishes</u>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
12.5.35	Concrete surfaces externally; finished smooth	Sm	5.28		
	<i><u>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</u></i>				
12.5.36	Masonry surfaces externally; finished smooth	Sm	28.22		
	<u>Ramp finishes</u>				
	<i><u>25 mm thick screeds: Cement and sand (1:3) mortar: steel trowelled: as described to</u></i>				
12.5.37	Surfaces of ramps, sloping	Sm	1.80		
	<u>Painting and decorating</u>				
	<i><u>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</u></i>				
12.5.38	Rendered concrete surfaces, externally	Sm	5.28		
	<u>SUBSECTION 6: INTERNAL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i><u>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</u></i>				
12.5.39	Concrete surfaces, internally	Sm	5.28		
12.5.40	Masonry surfaces, internally	Sm	28.22		
	<u>Floor Finishes</u>				
	<i><u>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</u></i>				
12.5.41	25 mm thick screeds in floors to steel trowel finish	Sm	19.36		
	<u>Painting and decoration</u>				
	<i><u>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint as described on</u></i>				
12.5.42	Plastered concrete surfaces, internally	Sm	5.28		
12.5.43	Plastered walls surfaces, internally	Sm	28.22		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>SUBSECTION 7: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer; building in lugs on jambs and plugging and screwing to head; complete with purpose made ironmongery; as described to</i>				
12.5.44	Overall size 900 x 2100 mm high; details as per standard drawings No GW4R-WJR-STD-14.01	No	1		
12.5.45	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
12.5.46	General surfaces of metal doors (measured on both sides)	Sm	1.89		
	<u>SUBSECTION 8: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u>				
	<u>Builder's work in connection with Electrical Installations:</u>				
12.5.47	Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<u>SECTION 5</u>				
	Carried to				
	RO UNIT PLANT ROOM				
	Main Summary				
ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>BILL No. 12: WATER TREATMENT PLANT AND REVERSE OSMOSIS SYSTEM</u>				
	<u>SUMMARY</u>				
1	CHLORINATION UNITS				
2	REVERSE OSMOSIS				
3	EVAPORATION POND				
4	SOLAR POWER & SURFACE PUMP				
5	PLANT ROOM				
	Total for 1No. RO Unit				
	Total for Water Treatment for Riba Scheme				
TOTAL FOR BILL 12 CARRIED FORWARD TO PROJECT SUMMARY					

BILL No. 13:
GENERATOR HOUSE

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u>				
	<u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u>				
	<u>Excavations and Earthworks (Provisional)</u>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
13.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	23.76		
13.1.2	Excavate for trench foundations for strip footings not exceeding 1.50 metres deep, starting from reduced levels	Cm	17.64		
13.1.3	Extra over for excavation in rock of all classes	Cm	5.29		
	<i><u>Disposal</u></i>				
13.1.4	Return, fill and ram selected excavated material around foundations.	Cm	10.19		
13.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	7.45		
	<i><u>Hardcore or other approved filling, as described</u></i>				
13.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	23.76		
13.1.7	50 mm thick quarry dust or approved murrum blinding layer to surfaces of hardcore m.s	Sm	23.76		
	<u>Anti - termite treatment</u>				
13.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	23.76		
	<u>Damp-proof membrane</u>				
13.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	23.76		
	<u>Concrete works</u>				
	<i><u>Plain concrete class 15: in</u></i>				
13.1.10	50 mm thick blinding under strip foundations	Sm	11.76		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
13.1.11	Strip footings	Cm	2.35		
13.1.12	150 mm Thick Surface beds	Cm	3.56		
13.1.13	Ditto; to sloping ramp slabs at the door entrance	Cm	0.32		
	Sub Total carried forward to next page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<u>Reinforcement (Provisional)</u>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
13.1.14	Assorted bars (D8 - D16)	Kg	70.14		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</i>				
13.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	23.76		
	<u>Formwork</u>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
13.1.16	Vertical sides of strip footings	Sm	39.20		
13.1.17	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	19.60		
13.1.18	Ditto: but sloping, to ramp	Lm	4.00		
	<u>Foundation walling</u>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar. reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
13.1.19	200 mm thick foundation walling	Sm	31.36		
	<u>Plinth finishes</u>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
13.1.20	Concrete and masonry surfaces externally; finished smooth	Sm	8.82		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</i>				
13.1.21	Rendered surfaces, externally	Sm	8.82		
	<u>Paving Slabs</u>				
	<i>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</i>				
13.1.22	Paving slabs, around building (one row); including all excavations and earthworks	Sm	11.76		
	SECTION 1:	Carried to			
	SUBSTRUCTURES	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE					
<u>SECTION 2: SUPERSTRUCTURE</u>					
<u>R.C Frame</u>					
<u>Concrete</u>					
<i>Vibrated reinforced concrete class 20/20: as described in</i>					
13.2.1	Beams	Cm	1.76		
<u>Reinforcement</u> (Provisional)					
<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>					
13.2.2	Assorted bars (D8 - D16)	Kg	112.36		
<u>Formwork</u>					
<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>					
13.2.3	Vertical sides and soffits of beams	Sm	17.64		
<u>SECTION 2:</u>		Carried to			
R.C SUPERSTRUCTURE		Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<u>SECTION 3: WALLING</u>					
<u>External Walling</u>					
<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>					
13.3.1	200 mm thick walling	Sm	22.26		
13.3.2	Ditto: to Gable walling	Sm	6.68		
<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>					
13.3.3	200 mm wide; levelled and bedded under wall	Lm	19.60		
<u>Ventilation</u>					
13.3.4	Supply and install 300 x 200 x 200mm concrete louvre blocks and place in 1:3 cement/sand as shall be directed.	Sm	15.54		
<u>SECTION 3:</u>		Carried to			
WALLING		Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE				
	<u>SECTION 4: ROOFING</u>				
	<u>Roof Structure (Provisional)</u>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
13.4.1	Tie beam: 100 x50	m	22		
13.4.2	King Post: 100x50	m	6.35		
13.4.3	Struts: 75x50	m	19.10		
13.4.4	Purlins: 50 x 50	m	46.40		
13.4.5	Wall plate: 150x50mm	m	47.52		
13.4.6	Rafters: 100x50	m	30.60		
	<u>Eaves Finishes</u>				
13.4.7	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	23.82		
	<u>Roof covering</u>				
	<i>Gauge 28 IT4 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</i>				
13.4.8	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	35.43		
13.4.9	Ridge cap to match	Lm	5.80		
	<u>SECTION 4</u>	Carried to			
	ROOFING	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE				
	<u>SECTION 5: EXTERNAL FINISHES</u>				
	<u>External wall finishes</u>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
13.5.1	Concrete surfaces externally; finished smooth	Sm	8.82		
	<i><u>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</u></i>				
13.5.2	Masonry surfaces externally; finished smooth	Sm	28.94		
	<u>Ramp finishes</u>				
	<i><u>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</u></i>				
13.5.3	Surfaces of ramps, sloping	Sm	3.20		
	<u>Painting and decorating</u>				
	<i><u>Prepare surfaces, skim and apply tthree coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</u></i>				
13.5.4	Rendered concrete surfaces, externally	Sm	8.82		
	<u>SECTION 5</u>				
	EXTERNAL FINISHES	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<u>SECTION 6: INTERNAL FINISHES</u>				
	<u>Wall Finishes</u>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
13.6.1	Concrete surfaces, internally	Sm	8.82		
13.6.2	Masonry surfaces, internally	Sm	28.94		
	<u>Floor Finishes</u>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
13.6.3	25 mm thick screeds on floor to finish level	Sm	23.76		
	<u>Painting and decoration</u>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <u>matt emulsion</u> paint as described on</i>				
13.6.4	Plastered concrete surfaces, internally	Sm	8.82		
13.6.5	Plastered walls surfaces, internally	Sm	28.94		
	<u>SECTION 6</u>	Carried to			
	INTERNAL FINISHES	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE				
	<u>SECTION 7: DOORS</u>				
	<u>Metal Doors</u>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together: one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
13.7.1	Overall size 1600 x 2100 mm high; details as per standard drawings No GW4R-MDR-STD-05	No	1		
13.7.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<u>Painting and decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
13.7.3	General surfaces of metal doors (measured on both sides)	Sm	6.72		
	<u>SECTION 7</u>	Carried to			
	DOORS	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.8.1	<u>SECTION 8: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u> <u>Builder's work in connection with Electrical Installations:</u> Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<u>SECTION NO. 8</u> <u>B.W.I.C WITH SERVICES</u>				
	Carried to Main Summary				
ITEM	DESCRIPTION				AMOUNT
	<u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u> <u>SUMMARY</u> 1 Substructure (Provisional) 2 R.C. Superstructure 3 Walling 4 Roofing 5 External Finishes 6 Internal Finishes 7 Doors 8 Builders' Work in Connection with Services (Provisional)				
	TOTAL FOR 1No. GENERATOR HOUSE TOTAL FOR 1No. GENERATOR HOUSE		1		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
13.9.1	BILL No. 13: REHABILITATION OF GENERATOR HOUSE				
	SECTION 1: SUBSTRUCTURES (PROVISIONAL)				
	<u>Paving Slabs</u>				
	<i>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar including all necessary site preparation, excavations and earthworks around the existing building to achieve required levels and alignment; as described to</i>				
	Paving slabs, around building (one row); including all excavations and earthworks	Sm	12.00		
SECTION 1: SUBSTRUCTURES Carried to Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.10.1	BILL No. 13: REHABILITATION OF GENERATOR HOUSE				
	SECTION 2: WINDOWS/GRILLES				
	<u>Steel Casement Windows/Grilles</u>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows or metal grilles, as necessary in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges; including all necessary cutting, welding and grinding; ironmongery hinges, fasteners and stays; one coat aluminium grey primer before fixing; all to Engineer's schedule and/or direction; as described to</i>				
	Provide and fix window/grilles to match existing, including all necessary frames, ironmongery, glazing, and finishes, all as directed by the Engineer	No	4		
13.10.2	Carefully rehabilitate to match existing window, including repair or replacement of damaged components such as frames, glazing, ironmongery, and finishes,	No	4		
	<u>Painting & Decoration</u>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
	General surfaces of metal windows/grilles (measured on both sides)	Sm	8		
SECTION 2 WINDOWS/METAL GRILLES Carried To Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.11.1	BILL No. 13: REHABILITATION OF GENERATOR HOUSE				
	<u>SECTION 3: ROOFING</u>				
	<u>Eaves Finishes</u>				
	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	28.00		
	<u>Roof covering</u>				
13.11.2	<u>Gauge 28 IT4 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</u>				
	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	48.00		
13.11.3	Ridge cap to match	Lm	6.00		
SECTION 3 Carried to ROOFING Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.12.1	BILL No. 13: REHABILITATION OF GENERATOR HOUSE				
	<u>SECTION 4: EXTERNAL FINISHES</u>				
	<u>Ramp finishes</u>				
	<u>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</u>				
	Surfaces of ramps, sloping	Sm	3.20		
13.12.2	<u>Painting and decorating</u>				
	<u>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</u>				
13.12.2	Rendered concrete surfaces, externally	Sm	50.00		
SECTION 4 Carried to EXTERNAL FINISHES Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
BILL No. 13: REHABILITATION OF GENERATOR HOUSE <u>SECTION 5: INTERNAL FINISHES</u>					
<u>Wall Finishes</u> <i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>					
13.13.1	Masonry surfaces, internally	Sm	50.00		
<u>Floor Finishes</u> <i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>					
13.13.2	25 mm thick screeds on floor to finish level	Sm	24.00		
<u>Painting and decoration</u> <i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <u>matt emulsion</u> paint as described on</i>					
13.13.3	Plastered walls surfaces, internally	Sm	50.00		
<u>SECTION 5</u> Carried to INTERNAL FINISHES Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
BILL No. 13: REHABILITATION OF GENERATOR HOUSE <u>SECTION 6: DOORS</u>					
<u>Metal Door</u> <i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>					
13.14.1	Overall size 1600 x 2100 mm high; details as per standard drawings	No	1		
13.14.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
<u>Painting and decoration</u> <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>					
13.14.3	General surfaces of metal doors (measured on both sides)	Sm	6.72		
<u>SECTION 6</u> Carried to DOORS Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
13.15.1	<u>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</u> <u>SECTION 7: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u> <u>Builder's work in connection with Electrical Installations;</u> Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<u>SECTION NO. 7</u> <u>B.W.I.C WITH SERVICES</u>				
	Carried to Main Summary				
ITEM	DESCRIPTION				AMOUNT
	<u>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</u> <u>SUMMARY</u> 1 Substructure (Provisional) 2 Windows/Grills 3 Roofing 4 External Finishes 5 Internal Finishes 6 Doors 7 Builders' Work in Connection with Services (Provisional)				
	TOTAL FOR 1No. GENERATOR HOUSE TOTAL FOR 1No. GENERATOR HOUSE		1		

SEC	DESCRIPTION				AMOUNT (KSHS)
	<u>SUMMARY</u>				
1	CONSTRUCTION OF NEW GENERATOR HOUSE				
2	REHABILITATION OF GENERATOR HOUSE				
	TOTAL				
TOTAL FOR BILL 13 CARRIED FORWARD TO PROJECT SUMMARY					