### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### **GRAND SUMMARY**

BILL	DESCRIPTION	AMOUNT
No	DESCRIPTION	Kshs
1	PRELIMINARY AND GENERAL ITEMS	
2	MALOBOT SCHEME	
3	ILLERET SCHEME	
4	MARIME SCHEME	
5	GOLOLE SCHEME	
6	GAMURA SCHEME	
	SUB TOTAL [A]	
	ADD 5% OF SUBTOTAL (A) FOR CONTINGENCIES [B]	
	TOTAL EXCLUDING DUTIES AND TAXES	
	ADD 16% OF SUBTOTAL (B) FOR TAXES AND DUTIES [C]	
	GRAND TOTAL INCLUDING DUTIES AND TAXES	

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT

### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 1 : PRELIMINARIES AND GENERAL ITEMS

	BILL NO. 1 : PRELIMINARIES AND GENERAL ITEMS							
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT			
		OTT	VII	Kshs.	Kshs.			
1.1	Contractors Camp							
1.1.1	Provide for establishment of the Contractor's camp.							
	The camp to include RE's office as per the	Months	12					
	specifications							
1.2	Material testing							
1.2.1	Provide a provisional sum of Kshs. 500,000 for							
	Laboratory testing as and when required. The	DC	,	500,000	<b>700.000</b>			
	Contractor to make available for independent	PS	1	500,000	500,000			
	testing of works sample by the Resident Engineer							
1.3	as per the Contract Specifications.							
1.3	Accommodation for RE's staff at the project area							
1.3.1	Provide accommodation for the use of the Resident							
1.5.1	Engineer for 12 months.	Months	6	50,000	300,000			
1.3.2	Ditto but 1nr. Assistant Resident Engineer for 12							
1.0.2	months.	Months	12	30,000	360,000			
1.3.3	Ditto but for each of the 1nr. Inspector of Works,							
	1Nr Environmentalist, 1Nr. Sociologist, 1 Nr.	Months	42	20,000	840,000			
	Electromechanical Engineer and 1Nr. Surveyor							
1.3.4	Add a percentage to item 1.2.1 to 1.3.3 above to							
	cater for Contractor's profits, duties, administration	%						
	and overheads.							
1.4	Establishment of site office for the RE							
1.4.1	Provide and maintain the office furniture and IT							
	equipment designated for the Resident Engineer							
	(RE), as detailed in Appendix A. All equipment							
	must be returned to the Employer after the contract.							
	During the initial three months of the contract, the							
	contractor shall furnish and establish a temporary	Item	1					
	prefabricated container office for the engineer.	Item	1					
	Upon completing the project administration							
	building, the contractor shall relocate the RE's							
	office to the new facility, which shall be completed							
	within the specified three-month timeframe of the							
1 4 2	contract.							
1.4.2	Allow for a total of Kshs. 60,000.00 monthly for reimbursement to the contractor for payment of the							
	RE's office attendance and maintenance including							
	provision of photography, office courier services,							
	office communications, reports, printer	Month	12	60,000	720,000			
	catriges, water, tea and other consumable							
	maintenance of stationery and other utilities for the							
	RE's offices for the duration of the Contract.							
	PAGE TOTAL CARRIED TO SECTION COLL	ECTION :	SHEET					

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT

PROJECT NO.: KE-WSTF-328819-CS-QCBS							
	BILL NO. 1 : PRELIMINARIES	AND GEN	NERAL I				
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT		
	24. 25. 4			Kshs.	Kshs.		
	Site Meetings						
1.5.1	Allow a Provisional sum of Kshs. 500,000/= to cater for expenses for site meetings expenses.	PC	1	500,000	500,000		
1.5.2	Add a percentage to item 1.5.1 above to cater for Contractor's profits, duties, administration and overheads.	%					
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. 25,000 for 12 months.	month	36	25,000.00	900,000.00		
1.6.2	1 Nr Office Administrator @ Kes 25,000 for 12 months.	month	12	25,000.00	300,000.00		
1.6.3	1 Nr Drivers @ Kes 25,000 for 12 months.	month	12	25,000.00	300,000.00		
1.6.4	Allow for a total of Kshs.200,000 for reimbursement to the contractor for payment of the Resident Engineer's staff overtime, allowances and RE's Junior Staff and Payment of expenses on Duty Trips outside project area for Senior and Junior staffs per month to be administered as per the Contract Specifications.	Item	1	200,000.00	200,000.00		
1.6.5	Allow a provisional sum of Kshs. 500,000 to cover cost for capacity building, training, attachment and internship to be expended under direction of the Employer.	PS	1	500,000.00	500,000.00		
1.6.6 1.7	Add a percentage to items 1.6.1 to 1.6.5 above to cater for Contractor's profits, administration, remission of statutory duties and overheads. <b>Publicity Sign Board</b>	%	0.10	2,200,000.00	220,000.00		
1.7.1	Provide, erect and maintain throughout the Time for Completion period publicity signs boards as directed by the Engineer.	No	3				
1.8	Vehicles						
1.8.1	Provide with driver, maintain and fuel two (2) new 4WD 4x4 offroad station wagon vehicle, 3000 cc diesel for sole use and direction of the Resident Engineer. inclusive of the first 7000 km per vehicle per month. Ownership to revert to Contractor	Vehicle Months	24				
1.8.2	Extra over for mileage over 7,000 km per vehicle month.	km	10000				
	PAGE TOTAL CARRIED TO SECTION COLL	ECTION	SHEET				

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT

BILL NO. 1 : PRELIMINARIES AND GENERAL ITEMS						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
		01111	411	Kshs.	Kshs.	
1.9	Borehole servicing truck					
1.9.1	Provide a Provisional sum of Kshs. 20,000,000 for the purchase of a fully equipped Borehole service truck	PS	1	20,000,000	20,000,000.00	
1.9.2	Add a percentage to item item 1.9.1 above to cater for Contractor's profits, administration, remission of statutory duties and overheads.	%				
1 10	EGMB COCT					
1.10	ESMP COST					
1.10.1	implementation of stakeholder engagement plan	PS	1	750,000	750,000	
1.10.2	Provide a provisional sum of Kshs. 750,000 to provide for HIV&AIDS awareness training and sensitzation	PS	1	750,000	750,000	
1.10.3	Provide a provisional sum of Kshs. 750,000 for operationalization of grievance redress mechanism and sexual exploitation awareness (SEA)	PS	1	750,000	750,000	
1.10.4	Allow a percentage to items 1.10.1 to 1.10.3 above to cater for Contractor's profits, duties administration and overheads.	%				
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### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 1 : PRELIMINARIES AND GENERAL ITEMS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
1 12111	DESCRIPTION	ONII	Q11	Kshs.	Kshs.	
	Page Total, Page 1					
	Page Total, Page 2					
	Page Total, Page 3					
	Bill Total Carried to Grand Summary					

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL 2.1 MALBOT WATER SCHEME BOREHOLE DEVELOPMENT RATE AMOUNT ITEM UNIT OTY DESCRIPTION Kshs. Kshs. 2.1 BOREHOLE/WELL DEVELOPMENT The Contractor shall, supply, install, test, commisssion and provide warranties, spares, training of the operators and technicians, 12 months after sale-service for photovoltaic pumping (PVP) systems, without batteries, with diesel generator/national grid interface and remote monitoring to Specifications and proper working order for identified rural community boreholes. The Contractor is required to remove existing water pump systems in each case and undertake borehole service including but not limited to borehole redevelopment, flushing and replacement of sieves. All to the Specifications and as directed by the Engineer. Allow Kes 100,000 for demolitions, relocations and demobilization of existing infrastructure in the borehole site including pumps, solar Prov. 2.1.1 panels, tanks, steel structures, cables, buildings, etc... Rate to include 1.0 100,000.00 100,000.00 Sum transportation for safekeeping as directed by the Water Service Provider/Employer Allow Kes 100,000 for mobilization of borehole camera, conducting a borehole camera investigation. Borehole flushing with drilling Prov. 2.1.2 1.0 100,000.00 100,000.00 foam, chemical cleaning, airlifting and water jetting at high pressure. Sum and conducting a laboratory water chemical analysis Allow a Kes 250,000 provisional sum for redevelopment of boreholes. The rates shall be used from existing rates elsewhere in 2.1.3 Item 1.0 250,000.00 250,000.00 the BoQ or as provided in the dayworks or as determined by the Engineer. Add a percentage to items 2.1.1 to 2.1.3 above to cater for 2.1.4 Contractor's profits, administration, remission of statutory duties and % overheads Supply, install, test and commission 7.5kW, 10.19Hp Submersible Pump SP 18-13R or approved equivalent with a discharge 20m3/hr and head 50m pipe complete with Switch box / control unit: 2.1.5 OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR 1 No PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter. The rate to include appropriately sized PVC riser pipes Supply, install, test and commission 2.5 mm<sup>2</sup>/4 core submersible 2.1.6 31 m pump flat cable Supply, install, test and commission DN6x120 mmL stainless steel 2.1.7 No 1 water level sensor complete with microcontroller and alert system. Supply, install, test and commission 0.75mm2 sc pvc sheathed 2.1.8 62

copper control cable( brown and black)

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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL 2.1 MALBOT WATER SCHEME BOREHOLE DEVELOPMENT RATE AMOUNT ITEM UNIT OTY DESCRIPTION Kshs. Kshs. Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeiIntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of 2.1.9 No. 1 user interface and graphical display for PLC, with 320 x 240 color display showing real-time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface, Data Logger Unit with Multiple Interface Support (RS232, RS485, etc.) and Integration with the Servers for Future Expansion. Supply, install, test and commission the following Sensors for Monitoring System. The cost shall include cabling and integration of the sensors into the data logger. Supply, install, test and commission the Solar Radiation Apogee SP Prov 75,000.00 2.1.10 1.00 75,000.00 230 or equivalent & Temperature Sensors PT100 or equivalent. Sum Add a percentage to item 2.1.10 above to cater for Contractor's 2.1.11 % profits, administration, remission of statutory duties and overheads. Supply, install, test and commission the Float Switch Sensor (tank 2.1.11 No. 1.00 high/low levels, Model: Omron D4MC or equivalent) Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated range from 1-100 mH2Og, acuracy + 2.1.12 1 ransimue with integral 2 (0.175% FS BSL NLHR>4mH2O, No 1 +o.25%<4mH2O. Supply, install, test and commission the TDS and EC Sensor 2.1.16 (measures dissolved minerals, Model: Yokogawa SC72 or No. 1.00 equivalent) Supply, install, test and commission of an array of solar with the following specicifications: 390W solar panels, Monocrystalline Silicon PV, with 25 years warranty. The power output of the 2.1.17 modules should generate enough power such that the power output at Nο 28.0 the connection point to the distribution board is not less than 10.92 kW on a bright sunny day at midday taking into account the system losses 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 2.1.18 ground for the high height side in case of a 2m length solar panel or Set any other height on the high height side as long the tilt angle is not more than 150 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.

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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL 2.1 MALBOT WATER SCHEME BOREHOLE DEVELOPMENT

ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
				13113.	KSHS.
2.1.19	Supply, install, test and commission a 3-phase 20KVA power output diesel generator with 415 V at 50 Hz. It should include a highly corrosion resistant enclosure, control panel and monitoring, fuel tank and circuit breaker protection. The diesel generator shall be suitable for indoor or outdoor installation and shall perform accordingly with the battery inverter and the system design. The diesel generator shall work in a fully automatic manner with the above stated component. A concrete plinth to be constructed for the generator placement plus a shed of steel hollow sections and IT 4 sheets to engineer's approval to house the generator.	Set	1		
2.1.20	Supply, install, test and commission a 11 kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 11kW 23A 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		
2.1.21	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		
2.1.22	Supply, install, test and commission Schneider Acti9 Energy Meter 3p kWH 63Amps modibus or approved equivalent for measuring energy generated by the solar PV system complte with IP66 rated enclosure.	No	1		
2.1.23	Supply of materials and construct a Genset/Control room building to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix H	Item	1		
2.1.24	Supply, install, test and commission Cabling 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.	Lot	1		
2.1.25	Supply, install, test and commission Pressure Gauge - 0-25bar	No	2		
2.1.26	Supply, install, test and commission Modem and router for remote monitoring and control. Grundfos SqFlex or equivalent	Set	1		
2.1.27	Supply and install Aerial lightning arrestors at 6m height, fixed to concrete foundations	Set	1		
2.1.28	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		
2.1.29	Supply, install, test and commission Motor ProtectionUnit MP204 or equivalent	No	1		
2.1.31	Allow for 12 months after sale service including training of operators and technicians.	Ls	1		
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL 2.1 MALBOT WATER SCHEME BOREHOLE DEVELOPMENT RATE AMOUNT ITEM UNIT OTY DESCRIPTION Kshs. Kshs. **Communication Infrastructure** Supply and installation of GSM/GPRS/4G communication modules 2.1.33 2 for boreholes and booster stations Supply and installation of Antennas and signal boosters for remote 2.1.34 2 2.1.35 Supply and installation of Fiber Optic Cable (8-core, single-mode) 100 Supply and installation of Fiber Optic Termination Boxes, Wall-2.1.36 5 Set mounted, dustproof 2.1.37 Supply and installation of Fiber Optic Splicing and Accessories 5 Lot Fire Fighting Equipment Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure 2.1.38 1 No gauge wall mounting steel bracket, operating instructions and accessories, fully charged. Fencing Excavate for post holes, provide all materials and construct chain link fence on concrete posts at 3 m centres all as per drawing details, 2.1.39 including straining posts at every 10th post and additional posts at 120 corners and botton concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection. Provide all materials and construct 6.0 m wide lockable metal gate all 2.1.40 to detailed. The gate to have a lockable pedestrian gate 1m wide Nr opening. Borehole pipeworks Borehole cover with extended 1m flanged pipe piece DN50. Note the 1 2.1.41 cover should also allow for any other cabling and instrumentation for the borehole. 2.1.42 All Flanged 90 deg long elbow DN 50 Nr 2.1.43 Double Flanged Non-Return Valve 50 Nr 1 2.1.44 Double Flanged Gate Valve DN 50 Nr 4 2.1.45 Supply and intsall multi-turn actuators for open-close duty paired 4 No with actuator controls, and variable speed models. 2.1.46 All flanged equal steel tee 50mmx50mmx50mm Nr 1 DN50mm non-slam Double-orifice Air Valve with flanged base, 2.1.47 No. 1 complete to detail as indicated in the Drawings. 2.1.48 Double flanged pipe piece DN50 length 1500mm Nr 1 Provide, install, test and commission an electromagnetic flow meter 1 2.1.49 DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS 485 port outputs. 2.1.50 Double flanged pipe piece DN50 length 1000mm Nr 2 2.1.51 All flanged equal 1.8m long extended steel tee 50mmx50mmx50mm Nr 2.1.52 All flanged reducing taper 50mmx63mm Nr 1 2.1.53 Flanged HDPE Stub end DN63 Nr 1 All Flanged 50mmx50mmx50mm tee connection to a surge 1 protection vessel PN16 Allow a provision of supply, installation, testing and commissioning of appropriately sized surge vessels or surge control valve with all 2.1.55 manway accesses, flange pipe connections and all other Lump 1 appurtenances as per manufacturers recommendations and in Sum accordance with specification and a air buffer vessel to DN 50 rising main PN20. WELL HEAD PROTECTION Provide materials and construct a 1.2mx0.9m with height not exceeding 2m wellhead protection for Borehole to details as per the 2.1.56 drawing and as directed by the Engineer. The rate includes a lockable 1 5mm thick mild steel access cover, mild steel step irons, provision for conduits and pipeworks, vent provision and base slab 150mm C25/20 reinforced with A142 BRC mesh per borehole.

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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

	BILL 2.1 MALBOT WATER SCHEME BOREHOLE DEVELOPMENT					
TELL	DESCRIPTION	LINITE	OTV	RATE	AMOUNT	
ITEM		UNIT	QTY	Kshs.	Kshs.	
	Page Total, Page 1					
	Page Total, Page 2	-				
	Page Total, Page 3					
	Page Total, Page 4					
	Bill Total Carried to Bill Summary	1				

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT **COUNTY**

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1 1 12/1/1		01111	V11	Kshs.	Kshs.
	i. The Contactor to maintain uninterrupted continuity				
	of water supply in existing pipelines				
	ii. Pedestrian and vehicular Access to individual				
	shops / plots to be maintained at all times				
	PIPE AND PIPE FITTINGS				
	Pipe Work - Supply, lay, joint, pressure				
	test,disinfect				
	Supply, handle, and install (rates shall include jointing materials, bolts, gaskets packing jointing				
	glue, welding etc., as applicable) to the following				
	HDPE Pipes to KS ISO 4427 and Steel/ferrous				
	Fittings (valves and pipe specials) in trench as per the				
	specifications. All pipe fittings and valve diameters				
	indicated are Nominal Diameters				
	Pipe trench excavation is to commence from ground				
	level to a minimum depth of 1.5m. Rate to include				
	setting out, general bush clearing, Pipe laying,				
	Pressure testing, disinfection, backfilling with				
	imported bedding and surrround material all as per				
	specifications, drawings and as directed by the				
2 2 1	HDPE Pipe DN40mm PN16		1,145.00		
	HDPE Pipe DN50mm PN16	m	2,333.00		
	HDPE Pipe DN63mm PN16		5,160.00		
	HDPE Pipe DN75mm PN16	m	350.00		
	HDPE Pipe DN90mm PN16	m	1,156.00		
2.2.6	HDPE Pipe DN110mm PN16	m	1,893.00		
	Bends				
2.2.7	DN 110mm 90°	Nr.	2.00		
2.2.8	DN 110mm 45°	Nr.	2.00		
2.2.9	DN 90mm 90°	Nr.	2.00		
	DN 90mm 45°	Nr.	2.00		
2.2.11	DN 75mm 90°	Nr.	2.00		
	DN 63mm 90°	Nr.	2.00		
2.2.13	DN 50mm 90°	Nr.	2.00		
	Reducers				
	DN 50/40 mm	0	-		
	DN 63 /50 mm	Nr.	-		
	DN 75/50 mm	Nr.	1.00		
	DN 90/75 mm	Nr.	1.00		
2.2.18	DN 110/63 mm	Nr.	1.00		
	Offtake fittings Junction DN 110mm				
	DN 110 x110x50mm Reducing Tee	Nr	1.00		
2.2.20	DN 50mm stub end with MS flange back ring		2.00		
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT **COUNTY**

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

TODA 6	DECODURATION	LINIE	O.T.Y.	RATE	AMOUNT
ITEM	DESCRIPTION	UNIT	QTY	Kshs.	Kshs.
2.2.21	DN 50mm Flanged gate valve	Nr	1.00		
	Offtake fittings Junction DN 63mm				
	DN 63 x63x50mm reducing Tee	Nr	1.00		
	DN 50mm stub end with MS flange back ring	Nr	2.00		
2.2.24	DN 50mm Flanged gate valve	Nr	1.00		
	T-Junction 90mm				
	DN 110x110x90mm Reducing tee	Nr	1.00		
	DN 90mm stub end with MS flange back ring	Nr	4.00		
2.2.27	DN 90mm Flanged gate valve	Nr	2.00		
	Offtake fittings Junction DN 90mm				
	DN 90x90x50mm Reducing Tee	Nr	2.00		
	DN 50mm stub end with MS flange back ring	Nr	4.00		
2.2.30	DN 50mm Flanged gate valve	Nr	2.00		
	Offtake fittings Junction DN 75mm				
	DN 75 x75x50mm reducing Tee	Nr	1.00		
2.2.32	DN 50mm stub end with MS flange back ring	Nr	2.00		
2.2.33	DN 50mm Flanged gate valve	Nr	1.00		
	Offtake fittings Junction DN 50mm				
2.2.34	DN 50x50x50mm equal Tee	Nr	1.00		
2.2.35	DN 50mm stub end with MS flange back ring	Nr	2.00		
2.2.36	DN 50mm Flanged gate valve	Nr	1.00		
	DN 50mm Terminal connection (with washout)				
	DN 50x50x50mm HDPE (Reduced or Equal) tee	Nr	2.00		
2.2.38	DN 50mm stub end with MS flange back ring	Nr	8.00		
	DN 50mm Flanged gate valve	Nr	4.00		
2.2.40	DN 50mm HDPE flap valve	Nr	2.00		
2.2.41	DN 50mm HDPE PN 16 pipe	m	120.00		
	DN 63mm Terminal connection (with washout)				
2.2.42	DN 63x63x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
	DN 50mm stub end with MS flange back ring	Nr	4.00		
2.2.44	DN 50mm Flanged gate valve	Nr	2.00		
	DN 50mm HDPE flap valve	Nr	1.00		
2.2.46	DN 50mm HDPE PN 16 pipe	m	60.00		
	Air Valve Chamber Fittings (DN110mm) -(2No)				
2.2.47	HDPE Reducer Tee DN 110mm x 110mm x 63mm	Nr	2.00		
2.2.48	DN63 mm HDPE Stub End with MS Flange	Nr	4.00		
	DN 50mm double flanged sluice valve	Nr	2.00		
2.2.50	DN 50mm double orifice airvalve	Nr	2.00		
	Washout (DN 110mm) -(1No)				
2.2.51	HDPE Reducer Tee DN 110mm x 110mm x 90mm	Nr	1.00		
	DN 110mm HDPE stub end with MS Flange	Nr	4.00		
2.2.53	DN 90 mm HDPE stub end with MS Flange	Nr	2.00		
2.2.54	DN 90mm sluice valve	Nr	1.00		
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT **COUNTY**

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	OTV	RATE	AMOUNT
ITEM			QTY	Kshs.	Kshs.
2.2.55	DN 90mm HDPE pipe (PN 12.5)	m	24.00		
2.2.56	Masonry headwall with base slab for Erosion	Ls	1.00		
	Air Valve Chamber Fittings (DN90mm) -(1No)				
2.2.57	HDPE Reducer Tee DN 90mm x 90mm x 63mm	Nr	1.00		
2.2.58	DN63 mm HDPE Stub End with MS Flange	Nr	1.00		
	DN 50mm double flanged sluice valve	Nr	1.00		
2.2.60	DN 50mm double orifice airvalve	Nr	1.00		
	Washout (DN 90mm) -(1No)				
	HDPE Reducer Tee DN 90mm x 90mm x 75mm	Nr	1.00		
	DN 90mm HDPE stub end with MS Flange	Nr	4.00		
	DN 75 mm HDPE stub end with MS Flange	Nr	2.00		
	DN 75 mm sluice valve	Nr	1.00		
	DN 75mm HDPE pipe (PN 12.5)	m	24.00		
2.2.66	Masonry headwall with base slab for Erosion	Ls	1.00		
	protection at discharge point	LS	1.00		
	Air Valve Chamber Fittings (DN75mm) -(1No)				
	HDPE Reducer Tee DN 75mm x 75mm x 63mm	Nr	1.00		
	DN63 mm HDPE Stub End with MS Flange	Nr	1.00		
	DN 50mm double flanged sluice valve	Nr	1.00		
2.2.70	DN 50mm double orifice airvalve	Nr	1.00		
	Washout (DN 75mm) -(1No)				
2.2.71	HDPE Equal Tee DN 75mm x 75mm x 75mm	Nr	1.00		
2.2.72	DN 75mm HDPE stub end with MS Flange	Nr	4.00		
2.2.73	DN 75 mm HDPE stub end with MS Flange	Nr	2.00		
	DN 75 mm sluice valve	Nr	1.00		
	DN 75mm HDPE pipe (PN 12.5)	m	24.00		
2.2.76	Masonry headwall with base slab for Erosion	Ls	1.00		
	protection at discharge point	LS	1.00		
	Air Valve Chamber Fittings (DN 63mm) -(3No)				
2.2.77	HDPE DN 63 X 63 X 32 mm Reducer Tee ( <b>NB</b> :	Nr	3.00		
	Must be electrofussion)	111	3.00		
2.2.78	HDPE DN 32 mm PN 16 short piece pipe (400 mm	Nr	3.00		<u></u>
	long)	141			
2.2.79	HDPE DN 32 mm PN 16 Male adapter	Nr	3.00		
	HDPE DN 32 mm Pegler brass gate valve	Nr	3.00		
	DN 32 mm Stainless Steel Hex Nipple	Nr	3.00		
	DN 32 mm Threaded Air Valve	Nr	3.00		
	Washout (DN 63mm) -(3No)		-		
2.2.83	HDPE DN 63 X 63 X 63 mm Equal Tee (NB: Must	Nr	3.00		
	be electrofussion)	111	5.00		
2.2.84	HDPE DN 63 mm PN 16 short piece pipe (400 mm	Nr	3.00		
	long)				
	HDPE DN 63 mm PN 16 Flanged adapter	Nr	3.00		
	HDPE DN 50 mmFlanged Sluice valve	Nr	3.00		
	PAGE TOTAL CARRIED TO SECTION COLLE	CTION	SHEET		<u> </u>

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

TOPA	DECCRIPTION	LINIT	OTN	RATE	AMOUNT
ITEM	DESCRIPTION	UNIT	QTY	Kshs.	Kshs.
2.2.87	DN 63 mm HDPE pipe (PN 12.5)	m	72.00		
2.2.88	Masonry headwall with base slab for Erosion protection at discharge point	Ls	3.00		
	Air Valve Chamber Fittings (DN 50mm) -(1No)				
1	HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: Must be electrofussion)	Nr	1.00		
2.2.90	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
2.2.91	HDPE DN 32 mm PN 16 Male adapter	Nr	1.00		
2.2.92	HDPE DN 32 mm Pegler brass gate valve	Nr	1.00		
2.2.93	DN 32 mm Stainless Steel Hex Nipple	Nr	1.00		
2.2.94	DN 32 mm Threaded Air Valve	Nr	1.00		
	Washout (DN 50mm) -(1No)				
2.2.95	HDPE DN 50 X 50 X 50 mm Equal Tee (NB: Must be electrofussion)	Nr	1.00		
2.2.96	HDPE DN 50 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
2.2.97	HDPE DN 50 mm PN 16 Flanged adapter	Nr	1.00		
2.2.98	HDPE DN 50 mmFlanged Sluice valve	Nr	1.00		
2.2.99	DN 50 mm HDPE pipe (PN 12.5)	m	24.00		
2.2.100	Masonry headwall with base slab for Erosion protection at discharge point	Ls	1.00		
	Water Draw Off Facilities				
2.2.101	Supply of materials and construct a water kiosk to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix C	Nr.	3.00		
	PAGE TOTAL CARRIED TO SECTION COLLE	CTION	SHEET		

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

				RATE	AMOUNT
ITEM	DESCRIPTION	UNIT	QTY	KATE Kshs.	Kshs.
	Supply of materials and construct a cattle/Camel trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 440mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.	Item	2.00		
	Supply of materials and construct sheep/goat trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 300mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.	Item	2.00		
	Supply of materials and construct a sanitation facility as described to detail in Appendix E	Item	2.00		
	PAGE TOTAL CARRIED TO SECTION COLLE	CTION	SHEET		

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT **COUNTY**

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

	TEM PEGEDIPETON HAVE OTH RATE		AMOUNT		
ITEM	DESCRIPTION	UNIT	QTY	Kshs.	Kshs.
2.2.105	Provide all materilas, construct and install a 1m high reinforced concrete yardtap which include a water dispensing ATM ,lockable valve chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing. The Automated water dispensing ATM designed to offer a reliable and user-friendly way to access and pay for water using a keypad, screen, tag pay option, and integration with MPesa for payment processing with the following specifications - Keypad, -Screen (LCD), -Tag Pay Option (RFID/NFC), -Web based dashboard subscription for 10 year, -Hybrid dispensing, -MPesa Integration for Payment upto 3 taps max, -water Flow Sensor, -Solar power - charger, controller, battery and solar panel. The rate to include the first 20 token chips for 20nr. households.	Nr	1.00		
2.2.106	Allow for supply and installation of institutional stand point connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.	Nr	1.00		
	Includes setting up of each type of chamber, excavation in any type of soil including rock, dewatering, shoring, formwork, in situ construction of reinforced concrete chambers, sump, removal of form work, protecting externally with water proofing tanking membrane and internally with two coats each 400 microns coaltar epoxy or equivalent, backfilling, compacting, providing surface box openings and chamber access openings, providing surface boxes, chamber access covers and frames, ladders, slab lifting hooks, vent pipe with insect screen, reinstating the site to its original condition etc. to make each chamber civil works complete in all respects as shown on contract drawings.  PAGE TOTAL CARRIED TO SECTION COLLE	CTION	LOHERRA		

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT **COUNTY**

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		J. 111	Y.,	Kshs.	Kshs.
2.2.107	Washouts	Nr.	9.00		
2.2.108	Air valves	Nr.	8.00		
2.2.109	Valve chambers	Nr.	9.00		
	ANCILLARIES ITEMS				
2.2.110	Supply and fix marker posts along water Main Route, Road Crossings, change of direction, Air valves, Washouts and valve chambers. All in accordance				
	with drawings and specifications	No	68.00		
	Thrust Blocks				
	Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re-steel bar, the formwork and others as detailed on drawing	Nr	10.00		
2.2.112	Allow for a total of Kshs. 1,500,000 for establishment and maintenance of for control survey points and beacons for the Lot 3 project sites	Item	1		
2.2.113	Allow a percentage to items 2.2.151 above to cater	%	10%		
	Gulley/ River Crossings				
2.2.114	Allow for gulley crossing for HDPE pipe as detailed in the book of drawings - Road and Seasonal river crossing structural details (dwg Nr KE/WSTF/RE/GW/STD/030)	m	120.00		
		$\vdash$			
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### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1115141	DESCRIPTION	01111	119	Kshs.	Kshs.
	Page Total, Page 1				
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	Page Total, Page 2				
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	Page Total, Page 3				
	Page Total, Page 4				
	Page Total, Page 5				
	Page Total, Page 6				
	Page Total, Page 7				
	Bill Total Carried to Grand Summary				

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

	PROJECT NO.: KE-WSTF-32881  BILL NO. 2.3: MALOBOT WATER SUPPLY SCI		`	12 EL EVATED	
	BILL NO. 2.3: MALOBOT WATER SUPPLY SCI			RATE	AMOUNT
ITEM	DESCRIPTION	UNIT	QTY	KShs.	Kshs.
	20m High, Elevated Steel Tank of 100m <sup>3</sup>			TESTIS.	1231134
	The sites for the proposed Water Reservoirs shall be within the				
	Water Supply Scheme				
	Supply all materials, tools and equipment, erect, and				
	commission a galvanised 100m³ steel with liner sectional tank of				
	the Braithwaite type/ Alumzinc tank with liner or equal				
	approved standard to include a tank tower of 20 meters, ladder				
	with ladder guard inside ladder, walkway with walkway guard,				
	water level gauge and tank cover, provision of air vent, support				
	rails, overflows, scour, inlets and outlet for 100mm pipes etc.,				
	for complete installation. Foundation of tank pads to be				
	2.3mx2.3m and depth not less than 2.6m. RC works to				
	Specifications. Rebars to be T16 @ 150mm c/c and distribution				
	of T12 @150mm c/c top and bottom mesh. 4Nr Column stud				
2.3.1	size 500mmx500mm with 8Nr T16 and T8 stirrups each with		1.00		
2.3.1	HFSG bolts galvanised 4nr. 25 dia bolts and nuts with washers		1.00		
	@600mm long. 4Nr Beam size 400mmx300mm with 8Nr T12				
	and T8 stirrups each. Concrete Class to be C30/20 using OPC				
	Cement CEM I Grade 42.5. Base plate 10mm, including				
	grouting base plate interface with column stud. Panel plate				
	thickness 3mm all galvanised. Coat tank inside with approved				
	bituminous paint. All tank components to be Hot-dip galvanized				
	to EN ISO 1461. Tank manufacturer to be KEBS certified and				
	ISO certified. The rate to include deailed structural analysis, shop drawings, complete tank and tower installation,				
	mobilization, demobilization, delivery to site and testing. All to				
	the approval of the Engineer				
	INLET PIPE FITTINGS				
2.3.2	100 HDPE Stab End Flange		2.00		
	100mm All flanged pipe piece 1m long	No	3.00		
	100mm flanged spigot pipe piece 1m long	1,0	1.00		
	100mm All flanged sluice valve	No	1.00		
2.3.6	100mm All flanged G.S 90° bend		2.00		
2.3.7	100mm All flanged pipe piece 6m long	No	3.00		
2.3.8	100mm All flanged pipe piece 1.2m long	No	1.00		
2.3.9	100mm All flanged Float switch	No	1.00		
2.3.10	OVERFLOW AND SCOUR				
2.3.11	100mm All flanged pipe piece 1.8m long	No	1.00		
2.3.12	100mm Flanged bell mouth	No	2.00		
2.3.13	100mm All flanged pipe piece 2.2m long	No	1.00		
2.3.14	100mm All flanged slice valve	No	2.00		
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### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

BILL NO. 2.3: MALOBOT WATER SUPPLY SCHEME 100 M3 ELEVATED						
ITEM	DESCRIPTION	UNIT	QTY -	RATE	AMOUNT	
2.3.15	100mm flanged adaptor	No	1.00	Kshs.	Kshs.	
2.3.16	100mm flanged spigot pipe piece 1m long	No	1.00			
2.3.17	100mm All flanged equal Tee	No	1.00			
2.3.18	100mm All flanged pipe piece 3.5m long	0	2.00			
2.3.19	100mm All flanged pipe 6m long	No	2.00			
2.3.20	100mm All flanged G.S 90° bend	No	1.00			
2.3.21	100 HDPE Stab End Flange	No	2.00			
	OUTLET					
2.3.21	100mm flanged pipe 6m long	No	3.00			
2.3.22	100mm Flanged bell mouth	No	1.00			
2.3.23	100mm All flanged G.S 90° bend		1.00			
2.3.24	100mm All flanged Slice valve	No	2.00			
2.3.25	100 HDPE Stab End Flange	No	2.00			
2.3.26	Supply, install and test diameter 100mm Electromagnetic Water	No	1.00			
	Testing					
2.3.27	Supply and apply recommended disinfectant and test the tanks.	Nr.	1.00			
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### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

BILL NO. 2.3: MALOBOT WATER	SUPPLY SCHEME	100 M	3 ELEVATED	
TEM DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
Page Total, Page 1				
Page Total, Page 2				
Bill Total Carried to Bill Summary	y			

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

### CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN,

	BILL NO. 2.4: MALOBOT WATER SCHEME ADMINSTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
HEN	DESCRIPTION	UNII	QII	Kshs.	Kshs.	
2.4.1	Excavation of surfaces to reduce the level, depth not	m3	11.58			
2.4.1	exceeding 0.25m	1113	11.56			
2.4.2	Foundations and bases for depth not exceeding 1500		41.67			
2.4.2	mm for strip footing		41.07			
	Excavation Ancillaries					
2.4.3	Trimming of excavated surfaces to recieve blinding		56.70			
2.4.3	concrete		30.70			
	Filling as Described:-					
	Hardcore					
2.4.4	300mm thick hand packed well compacted hardcore	m3	16.20			
2.1.1	including 75 mm thick blinding layer	ms	10.20			
	Anti-Termite treatment					
	Treat surface of hardcore with approved anti termite					
2.4.4b	solution applied strictly in accordance with the	m2	54.00			
	manufacturers instructions.					
	Damp-Proof Membrane					
2.4.5	500 Gauge polythene sheeting, laid over hardcore in	m2	54.00			
	two layers					
	CLASS F: INSITU CONCRETE:					
	Mass Concrete Class 15/20mm :-					
2.4.6	75mm Thick blinding under strip footing	m3	4.05			
	Vibrated Reinforced Concrete Reinforced Concrete					
	Class 25/20mm:-					
2.45	150mm thick ground slab with BRC A142 mesh laid 40	2	0.10			
2.4.7	mm from the top finished with red oxide polish. BRC	m3	8.10			
	mesh rate shall be provided separately.					
	200 mm Thick Class 25/20 concrete for foundtion					
2.4.8	footiung of dimension 600x600 mm complete with	m3	2.50			
	reinfoced column to of 300mm x 200mm to a depth not					
2.4.0	less than 1.5m	2	4.62			
2.4.9	200x300 Ring Beam concrete	m3	4.62			
	CLASS G: CONCRETE ANCILLARIES Formwork					
	Formwork - Fair Finish:-					
2 4 10	Formwork - Fair Finish:- Formwork to sides of 300 mm deep ring beam	m2	23.10			
	Vertical Sides of the 150mm ground slab	m2	9.63			
	Soffit ring beam 200 mm wide	m2	15.40			
2.4.12	Reinforcement	1112	13.40			
	Provide and Fix High Tensile Steel Reinforcement to					
	SRN 127 Including Cutting, Bending, Propping with					
	Spacers and Tying as Specified:-					
2.4.13	High yield tensile steel 12mm diameter to ring beam	kg	64.72			
2	2.5. J. 2. Committee of the committee of the country of the countr	- 15	01.72			
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

### CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, BILL NO. 2.4: MALOBOT WATER SCHEME ADMINSTRATION BUILDING

	BILL NO. 2.4: MALOBOT WATER SCHE	MIE ADN	IINSTKA	RATE	AMOUNT
ITEM	DESCRIPTION	UNIT	QTY	Kshs.	Kshs.
2.4.14	8 3	kg	300.60		
2.4.15	High yield tensile steel 8mm diameter links to ring beam	kg	101.96		
	Fabric Reinforcement No. A142 Mesh Size 150 x				
	150mm Weighing 2.22 kgs Per m <sup>2</sup> , Including Bends, Tying Wire and Distance Blocks:-				
2.4.16	Fabric reinforcement with minimum 200mm wide side and end laps, laid in bed- A142 mesh at 25mm from the top	m2	54.00		
	Walling.				
	Natural Stone Walling, Medium Chisel Dressed,				
	Reinforced with 20 swg Hoop Iron at Every Two Course, and Bedded, Jointed and Pointed in Cement				
2 4 17	Mortar (1:3):- 200 mm thick masonry wall in substructure	m2	45.00		
	200 mm thick masonry wall in substructure 200 mm smooth dressed walling in superstructure	m2 m2	114.00		
	150 mm smooth dressed walling in superstructure	m2	64.60		
2.4.19	Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-	1112	04.00		
2.4.20	200mm and 150mm Wide under walls	m	35.20		
2.1.20	Finishes.	- 111	33.20		
2.4.21	20 mm 1:4 Cement/sand plaster to internal of walls	m2	133.76		
	3 coats (one undercoat and two other coats) of silicon		100170		
2.4.22	based emulsion paint to external wall surfaces as in Crown Permacote ultra guard rain-proof silicone paint or approved equivalent.	m2	105.64		
2.4.23	3 coats (one undercoat and two other coats) of emulsion paint to interior wall surfaces as in Crown Vinyl Matt Emulsion with Teflon Surface protector or approved equivalent.	m2	161.88		
	CLASS O: TIMBER				
	Roof				
2.4.24	50x 100 mm Rafter, ridge piece and tie beams: in trusses	m	140.50		
	50x 100 mm: timber beam (GMS posts)	m	10.00		
	100 x 50 mm: Struts and ties	m	95.40		
	200 X 25mm fascia and badge	m	36.00		
	100 x 50 mm Wall plate: fixed to concrete	m	54.00		
2.4.29	75 x 50mm purlins	m	80.00		
2.4.30	28 Gauge Blue prepainted roof sheets including ridge caps	m2	80.00		
	PAGE TOTAL CARRIED FORWARD TO COLLEC	CTION S	HEET		

LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

### PROJECT NO.: KE-WSTF-328819-CS-QCBS

### CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN,

				BILL NO. 2.4: MALOBOT WATER SCHEME ADMINSTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT				
				Kshs.	Kshs.				
S	Supply and Fix the Following Pressed Metal Louvre								
	Doors with 100 x 50mm Stiles and Top Rails, 150 x								
	50mm Middle and Bottom Rails With Pressed Metal								
	Infill Louvres and 100 x 50mm Pressed Metal Frames,								
	v .								
	Including Hinges, Pad Bolts and Tower Bolts, All To								
	Manufacturer's Details, With Three Coats Gloss Paint								
	Complete With Opening Accessories Including Bedding								
а	and Pointing Around Frames in Cement Mortar:-								
F	Panel doors								
S	Single leaf flush door size 2100 x 900 mm high (D1),								
2.4.32 c	complete with frame, with union three (3) lever door	nr	3.00						
	ock and any other ironmongery.								
	100mm furnished GMS Posts								
	Supply and install 3.5m GMS Posts complete with								
	connectors and anchors for the concrete base and for	nr	6.00						
	the 100mmx150mm timber beam		0.00						
	Steel Casement Windows								
	Sections windows								
S	Supply and Fix the Following Standard Section Steel								
	Casement Windows, including 4mm Thick Clear Sheet								
(	Glass glazed to Steel Casements with Putty, Complete								
ν	with Opening Accessories, including Building in Lugs								
te	o Jambs and Head and Water-Proofing and Filling								
A.	Around Opening With Approved Compound; and								
	Including Burglar-Proofing Fabricated from 12 x								
	12mm Mild Steel Square Bars at 150mm Centres								
	Vertically and 150mm Horizontally and Fixed								
	Internally to Surrounding Wall with 12mm Mild Steel								
	Fish-Tailed Lugs at Maximum 600mm Centres; all								
	Finished with Three Coats Oil Paint:-								
	rinished with Three Codis Oil Tuini								
V	Window size 1200x 1200mm high with 1 No. fixed and								
2 4 2 4 2	2 No. side hung opening bottom sashes and with 2 No.	3.7	5.00						
	fixed and 1 No. top-hung top ventilators 200mm high	Nr	5.00						
	with permanent ventilator hood over								
	Ceilling								
	2mm Thick Approved Chipboard to BS 2604, Part 2,								
	Horizontal ceiling fixed to underside of trusses	m2	54.00						
	12mm Cornice 50mm high, plugged	m	47.00						
					-				
F	PAGE TOTAL CARRIED FORWARD TO COLLEC	CTION S	HEET						

LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

### CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, BILL NO. 2.4: MALOBOT WATER SCHEME ADMINSTRATION BUILDING

	BILL NO. 2.4: MALOBOT WATER SCHE	ME ADN	HNSTR <i>A</i>		
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	ELECTRICIO ATION ENTERNOS			Kshs.	Kshs.
	ELECTRIFICATION FITTINGS				
	Lighting points wired in 1.5mm <sup>2</sup> single core pvc insulated copper cables drawn in HG high impact pvc				
	conduits and accessories all concealed in building				
	fabric for one or two way switching,13 Amps socket				
	outlet points wired in 2.5mm <sup>2</sup> single pvc insulated				
2.4.37	cables enclosed in pvc conduits, accessories and	L. Sum	1.00		
	concealed in building fabric to form ring main circuits,				
	15mmx16mm diameter pure electroylite copper earth				
	rods including 35mm <sup>2</sup> earth lead cable, deep driven to				
	permanent moisture level. Rate to include supply of all				
	necessary materials and installation.				
	FURNITURE				
2.4.38	Curtains for office for all windows and doors	Set	1.00		
2.4.39		No	1.00		
2.4.40		No	8.00		
2.4.41	Desk 2.2x0.9 m with chair and three lockup drawers	No	2.00		
	SANITATION FACILITY				
	Provide all materials and construct a 1500mmx900mm				
	pit latrine with depth from floor level at 6m. Stone masonry walling shall be 150mm, 125mm floor slab				
2.4.42	reinforced with T10 @100mm c/c, Roofing corrugated	L. Sum	1.00		
	iron sheets gauge 28 etc All details as per the drawing				
	and as directed by engineer.				
	and as directed by engineer.				
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

# PROJECT NO.: KE-WSTF-328819-CS-QCBS CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, BILL NO. 2.4: MALOBOT WATER SCHEME ADMINSTRATION BUILDING

ITEM	DESCRIPTION	LINIT	HNIT	LINIT	UNIT	UNIT	HINIT	IINIT	UNIT	QTY	RATE	AMOUNT
IIEWI	DESCRIPTION	UNII	QII	Kshs.	Kshs.							
	Page Total, Page 1											
	Page Total, Page 2											
	Page Total, Page 3											
	Page Total, Page 4											
	Bill Total Carried to Bill Summary											

CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY PROJECT NO.: KE-WSTF-328819-CS-QCBS PROJECT NO. KE-WSTF-328819-CS-QCBS BILL NO. 2: COLLECTION MALBOT WATER SUPPLY SCHEME-150M3 TANK DESCRIPTION AMOUNT (Kshs) BILL No BOREHOLES AND WELL DEVELOPMENT 2.1 2.2 PIPELINE AND FITTINGS 100m3 STEEL ELEVATED TANK 2.3 BUILDINGS 2.4

REVISED Vol III	BoQ - Marsal	bit Lot II-BoQ
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Bill 2 -Malobot Water Supply Scheme

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.1: ILLERET SCHEME BOREHOLE DEVELOPMENT						
ITEM	DESCRIPTION	IINIT	QTY	RATE	AMOUNT	
		UNII	VII	Kshs.	Kshs.	
3.1	BOREHOLE/WELL DEVELOPMENT					
	The Contractor shall, supply, install, test, commisssion and					
	provide warranties, spares, training of the operators and					
	technicians, 12 months after sale-service for photovoltaic					
	pumping (PVP) systems, without batteries, with diesel					
	generator/national grid interface and remote monitoring to					
	Specifications and proper working order for identified rural					
	community boreholes. The Contractor is required to remove					
	existing water pump systems in each case and undertake borehole					
	service including but not limited to borehole redevelopment,					
	flushing and replacement of sieves. All to the Specifications and					
	as directed by the Engineer.					
	Allow Kes 100,000 for demolitions, relocations and					
	demobilization of existing infrastructure in the borehole site		1.0			
	including pumps, solar panels, tanks, steel structures, cables,		1.0			
	buildings, etc Rate to include transportation for safekeeping as					
	directed by the Water Service Provider/Employer					
	Allow Kes 100,000 for mobilization of borehole camera,					
	conducting a borehole camera investigation. Borehole flushing	Prov.	1.0			
	with drilling foam, chemical cleaning, airlifting and water jetting	Sum				
	at high pressure. Borehole Test pumping for 24 hours of constant					
	flow and conducting a laboratory water chemical analysis					
	Allow a Kes 250,000 provisional sum for redevelopment of		1.0			
1 3 1	boreholes. The rates shall be used from existing rates elsewhere in					
	the BoQ or as provided in the dayworks or as determined by the					
	Engineer.	%	10%			
.1.4	Allow % for overheads, administration, profits, etc	70	10%			
	Supply, install, test and commission 13kW, 17.67Hp Submersible					
	Pump SPE 18-19 or approved equivalent with a discharge					
	20.3m3/hr and head 135m pipe complete with Switch box /		1			
	control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump		1			
	Controller CUE. Surge Protection; and Sine-wave filter. The rate					
	, 6					
	to include appropriately sized PVC riser pipes.					
I n I	Supply, install, test and commission 6 mm <sup>2</sup> /4 core submersible	m	102			
	pump flat cable					
	Supply, install, test and commission DN6x120 mmL stainless		,			
3.1.7	steel water level sensor complete with microcontroller and alert		1			
	system.					
3.1.10	Supply, install, test and commission 0.75mm2 sc pvc sheathed	m	204			
	copper control cable( brown and black)					
		EET				

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.1: ILLERET SCHEME BOREHOLE DEVELOPMENT RATE AMOUNT ITEM UNIT OTY DESCRIPTION Kshs. Kshs. Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeiIntegration of PLC with system sensors 3.1.11 (pressure, flow, level) for data acquisition and system feedback No. and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real-time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface, Data Logger Unit with Multiple Interface Support (RS232, RS485, etc.) and Integration with the Servers for Future Expansion. Supply, install, test and commission the following Sensors for Monitoring System. The cost shall include cabling and integration of the sensors into the data logger. Supply, install, test and commission the Solar Radiation Apogee 3.1.12 SP 230 or equivalent & Temperature Sensors PT100 or LS 1.00 equivalent. Supply, install, test and commission the Float Switch Sensor (tank 3.1.13 No. 1.00 high/low levels, Model: Omron D4MC or equivalent) Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated range from 1-100 mH2Og, 3.1.14 No 1 acuracy + 0.175% FS BSL NLHR>4mH2O, +o.25%<4mH2O. Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or No. 1.00 Supply, install, test and commission of an array of solar with the following specicifications: 390W solar panels, Monocrystalline Silicon PV, with 25 years warranty The power output of the 3.1.15 modules should generate enough power such that the power 0 56.0 output at the connection point to the distribution board is not less than 21.84 kW on a bright sunny day at midday taking into account the system losses. PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.1: ILLERET SCHEME BOREHOLE DEVELOPMENT **RATE** AMOUNT ITEM UNIT OTY DESCRIPTION Kshs. Kshs. 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 2.5m above the ground for the low height side and a maximum of 3m above the 3.1.16 ground for the high height side in case of a 2m length solar panel 1 Set or any other height on the high height side as long the tilt angle is not more than 150 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. Supply, install, test and commission a 3-phase 40KVA power output diesel generator with 415 V at 50 Hz. It should include a highly corrosion resistant enclosure, control panel and monitoring, fuel tank and circuit breaker protection. The diesel generator shall be suitable for indoor or outdoor installation and shall perform 3.1.17 accordingly with the battery inverter and the system design. The Set 1 diesel generator shall work in a fully automatic manner with the above stated component. A concrete plinth to be constructed for the generator placement plus a shed of steel hollow sections and IT 4 sheets to engineer's approval to house the generator. Supply, install, test and commission a 15 kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 15kW 31A or 3.1.20 approved equivalent complete with accessories. The inverter to be Set 1 installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54. Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, 3.1.21 No 1 complete with the metal enclosure to have a protection of atleast Supply, install, test and commission Schneider Acti9 Energy Meter 3p kWH 63Amps modibus or approved equivalent for 3.1.22 No 1 measuring energy generated by the solar PV system complte with IP66 rated enclosure. Supply of materials and construct a Genset/Control room building to drawing and Specifications. Rate to include excavations, setting 3.1.23 1 out, erection and all installations for the structure as per Appendix Supply, install, test and commission Cabling complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at 3.1.24 Lot 1 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. PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.1: ILLERET SCHEME BOREHOLE DEVELOPMENT					
ITEM		UNIT	`	RATE	AMOUNT
				Kshs.	Kshs.
3.1.25	Supply, install, test and commission Pressure Gauge - 0-25bar	No	2		
3.1.28	Supply, install, test and commission Modem and router for remote	Set	1		
	monitoring and control. Grundfos SqFlex or equivalent				
3.1.29	Supply and install Aerial lightning arrestors at 6m height, fixed to	Set	1		
	concrete foundations				
1 20	Supply and install Earthing materials, including all inspection	Set	1		
3.1.30	chambers, rods, tape bonding straps etc. as necessary for the				
	earthing requirements with the borehole				
3.1.34	Supply, install, test and commission Motor ProtectionUnit MP204	No	1		
	or equivalent				
3.1.36	Allow for 12 months after sale service including training of	Ls	1		
1 40	operators and technicians.				
3.1.40	Communication Infrastructure		2		
3.1.41	Supply and installation of GSM/GPRS/4G communication	No.	2		
	modules for boreholes and booster stations				
3.1.42	Supply and installation of Antennas and signal boosters for	No.	2		
	remote locations		500		
3.1.43	Supply and installation of Fiber Optic Cable (8-core, single-mode)	m	500		
	C111		-		
3.1.44	Supply and installation of Fiber Optic Termination Boxes, Wall-	Set	5		
1 1 15	mounted, dustproof	T	-		
5.1.45	Supply and installation of Fiber Optic Splicing and Accessories	Lot	5		
	Fire Fighting Equipment				
	Supply, install, test and commission 5 Kg Class ABC Powder	No	1		
3.1.46	steel cylinder fire extinguisher, c/w pressure				
	gauge wall mounting steel bracket, operating instructions and				
	accessories, fully charged.				
	Fencing				
	Excavate for post holes, provide all materials and construct chain				
	link fence on concrete posts at 3 m centres all as per drawing				
3.1.47	details, including straining posts at every 10th post and additional	m	120		
	posts at corners and botton concrete cover to ground level under				
	the fence. Works to include provision and installation of a Double				
	Galvanized Razor Wire protection.				
3 1 40	Provide all materials and construct 6.0 m wide lockable metal gate		1		
5.1.48	all to detailed. The gate to have a lockable pedestrian gate 1m	Nr			
	wide opening.				
	Borehole pipeworks				
1 40	Borehole cover with extended 1m flanged pipe piece DN50. Note		1		
5.1.49	the cover should also allow for any other cabling and	Nr			
1.50	instrumentation for the borehole.	NI	2		
	All Flanged 90 deg long elbow DN 50	Nr	3		
	Double Flanged Non-Return Valve 50	Nr	1		
	Double Flanged Gate Valve DN 50	Nr	4		
3.1.53	Supply and intsall multi-turn actuators for open-close duty paired	No.	4		
1.62	with actuator controls, and variable speed models.	N.T	1		
0.1.03	All flanged equal steel tee 50mmx50mmx50mm  DN50mm pan clam Dayble orifice Air Volve with flanged base	Nr	1		
3.1.64	DN50mm non-slam Double-orifice Air Valve with flanged base,	No.	o. 1		
	complete to detail as indicated in the Drawings.				
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### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

# PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.1: ILLERET SCHEME BOREHOLE DEVELOPMENT ITEM DESCRIPTION UNIT QTY RATE AMOUNT Kshs. Kshs.

ITEM	DESCRIPTION	UNIT	QTY	KATE	AMOUNT
				Kshs.	Kshs.
2 1 (5	D11- G 1 DN501	NI	1		<u> </u>
	Double flanged pipe piece DN50 length 1500mm  Provide, install, test and commission an electromagnetic flow	Nr	1		
2 1 66	meter DN 50 PN16. Rate to include 2 battery power supply, IP 68,	Nr	1		
	RS232 and RS 485 port outputs.	INI	1		
		Nr	2		
3.1.67	Double flanged pipe piece DN50 length 1000mm	Nr			
3.1.68	All flanged equal 1.8m long extended steel tee 50mmx50mmx50mm	Nr	2		
2 1 60	All flanged reducing taper 50mmx63mm	Nr	1		
	Flanged HDPE Stub end DN63	Nr	1		
	All Flanged 50mmx50mmx50mm tee connection to a surge	INI	1		
3.1.71	protection vessel PN16	Nr	1		
	Allow a provision of supply, installation, testing and				
	commissioning of appropriately sized surge vessels or surge				
	control valve with all manway accesses, flange pipe connections	Lump			
3.1.72	and all other appurtenances as per manufacturers	Sum			
	recommendations and in accordance with specification and a air	Sulli			
	buffer vessel to DN 50 rising main PN20.				
	WELL HEAD PROTECTION				
	Provide materials and construct a 1.2mx0.9m with height not				
	exceeding 2m wellhead protection for Borehole to details as per				
	the drawing and as directed by the Engineer. The rate includes a		1		
3 1 72	lockable 5mm thick mild steel access cover, mild steel step irons,	Item			
3.1.72	provision for conduits and pipeworks, vent provision and base	пеш			
	slab 150mm C25/20 reinforced with A142 BRC mesh per				
	borehole.				
	borchoic.				
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.1: ILLERET SCHEME BOREHOLE DEVELOPMENT RATE **AMOUNT** UNIT OTY ITEM DESCRIPTION Kshs. Kshs. Page Total, Page 1 Page Total, Page 2 Page Total, Page 3 Page Total, Page 4 Page Total, Page 5 Bill Total Carried to Bill Summary

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.2: ILLERET WATER SUPPLY SCHEME PIPELINES AND FITTINGS RATE ITEM DESCRIPTION **AMOUNT** UNIT OTY Kshs. Kshs. i. The Contactor to maintain uninterrupted continuity of water supply in existing pipelines ii. Pedestrian and vehicular Access to individual shops / plots to be maintained at all times iv. Keeping trenches free of excessive groundwater, seepage or water from any source PIPE AND PIPE FITTINGS Pipe Work - Supply, lay, joint, pressure test, disinfect Supply, handle, and install (rates shall include jointing materials, bolts, gaskets packing jointing glue, welding etc., as applicable) to the following HDPE Pipes to KS ISO 4427 and Steel/ferrous Fittings (valves and pipe specials) in trench as per the specifications. All pipe fittings and valve diameters indicated are Nominal Pipe trench excavation is to commence from ground level to a minimum depth of 1.5m. Rate to include setting out, general bush clearing, Pipe laying, Pressure testing, disinfection, backfilling with imported bedding and surrround material all as per specifications, drawings and RISING MAINS 3.2.1 HDPE Pipe DN110mm PN16 3,730.00 Non return valves 3.2.2 DN 110mm Non-return valves Nr 1.00 Airvalves 3.2.3 DN 50mm airvalve AVK or approved equivalent 1.00 Nr MAIN PIPELINES AND DISTRIBUTION SYSTEM 5,032.00 3.2.4 HDPE Pipe DN50mm PN16 m 3.2.5 HDPE Pipe DN63mm PN16 666.00m 3.2.6 HDPE Pipe DN75mm PN16 291.00 m 3.2.7 HDPE Pipe DN90mm PN16 2,218.00 m 3.2.7a HDPE Pipe DN110mm PN16 975.00 m Bends 3.2.8 DN 110mm 90° Nr. 2.00 3.2.9 DN 110mm 45° 0 2.00 3.2.10 DN 90mm 90° 2.00 Nr. 3.2.11 DN 75mm 90° Nr. 2.00 3.2.12 DN 63mm 90° 2.00 Nr. 3.2.13 DN 50mm 90° 2.00 Nr. Reducers 3.2.14 DN 90/75 mm Nr. 1.00 3.2.15 DN 75/50 mm 1.00 3.2.16 DN 63/50 mm Nr. 1.00 PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.2: ILLERET WATER SUPPLY SCHEME PIPELINES AND FITTINGS ITEM DESCRIPTION RATE **AMOUNT** UNIT OTY Kshs. Kshs. 50mm offtake (JD 1,7,9,10) 3.2.17 DN 50x50x50mm HDPE tee Nr 3.00 3.2.18 DN 50mm stub end with MS flange ring Nr 6.00 3.2.19 DN 50mm flanged sluice valve Nr 3.00 75mm offtake (JD 2) 3.2.20 DN 63x63x50mm HDPE tee Nr 1.00 3.2.21 DN 63x50mm Reducer 1.00 Nr 3.2.22 DN 50mm stub end with MS flange ring Nr 2.00 1.00 3.2.23 DN 50mm flanged sluice valve Nr 90mm offtake (JD 3,4,5) 3.2.24 DN 90x90x50mm HDPE butt fusion tee 3.00 Nr 3.2.25 DN 50mm stub end with MS flange ring 6.00 Nr 3.2.26 DN 50mm flanged sluice valve Nr 3.00 90mm offtake (JD 6) 3.2.27 DN 90x90x63mm HDPE tee 1.00 Nr 3.2.28 DN 90x75mm Reducer Nr 1.00 3.2.29 DN 50mm stub end with MS flange ring 2.00 Nr 3.2.30 DN 50mm flanged sluice valve Nr 1.00 75mm offtake (JD 4,5) 3.2.31 DN 75x75x50mm HDPE tee Nr 1.00 3.2.32 DN 50mm stub end with MS flange ring Nr 2.00 3.2.33 DN 50mm flanged sluice valve 1.00 Nr 50mm offtake (JD 7,9,10) 3.2.34 DN 50x50x50mm HDPE tee Nr 3.00 3.2.35 DN 50mm stub end with MS flange ring Nr 6.00 3.2.36 DN 50mm flanged sluice valve Nr 3.00 DN 50mm Terminal connection (with washout) 3.2.37 DN 50x50x50mm HDPE (Reduced or Equal) tee Nr 4.00 3.2.38 DN 50mm stub end with MS flange back ring Nr 16.00 3.2.39 DN 50mm Flanged gate valve 8.00 Nr 3.2.40 DN 50mm HDPE flap valve Nr 4.00 3.2.41 DN 50mm HDPE PN 16 pipe 240.00 m PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.2: ILLERET WATER SUPPLY SCHEME PIPELINES AND FITTINGS RATE ITEM DESCRIPTION **AMOUNT** UNIT OTY Kshs. Kshs. DN 90mm Terminal connection (with washout) 4.00 3.2.42 DN 90x90x90mm HDPE (Reduced or Equal) tee Nr 3.2.43 DN 90mm stub end with MS flange back ring Nr 16.00 3.2.44 DN 90mm Flanged gate valve Nr 8.00 3.2.45 DN 90mm HDPE flap valve Nr 4.00 3.2.46 DN 90mm HDPE PN 16 pipe m 240.00 Air Valve Chamber Fittings (DN110mm) -(1No) 3.2.47 HDPE Reducer Tee DN 110mm x 110mm x 63mm Nr 3.00 3.2.48 DN63 mm HDPE Stub End with MS Flange 3.00 Nr 3.2.49 DN 50mm double flanged sluice valve Nr 3.00 3.2.50 DN 50mm double orifice airvalve 3.00 Nr Washout (DN 110mm) -(2No) 3.2.51 HDPE Reducer Tee DN 110mm x 110mm x 90mm Nr 1.00 3.2.52 DN 110mm HDPE stub end with MS Flange Nr 4.00 3.2.53 DN 90 mm HDPE stub end with MS Flange 2.00 Nr 3.2.54 DN 90mm sluice valve Nr 1.00 3.2.55 DN 90mm HDPE pipe (PN 12.5) 24.00 m 3.2.56 Masonry headwall with base slab for Erosion protection Ls 1.00 at discharge point Air Valve Chamber Fittings (DN90mm) -(2No) 3.2.57 HDPE Reducer Tee DN 90mm x 90mm x 63mm Nr 2.00 3.2.58 DN63 mm HDPE Stub End with MS Flange Nr 2.00 3.2.59 DN 50mm double flanged sluice valve Nr 2.00 3.2.60 DN 50mm double orifice airvalve 2.00 Nr Washout (DN 90mm) -(1No) 3.2.61 HDPE Reducer Tee DN 90mm x 90mm x 75mm Nr 1.00 3.2.62 DN 90mm HDPE stub end with MS Flange 4.00 Nr 3.2.63 DN 75 mm HDPE stub end with MS Flange Nr 2.00 3.2.64 DN 75 mm sluice valve Nr 1.00 3.2.65 DN 75mm HDPE pipe (PN 12.5) m 24.00 3.2.66 Masonry headwall with base slab for Erosion protection Ls 1.00 at discharge point PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.2: ILLERET WATER SUPPLY SCHEME PIPELINES AND FITTINGS ITEM DESCRIPTION RATE **AMOUNT** UNIT OTY Kshs. Kshs. Air Valve Chamber Fittings (DN75mm) -(1No) 3.2.67 HDPE Reducer Tee DN 75mm x 75mm x 63mm Nr 1.00 3.2.68 DN63 mm HDPE Stub End with MS Flange Nr 1.00 3.2.69 DN 50mm double flanged sluice valve Nr 1.00 3.2.70 DN 50mm double orifice airvalve 1.00 Nr Washout (DN 75mm) -(1No) 3.2.71 HDPE Equal Tee DN 75mm x 75mm x 75mm Nr 1.00 3.2.72 DN 75mm HDPE stub end with MS Flange Nr 4.00 3.2.73 DN 75 mm HDPE stub end with MS Flange 2.00 Nr 3.2.74 DN 75 mm sluice valve Nr 1.00 3.2.75 DN 75mm HDPE pipe (PN 12.5) 24.00 m 3.2.76 Masonry headwall with base slab for Erosion protection 1.00 Ls at discharge point Air Valve Chamber Fittings (DN 63mm) -(1No) 3.2.77 HDPE DN 63 X 63 X 32 mm Reducer Tee (NB: Must be Nr 1.00 electrofussion) 3.2.78 HDPE DN 32 mm PN 16 short piece pipe (400 mm long) 1.00 Nr 3.2.79 HDPE DN 32 mm PN 16 Male adapter Nr 1.00 3.2.80 HDPE DN 32 mm Pegler brass gate valve Nr 1.00 3.2.81 DN 32 mm Stainless Steel Hex Nipple Nr 1.00 3.2.82 DN 32 mm Threaded Air Valve Nr 1.00 Washout (DN 63mm) -(1No) 3.2.83 HDPE DN 63 X 63 X 63 mm Equal Tee (NB: Must be 1.00 Nr electrofussion) 3.2.84 HDPE DN 63 mm PN 16 short piece pipe (400 mm long) 1.00 Nr 3.2.85 HDPE DN 63 mm PN 16 Flanged adapter Nr 1.00 3.2.86 HDPE DN 50 mmFlanged Sluice valve 1.00 Nr 3.2.87 DN 63 mm HDPE pipe (PN 12.5) 24.00 m 3.2.88 Masonry headwall with base slab for Erosion protection Ls 1.00 at discharge point Air Valve Chamber Fittings (DN 50mm) 3.2.89 HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: Must be Nr 1.00 electrofussion) 3.2.90 HDPE DN 32 mm PN 16 short piece pipe (400 mm long) 1.00 Nr 3.2.91 HDPE DN 32 mm PN 16 Male adapter 1.00 Nr 3.2.92 HDPE DN 32 mm Pegler brass gate valve Nr 1.00 3.2.93 DN 32 mm Stainless Steel Hex Nipple Nr 1.00 3.2.94 DN 32 mm Threaded Air Valve 1.00 Nr Washout (DN 50mm) -(2No) 3.2.95 HDPE DN 50 X 50 X 50 mm Equal Tee (NB: Must be 1.00 Nr electrofussion) PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

BILL NO. 3.2: ILLERET WATER SUPPLY SCHEME PIPELINES AND FITTINGS  ITEM DESCRIPTION    UNIT   QTY   RATE   AMOUNT
3.2.96 HDPE DN 50 mm PN 16 short piece pipe (400 mm long)  3.2.97 HDPE DN 50 mm PN 16 Flanged adapter  3.2.98 HDPE DN 50 mm Flanged Sluice valve  3.2.99 DN 50 mm HDPE pipe (PN 12.5)  3.2.100 Masonry headwall with base slab for Erosion protection at discharge point  Water Draw Off Facilities  3.2.101  Provide materials and construct a water kiosk according to the specified drawings and standards. Additionally, supply and install a containerized solar-powered Reverse Osmosis Water Treatment System (or an approved equivalent) at the water draw-off points. The system must achieve a reduction of over 95% in total dissolved solids, in compliance with WHO standards. The feed water capacity should be 2.5 m³/hr.  Water Quality Analysis Summary -Iron(0.6/0.3) and Sodium(319/200) _Comprehensive water quality analysis available; Bidders to submit the proposed system with tender Rate to include excavations, setting out, erection and all installations for the structure as per Appendix C1
3.2.96 HDPE DN 50 mm PN 16 short piece pipe (400 mm long) 3.2.97 HDPE DN 50 mm PN 16 Flanged adapter Nr 1.00 3.2.98 HDPE DN 50 mm Flanged Sluice valve Nr 1.00 3.2.99 DN 50 mm HDPE pipe (PN 12.5) m 24.00 3.2.100 Masonry headwall with base slab for Erosion protection at discharge point Water Draw Off Facilities  3.2.101 Provide materials and construct a water kiosk according to the specified drawings and standards. Additionally, supply and install a containerized solar-powered Reverse Osmosis Water Treatment System (or an approved equivalent) at the water draw-off points. The system must achieve a reduction of over 95% in total dissolved solids, in compliance with WHO standards. The feed water capacity should be 2.5 m³/hr. Water Quality Analysis Summary -Iron(0.6/0.3) and Sodium(319/200) _Comprehensive water quality analysis available; Bidders to submit the proposed system with tender Rate to include excavations, setting out, erection and all installations for the structure as per Appendix C1
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3.2.102 Supply of materials and construct a cattle/Camel trough of
internal dimension 10mx1.1m. The 200mm wall shall be
RC reinforced with T10 and the 100mm base slab with
BRCA142. The height of the trough shall be 440mm. The
trough shall have a ditch slope for a distance of 2m around
it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe  Item 2.00
DN50 with float valve. Offtake with HDPE pipe piece
DN50 PN12.5, offtake isolating valve. An emergency
Isolation valve shall be secured in the chamber. The rate
will include excavations, setting out, erection, and all
installations/plumbing works for the structure. All details
to drawing and Specifications.
3.2.103 Supply of materials and construct sheep/goat trough of
internal dimension 10mx1.1m. The 200mm wall shall be
RC reinforced with T10 and the 100mm base slab with
BRCA142. The height of the trough shall be 300mm. The
trough shall have a ditch slope for a distance of 2m around
it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe  DNS0 with float yellor Office with HDDE pipe piece.  1 tem 2.00
DN50 with float valve. Offtake with HDPE pipe piece
DN50 PN12.5, offtake isolating valve. An emergency
Isolation valve shall be secured in the chamber. The rate
will include excavations, setting out, erection, and all
installations/plumbing works for the structure. All details
to drawing and Specifications.  PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

	PROJECT NO.: KE-WSTF-32	28819-0	CS-QCBS		
	BILL NO. 3.2: ILLERET WATER SUPPLY SCH	EME P	PIPELINES	AND FITTIN	GS
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
			VII	Kshs.	Kshs.
	Provide all materilas, construct and install a 1m high				
	reinforced concrete yardtap which include a water				
	dispensing ATM ,lockable valve chamber,offtake tee, steel				
	standpipe with tap, average of 100m long DN25				
	connection pipe and 1.2m 20mm diameter HDPE				
	connection pipes as per the drawings and as directed by				
	the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the				
	drawing. The Automated water dispensing ATM designed				
	to offer a reliable and user-friendly way to access and pay		1.00		
	for water using a keypad, screen, tag pay option, and		1.00		
	integration with MPesa for payment processing with the				
	following specifications -Keypad, -Screen (LCD), -Tag				
	Pay Option (RFID/NFC), -Web based dashboard				
	subscription for 10 year, -Hybrid dispensing, -MPesa				
	Integration for Payment upto 3 taps max, -water Flow				
	Sensor, -Solar power - charger, controller, battery and				
	solar panel. The rate to include the first 20 token chips for				
	20nr. households.				
3.2.105	Allow for supply and installation of institutional stand				
	point connection kits, which include a Prepaid smart				
	metering,lockable meter chamber,offtake tee, steel				
	standpipe with tap, average of 100m long DN25				
	connection pipe and 1.2m 20mm diameter HDPE	Nr	1.00		
	connection pipes as per the drawings and as directed by				
	the Engineer. Rate to include cost of all necessary fittings,				
	setting out, excavation and installation as per the drawing.				
	Chambers (Civil Works)				1
	Includes setting up of each type of chamber, excavation in				
	any type of soil including rock, dewatering, shoring,				
	formwork, in situ construction of reinforced concrete				
	chambers, sump, removal of form work, protecting				
	externally with water proofing tanking membrane and				
	internally with two coats each 400 microns coaltar epoxy				
	or equivalent, backfilling, compacting, providing surface				
	box openings and chamber access openings, providing				
	surface boxes, chamber access covers and frames, ladders,				
	slab lifting hooks, vent pipe with insect screen, reinstating				
	the site to its original condition etc. to make each chamber				
	civil works complete in all respects as shown on contract				
	drawings.				
	Washouts	Nr.	7.00		ļ
	Air valves	Nr.	10.00		ļ
	Valve chambers PAGE TOTAL CARRIED TO SECTION COLLECTION	Nr.	14.00		<u> </u>

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

## PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.2: ILLERET WATER SUPPLY SCHEME PIPELINES AND FITTINGS ITEM DESCRIPTION RATE **AMOUNT** UNIT OTY Kshs. Kshs. ANCILLARIES ITEMS 3.2.109 Supply and fix marker posts along water Main Route, Road Crossings, change of direction, Air valves, Washouts and valve chambers. All in accordance with drawings and No 61.00 specifications Thrust Blocks 3.2.110 Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re-10.00 Nr steel bar, the formwork and others as detailed on drawing **Gulley/ River Crossings** 3.2.111 Allow for gulley crossing for HDPE pipe as detailed in the book of drawings - Road and Seasonal river crossing 180.00 structural details (dwg Nr KE/WSTF/RE/GW/STD/030) PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.2: ILLERET WATER SUPPLY SCHEME PIPELINES AND FITTINGS ITEM DESCRIPTION RATE **AMOUNT** UNIT QTY Kshs. Kshs. Page Total, Page 1 Page Total, Page 2 Page Total, Page 3 Page Total, Page 4 Page Total, Page 5 Page Total, Page 6 Page Total, Page 7 **Bill Total Carried to Grand Summary**

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS 3.3: ILLIRET SCHEME 100 M3 ELEVATED TANK **AMOUNT RATE** DESCRIPTION UNIT QTY ITEM Kshs. Kshs. Elevated Steel Tank of 100m<sup>3</sup> The sites for the proposed Water Reservoirs shall be within the Water Supply Scheme Supply all materials, tools and equipment, erect, and commission a galvanised 100m³ steel with liner sectional tank of the Braithwaite type/ Alumzinc tank with liner or equal approved standard to include a tank tower of 20 meters, ladder with ladder guard inside ladder, walkway with walkway guard, water level gauge and tank cover, provision of air vent, support rails, overflows, scour, inlets and outlet for 100mm pipes etc., for complete installation. Foundation of tank pads to be 2.3mx2.3m and depth not less than 2.6m. RC works to Specifications. Rebars to be T16 @ 150mm c/c and distribution of T12 @150mm c/c top and bottom mesh. 4Nr Column stud size 500mmx500mm with 8Nr T16 and T8 stirrups each with 3.3.1 HFSG bolts galvanised 4nr. 25 dia bolts and nuts with washers 1.00 @600mm long. 4Nr Beam size 400mmx300mm with 8Nr T12 and T8 stirrups each. Concrete Class to be C30/20 using OPC Cement CEM I Grade 42.5. Base plate 10mm, including grouting base plate interface with column stud. Panel plate thickness 3mm all galvanised. Coat tank inside with approved bituminous paint. All tank components to be Hot-dip galvanized to EN ISO 1461. Tank manufacturer to be KEBS certified and ISO certified. The rate to include deailed structural analysis, shop drawings, complete tank and tower installation, mobilization, demobilization, delivery to site and testing. All to the approval of the Engineer INLET PIPE FITTINGS 2.00 3.3.2 100 HDPE Stab End Flange 3.3.3 100mm All flanged pipe piece 1m long Nο 3.00 100mm flanged spigot pipe piece 1m long 3.3.4 1.00 100mm All flanged sluice valve 1.00 3.3.5 No 3.3.6 100mm All flanged G.S 90° bend 2.00 100mm All flanged pipe piece 6m long 3.00 3.3.7 No 3.3.8 100mm All flanged pipe piece 1.2m long 1.00 No 3.3.9 100mm All flanged Float switch 1.00 No OVERFLOW AND SCOUR 100mm All flanged pipe piece 1.8m long No 1.00 3.3.10 100mm Flanged bell mouth 2.00 3.3.11 No 100mm All flanged pipe piece 2.2m long 3.3.12 No 1.00 3.3.13 100mm All flanged slice valve No 2.00 PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS 3.3: ILLIRET SCHEME 100 M3 ELEVATED TANK **AMOUNT RATE** DESCRIPTION UNIT **OTY** ITEM Kshs. Kshs. 1.00 3.3.14 100mm flanged adaptor No 3.3.15 100mm flanged spigot pipe piece 1m long 1.00 No 3.3.16 | 100mm All flanged equal Tee 1.00 0 2.003.3.17 100mm All flanged pipe piece 3.5m long No 100mm All flanged pipe 6m long 2.00 3.3.18 No 100mm All flanged G.S 90° bend 3.3.19 No 1.00 3.3.20 100 HDPE Stab End Flange 2.00 No OUTLET 3.3.21 100mm flanged pipe 6m long No 1.00 3.3.22 100mm Flanged bell mouth 1.00 100mm All flanged G.S 90° bend 1.00 3.3.23 No 100mm All flanged Slice valve 2.00 3.3.24 No 3.3.25 2.00 100 HDPE Stab End Flange No Supply, install and test diameter 100mm Electromagnetic Water Meter complete with all gasket bolts etc. Rate to include 3.3.26 No 1.00 for all associated fittings Testing Supply and apply recommended disinfectant and test the tanks. 1.00 3.3.27 PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET Page Total, Page 1 Page Total, Page 2 **Bill Total Carried to Bill Summary**

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.4: ILLERET WATER SCHEME ADMINSTRATION BUILDING RATE **AMOUNT** ITEM DESCRIPTION UNIT **OTY** Kshs. Kshs. **CLASS E: EARTHWORKS** Excavation of surfaces to reduce the level, depth not 3.4.1 11.58 m3 exceeding 0.25m Foundations and bases for depth not exceeding 1500 3.4.2 41.67 mm for strip footing **Excavation Ancillaries** Trimming of excavated surfaces to recieve blinding 3.4.3 56.70 Filling as Described:-Hardcore 300mm thick hand packed well compacted hardcore 3.4.4 m3 16.20 including 75 mm thick blinding layer **Anti-Termite treatment** Treat surface of hardcore with approved anti termite 3.4.4b solution applied strictly in accordance with the m2 54.00 manufacturers instructions. **Damp-Proof Membrane** 500 Gauge polythene sheeting, laid over hardcore in 3.4.5 54.00 m2 two lavers **CLASS F: INSITU CONCRETE:** Mass Concrete Class 15/20mm:-3.4.6 75mm Thick blinding under strip footing 4.05 m3Vibrated Reinforced Concrete Reinforced Concrete Class 25/20mm:-150mm thick ground slab with BRC A142 mesh laid 40 3.4.7 mm from the top finished with red oxide polish. BRC m3 8.10 mesh rate shall be provided separately. 200 mm Thick Class 25/20 concrete for foundtion footiung of dimension 600x600 mm complete with 3.4.8 m3 2.50 reinfoced column to of 300mm x 200mm to a depth not less than 1.5m 3.4.9 200x300 Ring Beam concrete 4.62 m3 **CLASS G: CONCRETE ANCILLARIES** Formwork Formwork - Fair Finish:-3.4.10 Formwork to sides of 300 mm deep ring beam 23.10 m2 3.4.11 Vertical Sides of the 150mm ground slab m2 9.63 3.4.12 Soffit ring beam 200 mm wide 15.40 m2 Reinforcement Provide and Fix High Tensile Steel Reinforcement to SRN 127 Including Cutting, Bending, Propping with Spacers and Tying as Specified :-3.4.13 High yield tensile steel 12mm diameter to ring beam 64.72 kg PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.4: ILLERET WATER SCHEME ADMINSTRATION BUILDING RATE **AMOUNT** UNIT OTY ITEM DESCRIPTION Kshs. Kshs. 3.4.14 High yield tensile steel 10mm diameter to strip footing 300.60 kg High yield tensile steel 8mm diameter links to ring 3.4.15 101.96 kg beam Fabric Reinforcement No. A142 Mesh Size 150 x 150mm Weighing 2.22 kgs Per m<sup>2</sup>, Including Bends, Tying Wire and Distance Blocks:-Fabric reinforcement with minimum 200mm wide side 3.4.16 and end laps, laid in bed- A142 mesh at 25mm from the m2 54.00 Walling. Natural Stone Walling, Medium Chisel Dressed, Reinforced with 20 swg Hoop Iron at Every Two Course, and Bedded, Jointed and Pointed in Cement Mortar (1:3):-3.4.17 200 mm thick masonry wall in substructure m2 45.00 3.4.18 200 mm smooth dressed walling in superstructure 114.00 m2 3.4.19 150 mm smooth dressed walling in superstructure 64.60 m2 Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-3.4.20 200mm and 150mm Wide under walls 35.20 m Finishes. 3.4.21 20 mm 1:4 Cement/sand plaster to internal of walls 133.76 m2 3 coats (one undercoat and two other coats) of silicon based emulsion paint to external wall surfaces as in 3.4.22 m2 105.64 Crown Permacote ultra guard rain-proof silicone paint or approved equivalent. 3 coats (one undercoat and two other coats) of emulsion paint to interior wall surfaces as in Crown 3.4.23 m2 161.88 Vinvl Matt Emulsion with Teflon Surface protector or approved equivalent. **CLASS O: TIMBER** Roof 50x 100 mm Rafter, ridge piece and tie beams: in 3.4.24 140.50 3.4.25 50x 100 mm: timber beam (GMS posts) 10.00 m 3.4.26 100 x 50 mm: Struts and ties 95.40 m 3.4.27 200 X 25mm fascia and badge 36.00 m 3.4.28 100 x 50 mm Wall plate: fixed to concrete 54.00 m 3.4.29 75 x 50mm purlins 80.00 m 28 Gauge Blue prepainted roof sheets including ridge 3.4.30 80.00 m2 PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.4: ILLERET WATER SCHEME ADMINSTRATION BUILDING RATE **AMOUNT** UNIT ITEM DESCRIPTION **OTY** Kshs. Kshs. Supply and Fix the Following Pressed Metal Louvre Doors with 100 x 50mm Stiles and Top Rails, 150 x 50mm Middle and Bottom Rails With Pressed Metal Panel doors Single leaf flush door size 2100 x 900 mm high (D1), 3.4.32 complete with frame, with union three (3) lever door 3.00 nr lock and any other ironmongery. 100mm furnished GMS Posts Supply and install 3.5m GMS Posts complete with 3.4.33 connectors and anchors for the concrete base and for the 6.00 nr 100mmx150mm timber beam **Steel Casement Windows** Supply and Fix the Following Standard Section Steel Casement Windows, including 4mm Thick Clear Sheet Glass glazed to Steel Casements with Putty, Complete with Opening Accessories, including Building in Lugs to Jambs and Head and Water-Proofing and Filling Around Opening With Approved Compound; and Including Burglar-Proofing Fabricated from 12 x 12mm Mild Steel Square Bars at 150mm Centres Vertically and 150mm Horizontally and Fixed Internally to Surrounding Wall with 12mm Mild Steel Fish-Tailed Lugs at Maximum 600mm Centres; all Finished with Three Coats Oil Paint:-Window size 1200x 1200mm high with 1 No. fixed and 2 No. side hung opening bottom sashes and with 2 No. 3.4.34 Nr 5.00 fixed and 1 No. top-hung top ventilators 200mm high with permanent ventilator hood over Ceilling 12mm Thick Approved Chipboard to BS 2604, Part 2, 54.00 3.4.35 Horizontal ceiling fixed to underside of trusses m247.00 3.4.36 12mm Cornice 50mm high, plugged m

PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT

#### **COUNTY** PROJECT NO.: KE-WSTF-328819-CS-QCBS

	PROJECT NO.: KE-WSTF-3 BILL NO. 3.4: ILLERET WATER SCHEME			N BUILDIN	G
ITEM				RATE	AMOUNT
ITEM	DESCRIPTION	UNIT	QTY -	Kshs.	Kshs.
	ELECTRIFICATION FITTINGS				
	Lighting points wired in 1.5mm <sup>2</sup> single core pvc insulated copper cables drawn in HG high impact pvc conduits and accessories all concealed in building fabric				
	for one or two way switching,13 Amps socket outlet points wired in 2.5mm <sup>2</sup> single pvc insulated cables				
3.4.37	enclosed in pvc conduits, accessories and concealed in building fabric to form ring main circuits, 15mmx16mm	L. Sum	1.00		
	diameter pure electroylite copper earth rods including 35mm <sup>2</sup> earth lead cable, deep driven to permanent				
	moisture level. Rate to include supply of all necessary materials and installation.  FURNITURE				
3.4.38	Curtains for office for all windows and doors	Set	1.00		
	Office tables 2.2x0.9 m	No	1.00		
3.4.40	Standard office chairs	No	8.00		
3.4.41	Desk 2.2x0.9 m with chair and three lockup drawers	No	2.00		
	SANITATION FACILITY				
3.4.42	Provide all materials and construct a 1500mmx900mm pit latrine with depth from floor level at 6m. Stone masonry walling shall be 150mm, 125mm floor slab reinforced with T10 @100mm c/c, Roofing corrugated iron sheets gauge 28 etc All details as per the drawing and as directed by engineer.	L. Sum	1.00		
	PAGE TOTAL CARRIED FORWARD TO COLLEC	CTION SI	HEET		

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

# PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.4: ILLERET WATER SCHEME ADMINSTRATION BUILDING ITEM DESCRIPTION Page Total, Page 1 Page Total, Page 2 Page Total, Page 3 Page Total, Page 4 Bill Total Carried to Bill Summary

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

BILL NO. 3: ILLIRET WATER SUPPLY SCHEME -COLLECTION SHEET							
BILL	DESCRIPTION	AMOUNT					
No		Kshs					
3.1	BOREHOLES AND WELL DEVELOPMENT						
3.1	BOREHOLES AND WELL DEVELOT MENT						
3.2	PIPELINE AND FITTINGS						
3.3	100 m3, 20M ELEVATED TANK						
3.4	BUILDINGS						
3.4	BUILDINGS						
	Bill 3 -ILLIRET Water Supply Scheme						
	DIII 5 - ILDINE I WATER Supply Scheme						

Collection Sheet; Bill 3

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
4.1	BOREHOLE/WELL DEVELOPMENT				
	The Contractor shall, supply, install, test, commisssion and provide warranties, spares, training of the operators and technicians, 12 months after sale-service for photovoltaic pumping (PVP) systems, without batteries, with diesel generator/national grid interface and remote monitoring to Specifications and proper working order for identified rural community boreholes. The Contractor is required to remove existing water pump systems in each case and undertake borehole service including but not limited to borehole redevelopment, flushing and replacement of sieves. All to the Specifications and as directed by the Engineer.				
4.1.1	Allow Kes 100,000 for demolitions, relocations and demobilization of existing infrastructure in the borehole site including pumps, solar panels, tanks, steel structures, cables, buildings, etc Rate to include transportation for safekeeping as directed by the Water Service Provider/Employer	Prov. Sum	1.0	100,000.00	100,000.00
4.1.2	Allow Kes 100,000 for mobilization of borehole camera, conducting a borehole camera investigation. Borehole flushing with drilling foam, chemical cleaning, airlifting and water jetting at high pressure. Borehole Test pumping for 24 hours of constant flow and conducting a laboratory water chemical analysis	Prov. Sum	1.0	100,000.00	100,000.00
4.1.3	Allow a Kes 250,000 provisional sum for redevelopment of boreholes. The rates shall be used from existing rates elsewhere in the BoQ or as provided in the dayworks or as determined by the Engineer.	Prov. Sum	1.0	250,000.00	250,000.00
4.1.4	Allow % for overheads, administration, profits, etc	%			
4.1.5	Supply, install, test and commission 13kW, 16.9Hp Submersible Pump SP 18-23 or approved equivalent with a discharge 12.25 m3/hr and head 220m pipe complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter. The rate to include appropriately sized PVC riser pipes.	No	1		
4.1.6	Supply, install, test and commission 10 mm <sup>2</sup> /4 core submersible pump flat cable		329		
4.1.7	Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.	Pair	1		
4.1.8	Supply, install, test and commission 0.75mm2 sc pvc sheathed copper control cable( brown and black)	m	658		
	PAGE TOTAL CARRIED TO SECTION COLLECTION SI	HEET			

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
4.1.9	Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeiIntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real-time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface, Data Logger Unit with Multiple Interface Support (RS232, RS485, etc.) and Integration with the	No.	1	Kshs.	Kshs.
	Servers for Future Expansion.  Supply, install, test and commission the following Sensors for Monitoring System. The cost shall include cabling and integration of the sensors into the data logger.				
4.1.10	Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.	LS	1.00		
4.1.11	Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)	No.	1.00		
4.1.12	Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated range from 1-100 mH2Og, acuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.	No	1		
4.1.13	Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)	No.	1.00		
4.1.14	Supply, install, test and commission of an array of solar with the following specicifications: 390W 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 16.38 kW on a bright sunny day at midday taking into account the system losses.	No.	56.0		
	PAGE TOTAL CARRIED TO SECTION COLLECTION SE	HEET			

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
4.1.15	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 1.2 m above the ground for the low height side and a maximum of 1.5m 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 the tilt angle is not more than 150 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.	Set	1	KSH5.	TOHO.
4.1.16	Supply, install, test and commission a 3-phase 30KVA power output diesel generator with 415 V at 50 Hz. It should include a highly corrosion resistant enclosure, control panel and monitoring, fuel tank and circuit breaker protection. The diesel generator shall be suitable for indoor or outdoor installation and shall perform accordingly with the battery inverter and the system design. The diesel generator shall work in a fully automatic manner with the above stated component. A concrete plinth to be constructed for the generator placement plus a shed of steel hollow sections and IT 4 sheets to engineer's approval to house the generator.	Set	1		
4.1.17	Allow a PC Sum of Kes. 2,000,000 for servicing of the existing Borehole 1	P.S	1		
4.1.18	Add % for profit, administration, attendance upon, overheads, etc. for Item 2.1.2.17 above.	%	0.10		
4.1.19	Supply, install, test and commission a 15 kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 15kW 31A 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		
4.1.20	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.		1		
4.1.21	Supply, install, test and commission Schneider Acti9 Energy Meter 3p kWH 63Amps modibus or approved equivalent for measuring energy generated by the solar PV system complte with IP66 rated enclosure.	No	1		
4.1.22	Supply of materials and construct a Genset/Control room building to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix H	Item	1		
	PAGE TOTAL CARRIED TO SECTION COLLECTION SE	TEET			

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

TOPE -	BILL NO. 4.1: MARIME WATER SUPPLY SCHEME-			RATE	AMOUNT
ITEM	DESCRIPTION	UNIT	QTY	Kshs.	Kshs.
4.1.23	Supply, install, test and commission Cabling 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.	Lot	1		
4.1.24	Supply, install, test and commission Pressure Gauge - 0-25bar	No	2		
4.1.24	Supply, install, test and commission Modem and router for remote monitoring and control. Grundfos SqFlex or equivalent	Set	1		
4.1.25	Supply and install Aerial lightning arrestors at 6m height, fixed to concrete foundations	Set	1		
4.1.26	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		
4.1.27	Supply, install, test and commission Motor ProtectionUnit MP204 or equivalent	No	1		
4.1.28	Allow for 12 months after sale service including training of operators and technicians.	Ls	1		
	Communication Infrastructure				
4.1.29	Supply and installation of GSM/GPRS/4G communication modules for boreholes and booster stations	No.	2		
4.1.30	Supply and installation of Antennas and signal boosters for remote locations	No.	2		
4.1.31	Supply and installation of Fiber Optic Cable (8-core, single-mode)	m	332		
4.1.32	Supply and installation of Fiber Optic Termination Boxes, Wallmounted, dustproof	Set	5		
4.1.33	Supply and installation of Fiber Optic Splicing and Accessories	Lot	5		
	Fencing				
4.1.34	Excavate for post holes, provide all materials and construct chain link fence on concrete posts at 3 m centres all as per drawing details, including straining posts at every 10th post and additional posts at corners and botton concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.	m	120		
	PAGE TOTAL CARRIED TO SECTION COLLECTION SH	HEET			

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		01111	Q11	Kshs.	Kshs.
	Provide all materials and construct 6.0 m wide lockable metal				
4.1.35	gate all to detailed. The gate to have a lockable pedestrian gate	Nr	1		
	1m wide opening.				
4.1.36	Borehole pipeworks				
	Borehole cover with extended 1m flanged pipe piece DN50.				
4.1.37	Note the cover should also allow for any other cabling and	Nr	1		
	instrumentation for the borehole.				
4.1.38	All Flanged 90 deg long elbow DN 50	Nr	3		
4.1.39	Double Flanged Non-Return Valve 50	Nr	1		
4.1.40	Double Flanged Gate Valve DN 50	Nr	4		
4.1.41	Supply and intsall multi-turn actuators for open-close duty	No.	4		
4.1.41	paired with actuator controls, and variable speed models.	INO.	7		
4.1.42	All flanged equal steel tee 50mmx50mmx50mm	Nr	1		
4.1.43	DN50mm non-slam Double-orifice Air Valve with flanged base,	No.	1		
4.1.43	complete to detail as indicated in the Drawings.	INO.	1		
4.1.44	Double flanged pipe piece DN50 length 1500mm	Nr	1		
	Provide, install, test and commission an electromagnetic flow				
4.1.45	meter DN 50 PN16. Rate to include 2 battery power supply, IP	Nr	1		
	68, RS232 and RS 485 port outputs.				
4.1.46	Double flanged pipe piece DN50 length 1000mm	Nr	2		
	All flanged equal 1.8m long extended steel tee	.,	_		
4.1.47	50mmx50mmx50mm	Nr	2		
4.1.48	All flanged reducing taper 50mmx63mm	Nr	1		
4.1.49	Flanged HDPE Stub end DN63	Nr	1		
	All Flanged 50mmx50mmx50mm tee connection to a surge				
4.1.50	protection vessel PN16	Nr	1		
	Allow a provision of supply, installation, testing and				
	commissioning of appropriately sized surge vessels or surge				
	control valve with all manway accesses, flange pipe connections	Lump			
4.1.51	and all other appurtenances as per manufacturers	Sum	1		
	recommendations and in accordance with specification and a air				
	buffer vessel to DN 50 rising main PN20.				
	WELL HEAD PROTECTION				
	Provide materials and construct a 1.2mx0.9m with height not				
	exceeding 2m wellhead protection for Borehole to details as per				
	the drawing and as directed by the Engineer. The rate includes a				
4.1.52	lockable 5mm thick mild steel access cover, mild steel step	Item	1		
7.1.52	irons, provision for conduits and pipeworks, vent provision and	Ittili	1		
	base slab 150mm C25/20 reinforced with A142 BRC mesh per				
	borehole.				
	borchoic.				
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
IIENI	DESCRIPTION	UNII	VII	Kshs.	Kshs.
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
	Page Total, Page 5				
	Bill Total Carried to Bill Summary				

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 4.2: MARIMEE WATER SUPPLY SCHEME PIPELINES AND FITTINGS

ITEM	DESCRIPTION	UNIT	OTY -	RATE	AMOUNT
		UNII	QII	Kshs.	Kshs
	i. The Contactor to maintain uninterrupted continuity of water				
	supply in existing pipelines				
	ii. Pedestrian and vehicular Access to individual shops / plots				
	to be maintained at all times				
	PIPE AND PIPE FITTINGS				
	Pipe Work - Supply, lay, joint, pressure test, disinfect				
	Supply, handle, and install (rates shall include jointing				
	materials, bolts, gaskets packing jointing glue, welding etc.,				
	as applicable) to the following HDPE Pipes to KS ISO 4427				
	and Steel/ferrous Fittings (valves and pipe specials) in trench				
	as per the specifications. All pipe fittings and valve diameters				
	indicated are Nominal Diameters				
	Pipe trench excavation is to commence from ground level to a				
	minimum depth of 1.5m. Rate to include setting out, general				
	bush clearing, Pipe laying, Pressure				
	testing, disinfection, backfilling with imported bedding and				
	surrround material all as per specifications, drawings and as				
	directed by the engineer				
	MAIN PIPELINES AND DISTRIBUTION SYSTEM				
4.2.1	HDPE Pipe DN75mm PN16	m	680.00		
4.2.2	HDPE Pipe DN63mm PN16		773.00		
4.2.3	HDPE Pipe DN50mm PN16	m	535.00		
	Bends				
4.2.4	DN 63mm 90°	Nr.	2.00		
	DN 50mm 90°	Nr.	2.00		
	Reducers				
426	DN 63/50 mm	Nr.	1.00		
2.0	63mm offtake (JD 1,2,3&4)	1 111	1100		
427	DN 63x63x50mm HDPE tee	Nr	4.00		
	DN 50mm stub end with MS flange ring	Nr	8.00		
	DN 50mm flanged sluice valve	Nr	4.00		
1.2.7	DN 50mm Terminal connection (with washout)	111	1.00		
4 2 10	DN 50x50x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
	DN 50mm stub end with MS flange back ring	0	4.00		
	DN 50mm Flanged gate valve	Nr	1.00		
	DN 50mm HDPE flap valve	Nr	1.00		
	DN 50mm HDPE PN 16 pipe	m	30.00		
1.2.11	DN 63mm Terminal connection (with washout)		-		
4 2 15	DN 63x63x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
	DN 50mm stub end with MS flange back ring	Nr	4.00		
	DN 50mm Flanged gate valve	1,7	1.00		
	DN 50mm HDPE flap valve	Nr	1.00	+	
	DN 50mm HDPE PN 16 pipe	m	30.00	<del></del>	
1.4.17	Air Valve Fittings (DN 63mm) -(4No)		30.00		
4 2 20	HDPE DN 63 X 63 X 32 mm Reducer Tee (NB: Must be	$\vdash$	+	+	
1.2.20	electrofussion)	Nr	3.00		

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 4.2: MARIMEE WATER SUPPLY SCHEME PIPELINES AND FITTINGS

TEM	DESCRIPTION	UNIT	QTY -	RATE	AMOUN
		$\vdash$		Kshs.	Ks
1 2 21	JIDDE DN 22 mm DN 16 short misse nine (400 mm lone)	Nia	2.00		
	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	3.00		
	HDPE DN 32 mm PN 16 Male adapter	Nr	3.00		
	HDPE DN 32 mm Pegler brass gate valve	Nr Nr	3.00		
	DN 32 mm Stainless Steel Hex Nipple	-			
1.2.25	DN 32 mm Threaded Air Valve	Nr	3.00		
1 2 2 6	Washout (DN 63mm) -(2No)	-			
1.2.26	HDPE DN 63 X 63 X 63 mm Equal Tee (NB: Must be	Nr	2.00		
	electrofussion)		• • • •		
	HDPE DN 63 mm PN 16 short piece pipe (400 mm long)	Nr	2.00		
	HDPE DN 63 mm PN 16 Flanged adapter	Nr	2.00		
	HDPE DN 50 mmFlanged Sluice valve	Nr	2.00		
	DN 63 mm HDPE pipe (PN 12.5)	m	48.00		
1.2.31	Masonry headwall with base slab for Erosion protection at	Ls	2.00		
	discharge point	LS	2.00		
	Air Valve Fittings (DN 50mm) -(1No)				
1.2.32	HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: Must be	Nr	1.00		
	electrofussion)	141	1.00		
1.2.33	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
1.2.34	HDPE DN 32 mm PN 16 Male adapter	Nr	1.00		
1.2.35	HDPE DN 32 mm Pegler brass gate valve	Nr	1.00		
1.2.36	DN 32 mm Stainless Steel Hex Nipple	Nr	1.00		
	DN 32 mm Threaded Air Valve	Nr	1.00		
	Water Draw Off Facilities				
1.2.38	Supply of materials and construct a water kiosk to drawing				
	and Specifications. Rate to include excavations, setting out,				
	erection and all installations for the structure as per Appendix	Nr.	2.00		
	C				
	Supply of materials and construct a cattle/Camel trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 440mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.	Item	2.00		
1.2.40	Supply of materials and construct sheep/goat trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 300mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.	Item	2.00		
1.2.41	Supply of materials and construct a sanitation facility as described to detail in Appendix E	Item	2.00		
				<del></del>	

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 4.2: MARIMEE WATER SUPPLY SCHEME PIPELINES AND FITTINGS

TEM	DESCRIPTION			RATE	AMOU
1 12171	DESCRIPTION	UNIT	QTY	Kshs.	Ks
	Provide all materilas, construct and install a 1m high reinforced concrete yardtap which include a water dispensing ATM ,lockable valve chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing. The Automated water dispensing ATM designed to offer a reliable and user-friendly way to access and pay for water using a keypad, screen, tag pay option, and integration with MPesa for payment processing with the following specifications -Keypad, -Screen (LCD), -Tag Pay Option (RFID/NFC), -Web based dashboard subscription for 10 year , -Hybrid dispensing, -MPesa Integration for Payment upto 3 taps max, -water Flow Sensor, -Solar power - charger, controller, battery and solar panel. The rate to include the first 20 token chips for 20nr.	Nr	1.00	ASSIS	
1.2.43	households.  Allow for supply and installation of institutional stand point connection kits, which include a Prepaid smart metering,lockable meter chamber,offlake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.	Nr	1.00		
	Chambers (Civil Works)				
	Includes setting up of each type of chamber, excavation in any type of soil including rock, dewatering, shoring, formwork, in situ construction of reinforced concrete chambers, sump, removal of form work, protecting externally with water proofing tanking membrane and internally with two coats each 400 microns coaltar epoxy or equivalent, backfilling, compacting, providing surface box openings and chamber access openings, providing surface boxes, chamber access covers and frames, ladders, slab lifting hooks, vent pipe with insect screen, reinstating the site to its original condition etc. to make each chamber civil works complete in all respects as shown on contract drawings.  Washouts	Nr.	4.00		
	Air valves	Nr.	5.00		
1.2.46	Valve chambers	Nr.	3.00		
1.2.47	ANCILLARIES ITEMS Supply and fix marker posts along water Main Route, Road Crossings, change of direction, Air valves, Washouts and valve chambers. All in accordance with drawings and specifications Thrust Blocks Construction of thrust block at bends and Tee junctions price	No	34.00		
	Construction of intrust block at bends and Tee functions price includes all cost such as excavation, concrete, Re-steel bar, the formwork and others as detailed on drawing	Nr	10.00		
	Gulley/ River Crossings				
	Allow for gulley crossing for HDPE pipe as detailed in the book of drawings - Road and Seasonal river crossing structural details (dwg Nr KE/WSTF/RE/GW/STD/030)	m	120.00		
		ı			

SUPP	LY SYSTEMS (CIVIL WORKS, PIPE POINTS) BATCH 1	LAYING, E&M SUPPLY A PROJECTS IN MARSAB			ND WATER
LOT I	I:MALOBOT, ILLERET, MARIME, G	OLOLE AND GAMURA S	CHEMES	IN MARSABIT	Γ COUNTY
	PROJECT N	O.: KE-WSTF-328819-CS-	QCBS		
	BILL NO. 4.2: MARIMEE WAT	ER SUPPLY SCHEME PI	PELINES A	AND FITTING	S
ITEM	DESCRIPTION	UNIT	оту	RATE	AMOUNT
		01111	QII	Kshs.	Kshs
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	<i>y y y</i>				
	Bill Total Carried to Grand Summary				

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### 4.3: MARIME SCHEME 50 M3 ELEVATED TANK

	4.3: MARIME SCHEME 50 M3 ELEVATED TANK						
ITEM	DESCRIPTION	UNIT	QTY -	RATE	AMOUNT		
1112141	DESCRIPTION	UNII	QII	Kshs.	Kshs.		
	Elevated Steel Tank of 50m <sup>3</sup>						
	The sites for the proposed Water Reservoirs shall be within the						
	Water Supply Scheme						
	Supply all materials, tools and equipment, erect, and commission						
	a galvanised 50m³ steel with liner sectional tank of the						
	Braithwaite type/ Alumzinc tank with liner or equal approved						
	standard to include a tank tower of 20 meters, ladder with ladder						
	guard inside ladder, walkway with walkway guard, water level						
	gauge and tank cover, provision of air vent, support rails,						
	overflows, scour, inlets and outlet for 100mm pipes etc., for						
	complete installation. Foundation of tank pads to be 2.3mx2.3m						
	and depth not less than 2.6m. RC works to Specifications.						
	Rebars to be T16 @ 150mm c/c and distribution of T12						
	@150mm c/c top and bottom mesh. 4Nr Column stud size						
421	500mmx500mm with 8Nr T16 and T8 stirrups each with HFSG		1.00				
4.3.1	bolts galvanised 4nr. 25 dia bolts and nuts with washers		1.00				
	@600mm long. 4Nr Beam size 400mmx300mm with 8Nr T12						
	and T8 stirrups each. Concrete Class to be C30/20 using OPC						
	Cement CEM I Grade 42.5. Base plate 10mm, including grouting						
	base plate interface with column stud. Panel plate thickness 3mm						
	all galvanised. Coat tank inside with approved bituminous paint.						
	All tank components to be Hot-dip galvanized to EN ISO 1461.						
	Tank manufacturer to be KEBS certified and ISO certified. The						
	rate to include deailed structural analysis, shop drawings,						
	complete tank and tower installation, mobilization,						
	demobilization, delivery to site and testing. All to the approval of						
	the Engineer						
122	INLET PIPE FITTINGS		2.00				
4.3.2	100 HDPE Stab End Flange	<b>&gt;</b> T	2.00				
4.3.3	100mm All flanged pipe piece 1m long	No	3.00				
4.3.4	100mm flanged spigot pipe piece 1m long	NT.	1.00				
4.3.5	100mm All flanged sluice valve	No	1.00 2.00				
4.3.6	100mm All flanged G.S 90° bend	No					
4.3.7	100mm All flanged pipe piece 6m long 100mm All flanged pipe piece 1.2m long	No	3.00 1.00				
4.3.9	100mm All flanged Float switch	No	1.00				
7.3.7	OVERFLOW AND SCOUR	110	1.00				
4.3.10	100mm All flanged pipe piece 1.8m long	No	1.00				
4.3.10	100mm Flanged bell mouth	No	2.00		+		
4.3.12	100mm All flanged pipe piece 2.2m long	No	1.00				
4.3.13	100mm All flanged slice valve	No	2.00		1		
4.3.14	100mm flanged adaptor	No	1.00		1		
4.3.15	100mm flanged spigot pipe piece 1m long	No	1.00		1		
4.3.16	100mm All flanged equal Tee	No	1.00				
	PAGE TOTAL CARRIED TO SECTION COLLECTION SH	EET					

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### 4.3: MARIME SCHEME 50 M3 ELEVATED TANK

	4.3: MARIME SCHEME SU M3 ELEVATED TANK  EN DESCRIPTION RATE AMOU						
ITEM	DESCRIPTION	UNIT	QTY	KATE Kshs.	AMOUNT Kshs.		
4.3.17	100mm All flanged pipe piece 3.5m long	0	2.00				
4.3.18	100mm All flanged pipe 6m long	No	2.00				
4.3.19	100mm All flanged G.S 90° bend	No	1.00				
4.3.20	100 HDPE Stab End Flange	No	2.00				
	OUTLET						
4.3.21	100mm flanged pipe 6m long	No	3.00				
4.3.22	100mm Flanged bell mouth	No	1.00				
	100mm All flanged G.S 90° bend		1.00				
	100mm All flanged Slice valve	No	2.00				
4.3.25	100 HDPE Stab End Flange	No	2.00				
	Supply, install and test diameter 100mm Electromagnetic Water Meter complete with all gasket bolts etc. Rate to include for all associated fittings	No	1.00				
4.3.27	Testing						
4.3.28	Supply and apply recommended disinfectant and test the tanks.	Nr.	1.00				
					<u> </u>		
	PAGE TOTAL CARRIED TO SECTION COLLECTION SE	IEET					

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### 4.3: MARIME SCHEME 50 M3 ELEVATED TANK

	4.5: MARINE SC	HEME 50 M3 ELEVATE	JIANI		
ITEM	DESCRIPTION	RATE	AMOUNT		
1112141	DESCRIPTION	OWII	QTY	Kshs.	Kshs.
	Page Total, Page 1				
	Page Total, Page 2				
					+
	Bill Total Carried to Bill Su	mmary			

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-OCBS

	PROJECT NO.: KE-WSTF-328819-CS-QCBS						
	<b>BILL NO. 4.4: MARIME WATER SCHEM</b>	IE ADMI	NSTRAT	NG			
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT		
11121/1	DESCRIPTION	OTVII	QII	Kshs.	Kshs.		
	CLASS E: EARTHWORKS						
4.4.1	Excavation of surfaces to reduce the level, depth not	m3	11.58				
7.7.1	exceeding 0.25m	1113	11.50				
4.4.2	Foundations and bases for depth not exceeding 1500		41.67				
7.7.2	mm for strip footing		41.07				
	Excavation Ancillaries						
4.4.3	Trimming of excavated surfaces to recieve blinding		56.70				
7.7.3	concrete		30.70				
	Filling as Described:-						
	Hardcore						
4.4.4	300mm thick hand packed well compacted hardcore	m3	16.20				
7.7.7	including 75 mm thick blinding layer	1113	10.20				
	Anti-Termite treatment						
	Treat surface of hardcore with approved anti termite						
4.4.4b	solution applied strictly in accordance with the	m2	54.00				
	manufacturers instructions.						
	Damp-Proof Membrane						
4.4.5	500 Gauge polythene sheeting, laid over hardcore in	m2	54.00				
7.7.3	two layers	1112	34.00				
	CLASS F: INSITU CONCRETE:						
	Mass Concrete Class 15/20mm :-						
4.4.6	75mm Thick blinding under strip footing	m3	4.05				
	Vibrated Reinforced Concrete Reinforced Concrete						
	Class 25/20mm:-						
	150mm thick ground slab with BRC A142 mesh laid 40						
4.4.7	mm from the top finished with red oxide polish. BRC	m3	8.10				
	mesh rate shall be provided separately.						
	200 mm Thick Class 25/20 concrete for foundtion						
4.4.8	footiung of dimension 600x600 mm complete with	m3	2.50				
1.1.0	reinfoced column to of 300mm x 200mm to a depth not	1113	2.50				
	less than 1.5m						
4.4.9	200x300 Ring Beam concrete	m3	4.62				
	CLASS G: CONCRETE ANCILLARIES						
	Formwork						
	Formwork - Fair Finish:-	-					
	Formwork to sides of 300 mm deep ring beam	m2	23.10				
	Vertical Sides of the 150mm ground slab	m2	9.63				
4.4.12	Soffit ring beam 200 mm wide	m2	15.40				
	Reinforcement						
	Provide and Fix High Tensile Steel Reinforcement to						
	SRN 127 Including Cutting, Bending, Propping with						
1	Spacers and Tying as Specified:-						
4.4.13	High yield tensile steel 12mm diameter to ring beam	kg	64.72				
	PAGE TOTAL CARRIED FORWARD TO COLLEC	CTION SI	HEET				

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

	BILL NO. 4.4: MARIME WATER SCHEME ADMINSTRATION BUILDING							
				RATE	AMOUNT			
ITEM	DESCRIPTION	UNIT	QTY	Kshs.	Kshs.			
	CLASS E: EARTHWORKS							
4.4.14	High yield tensile steel 10mm diameter to strip footing	kg	300.60					
1 1 15	High yield tensile steel 8mm diameter links to ring	1	101.06					
4.4.15	beam	kg	101.96					
	Fabric Reinforcement No. A142 Mesh Size 150 x							
	150mm Weighing 2.22 kgs Per m <sup>2</sup> , Including Bends,							
	Tying Wire and Distance Blocks:-							
	Fabric reinforcement with minimum 200mm wide side							
4.4.16	and end laps, laid in bed- A142 mesh at 25mm from the	m2	54.00					
	top							
	Walling.							
	Natural Stone Walling, Medium Chisel Dressed,							
	Reinforced with 20 swg Hoop Iron at Every Two							
	Course, and Bedded, Jointed and Pointed in Cement							
	Mortar (1:3):-							
	200 mm thick masonry wall in substructure	m2	45.00					
	200 mm smooth dressed walling in superstructure	m2	114.00					
4.4.19	150 mm smooth dressed walling in superstructure	m2	64.60					
	Damp-Proof Course: Bituminous Felt Damp-Proof							
	Course as Described:-							
4.4.20	200mm and 150mm Wide under walls	m	35.20					
	Finishes.							
4.4.21	20 mm 1:4 Cement/sand plaster to internal of walls	m2	133.76					
	3 coats (one undercoat and two other coats) of silicon							
4.4.22	based emulsion paint to external wall surfaces as in	m2	105.64					
22	Crown Permacote ultra guard rain-proof silicone paint	1112	103.01					
	or approved equivalent.							
	3 coats (one undercoat and two other coats) of							
4.4.23	emulsion paint to interior wall surfaces as in Crown	m2	m2	m2	161.88			
	Vinyl Matt Emulsion							
	with Teflon Surface protector or approved equivalent.							
	CLASS O: TIMBER							
	Roof							
4.4.24	50x 100 mm Rafter, ridge piece and tie beams: in	m	140.50					
1 1 25	trusses  50v 100 mm timber beam (CMS neets)	4	10.00					
	50x 100 mm: timber beam (GMS posts)	m	10.00					
	100 x 50 mm: Struts and ties 200 X 25mm fascia and badge	m	95.40 36.00					
	100 x 50 mm Wall plate: fixed to concrete	m	54.00					
	75 x 50mm purlins	m	80.00					
4.4.29	28 Gauge Blue prepainted roof sheets including ridge	m	80.00					
4.4.30		m2	80.00					
	caps							
<u> </u>								
	PAGE TOTAL CARRIED FORWARD TO COLLEC	TION S	HEET					
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

BILL NO. 4.4: MARIME WATER SCHEME ADMINSTRATION BUILDING							
ITEM	DESCRIPTION	UNIT	QTY -	RATE	AMOUNT		
	CLASSE FARTHWORKS			Kshs.	Kshs.		
	CLASS E: EARTHWORKS						
	Supply and Fix the Following Pressed Metal Louvre						
	Doors with 100 x 50mm Stiles and Top Rails, 150 x						
	50mm Middle and Bottom Rails With Pressed Metal						
	Infill Louvres and 100 x 50mm Pressed Metal Frames,						
	Including Hinges, Pad Bolts and Tower Bolts, All To						
	Manufacturer's Details, With Three Coats Gloss Paint						
	Complete With Opening Accessories Including Bedding						
	and Pointing Around Frames in Cement Mortar:-						
-	Panel doors						
	Single leaf flush door size 2100 x 900 mm high (D1),						
4.4.32	complete with frame, with union three (3) lever door	nr	3.00				
	lock and any other ironmongery.						
	100mm furnished GMS Posts						
	Supply and install 3.5m GMS Posts complete with						
4.4.33	connectors and anchors for the concrete base and for the	nr	6.00				
	100mmx150mm timber beam						
	Steel Casement Windows						
	Supply and Fix the Following Standard Section Steel						
	Casement Windows, including 4mm Thick Clear Sheet						
	Glass glazed to Steel Casements with Putty, Complete						
	with Opening Accessories, including Building in Lugs						
	to Jambs and Head and Water-Proofing and Filling						
	Around Opening With Approved Compound; and						
	Including Burglar-Proofing Fabricated from 12 x						
	12mm Mild Steel Square Bars at 150mm Centres						
	Vertically and 150mm Horizontally and Fixed						
	Internally to Surrounding Wall with 12mm Mild Steel						
	Fish-Tailed Lugs at Maximum 600mm Centres; all						
	Finished with Three Coats Oil Paint:-						
	Window size 1200x 1200mm high with 1 No. fixed and		+				
	2 No. side hung opening bottom sashes and with 2 No.						
4.4.34	fixed and 1 No. top-hung top ventilators 200mm high	Nr	5.00				
	with permanent ventilator hood over						
	Ceilling		+	+			
	12mm Thick Approved Chipboard to BS 2604, Part 2,		+	+			
4.4.35	Horizontal ceiling fixed to underside of trusses	m2	54.00				
	12mm Cornice 50mm high, plugged	m	47.00				

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

	PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 4.4: MARIME WATER SCHEME ADMINSTRATION BUILDING										
	BILL NO. 4.4: MARIME WATER SCHEM	LE ADMI	NSTRAT								
ITEM	DESCRIPTION	UNIT	QTY	RATE Value	AMOUNT						
	CLASSE, FADTHWODES			Kshs.	Kshs.						
	CLASS E: EARTHWORKS ELECTRIFICATION FITTINGS										
	Lighting points wired in 1.5mm <sup>2</sup> single core pvc insulated copper cables drawn in HG high impact pvc				1						
	conduits and accessories all concealed in building fabric				ı						
	for one or two way switching,13 Amps socket outlet										
	points wired in 2.5mm <sup>2</sup> single pvc insulated cables										
4.4.37	enclosed in pvc conduits, accessories and concealed in	L. Sum	1.00		ı						
7.7.57	building fabric to form ring main circuits, 15mmx16mm	L. Suili	1.00		1						
	diameter pure electroylite copper earth rods including										
	35mm <sup>2</sup> earth lead cable, deep driven to permanent				1						
	moisture level. Rate to include supply of all necessary				ı						
	materials and installation.				1						
	FURNITURE										
4 4 38	Curtains for office for all windows and doors	Set	1.00								
	Office tables 2.2x0.9 m	No	1.00								
	Standard office chairs	No	8.00								
	Desk 2.2x0.9 m with chair and three lockup drawers	No	2.00								
	SANITATION FACILITY										
	Provide all materials and construct a 1500mmx900mm										
	pit latrine with depth from floor level at 6m. Stone				ı						
4.4.42	masonry walling shall be 150mm, 125mm floor slab	L. Sum	1.00		ı						
7.7.72	reinforced with T10 @100mm c/c, Roofing corrugated	L. Suiii		1.00	1.00	1.00	1.00	1.00	1.00		
	iron sheets gauge 28 etc All details as per the drawing										
	and as directed by engineer.										
	PAGE TOTAL CARRIED FORWARD TO COLLEC	CTION SI	HEET								
	i i i i i i i i i i i i i i i i i i i	221.01									

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

BILL NO. 4.4: MARIME WATER SCHEME ADMINSTRATION BUILDING							
TEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT		
			<b>Q</b>	Kshs.	Kshs.		
	CLASS E: EARTHWORKS						
	Page Total, Page 1						
	Page Total, Page 2						
	Page Total, Page 3						
	Page Total, Page 4						
	Bill Total Carried to Bill Summary						

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### COLLECTION BILL NO. 4: MARIME SCHEME ADMINSTRATION BUILDING

BILL	DESCRIPTION	AMOUNT
No	DESCRIPTION	
4.1	BOREHOLES AND WELL DEVELOPMENT	
4.1	BOREHOLES AND WELL DEVELOT MENT	
4.2	PIPELINE AND FITTINGS	
4.3	50 m3, 20M ELEVATED TANK	
4.4	BUILDINGS	
7.7	DOLDINGS	
	Bill 10 -Marime Water Supply Scheme	

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT **COUNTY**

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

TODA (	DECODIBITION		O/EX/	RATE	AMOUNT
ITEM	DESCRIPTION	UNIT	QTY	Kshs.	Kshs.
	BOREHOLE/WELL DEVELOPMENT				
5.1	The Contractor shall, supply, install, test, commisssion and provide warranties, spares, training of the operators and technicians, 12 months after sale-service for photovoltaic pumping (PVP) systems, without batteries, with diesel generator/national grid interface and remote monitoring to Specifications and proper working order for identified rural community boreholes. The Contractor is required to remove existing water pump systems in each case and undertake borehole service including but not limited to borehole redevelopment, flushing and replacement of sieves. All to the Specifications and as directed by the Engineer.				
5.1.1	Allow Kes 100,000 for demolitions, relocations and demobilization of existing infrastructure in the borehole site including pumps, solar panels, tanks, steel structures, cables, buildings, etc Rate to include transportation for safekeeping as directed by the Water Service Provider/Employer	Prov. Sum	1.0	100,000.00	100,000.00
5.1.2	Allow Kes 100,000 for mobilization of borehole camera, conducting a borehole camera investigation. Borehole flushing with drilling foam, chemical cleaning, airlifting and water jetting at high pressure. Borehole Test pumping for 24 hours of constant flow and conducting a laboratory water chemical analysis	Prov. Sum	1.0	100,000.00	100,000.00
5.1.3	Allow a Kes 250,000 provisional sum for redevelopment of boreholes. The rates shall be used from existing rates elsewhere in the BoQ or as provided in the dayworks or as	Prov. Sum	1.0	250,000.00	250,000.00
5.1.4	Allow % for overheads, administration, profits, etc	%			
5.1.5	Supply, install, test and commission 7.5kW, 9.75Hp Submersible Pump SP 9-40 or approved equivalent with a discharge 14 m3/hr and head 219m pipe complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter. The rate to include appropriately sized PVC riser pipes.		1		
5.1.6	Supply, install, test and commission 0.75 mm <sup>2</sup> /4 core submersible pump flat cable	m	104		
5.1.7	Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.		1		
5.1.8	Supply, install, test and commission 0.75mm2 sc pvc sheathed copper control cable( brown and black)	m	209		
	PAGE TOTAL CARRIED TO SECTION COLLECTION	SHE	ET		

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT **COUNTY**

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	TINITE	OTV	RATE	AMOUNT
		UNIT	QTY	Kshs.	Kshs.
5.1.9	Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeiIntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real-time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface, Data Logger Unit with Multiple Interface Support (RS232, RS485, etc.) and Integration with the Servers for Future Expansion.	No.	1		
	Supply, install, test and commission the following				
	Sensors for Monitoring System. The cost shall include				
	cabling and integration of the sensors into the data				
	logger.				
5.1.9.1	Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.	LS	1.00		
5.1.9.2	Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)	No.	1.00		
5.1.9.3	Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated range from 1-100 mH2Og, acuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.	No	1		
5.1.9.7	Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)	No.	1.00		
	PAGE TOTAL CARRIED TO SECTION COLLECTION	SHE	ET		

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT **COUNTY**

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

IMPER 5	DECOMPONE.			RATE	AMOUNT
ITEM	DESCRIPTION	UNIT	QTY	Kshs.	Kshs.
5.1.10	Supply, install, test and commission of an array of solar with the following specicifications: 390W 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 16.38 kW on a bright sunny day at midday taking into account the system losses.	No	42.0		
5.1.11	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 2.5m 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 the tilt angle is not more than 150 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	Set	1		
5.1.14	Supply, install, test and commission a 3-phase 50KVA power output diesel generator with 415 V at 50 Hz. It should include a highly corrosion resistant enclosure, control panel and monitoring, fuel tank and circuit breaker protection. The diesel generator shall be suitable for indoor or outdoor installation and shall perform accordingly with the battery inverter and the system design. The diesel generator shall work in a fully automatic manner with the above stated component. A concrete plinth to be constructed for the generator placement plus a shed of steel hollow sections and IT 4 sheets to engineer's approval to house the generator.	Set	1		
5.1.18	Supply, install, test and commission a 11kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 11kW 23A 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 IP68.	Set	1		
5.1.19	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		
	PAGE TOTAL CARRIED TO SECTION COLLECTION	SHE	ET		

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT **COUNTY**

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
			_	Kshs.	Kshs.
5.1.20	Supply, install, test and commission Schneider Acti9 Energy		1		
	Meter 3p kWH 63Amps modibus or approved equivalent for	No			
	measuring energy generated by the solar PV system complte				
	with IP66 rated enclosure.  Supply of materials and construct a Genset/Control room				
5.1.21	** *	No	1		
	building to drawing and Specifications. Rate to include				
	excavations, setting out, erection and all installations for the				
	structure as per Appendix B				
5.1.22	Supply, install, test and commission Cabling complete with		1		
	all necessary accessories for connection of solar modules to				
	inverter, to intelligent controller/manager and to agreed	Lot			
	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.				
5.1.23	Supply, install, test and commission Pressure Gauge - 0-	No	2		
7.1.06	25bar				
5.1.26	Supply, install, test and commission Modem and router for	<b>a</b> .	١.,		
	remote monitoring and control. Grundfos SqFlex or	Set	1		
	equivalent				
5.1.27	Supply and install Aerial lightning arrestors at 6m height,	Set	1		
	fixed to concrete foundations				
5.1.28	Supply and install Earthing materials, including all		1		
	inspection chambers, rods, tape bonding straps etc. as	Set			
	necessary for the earthing requirements with the borehole				
5.1.32	Supply, install, test and commission Motor ProtectionUnit	No	1		
	MP204 or equivalent	1,0	1		
5.1.34	Allow for 12 months after sale service including training of	Ls	1		
	operators and technicians.				
- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Communication Infrastructure				
5.1.39	Supply and installation of GSM/GPRS/4G communication	No.	2		
7.1.40	modules for boreholes and booster stations				
5.1.40	Supply and installation of Antennas and signal boosters for	No.	2		
	remote locations				
5.1.41	Supply and installation of Fiber Optic Cable (8-core, single-	m	100		
	mode)		, ,		
5.1.42	Supply and installation of Fiber Optic Termination Boxes,	Set	5		
	Wall-mounted, dustproof				
5.1.43	Supply and installation of Fiber Optic Splicing and	Lot	5		
	PAGE TOTAL CARRIED TO SECTION COLLECTION	SHE	ET		

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT **COUNTY**

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 11.2: GOLOLE SCHEME BOREHOLE DEVELOPMENT

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	Borehole pipeworks			Kshs.	Kshs.
5.1.45	Borehole cover with extended 1m flanged pipe piece DN50.				
3.1.43	Note the cover should also allow for any other cabling and	Nr	1		
	instrumentation for the borehole.	111	1		
5.1.46	All Flanged 90 deg long elbow DN 50	Nr	3		
5.1.47	Double Flanged Non-Return Valve 50	Nr	1		
5.1.48	Double Flanged Gate Valve DN 50	Nr	4		
		1.12			
	Supply and intsall multi-turn actuators for open-close duty	No.	4		
	paired with actuator controls, and variable speed models.				
5.1.49	All flanged equal steel tee 50mmx50mmx50mm	Nr	1		
5.1.50	DN50mm non-slam Double-orifice Air Valve with flanged		1		
	base, complete to detail as indicated in the Drawings.	No.	1		
5.1.51	Double flanged pipe piece DN50 length 1500mm	Nr	1		
5.1.52	Provide, install, test and commission an electromagnetic				
	flow meter DN 50 PN16. Rate to include 2 battery power	Nr	1		
	supply, IP 68, RS232 and RS 485 port outputs.				
5.1.53	Double flanged pipe piece DN50 length 1000mm	Nr	2		
5.1.54	All flanged equal 1.8m long extended steel tee	Nr	2		
	50mmx50mmx50mm	INI	2		
5.1.55	All flanged reducing taper 50mmx63mm	Nr	1		
5.1.56	Flanged HDPE Stub end DN63	Nr	1		
5.1.57	All Flanged 50mmx50mmx50mm tee connection to a surge	Nr	1		
	protection vessel PN16	111	1		
5.1.58	Allow a provision of supply, installation, testing and				
	commissioning of appropriately sized surge vessels or surge				
	control valve with all manway accesses, flange pipe	Lump			
	connections and all other appurtenances as per	Sum	1		
	manufacturers recommendations and in accordance with	Sum			
	specification and a air buffer vessel to DN 50 rising main				
	PN20.				
5.1.59	Fire Fighting Equipment				
	Supply, install, test and commission 5 Kg Class ABC	No			
	Powder steel cylinder fire extinguisher, c/w pressure		1		
	gauge wall mounting steel bracket, operating instructions				
	and				
	accessories, fully charged.				
	PACE TOTAL CARRIED TO SECTION SOLAR CONTO	A CHE	200		
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### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 11.2: GOLOLE SCHEME BOREHOLE DEVELOPMENT

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
			<b>V</b>	Kshs.	Kshs.
	Fencing				
5.1.60	Excavate for post holes, provide all materials and construct				
	chain link fence on concrete posts at 3 m centres all as per				
	drawing details, including straining posts at every 10th post		4.00		
	and additional posts at corners and botton concrete cover to	m	120		
	ground level under the fence. Works to include provision				
	and installation of a Double Galvanized Razor Wire				
<b>7.1.61</b>	protection.				
5.1.61	Provide all materials and construct 6.0 m wide lockable	,,			
	metal gate all to detailed. The gate to have a lockable	Nr	1		
	pedestrian gate 1m wide opening.				
. 1 co	WELL HEAD PROTECTION				
5.1.62	Provide materials and construct a 1.2mx0.9m with height not				
	exceeding 2m wellhead protection for Borehole to details as				
	per the drawing and as directed by the Engineer. The rate	T.	,		
	includes a lockable 5mm thick mild steel access cover, mild	Item	1		
	steel step irons, provision for conduits and pipeworks, vent				
	provision and base slab 150mm C25/20 reinforced with				
	A142 BRC mesh per borehole.				
		   SHE			

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 11.2: GOLOLE SCHEME BOREHOLE DEVELOPMENT

ITEM	DESCRIPTION	IINIT	QTY	RATE	AMOUNT
TIENI	DESCRIPTION	UNII	VII	Kshs.	Kshs.
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	Page Total, Page 1				
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	Page Total. Page 6				
	Bill Total Carried to Bill Summary	İ			

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION UNIT QTY	OTY	RATE	AMOUNT	
	DESCRIPTION		V11	Kshs.	Kshs.
	i. The Contactor to maintain uninterrupted continuity				
	of water supply in existing pipelines				
	ii. Pedestrian and vehicular Access to individual				
	shops / plots to be maintained at all times				
	iv. Keeping trenches free of excessive groundwater,				
	seepage or water from any source				
	Pipe Work - Supply, lay, joint, pressure test, disinfe	ect			
	Supply, handle, and install (rates shall include				
	jointing materials, bolts, gaskets packing jointing				
	glue, welding etc., as applicable) to the following				
	HDPE Pipes to KS ISO 4427 and Steel/ferrous				
	Fittings (valves and pipe specials) in trench as per the				
	specifications. All pipe fittings and valve diameters				
	PIPE AND PIPE FITTINGS				
	Pipe trench excavation is to commence from ground				
	level to a minimum depth of 1.5m. Rate to include				
	setting out, general bush clearing, Pipe laying,				
	Pressure testing, disinfection, backfilling with				
	imported bedding and surrround material all as per				
	specifications, drawings and as directed by the				
	engineer				
	MAIN PIPELINES AND DISTRIBUTION				
	SYSTEM				
	HDPE Pipe DN40mm PN16		1,890.00		
	HDPE Pipe DN50mm PN16	m	10,410.00		
	HDPE Pipe DN63mm PN16		350.00		
	HDPE Pipe DN75mm PN16	m	7,085.00		
	HDPE Pipe DN90mm PN16	m	200.00		
5.2.6	HDPE Pipe DN110mm PN16	m	1,290.00		
527	Bends	NI.	2.00		
	DN 110mm 90°	Nr.	2.00		
	DN 110mm 45°	Nr.	2.00		
	DN 90mm 90°	Nr.	2.00		
	DN 75mm 90° DN 63mm 90°	Nr.	2.00		
		Nr.	2.00		
	DN 50mm 90°	Nr.	2.00		
	Reducers		1.00		
	DN 110/90 mm DN 90/75 mm	Nr.	1.00		
	DN 90/75 mm DN 75/63 mm	Nr.	1.00		
	DN 75/63 mm DN 63/50 mm	Nr.	1.00		
3.2.10	110mm offtake (JD 1)	Nr.	1.00		
5 2 17	DN 110x110x110mm HDPE tee	Nr	1.00		
ا/ ۲.۱∠.			SHEET		

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

S.2.18   DN 110x50mm Reducer	RIPTION	UNIT	QTY _	RATE	AMOUNT
5.2.19 DN 50mm stub end with N 5.2.20 DN 50mm flanged sluice N 110mm offtake (JD 2,3) 5.2.21 DN 110x110x50mm HDP 5.2.22 DN 50mm stub end with N 5.2.23 DN 50mm flanged sluice N 110-90 mm offtake (JD 4 5.2.24 DN 110x110x50mm HDP 5.2.25 DN 110x90mm Reducer 5.2.26 DN 90 mm 45 degree bend 5.2.27 DN 50mm stub end with N 5.2.28 DN 50mm flanged sluice N 90mm offtake (JD 5) 5.2.29 DN 90x90x50mm HDPE N 5.2.30 DN 50mm stub end with N 5.2.31 DN 50mm flanged sluice N 90mm offtake (JD 6) 5.2.32 DN 90x90x50mm HDPE N 5.2.33 DN 90x75mm Reducer 5.2.34 DN 50mm stub end with N 5.2.35 DN 50mm flanged sluice N 50mm offtake (JD 7,8,10 5.2.36 DN 50x50x50mm HDPE N 5.2.37 DN 50mm stub end with N 5.2.38 DN 50mm flanged sluice N 75mm offtake (JD 9,11) 5.2.39 DN 75x75x50mm HDPE N 5.2.40 DN 50mm stub end with N 5.2.41 DN 50mm stub end with N 5.2.42 DN 75x75x75mm HDPE N 5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm flanged sluice N 75mm offtake (JD 12) 5.2.42 DN 75x75x75mm HDPE N 5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm flanged sluice N 75mm offtake (JD 15) 5.2.45 DN 50mm flanged sluice N 63mm offtake (JD 15) 5.2.46 DN 63x63x50mm HDPE N 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice N 63mm offtake (JD 15) 5.2.48 DN 50mm flanged sluice N 63mm offtake (JD 15) 5.2.49 DN 50mm flanged sluice N 63mm offtake (JD 15) 5.2.49 DN 50mm stub end with N 5.2.49 DN 50mm stub end with N 5.2.49 DN 50mm flanged sluice N 63mm offtake (JD 15) 63.2.49 DN 50mm flanged sluice N 63mm offtake (JD 15) 63.2.49 DN 50mm flanged sluice N 63mm offtake (JD 15) 63.2.49 DN 50mm flanged sluice N 63mm offtake (JD 15)	KII HON		Q11	Kshs.	Kshs.
110mm offtake (JD 2,3)		Nr	1.00		
110mm offtake (JD 2,3)  5.2.21 DN 110x110x50mm HDP 5.2.22 DN 50mm stub end with N 5.2.23 DN 50mm flanged sluice v 110-90 mm offtake (JD 4 5.2.24 DN 110x110x50mm HDP 5.2.25 DN 110x90mm Reducer 5.2.26 DN 90 mm 45 degree bend 5.2.27 DN 50mm stub end with N 5.2.28 DN 50mm flanged sluice v 90mm offtake (JD 5) 5.2.29 DN 90x90x50mm HDPE t 5.2.30 DN 50mm stub end with N 5.2.31 DN 50mm flanged sluice v 90mm offtake (JD 6) 5.2.32 DN 90x90x50mm HDPE t 5.2.33 DN 90x75mm Reducer 5.2.34 DN 50mm stub end with N 5.2.35 DN 50mm stub end with N 5.2.36 DN 50x50x50mm HDPE t 5.2.37 DN 50mm stub end with N 5.2.38 DN 50mm stub end with N 5.2.39 DN 75x75x50mm HDPE t 5.2.30 DN 50mm stub end with N 5.2.31 DN 50mm stub end with N 5.2.32 DN 50mm flanged sluice v 75mm offtake (JD 9,11) 5.2.39 DN 75x75x50mm HDPE t 5.2.40 DN 50mm stub end with N 5.2.41 DN 50mm stub end with N 5.2.42 DN 75x75x75mm HDPE t 5.2.43 DN 75x75x75mm HDPE t 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.46 DN 63x63x50mm HDPE t 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N	MS flange ring	Nr	2.00		
5.2.21 DN 110x110x50mm HDP 5.2.22 DN 50mm stub end with N 5.2.23 DN 50mm flanged sluice N 110-90 mm offtake (JD 4 5.2.24 DN 110x110x50mm HDP 5.2.25 DN 110x90mm Reducer 5.2.26 DN 90 mm 45 degree bend 5.2.27 DN 50mm stub end with N 5.2.28 DN 50mm flanged sluice N 90mm offtake (JD 5) 5.2.29 DN 90x90x50mm HDPE N 5.2.30 DN 50mm stub end with N 5.2.31 DN 50mm flanged sluice N 90mm offtake (JD 6) 5.2.32 DN 90x90x50mm HDPE N 5.2.33 DN 90x90x50mm HDPE N 5.2.34 DN 50mm stub end with N 5.2.35 DN 50mm stub end with N 5.2.35 DN 50mm flanged sluice N 50mm offtake (JD 7,8,10 5.2.36 DN 50x50x50mm HDPE N 5.2.37 DN 50mm stub end with N 5.2.38 DN 50mm flanged sluice N 75mm offtake (JD 9,11) 5.2.39 DN 75x75x50mm HDPE N 5.2.40 DN 50mm stub end with N 5.2.41 DN 50mm stub end with N 5.2.42 DN 75x75x75mm HDPE N 5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.45 DN 50mm flanged sluice N 63mm offtake (JD 15) 5.2.46 DN 63x63x50mm HDPE N 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice N 63mm offtake (JD 15) 5.2.48 DN 50mm flanged sluice N 63mm offtake (JD 15) 5.2.48 DN 50mm flanged sluice N 63mm offtake (JD 15)	valve	Nr	1.00		
5.2.22 DN 50mm stub end with N 5.2.23 DN 50mm flanged sluice N 110-90 mm offtake (JD 4 5.2.24 DN 110x110x50mm HDP 5.2.25 DN 110x90mm Reducer 5.2.26 DN 90 mm 45 degree bend 5.2.27 DN 50mm stub end with N 5.2.28 DN 50mm flanged sluice N 90mm offtake (JD 5) 5.2.29 DN 90x90x50mm HDPE N 5.2.30 DN 50mm stub end with N 5.2.31 DN 50mm flanged sluice N 90mm offtake (JD 6) 5.2.32 DN 90x90x50mm HDPE N 5.2.33 DN 90x75mm Reducer 5.2.34 DN 50mm stub end with N 5.2.35 DN 50mm stub end with N 5.2.35 DN 50mm flanged sluice N 50mm offtake (JD 7,8,10 5.2.36 DN 50x50x50mm HDPE N 5.2.37 DN 50mm stub end with N 5.2.38 DN 50mm stub end with N 5.2.39 DN 75x75x50mm HDPE N 5.2.39 DN 75x75x50mm HDPE N 5.2.40 DN 50mm stub end with N 5.2.41 DN 50mm stub end with N 5.2.42 DN 75x75x75mm HDPE N 5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.47 DN 50mm stub end with N 5.2.48 DN 63x63x50mm HDPE N 5.2.49 DN 50mm stub end with N 5.2.49 DN 50mm stub end with N 5.2.40 DN 50mm stub end with N 5.2.41 DN 50mm stub end with N 5.2.42 DN 75x75x75mm HDPE N 5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.46 DN 63x63x50mm HDPE N 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N					
5.2.23 DN 50mm flanged sluice v  110-90 mm offtake (JD 4  5.2.24 DN 110x110x50mm HDP  5.2.25 DN 110x90mm Reducer  5.2.26 DN 90 mm 45 degree bend  5.2.27 DN 50mm stub end with N  5.2.28 DN 50mm flanged sluice v  90mm offtake (JD 5)  5.2.29 DN 90x90x50mm HDPE t  5.2.30 DN 50mm stub end with N  5.2.31 DN 50mm flanged sluice v  90mm offtake (JD 6)  5.2.32 DN 90x90x50mm HDPE t  5.2.33 DN 90x75mm Reducer  5.2.34 DN 50mm stub end with N  5.2.35 DN 50mm flanged sluice v  50mm offtake (JD 7,8,10  5.2.36 DN 50x50x50mm HDPE t  5.2.37 DN 50mm stub end with N  5.2.38 DN 50mm flanged sluice v  75mm offtake (JD 9,11)  5.2.39 DN 75x75x50mm HDPE t  5.2.40 DN 50mm stub end with N  5.2.41 DN 50mm stub end with N  5.2.42 DN 75x75x75mm HDPE t  5.2.43 DN 75x50mm Reducer  5.2.44 DN 50mm stub end with N  5.2.45 DN 50mm stub end with N  5.2.45 DN 50mm stub end with N  5.2.46 DN 63x63x50mm HDPE t  5.2.47 DN 50mm stub end with N  5.2.48 DN 50mm stub end with N  5.2.48 DN 50mm stub end with N  5.2.48 DN 50mm stub end with N  5.2.48 DN 50mm stub end with N  5.2.48 DN 50mm stub end with N  5.2.48 DN 50mm stub end with N  5.2.48 DN 50mm stub end with N  5.2.48 DN 50mm stub end with N  5.2.48 DN 50mm stub end with N  5.2.48 DN 50mm stub end with N  5.2.48 DN 50mm stub end with N  5.2.48 DN 50mm stub end with N	PE tee	Nr	2.00		
110-90 mm offtake (JD 4  5.2.24 DN 110x110x50mm HDP  5.2.25 DN 110x90mm Reducer  5.2.26 DN 90 mm 45 degree bend  5.2.27 DN 50mm stub end with N  5.2.28 DN 50mm flanged sluice N  90mm offtake (JD 5)  5.2.29 DN 90x90x50mm HDPE to 1  5.2.30 DN 50mm stub end with N  5.2.31 DN 50mm flanged sluice N  90mm offtake (JD 6)  5.2.32 DN 90x90x50mm HDPE to 1  5.2.33 DN 90x90x50mm HDPE to 1  5.2.34 DN 50mm stub end with N  5.2.35 DN 50mm stub end with N  5.2.36 DN 50mm stub end with N  5.2.37 DN 50mm stub end with N  5.2.38 DN 50mm flanged sluice N  75mm offtake (JD 9,11)  5.2.39 DN 75x75x50mm HDPE to 1  5.2.40 DN 50mm stub end with N  5.2.41 DN 50mm stub end with N  5.2.42 DN 75x75x75mm HDPE to 1  5.2.43 DN 75x75x75mm HDPE to 1  5.2.44 DN 50mm stub end with N  5.2.45 DN 50mm stub end with N  5.2.46 DN 50mm stub end with N  5.2.47 DN 50mm stub end with N  5.2.48 DN 50mm stub end with N  5.2.49 DN 50mm stub end with N  5.2.40 DN 50mm stub end with N  5.2.41 DN 50mm stub end with N  5.2.42 DN 75x75x75mm HDPE to 1  5.2.43 DN 75x50mm Reducer  5.2.44 DN 50mm stub end with N  5.2.45 DN 50mm flanged sluice N  63mm offtake (JD 15)  5.2.46 DN 63x63x50mm HDPE to 1  5.2.47 DN 50mm stub end with N  5.2.48 DN 50mm flanged sluice N  DN 50mm Terminal contributions	MS flange ring	Nr	4.00		
5.2.24 DN 110x110x50mm HDP 5.2.25 DN 110x90mm Reducer 5.2.26 DN 90 mm 45 degree bend 5.2.27 DN 50mm stub end with N 5.2.28 DN 50mm flanged sluice v 90mm offtake (JD 5) 5.2.29 DN 90x90x50mm HDPE off Section of the sec	valve	Nr	2.00		
5.2.25 DN 110x90mm Reducer 5.2.26 DN 90 mm 45 degree bend 5.2.27 DN 50mm stub end with N 5.2.28 DN 50mm flanged sluice v 90mm offtake (JD 5) 5.2.29 DN 90x90x50mm HDPE fl 5.2.30 DN 50mm stub end with N 5.2.31 DN 50mm flanged sluice v 90mm offtake (JD 6) 5.2.32 DN 90x90x50mm HDPE fl 5.2.33 DN 90x75mm Reducer 5.2.34 DN 50mm stub end with N 5.2.35 DN 50mm flanged sluice v 50mm offtake (JD 7,8,10 5.2.36 DN 50x50x50mm HDPE fl 5.2.37 DN 50mm stub end with N 5.2.38 DN 50mm flanged sluice v 75mm offtake (JD 9,11) 5.2.39 DN 75x75x50mm HDPE fl 5.2.40 DN 50mm stub end with N 5.2.41 DN 50mm stub end with N 5.2.42 DN 75x75x75mm HDPE fl 5.2.43 DN 75x75x75mm HDPE fl 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.46 DN 63x63x50mm HDPE fl 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice v DN 50mm Terminal com	4)				
5.2.26 DN 90 mm 45 degree bend 5.2.27 DN 50mm stub end with N 5.2.28 DN 50mm flanged sluice v 90mm offtake (JD 5)  5.2.29 DN 90x90x50mm HDPE to 5.2.30 DN 50mm stub end with N 5.2.31 DN 50mm flanged sluice v 90mm offtake (JD 6)  5.2.32 DN 90x90x50mm HDPE to 5.2.33 DN 90x75mm Reducer 5.2.34 DN 50mm stub end with N 5.2.35 DN 50mm flanged sluice v 50mm offtake (JD 7,8,10 5.2.36 DN 50x50x50mm HDPE to 5.2.37 DN 50mm stub end with N 5.2.38 DN 50mm flanged sluice v 75mm offtake (JD 9,11)  5.2.39 DN 75x75x50mm HDPE to 5.2.40 DN 50mm stub end with N 5.2.41 DN 50mm stub end with N 5.2.41 DN 50mm flanged sluice v 75mm offtake (JD 12)  5.2.42 DN 75x75x75mm HDPE to 5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.46 DN 63x63x50mm HDPE to 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm stub end with	PE tee	Nr	1.00		
5.2.27 DN 50mm stub end with N 5.2.28 DN 50mm flanged sluice N 90mm offtake (JD 5) 5.2.29 DN 90x90x50mm HDPE t 5.2.30 DN 50mm stub end with N 5.2.31 DN 50mm flanged sluice N 90mm offtake (JD 6) 5.2.32 DN 90x90x50mm HDPE t 5.2.33 DN 90x75mm Reducer 5.2.34 DN 50mm stub end with N 5.2.35 DN 50mm flanged sluice N 50mm offtake (JD 7,8,10) 5.2.36 DN 50x50x50mm HDPE t 5.2.37 DN 50mm stub end with N 5.2.38 DN 50mm flanged sluice N 75mm offtake (JD 9,11) 5.2.39 DN 75x75x50mm HDPE t 5.2.40 DN 50mm stub end with N 5.2.41 DN 50mm stub end with N 5.2.42 DN 75x75x75mm HDPE t 5.2.43 DN 75x75x75mm HDPE t 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.46 DN 50mm stub end with N 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice N 63mm offtake (JD 15) 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice N DN 50mm Terminal contributions		Nr	1.00		
S.2.28   DN 50mm flanged sluice v   90mm offtake (JD 5)	nd	Nr	1.00		
90mm offtake (JD 5)  5.2.29 DN 90x90x50mm HDPE to 5.2.30 DN 50mm stub end with N 5.2.31 DN 50mm flanged sluice to 90mm offtake (JD 6)  5.2.32 DN 90x90x50mm HDPE to 5.2.33 DN 90x75mm Reducer 5.2.34 DN 50mm stub end with N 5.2.35 DN 50mm flanged sluice to 50mm offtake (JD 7,8,10 5.2.36 DN 50x50x50mm HDPE to 5.2.37 DN 50mm stub end with N 5.2.38 DN 50mm stub end with N 5.2.38 DN 50mm flanged sluice to 75mm offtake (JD 9,11)  5.2.39 DN 75x75x50mm HDPE to 5.2.40 DN 50mm stub end with N 5.2.41 DN 50mm stub end with N 5.2.41 DN 50mm flanged sluice to 75mm offtake (JD 12)  5.2.42 DN 75x75x75mm HDPE to 5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.45 DN 50mm flanged sluice to 63mm offtake (JD 15)  5.2.46 DN 63x63x50mm HDPE to 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice to DN	MS flange ring	Nr	2.00		
5.2.29 DN 90x90x50mm HDPE to 5.2.30 DN 50mm stub end with N 5.2.31 DN 50mm flanged sluice v 90mm offtake (JD 6)  5.2.32 DN 90x90x50mm HDPE to 5.2.33 DN 90x75mm Reducer 5.2.34 DN 50mm stub end with N 5.2.35 DN 50mm flanged sluice v 50mm offtake (JD 7,8,10 5.2.36 DN 50x50x50mm HDPE to 5.2.37 DN 50mm stub end with N 5.2.38 DN 50mm flanged sluice v 75mm offtake (JD 9,11)  5.2.39 DN 75x75x50mm HDPE to 5.2.40 DN 50mm stub end with N 5.2.41 DN 50mm stub end with N 5.2.41 DN 50mm flanged sluice v 75mm offtake (JD 12)  5.2.42 DN 75x75x75mm HDPE to 5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.45 DN 50mm flanged sluice v 63mm offtake (JD 15)  5.2.46 DN 63x63x50mm HDPE to 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice v DN 50mm flanged sluice v DN 50mm flanged sluice v DN 50mm flanged sluice v DN 50mm flanged sluice v DN 50mm flanged sluice v DN 50mm flanged sluice v	valve	Nr	1.00		
5.2.30 DN 50mm stub end with N 5.2.31 DN 50mm flanged sluice N 90mm offtake (JD 6) 5.2.32 DN 90x90x50mm HDPE t 5.2.33 DN 90x75mm Reducer 5.2.34 DN 50mm stub end with N 5.2.35 DN 50mm flanged sluice N 50mm offtake (JD 7,8,10 5.2.36 DN 50x50x50mm HDPE t 5.2.37 DN 50mm stub end with N 5.2.38 DN 50mm flanged sluice N 75mm offtake (JD 9,11) 5.2.39 DN 75x75x50mm HDPE t 5.2.40 DN 50mm stub end with N 5.2.41 DN 50mm stub end with N 5.2.42 DN 75x75x75mm HDPE t 5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.45 DN 50mm flanged sluice N 63mm offtake (JD 15) 5.2.46 DN 63x63x50mm HDPE t 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice N 5.2.48 DN 50mm flanged sluice N 5.2.48 DN 50mm flanged sluice N 5.2.48 DN 50mm flanged sluice N 5.2.48 DN 50mm flanged sluice N 5.2.48 DN 50mm flanged sluice N 5.2.48 DN 50mm flanged sluice N 5.2.48 DN 50mm flanged sluice N 5.2.48 DN 50mm flanged sluice N					
S.2.31   DN 50mm flanged sluice v   90mm offtake (JD 6)	E tee	Nr	2.00		
S.2.31   DN 50mm flanged sluice v   90mm offtake (JD 6)	MS flange ring	Nr	4.00		
90mm offtake (JD 6)  5.2.32 DN 90x90x50mm HDPE to 5.2.33 DN 90x75mm Reducer  5.2.34 DN 50mm stub end with N 5.2.35 DN 50mm flanged sluice to 50mm offtake (JD 7,8,10)  5.2.36 DN 50x50x50mm HDPE to 5.2.37 DN 50mm stub end with N 5.2.38 DN 50mm flanged sluice to 75mm offtake (JD 9,11)  5.2.39 DN 75x75x50mm HDPE to 5.2.40 DN 50mm stub end with N 5.2.41 DN 50mm flanged sluice to 75mm offtake (JD 12)  5.2.42 DN 75x75x75mm HDPE to 5.2.42 DN 75x75x75mm HDPE to 5.2.43 DN 75x50mm Reducer  5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm stub end with N 5.2.45 DN 50mm flanged sluice to 63mm offtake (JD 15)  5.2.46 DN 63x63x50mm HDPE to 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice to DN 50mm Terminal com		Nr	2.00		
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5.2.35 DN 50mm flanged sluice v  50mm offtake (JD 7,8,10  5.2.36 DN 50x50x50mm HDPE to 5.2.37 DN 50mm stub end with N  5.2.38 DN 50mm flanged sluice v  75mm offtake (JD 9,11)  5.2.39 DN 75x75x50mm HDPE to 5.2.40 DN 50mm stub end with N  5.2.41 DN 50mm flanged sluice v  75mm offtake (JD 12)  5.2.42 DN 75x75x75mm HDPE to 5.2.43 DN 75x50mm Reducer  5.2.44 DN 50mm stub end with N  5.2.45 DN 50mm stub end with N  5.2.45 DN 50mm flanged sluice v  63mm offtake (JD 15)  5.2.46 DN 63x63x50mm HDPE to 5.2.47 DN 50mm stub end with N  5.2.48 DN 50mm stub end with N  5.2.48 DN 50mm flanged sluice v  DN 50mm Terminal contributions	MS flange ring	Nr	2.00		
50mm offtake (JD 7,8,10  5.2.36 DN 50x50x50mm HDPE to 5.2.37 DN 50mm stub end with N 5.2.38 DN 50mm flanged sluice v 75mm offtake (JD 9,11)  5.2.39 DN 75x75x50mm HDPE to 5.2.40 DN 50mm stub end with N 5.2.41 DN 50mm flanged sluice v 75mm offtake (JD 12)  5.2.42 DN 75x75x75mm HDPE to 5.2.42 DN 75x75x75mm HDPE to 5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm flanged sluice v 63mm offtake (JD 15)  5.2.46 DN 63x63x50mm HDPE to 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice v DN 50mm flanged sluice v DN 50mm flanged sluice v DN 50mm flanged sluice v	<u> </u>	Nr	1.00		
5.2.36 DN 50x50x50mm HDPE to 5.2.37 DN 50mm stub end with N 5.2.38 DN 50mm flanged sluice v 75mm offtake (JD 9,11) 5.2.39 DN 75x75x50mm HDPE to 5.2.40 DN 50mm stub end with N 5.2.41 DN 50mm flanged sluice v 75mm offtake (JD 12) 5.2.42 DN 75x75x75mm HDPE to 5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm flanged sluice v 63mm offtake (JD 15) 5.2.46 DN 63x63x50mm HDPE to 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice v DN 50mm Terminal contributions					
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75mm offtake (JD 9,11) 5.2.39 DN 75x75x50mm HDPE to 5.2.40 DN 50mm stub end with N 5.2.41 DN 50mm flanged sluice to 75mm offtake (JD 12) 5.2.42 DN 75x75x75mm HDPE to 5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm flanged sluice to 63mm offtake (JD 15) 5.2.46 DN 63x63x50mm HDPE to 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice to DN 50mm flanged sluice to DN 50mm flanged sluice to DN 50mm flanged sluice to DN 50mm flanged sluice to DN 50mm flanged sluice to DN 50mm Terminal contributions		Nr	5.00		
5.2.39 DN 75x75x50mm HDPE to 5.2.40 DN 50mm stub end with N 5.2.41 DN 50mm flanged sluice v 75mm offtake (JD 12) 5.2.42 DN 75x75x75mm HDPE to 5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm flanged sluice v 63mm offtake (JD 15) 5.2.46 DN 63x63x50mm HDPE to 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice v DN 50mm Terminal contributions		1 1			
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5.2.41 DN 50mm flanged sluice v 75mm offtake (JD 12) 5.2.42 DN 75x75x75mm HDPE t 5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm flanged sluice v 63mm offtake (JD 15) 5.2.46 DN 63x63x50mm HDPE t 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice v DN 50mm Terminal contributions		Nr	4.00		
75mm offtake (JD 12) 5.2.42 DN 75x75x75mm HDPE t 5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm flanged sluice v 63mm offtake (JD 15) 5.2.46 DN 63x63x50mm HDPE t 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice v DN 50mm Terminal contributions		Nr	2.00		
5.2.42 DN 75x75x75mm HDPE to 5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm stub end with M 5.2.45 DN 50mm flanged sluice to 63mm offtake (JD 15) 5.2.46 DN 63x63x50mm HDPE to 5.2.47 DN 50mm stub end with M 5.2.48 DN 50mm flanged sluice to DN 50mm Terminal control of the following students of the following stu		+			
5.2.43 DN 75x50mm Reducer 5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm flanged sluice v 63mm offtake (JD 15) 5.2.46 DN 63x63x50mm HDPE t 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice v DN 50mm Terminal con	tee	Nr	1.00		
5.2.44 DN 50mm stub end with N 5.2.45 DN 50mm flanged sluice v 63mm offtake (JD 15) 5.2.46 DN 63x63x50mm HDPE t 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice v DN 50mm Terminal contractions		Nr	1.00		
5.2.45 DN 50mm flanged sluice v 63mm offtake (JD 15) 5.2.46 DN 63x63x50mm HDPE to 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice v DN 50mm Terminal control of the student	MS flange ring	Nr	2.00		
63mm offtake (JD 15) 5.2.46 DN 63x63x50mm HDPE to 5.2.47 DN 50mm stub end with M 5.2.48 DN 50mm flanged sluice to DN 50mm Terminal control to the state of the st	<u> </u>	Nr	1.00		
5.2.46 DN 63x63x50mm HDPE to 5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice v DN 50mm Terminal control of the state of th		111	1.00		
5.2.47 DN 50mm stub end with N 5.2.48 DN 50mm flanged sluice v DN 50mm Terminal cont	tee	Nr	1.00		
5.2.48 DN 50mm flanged sluice v <b>DN 50mm Terminal con</b>		Nr	2.00		
DN 50mm Terminal com	<u> </u>	Nr	1.00		
5.2.49 DN 50x50x50mm HDPE (		111	1.00		
2.2. 1/121, 20n20n20mm mm mb1 b1	(Reduced or Equal) tee	Nr	1.00		
5.2.50 DN 50mm stub end with N		Nr	4.00		
5.2.51 DN 50mm Flanged gate va		Nr	2.00		
5.2.52 DN 50mm HDPE flap valv		Nr	1.00		
5.2.53 DN 50mm HDPE PN 16 p		m	60.00		
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### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY _	RATE	<b>AMOUNT</b>
1112111	DESCRIPTION	UNII	V11	Kshs.	Kshs.
	DN 63mm Terminal connection (with washout)		-		
5.2.54	DN 63x63x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
	DN 50mm stub end with MS flange back ring	Nr	4.00		
	DN 50mm Flanged gate valve	Nr	2.00		
	DN 50mm HDPE flap valve	Nr	1.00		
	DN 50mm HDPE PN 16 pipe	m	60.00		
	DN 75mm Terminal connection (with washout)		-		
5.2.59	DN 75x75x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
	DN 50mm stub end with MS flange back ring	Nr	4.00		
	DN 50mm Flanged gate valve	Nr	2.00		
	DN 50mm HDPE flap valve	Nr	1.00		
	DN 50mm HDPE PN 16 pipe	m	60.00		
3.2.03	DN 90mm Terminal connection (with washout)	<u> </u>	-		
5 2 64	DN 90x90x90mm HDPE (Reduced or Equal) tee	Nr	1.00		
	DN 90mm stub end with MS flange back ring	Nr	4.00		
	DN 90mm Flanged gate valve	Nr	2.00		
	DN 90mm HDPE flap valve	Nr	1.00		
	DN 90mm HDPE PN 16 pipe	m	60.00		
3.2.00	DN 110mm Terminal connection (with washout)	111	00.00		
5 2 60	DN 110x110x90mm HDPE (Reduced or Equal) tee	Nr	1.00		
	DN 90mm stub end with MS flange back ring	Nr	4.00		
	DN 90mm Flanged gate valve	Nr	2.00		
		Nr Nr	1.00		
	DN 90mm HDPE flap valve				
3.2.73	DN 90mm HDPE PN 16 pipe	m	60.00		
5 2 74	Air Valve Chamber Fittings (DN110mm) -(1No)	3.7	2.00		
	HDPE Reducer Tee DN 110mm x 110mm x 63mm	Nr	2.00		
	DN63 mm HDPE Stub End with MS Flange	Nr	2.00		
	DN 50mm double flanged sluice valve	Nr	2.00		
5.2.77	DN 50mm double orifice airvalve	Nr	2.00		
	Washout (DN 110mm) -(2No)				
	HDPE Reducer Tee DN 110mm x 110mm x 90mm	Nr	1.00		
	DN 110mm HDPE stub end with MS Flange	Nr	4.00		
	DN 90 mm HDPE stub end with MS Flange	Nr	2.00		
	DN 90mm sluice valve	Nr	1.00		
	DN 90mm HDPE pipe (PN 12.5)	m	24.00		
5.2.83	Masonry headwall with base slab for Erosion	Ls	1.00		
	protection at discharge point	Lis	1.00		
	Air Valve Chamber Fittings (DN90mm) -(1No)				
5.2.84	HDPE Reducer Tee DN 90mm x 90mm x 63mm	Nr	1.00		
5.2.85	DN63 mm HDPE Stub End with MS Flange	Nr	1.00		
5.2.86	DN 50mm double flanged sluice valve	Nr	1.00		
5.2.87	DN 50mm double orifice airvalve	Nr	1.00		
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### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TIEM	DESCRIPTION	01111	V11	Kshs.	Kshs.
	Washout (DN 90mm) -(1No)				
5 2 88	HDPE Reducer Tee DN 90mm x 90mm x 75mm	Nr	1.00		
	DN 90mm HDPE stub end with MS Flange	Nr	4.00		
	DN 75 mm HDPE stub end with MS Flange	Nr	2.00		
	DN 75 mm sluice valve	Nr	1.00		
	DN 75mm HDPE pipe (PN 12.5)	m	24.00		
	Masonry headwall with base slab for Erosion protection at discharge point	Ls	1.00		
	Air Valve Chamber Fittings (DN75mm) -(10No)				
5.2.94	HDPE Reducer Tee DN 75mm x 75mm x 63mm	Nr	10.00		
	DN63 mm HDPE Stub End with MS Flange	Nr	10.00		
	DN 50mm double flanged sluice valve	Nr	10.00		
	DN 50mm double orifice airvalve	Nr	10.00		
	Washout (DN 75mm) -(4No)				
5.2.98	HDPE Equal Tee DN 75mm x 75mm x 75mm	Nr	4.00		
5.2.99	DN 75mm HDPE stub end with MS Flange	Nr	16.00		
5.2.100	DN 75 mm HDPE stub end with MS Flange	Nr	8.00		
5.2.101	DN 75 mm sluice valve	Nr	4.00		
5.2.102	DN 75mm HDPE pipe (PN 12.5)	m	96.00		
5.2.103	Masonry headwall with base slab for Erosion	Ls	4.00		
	protection at discharge point	LS	4.00		
	Air Valve Chamber Fittings (DN 63mm) -(10No)				
5.2.104	HDPE DN 63 X 63 X 32 mm Reducer Tee ( <b>NB</b> :	Nr	10.00		
	Must be electrofussion)	111	10.00		
5.2.105	HDPE DN 32 mm PN 16 short piece pipe (400 mm	Nr	10.00		
5.2.106	HDPE DN 32 mm PN 16 Male adapter	Nr	10.00		
	HDPE DN 32 mm Pegler brass gate valve	Nr	10.00		
	DN 32 mm Stainless Steel Hex Nipple	Nr	10.00		
5.2.109	DN 32 mm Threaded Air Valve	Nr	10.00		
	Washout (DN 63mm) -(6No)		10.00		
	HDPE DN 63 X 63 X 63 mm Equal Tee (NB: Must be electrofussion)	Nr	6.00		
5.2.111	HDPE DN 63 mm PN 16 short piece pipe (400 mm long)	Nr	6.00		
5.2.112	HDPE DN 63 mm PN 16 Flanged adapter	Nr	6.00		
	HDPE DN 50 mmFlanged Sluice valve	Nr	6.00		
5.2.114	DN 63 mm HDPE pipe (PN 12.5)	m	144.00		
5.2.115	Masonry headwall with base slab for Erosion protection at discharge point	Ls	6.00		
	Air Valve Chamber Fittings (DN 50mm) -(5No)				
5.2.116	HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: Must be electrofussion)	Nr	5.00		
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### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1112111			VII -	Kshs.	Kshs.
5.2.117	HDPE DN 32 mm PN 16 short piece pipe (400 mm	Nr	5.00		
5.2.118	HDPE DN 32 mm PN 16 Male adapter	Nr	5.00		
5.2.119	HDPE DN 32 mm Pegler brass gate valve	Nr	5.00		
5.2.120	DN 32 mm Stainless Steel Hex Nipple	Nr	5.00		
	DN 32 mm Threaded Air Valve	Nr	5.00		
	Washout (DN 50mm) -(2No)				
5.2.122	HDPE DN 50 X 50 X 50 mm Equal Tee (NB: Must be electrofussion)	Nr	2.00		
5.2.123	HDPE DN 50 mm PN 16 short piece pipe (400 mm	Nr	2.00		
5.2.124	HDPE DN 50 mm PN 16 Flanged adapter	Nr	2.00		
5.2.125	HDPE DN 50 mmFlanged Sluice valve	Nr	2.00		
5.2.126	DN 50 mm HDPE pipe (PN 12.5)	m	48.00		
5.2.127	Masonry headwall with base slab for Erosion protection at discharge point	Ls	2.00		
	Water Draw Off Facilities				
	Supply of materials and construct a water kiosk to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix C Supply of materials and construct a cattle/Camel	Nr.	5.00		
5.2.129	trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 440mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications	Item	2.00		
	PAGE TOTAL CARRIED TO SECTION COLLE	CTION	SHEET		

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

S.2.130 Supply of materials and construct sheep goat trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 300mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include G1 pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Snocifications.  S.2.131 Supply of materials and construct a sanitation facility as described to detail in Appendix E.  S.2.132 Allow for supply and installation of institutional/water kiosk/animal watering points connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per Chambers (Civil Works)  Includes setting up of each type of chamber, excavation in any type of soil including rock, dewatering, shoring, formwork, in situ construction of reinforced concrete chambers, sump, removal of form work, protecting externally with water proofing tanking membrane and internally with two coats each 400 microns coallar peops or equivalent, backfilling, compacting, providing surface box openings and chamber access openings, providing surface boxes, chamber access covers and frames, ladders, slab lifting hooks, vent pipe with insect screen, reinstating the site to its original condition etc. to make each chamber civil works complete in all respects as  5.2.133 Washouts  Nr. 20.00  Nr. 20.00	ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 300mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offlake with HDPE pipe piece DN50 PN12.5, offlake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Snocifications.  5.2.131 Supply of materials and construct a sanitation facility as described to detail in Appendix E  5.2.132 Allow for supply and installation of institutional/water kiosk/animal watering points connection kits, which include a Prepaid smart metering,lockable meter chamber,offlake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per  Chambers (Civil Works)  Includes setting up of each type of chamber, excavation in any type of soil including rock, dewatering, shoring, formwork, in situ construction of reinforced concrete chambers, sump, removal of form work, protecting externally with water proofing tanking membrane and internally with two coats each 400 microns coaltar epoxy or equivalent, backfilling, compacting, providing surface box epenings and chamber access openings, providing surface boxes, chamber access covers and frames, ladders, slab lifting hooks, vent pipe with insect screen, reinstating the site to its original condition etc. to make each chamber civil works complete in all respects as  5.2.133 Washouts  Nr. 13.00  Nr. 32.00			01111	<u> </u>	Kshs.	Kshs.
5.2.131 Supply of materials and construct a sanitation facility as described to detail in Appendix E  5.2.132 Allow for supply and installation of institutional/water kiosk/animal watering points connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per  Chambers (Civil Works)  Includes setting up of each type of chamber, excavation in any type of soil including rock, dewatering, shoring, formwork, in situ construction of reinforced concrete chambers, sump, removal of form work, protecting externally with two coats each 400 microns coaltar epoxy or equivalent, backfilling, compacting, providing surface box openings and chamber access openings, providing surface boxes, chamber access covers and frames, ladders, slab lifting hooks, vent pipe with insect screen, reinstating the site to its original condition etc. to make each chamber civil works complete in all respects as  5.2.133 Washouts  Nr. 13.00  5.2.134 Air valves	5.2.130	of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 300mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All	Item	2.00		
5.2.132 Allow for supply and installation of institutional/water kiosk/animal watering points connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per  Chambers (Civil Works)  Includes setting up of each type of chamber, excavation in any type of soil including rock, dewatering, shoring, formwork, in situ construction of reinforced concrete chambers, sump, removal of form work, protecting externally with water proofing tanking membrane and internally with two coats each 400 microns coaltar epoxy or equivalent, backfilling, compacting, providing surface box openings and chamber access openings, providing surface boxes, chamber access covers and frames, ladders, slab lifting hooks, vent pipe with insect screen, reinstating the site to its original condition etc. to make each chamber civil works complete in all respects as  5.2.133 Washouts  Nr. 13.00  Nr. 32.00		Supply of materials and construct a sanitation facility	Item	-		
Includes setting up of each type of chamber, excavation in any type of soil including rock, dewatering, shoring, formwork, in situ construction of reinforced concrete chambers, sump, removal of form work, protecting externally with water proofing tanking membrane and internally with two coats each 400 microns coaltar epoxy or equivalent, backfilling, compacting, providing surface box openings and chamber access openings, providing surface boxes, chamber access covers and frames, ladders, slab lifting hooks, vent pipe with insect screen, reinstating the site to its original condition etc. to make each chamber civil works complete in all respects as  5.2.133 Washouts  Nr. 13.00  5.2.134 Air valves  Nr. 32.00	5.2.132	Allow for supply and installation of institutional/water kiosk/animal watering points connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary		5.00		
Includes setting up of each type of chamber, excavation in any type of soil including rock, dewatering, shoring, formwork, in situ construction of reinforced concrete chambers, sump, removal of form work, protecting externally with water proofing tanking membrane and internally with two coats each 400 microns coaltar epoxy or equivalent, backfilling, compacting, providing surface box openings and chamber access openings, providing surface boxes, chamber access covers and frames, ladders, slab lifting hooks, vent pipe with insect screen, reinstating the site to its original condition etc. to make each chamber civil works complete in all respects as  5.2.133 Washouts  Nr. 13.00  Nr. 32.00		Chambers (Civil Works)				
5.2.134 Air valves Nr. 32.00		Includes setting up of each type of chamber, excavation in any type of soil including rock, dewatering, shoring, formwork, in situ construction of reinforced concrete chambers, sump, removal of form work, protecting externally with water proofing tanking membrane and internally with two coats each 400 microns coaltar epoxy or equivalent, backfilling, compacting, providing surface box openings and chamber access openings, providing surface boxes, chamber access covers and frames, ladders, slab lifting hooks, vent pipe with insect screen, reinstating the site to its original condition etc. to make each chamber civil works complete in all respects as				
			Nr.	13.00		
5.2.135 Valve chambers Nr. 20.00						
	5.2.135	Valve chambers	Nr.	20.00		

LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1112111	DESCRIPTION	UNII	Q11	Kshs.	Kshs.
	ANCILLARIES ITEMS				
5.2.136	Supply and fix marker posts along water Main Route, Road Crossings, change of direction, Air valves, Washouts and valve chambers. All in accordance with drawings and specifications  Thrust Blocks	No	114.00		
5 2 127	Construction of thrust block at bends and Tee				
3.2.137	junctions price includes all cost such as excavation, concrete, Re-steel bar, the formwork and others as detailed on drawing	Nr	10.00		
	C. H. / Pr. C.				
5 2 120	Gulley/ River Crossings				
3.2.138	Allow for gulley crossing for HDPE pipe as detailed in the book of drawings - Road and Seasonal river crossing structural details (dwg Nr KE/WSTF/RE/GW/STD/030)	m	240.00		
		<del>                                     </del>			
		<del>                                     </del>			
	PAGE TOTAL CARRIED TO SECTION COLLE	CTION	SHEET		

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1112141		01111	Q11	Kshs.	Kshs.
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
	Page Total, Page 5				
	Page Total, Page 6				
	Page Total, Page 7				
	Bill Total Carried to Grand Summary				

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 5.3: GOLOLE SCHEME 100 M3 ELEVATED TANK RATE **AMOUNT** ITEM DESCRIPTION UNIT OTY Kshs. Kshs. 20m High, Elevated Steel Tank of 100m<sup>3</sup> The sites for the proposed Water Reservoirs shall be within the Water Supply Scheme Supply all materials, tools and equipment, erect, and commission a galvanised 100m³ steel with liner sectional tank of the Braithwaite type/ Alumzinc tank with liner or equal approved standard to include a tank tower of 20 meters, ladder with ladder guard inside ladder, walkway with walkway guard, water level gauge and tank cover, provision of air vent, support rails, overflows, scour, inlets and outlet for 100mm pipes etc., for complete installation. Foundation of tank pads to be 2.3mx2.3m and depth not less than 2.6m. RC works to Specifications. Rebars to be T16 @ 150mm c/c and distribution of T12 @150mm c/c top and bottom mesh. 4Nr Column stud size 500mmx500mm with 8Nr T16 and T8 stirrups each with HFSG bolts galvanised 5.3.1 1.00 4nr. 25 dia bolts and nuts with washers @600mm long. 4Nr Beam size 400mmx300mm with 8Nr T12 and T8 stirrups each. Concrete Class to be C30/20 using OPC Cement CEM I Grade 42.5. Base plate 10mm, including grouting base plate interface with column stud. Panel plate thickness 3mm all galvanised. Coat tank inside with approved bituminous paint. All tank components to be Hot-dip galvanized to EN ISO 1461. Tank manufacturer to be KEBS certified and ISO certified. The rate to include deailed structural analysis, shop drawings, complete tank and tower installation, mobilization, demobilization, delivery to site and testing. All to the approval of the Engineer INLET PIPE FITTINGS 75 HDPE Stab End Flange 2.00 75mm All flanged pipe piece 1m long 5.3.3 No 3.00 5.3.475mm flanged spigot pipe piece 1m long 1.00 5.3.5 1.00 75mm All flanged sluice valve No 5.3.6 75mm All flanged G.S 90° bend 2.00 5.3.7 75mm All flanged pipe piece 6m long No 3.00 5.3.8 75mm All flanged pipe piece 1.2m long No 1.00 5.3.9 75mm All flanged Float switch No 1.00 OVERFLOW AND SCOUR 100mm All flanged pipe piece 1.8m long 5.3.10 No 1.00 5.3.11 100mm Flanged bell mouth No 2.00 5.3.12 100mm All flanged pipe piece 2.2m long No 1.00 100mm All flanged slice valve 5.3.13 No 2.00 5.3.14 100mm flanged adaptor No 1.00 5.3.15 100mm flanged spigot pipe piece 1m long 1.00 No 100mm All flanged equal Tee 1.00 5.3.16 No 5.3.17 100mm All flanged pipe piece 3.5m long No 2.00 5.3.18 100mm All flanged pipe 6m long 0 2.00

PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 5.3: GOLOLE SCHEME 100 M3 ELEVATED TANK **RATE AMOUNT** ITEM DESCRIPTION UNIT QTY Kshs. Kshs. 5.3.19 100mm All flanged G.S 90° bend No 1.00 5.3.20 100 HDPE Stab End Flange No 2.00 OUTLET 5.3.21 100mm flanged pipe 6m long No 3.00 5.3.22 100mm Flanged bell mouth 1.00 100mm All flanged G.S 90° bend No 1.00 5.3.24 100mm All flanged Slice valve 2.00 No 5.3.25 100 HDPE Stab End Flange No 2.00 Supply, install and test diameter 100mm Electromagnetic Water 5.3.26 Meter complete with all gasket bolts etc. Rate to include for all 1.00 No associated fittings Testing Supply and apply recommended disinfectant and test the tanks. Nr. 1.00 5.3.27

PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 5.3: GOLOLE SCHEME 100 M3 ELEVATED TANK

	BILL NO. 5.3: GOLOLE SO	CHEME 100 M3 ELEV	ATED	TANK	
ITEM	DESCRIPTION	IINIT	QTY	RATE	AMOUNT
IIEWI	DESCRIPTION	UNII	QII	Kshs.	Kshs.
	Page Total, Page 1				
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	1 4.50 1 5 6 4.7 1 4.50 2				
	Bill Total Carried to Bill Summary				
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 4.4: GOLOLE WATER SCHEME ADMINSTRATION BUILDING

		UNIT	QTY		AMOUNT									
	DESCRIPTION	CIVII	VII	Kshs.	Kshs.									
	CLASS E: EARTHWORKS													
4.4.1	Excavation of surfaces to reduce the level, depth not	m3	11.58											
	exceeding 0.25m													
4.4.2	Foundations and bases for depth not exceeding 1500		41.67											
	mm for strip footing													
	Excavation Ancillaries													
4.4.3	Trimming of excavated surfaces to recieve blinding		56.70											
	concrete													
	Filling as Described:-													
	Hardcore													
4.4.4	300mm thick hand packed well compacted hardcore	m3	16.20											
	including 75 mm thick blinding layer													
	Anti-Termite treatment													
4 4 41	Treat surface of hardcore with approved anti termite	_	2	2	54.00									
4.4.4b	solution applied strictly in accordance with the	m2	54.00											
	manufacturers instructions.													
	Damp-Proof Membrane													
4.4.5	500 Gauge polythene sheeting, laid over hardcore in	m2	54.00											
	two layers  CLASS F: INSITU CONCRETE:													
4.4.6	Mass Concrete Class 15/20mm:- 75mm Thick blinding under strip footing	m3	4.05											
4.4.0	Vibrated Reinforced Concrete Reinforced Concrete	1115	4.03											
	Class 25/20mm:-													
	150mm thick ground slab with BRC A142 mesh laid 40													
4.4.7	mm from the top finished with red oxide polish. BRC	m3	8.10											
7.7./	mesh rate shall be provided separately.	1113	0.10											
	200 mm Thick Class 25/20 concrete for foundtion													
	footiung of dimension 600x600 mm complete with													
44 X I	reinfoced column to of 300mm x 200mm to a depth not	m3	m3	m3	m3	m3	m3	m3	m3	m3	m3	2.50		
	less than 1.5m													
4.4.9	200x300 Ring Beam concrete	m3	4.62											
1. 1.,	CLASS G: CONCRETE ANCILLARIES	1113	1.02											
	Formwork													
	Formwork - Fair Finish:-	_												
4.4.10	Formwork to sides of 300 mm deep ring beam	m2	23.10											
	Vertical Sides of the 150mm ground slab	m2	9.63											
	Soffit ring beam 200 mm wide	m2	15.40											
	Reinforcement													
	Provide and Fix High Tensile Steel Reinforcement to													
	SRN 127 Including Cutting, Bending, Propping with													
	Spacers and Tying as Specified:-													
4.4.13	High yield tensile steel 12mm diameter to ring beam	kg	64.72											
		- 3	·-											

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 4.4: GOLOLE WATER SCHEME ADMINSTRATION BUILDING

	BILL NO. 4.4: GOLOLE WATER SCHEME		П	RATE	AMOUNT
1TFM 4.4.14	High yield tensile steel 10mm diameter to strip footing	IINIT kg	<b>OTV</b> 300.60	KAIL	AMOUNT
4.4.15	High yield tensile steel 8mm diameter links to ring beam	kg	101.96		
	Fabric Reinforcement No. A142 Mesh Size 150 x				
	150mm Weighing 2.22 kgs Per m <sup>2</sup> , Including Bends,				
	Tying Wire and Distance Blocks:-				
	Fabric reinforcement with minimum 200mm wide side				
4.4.16	and end laps, laid in bed- A142 mesh at 25mm from the	m2	54.00		
	top				
	Walling.				
	Natural Stone Walling, Medium Chisel Dressed,				
	Reinforced with 20 swg Hoop Iron at Every Two				
	Course, and Bedded, Jointed and Pointed in Cement				
	Mortar (1:3):-				
	200 mm thick masonry wall in substructure	m2	45.00		
4.4.18	200 mm smooth dressed walling in superstructure	m2	114.00		
4.4.19	150 mm smooth dressed walling in superstructure	m2	64.60		
	Damp-Proof Course: Bituminous Felt Damp-Proof				
	Course as Described:-				
4.4.20	200mm and 150mm Wide under walls	m	35.20		
	Finishes.				
4.4.21	20 mm 1:4 Cement/sand plaster to internal of walls	m2	133.76		
	3 coats (one undercoat and two other coats) of silicon				
4.4.22	based emulsion paint to external wall surfaces as in	m2	105.64		
4.4.22	Crown Permacote ultra guard rain-proof silicone paint	1112	103.04		
	or approved equivalent.				
	3 coats (one undercoat and two other coats) of				
4.4.23	emulsion paint to interior wall surfaces as in Crown	m2	161.88		
7.7.23	Vinyl Matt Emulsion	1112	101.00		
	with Teflon Surface protector or approved equivalent.				
	CLASS O: TIMBER				
	Roof				
4.4.24	50x 100 mm Rafter, ridge piece and tie beams: in	m	140.50		
	trusses	111			
	50x 100 mm: timber beam (GMS posts)	m	10.00		
	100 x 50 mm: Struts and ties	m	95.40		
	200 X 25mm fascia and badge	m	36.00		
	100 x 50 mm Wall plate: fixed to concrete	m	54.00		
4.4.29	75 x 50mm purlins	m	80.00		
4.4.30	28 Gauge Blue prepainted roof sheets including ridge caps	m2	80.00		
	PAGE TOTAL CARRIED FORWARD TO COLLEC	CTION S	неет		

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

	BILL NO. 4.4: GOLOLE WATER SCHEME	ADMINS	STRATIO		G
ITFM	DESCRIPTION	IINIT	OTV	RATE	AMOUNT
	Supply and Fix the Following Pressed Metal Louvre				
	Doors with 100 x 50mm Stiles and Top Rails, 150 x				
	50mm Middle and Bottom Rails With Pressed Metal				
	Infill Louvres and 100 x 50mm Pressed Metal Frames,				
	Including Hinges, Pad Bolts and Tower Bolts, All To				
	Manufacturer's Details, With Three Coats Gloss Paint				
	Complete With Opening Accessories Including Bedding				
	and Pointing Around Frames in Cement Mortar:-				
	una Fointing Arouna Frames in Cement Mortar				
	Panel doors				
	Single leaf flush door size 2100 x 900 mm high (D1),				
	complete with frame, with union three (3) lever door	nr	3.00		
52	lock and any other ironmongery.	111	5.00		
	100mm furnished GMS Posts				
	Supply and install 3.5m GMS Posts complete with				
	connectors and anchors for the concrete base and for the	nr	6.00		
	100mmx150mm timber beam	111	0.00		
	Steel Casement Windows				
	Supply and Fix the Following Standard Section Steel				
	Casement Windows, including 4mm Thick Clear Sheet				
	_				
	Glass glazed to Steel Casements with Putty, Complete				
	with Opening Accessories, including Building in Lugs				
	to Jambs and Head and Water-Proofing and Filling				
	Around Opening With Approved Compound; and				
	Including Burglar-Proofing Fabricated from 12 x				
	12mm Mild Steel Square Bars at 150mm Centres				
	Vertically and 150mm Horizontally and Fixed				
	Internally to Surrounding Wall with 12mm Mild Steel				
	Fish-Tailed Lugs at Maximum 600mm Centres; all				
	Finished with Three Coats Oil Paint:-				
	Window size 1200x 1200mm high with 1 No. fixed and				
4 4 2 4	2 No. side hung opening bottom sashes and with 2 No.	3. T	5 00		
4.4.34	fixed and 1 No. top-hung top ventilators 200mm high	Nr	5.00		
	with permanent ventilator hood over				
	Ceilling				
	12mm Thick Approved Chipboard to BS 2604, Part 2,				
	Density 480-640kgs, Per Square Meter in Sheets Size				
	2400 x 1200mm Fixed to and Including 50 x 50mm				
	Sawn Cypress Grade 2 Battens at 600mm Centres in				
	Both Directions Complete with Gauge Jointing				
	Material, painting & filler				
	Horizontal ceiling fixed to underside of trusses	m2	54.00		
	12mm Cornice 50mm high, plugged	m	47.00		
	comice commingn, pragger	111	1,100		
	PAGE TOTAL CARRIED FORWARD TO COLLEC	CTION S	неет		

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 4.4: GOLOLE WATER SCHEME ADMINSTRATION BUILDING

	BILL NO. 4.4: GOLOLE WATER SCHEME ADMINSTRATION BUILDING						
ITFM	DESCRIPTION ELECTRIFICATION FITTINGS	IINIT	OTV	RATE	AMOUNT		
4.4.37	Lighting points wired in 1.5mm <sup>2</sup> single core pvc insulated copper cables drawn in HG high impact pvc conduits and accessories all concealed in building fabric for one or two way switching,13 Amps socket outlet points wired in 2.5mm <sup>2</sup> single pvc insulated cables enclosed in pvc conduits, accessories and concealed in building fabric to form ring main circuits, 15mmx16mm diameter pure electroylite copper earth rods including 35mm <sup>2</sup> earth lead cable, deep driven to permanent moisture level. Rate to include supply of all necessary materials and installation.	L. Sum	1.00				
	FURNITURE						
4.4.38	Curtains for office for all windows and doors	Set	1.00				
4.4.39	Office tables 2.2x0.9 m	No	1.00				
4.4.40	Standard office chairs	No	8.00				
4.4.41	Desk 2.2x0.9 m with chair and three lockup drawers	No	2.00				
	SANITATION FACILITY						
4.4.42	Provide all materials and construct a 1500mmx900mm pit latrine with depth from floor level at 6m. Stone masonry walling shall be 150mm, 125mm floor slab reinforced with T10 @100mm c/c, Roofing corrugated iron sheets gauge 28 etc All details as per the drawing and as directed by engineer.	L. Sum	1.00				
	PAGE TOTAL CARRIED FORWARD TO COLLEC	CTION SI	HEET				

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 4.4: GOLOLE WATER SCHEME ADMINSTRATION BUILDING

BILL NO. 4.4: GOLOLE WATER SCHEME ADMINSTRATION BUILDING					
TFM	DESCRIPTION	IINIT	OTV	RATE	AMOUNT
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
	Bill Total Carried to Bill Summary	·			

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 5: GOLOLE WATER SUPPLY SCHEME -COLLECTION SHEET

BILL	DESCRIPTION	AMOUNT
No	DESCRIPTION	Kshs
5.1	BOREHOLES AND WELL DEVELOPMENT	
5.2	PIPELINE AND FITTINGS	
5.3	100 m3, 20M ELEVATED TANK	
- F 1	DUIL DINCC	
5.4	BUILDINGS	
-		
-		
	Pill 11 Calab Water Coroll Calabra	
	Bill 11 -Golole Water Supply Scheme	

Collection Sheet; Bill 5

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION UNIT QTY		RATE	AMOUNT	
		UNII	QII	Kshs.	Kshs.
6.1	BOREHOLE/WELL DEVELOPMENT				
0.1					
	The Contractor shall, supply, install, test, commisssion and				
	provide warranties, spares, training of the operators and				
	technicians, 12 months after sale-service for photovoltaic pumping (PVP) systems, without batteries, with diesel generator/national				
	grid interface and remote monitoring to Specifications and proper				
	working order for identified rural community boreholes. The				
	Contractor is required to remove existing water pump systems in				
	each case and undertake borehole service including but not limited				
	to borehole redevelopment, flushing and replacement of sieves. All				
	to the Specifications and as directed by the Engineer.				
	Allow Kes 100,000 for demolitions, relocations and demobilization				
	of existing infrastructure in the borehole site including pumps, solar	Prov.			
6.1.1	panels, tanks, steel structures, cables, buildings, etc Rate to	Sum	1.0	.0   100,000.00	100,000.00
	include transportation for safekeeping as directed by the Water				
	Service Provider/Employer Allow Kes 100,000 for mobilization of borehole camera,				
	conducting a borehole camera investigation. Borehole flushing with				
6.1.2	drilling foam, chemical cleaning, airlifting and water jetting at high	Prov.	1.0	100,000.00	100,000.00
	pressure. Borehole Test pumping for 24 hours of constant flow and	Sum	1.0	100,000.00	100,000.00
	conducting a laboratory water chemical analysis				
	Allow a Kes 250,000provisional sum for redevelopment of				
6.1.3	boreholes. The rates shall be used from existing rates elsewhere in	Prov.	1.0	250,000.00	250,000.00
01110	the BoQ or as provided in the dayworks or as determined by the	Sum	1.0	200,000.00	200,000.00
6.1.4	Engineer.  Allow % for overheads, administration, profits, etc	%			
0.1.4	Supply, install, test and commission 13kW, 17.67Hp Submersible	/0			
	Pump SP 30-15 or approved equivalent with a discharge <b>39m3/hr</b>				
	and <b>70m</b> head pipe complete with Switch box / control unit:				
6.1.5	OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit:	No	1		
	OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge				
	Protection; and Sine-wave filter. The rate to include appropriately				
	sized PVC riser pipes.				
6.1.6	Supply, install, test and commission 6 mm <sup>2</sup> /4 core submersible		68		
	pump flat cable				
6.1.7	Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.	Pair	1		
0.1./	water level sensor complete with interocontroller and alert system.	Fall	1		
6.1.8	Supply, install, test and commission 0.75mm2 sc pvc sheathed	m	137		
0.1.0	copper control cable( brown and black)		1,37		
	PAGE TOTAL CARRIED TO SECTION COLLECTION SHE	ET			

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeiIntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real-time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface, Data Logger Unit with Multiple Interface Support (RS232, RS485, etc.) and Integration with the Servers for Future Expansion.  Supply andf intall the folling Sensosr for Monitoring System  6.1.10 Solar Radiation & Temperature Sensors (Model: Yokogawa MET-100, Hukseflux SR20 or equivalent)  Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)  Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.  Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)	BILL NO. 6.1: GAMURA WATER SUPPLY SCHEME BOREHOLE DEVELOPMENT					
Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeilntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real-time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface, Data Logger Unit with Multiple Interface Support (RS232, RS485, etc.) and Integration with the Servers for Future Expansion.  Supply andf intall the folling Sensor for Monitoring System  Solar Radiation & Temperature Sensors (Model: Yokogawa MET-100, Hukseflux SR20 or equivalent)  Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.  Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)  Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)	ITEM	DESCRIPTION	IINIT	OTV	RATE	AMOUNT
CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeilntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real-time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface, Data Logger Unit with Multiple Interface Support (RS232, RS485, etc.) and Integration with the Servers for Future Expansion.  Supply andf intall the folling Sensosr for Monitoring System 6.1.10 Solar Radiation & Temperature Sensors (Model: Yokogawa MET-100, Hukseflux SR20 or equivalent)  Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)  Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.  Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)			UNII	QII	Kshs.	Kshs.
6.1.10 Solar Radiation & Temperature Sensors (Model: Yokogawa MET- 100, Hukseflux SR20 or equivalent)  6.1.11 Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)  Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0- 700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.  Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)  No. 1.00	6.1.9	CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeiIntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real-time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface, Data Logger Unit with Multiple Interface Support (RS232, RS485,	No.	1		
6.1.10   100, Hukseflux SR20 or equivalent)   LS   1.00   6.1.11   Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)   No.   1.00    Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.   No.   1.00    Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)   No.   1.00						
Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0- 700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.  Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)  No. 1.00	6.1.10	100, Hukseflux SR20 or equivalent)	LS	1.00		
Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.  Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)  No 1  No 1  No 1	6.1.11	or equivalent)	No.	1.00		
6.1.16 (measures dissolved minerals, Model: Yokogawa SC72 or equivalent) No. 1.00	6.1.12	Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL	No	1		
	6.1.16	(measures dissolved minerals, Model: Yokogawa SC72 or	No.	1.00		
Supply, install, test and commission of an array of solar with the following specicifications: 390W 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 29.25 kW on a bright sunny day at midday taking into account the system losses.	6.1.17	following specicifications: 390W 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 29.25 kW on a bright sunny day at midday taking into account the system losses.	No.	56.0		
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 1.2 m above the ground for the low height side and a maximum of 1.5m 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 the tilt angle is not more than 150 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.	6.1.18	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 1.2 m above the ground for the low height side and a maximum of 1.5m 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 the tilt angle is not more than 15o 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.		1		
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

BILL NO. 6.1: GAMURA WATER SUPPLY SCHEME BOREHOLE DEVELOPMENT						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
		01111	QII	Kshs.	Kshs.	
6.1.19	Supply, install, test and commission a 3-phase 50KVA power output diesel generator with 415 V at 50 Hz. It should include a highly corrosion resistant enclosure, control panel and monitoring, fuel tank and circuit breaker protection. The diesel generator shall be suitable for indoor or outdoor installation and shall perform accordingly with the battery inverter and the system design. The diesel generator shall work in a fully automatic manner with the above stated component. A concrete plinth to be constructed for the generator placement plus a shed of steel hollow sections and IT 4 sheets to engineer's approval to house the generator.	Set	1			
6.1.20	Supply, install, test and commission a 15kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 15kW 31A 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			
6.1.21	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			
6.1.22	Supply, install, test and commission Schneider Acti9 Energy Meter 3p kWH 63Amps modibus or approved equivalent for measuring energy generated by the solar PV system complte with IP66 rated enclosure.	No	1			
6.1.23	Supply of materials and construct a Genset/Control room building to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix H	Item	1			
6.1.24	Supply, install, test and commission Cabling 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.	Lot	1			
6.1.25	Supply, install, test and commission Pressure Gauge - 0-25bar	No	2			
6.1.26	Supply, install, test and commission Modem and router for remote monitoring and control. Grundfos SqFlex or equivalent	Set	1			
6.1.27	Supply and install Aerial lightning arrestors at 6m height, fixed to concrete foundations	Set	1			
6.1.28	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			
6.1.29	Supply, install, test and commission Motor ProtectionUnit MP204 or equivalent	No	1			
6.1.31	Allow for 12 months after sale service including training of operators and technicians.	Ls	1			
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

	BILL NO. 6.1: GAMURA WATER SUPPLY SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	LINIT	OTV	RATE	AMOUNT	
		UNII	QTY	Kshs.	Kshs.	
6.1.33	Communication Infrastructure					
6.1.34	Supply and installation of GSM/GPRS/4G communication modules	No.	2			
0.1.54	for boreholes and booster stations	INO.				
6.1.35	Supply and installation of Antennas and signal boosters for remote	No.	2			
	locations	110.				
6.1.36	Supply and installation of Fiber Optic Cable (8-core, single-mode)	m	200			
6.1.37	Supply and installation of Fiber Optic Termination Boxes, Wall-	Set	5			
	mounted, dustproof	Set				
6.1.38	Supply and installation of Fiber Optic Splicing and Accessories	Lot	5			
	Fire Fighting Equipment					
	Supply, install, test and commission 5 Kg Class ABC Powder steel					
6.1.39	cylinder fire extinguisher, c/w pressure	No	1			
	gauge wall mounting steel bracket, operating instructions and					
	accessories, fully charged.					
	Fencing					
	Excavate for post holes, provide all materials and construct chain					
	link fence on concrete posts at 3 m centres all as per drawing					
6.1.40	details, including straining posts at every 10th post and additional	m	120			
0.11.10	posts at corners and botton concrete cover to ground level under the	'''	120			
	fence. Works to include provision and installation of a Double					
	Galvanized Razor Wire protection.					
	Provide all materials and construct 6.0 m wide lockable metal gate					
6.1.41	all to detailed. The gate to have a lockable pedestrian gate 1m wide	Nr	1			
	opening.					
	Borehole pipeworks					
	Borehole cover with extended 1m flanged pipe piece DN50. Note					
6.1.42	the cover should also allow for any other cabling and	Nr	1			
	instrumentation for the borehole.					
	All Flanged 90 deg long elbow DN 50	Nr	3			
	Double Flanged Non-Return Valve 50	Nr	1			
6.1.45	Double Flanged Gate Valve DN 50	Nr	4			
6.1.46	Supply and intsall multi-turn actuators for open-close duty paired	No.	4			
	with actuator controls, and variable speed models.	) T	1			
6.1.47	All flanged equal steel tee 50mmx50mmx50mm	Nr	1			
6.1.48	DN50mm non-slam Double-orifice Air Valve with flanged base,	No.	1			
( 1 40	complete to detail as indicated in the Drawings.	NT.	1			
6.1.49	Double flanged pipe piece DN50 length 1500mm	Nr	1			
6 1 50	Provide, install, test and commission an electromagnetic flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232	NI.	1			
6.1.50	and RS 485 port outputs.	Nr	1			
6 1 51	Double flanged pipe piece DN50 length 1000mm	Nr	2			
6.1.51	All flanged equal 1.8m long extended steel tee	INI				
6.1.52	50mmx50mmx50mm	Nr	2			
6.1.53	All flanged reducing taper 50mmx63mm	Nr	1			
0.1.33	An nanged reducing taper Johnnikoshilli	1/1	1			
		-				
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	prior rottle change to section connection sites			1	I	

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	ОТУ	RATE	AMOUNT
				Kshs.	Kshs.
6.1.54	Flanged HDPE Stub end DN63	Nr	1		
6.1.55	All Flanged 50mmx50mmx50mm tee connection to a surge	Nr	1		
6.1.55	protection vessel PN16	111	1		
	Allow a provision of supply, installation, testing and				
	commissioning of appropriately sized surge vessels or surge control				
6 1 5 6	valve with all manway accesses, flange pipe connections and all	Lump	1		
6.1.36	other appurtenances as per manufacturers recommendations and in	Sum	1		
	accordance with specification and a air buffer vessel to DN 50				
	rising main PN20.				

	WELL HEAD PROTECTION			
6.1.57	Provide materials and construct a 1.2mx0.9m with height not exceeding 2m wellhead protection for Borehole to details as per the drawing and as directed by the Engineer. The rate includes a lockable 5mm thick mild steel access cover, mild steel step irons, provision for conduits and pipeworks, vent provision and base slab 150mm C25/20 reinforced with A142 BRC mesh per borehole.	Item	1	
	DI GE TOTAL GARDIER TO GE GEOGRAPH CONTRACTOR			
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		01111	Q11	Kshs.	Kshs.
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
	Page Total, Page 5				
	Bill Total Carried to Bill Summary				

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	i. The Contactor to maintain uninterrupted continuity of water			13113.	IXSH5.
	supply in existing pipelines				
	ii. Pedestrian and vehicular Access to individual shops / plots				
	to be maintained at all times				
	PIPE AND PIPE FITTINGS				
	Pipe Work - Supply, lay, joint, pressure test, disinfect				
	Supply, handle, and install (rates shall include jointing				
	materials, bolts, gaskets packing jointing glue, welding etc., as				
	applicable) to the following HDPE Pipes to KS ISO 4427 and				
	Steel/ferrous Fittings (valves and pipe specials) in trench as				
	per the specifications. All pipe fittings and valve diameters				
	indicated are Nominal Diameters				
	Pipe trench excavation is to commence from ground level to a				
	minimum depth of 1.5m. Rate to include setting out, general				
	bush clearing, Pipe laying, Pressure				
	testing, disinfection, backfilling with imported bedding and				
	surrround material all as per specifications, drawings and as				
	directed by the engineer				
6.2.1	HDPE Pipe DN50mm PN16	m	3,880.00		
6.2.2	HDPE Pipe DN63mm PN16	m	1,046.00		
6.2.3	HDPE Pipe DN75mm PN16	m	690.00		
6.2.4	HDPE Pipe DN90mm PN16	m	495.00		
6.2.5	HDPE Pipe DN110mm PN16	m	6,457.00		
6.2.6	HDPE Pipe DN160mm PN16	m	1,050.00		
	Bends				
6.2.7	DN 110mm 90°	Nr.	2.00		
6.2.8	DN 110mm 45°	Nr.	2.00		
6.2.9	DN 90mm 90°	Nr.	2.00		
6.2.10	DN 63mm 90°	Nr.	2.00		
6.2.11	DN 50mm 90°	Nr.	2.00		
	Reducers				
6.2.12	DN 110/90 mm	Nr.	1.00		
	DN 90/75 mm	Nr.	-		
	DN 75/63 mm	0	-		
	DN 63/50 mm	Nr.	1.00		
	Junction from tank (JD 1)				
6.2.16	DN 110mm stub end with MS flange back ring	Nr	1.00		
	DN 110x110x110mm equal tee	Nr	1.00		
	DN 100mm flanged sluice valve	Nr	2.00		
	DN 110x50mm Reducer	Nr	1.00		
	50mm offtake (JD 2,7)				
6.2.20	DN 50x50x50mm HDPE fabricated tee	Nr	7.00		
	DN 50mm stub end with MS flange ring	Nr	14.00		
	DN 50mm flanged sluice valve	Nr	7.00		
	110mm offtake (JD 3,4)				
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY -	RATE Kshs.	AMOUNT Kshs.
6.2.23	DN 110x110x50mm HDPE tee	Nr	2.00	1431134	TKSH5.
	DN 50mm stub end with MS flange ring	Nr	4.00		
6.2.25	DN 50mm flanged sluice valve	Nr	2.00		
	110mm offtake (Junction 5)				
6.2.26	DN 90x90x90mm HDPE equal tee	Nr	1.00		
6.2.27	DN90mm stub end with MS flange ring	Nr	2.00		
6.2.28	DN 63mm flanged sluice valve	Nr	2.00		
6.2.29	DN 90x63mm reducer	Nr	1.00		
	DN 63mm stub end with MS flange ring	Nr	2.00		
6.2.31	DN 63mm flanged sluice valve	Nr	-		
	63mm offtake (Junction 6)				
6.2.32	DN 63x63x50mm HDPE fabricated reducing tee	Nr	1.00		
6.2.33	DN50mm stub end with MS flange ring	Nr	4.00		
6.2.34	DN 50mm flanged sluice valve	Nr	2.00		
6.2.35	DN 63x50mm reducer	Nr	-		
	90mm offtake (JD 8)				
6.2.36	DN 90x90x50mm HDPE reducing tee	Nr	1.00		
6.2.37	DN 50mm stub end with MS flange ring	Nr	2.00		
	DN 50mm flanged sluice valve	Nr	1.00		
	90mm offtake (JD 9)				
6.2.39	DN 90x90x63mm HDPE reducing tee	Nr	1.00		
6.2.40	DN 63mm stub end with MS flange ring	Nr	2.00		
6.2.41	DN 63mm flanged sluice valve	Nr	1.00		
	DN 50mm Terminal connection (with washout)				
6.2.42	DN 50x50x50mm HDPE (Reduced or Equal) tee	Nr	2.00		
6.2.43	DN 50mm stub end with MS flange back ring	Nr	8.00		
6.2.44	DN 50mm Flanged gate valve	Nr	4.00		
6.2.45	DN 50mm HDPE flap valve	Nr	2.00		
6.2.46	DN 50mm HDPE PN 16 pipe	m	120.00		
	DN 63mm Terminal connection (with washout)		-		
6.2.47	DN 63x63x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
	DN 50mm stub end with MS flange back ring	Nr	4.00		
	DN 50mm Flanged gate valve	Nr	2.00		
	DN 50mm HDPE flap valve	Nr	1.00		
6.2.51	DN 50mm HDPE PN 16 pipe	m	60.00		
	DN 110mm Terminal connection (with washout)		-		
6.2.52	DN 110x110x90mm HDPE (Reduced or Equal) tee	Nr	3.00		
	DN 90mm stub end with MS flange back ring	Nr	8.00		
	DN 90mm Flanged gate valve	Nr	6.00		
	DN 90mm HDPE flap valve	Nr	3.00		
6.2.56	DN 90mm HDPE PN 16 pipe	m	180.00		
	DN 160mm Terminal connection (with washout)		-		
6.2.57	DN 160x160x90mm HDPE (Reduced or Equal) tee	Nr	1.00		
6.2.58	DN 90mm stub end with MS flange back ring	Nr	4.00		
6.2.59	DN 90mm Flanged gate valve	Nr	2.00		
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

	DILL NO. 0.2: GAMURA WATER SUFFLY SCHE	1 1	<u> </u>	RATE	AMOUNT				
ITEM	DESCRIPTION	UNIT	QTY -	KATE Kshs.	Kshs.				
6.2.60	DN 90mm HDPE flap valve	Nr	1.00	13113.	TKSH5.				
	DN 90mm HDPE PN 16 pipe	m	60.00						
	Air Valve Chamber Fittings (DN110mm) -(1No)								
6.2.62	HDPE Reducer Tee DN 110mm x 110mm x 63mm	Nr	2.00						
	DN63 mm HDPE Stub End with MS Flange	Nr	2.00						
	DN 50mm double flanged sluice valve	Nr	2.00						
6.2.65	DN 50mm double orifice airvalve	Nr	2.00						
0.2.02	Washout (DN 110mm) -(1No)	1 1	-						
6.2.66	HDPE Reducer Tee DN 110mm x 110mm x 90mm	Nr	2.00						
	DN 110mm HDPE stub end with MS Flange	Nr	8.00						
	DN 90 mm HDPE stub end with MS Flange	Nr	4.00						
	DN 90mm sluice valve	Nr	2.00						
	DN 90mm HDPE pipe (PN 12.5)	m	48.00						
6.2.71	Masonry headwall with base slab for Erosion protection at								
0.2.71	discharge point	Ls	2.00						
	Air Valve Chamber Fittings (DN90mm) -(3No)	+ +							
6.2.72	HDPE Reducer Tee DN 90mm x 90mm x 63mm	Nr	3.00						
	DN63 mm HDPE Stub End with MS Flange	Nr	3.00						
	DN 50mm double flanged sluice valve	Nr	3.00						
6.2.75	DN 50mm double orifice airvalve	Nr	3.00						
0.2.73	Washout (DN 90mm) -(3No)	111	3.00						
6.2.76	HDPE Reducer Tee DN 90mm x 90mm x 75mm	Nr	3.00						
	DN 90mm HDPE stub end with MS Flange	Nr	12.00						
	DN 75 mm HDPE stub end with MS Flange	Nr	6.00						
	DN 75 mm sluice valve	Nr	3.00						
	DN 75mm HDPE pipe (PN 12.5)	m	72.00						
6.2.81	Masonry headwall with base slab for Erosion protection at								
0.2.01	discharge point	Ls	Ls	Ls	Ls	Ls	3.00		
	Air Valve Chamber Fittings (DN75mm) -(1No)	+ +							
6.2.82	HDPE Reducer Tee DN 75mm x 75mm x 63mm	Nr	1.00						
	DN63 mm HDPE Stub End with MS Flange	Nr	1.00						
	DN 50mm double flanged sluice valve	Nr	1.00						
	DN 50mm double orifice airvalve	Nr	1.00						
0.2.03	Washout (DN 75mm) -(1No)	111	1.00						
6.2.86	HDPE Equal Tee DN 75mm x 75mm x 75mm	Nr	1.00						
	DN 75mm HDPE stub end with MS Flange	Nr	4.00						
	DN 75 mm HDPE stub end with MS Flange	Nr	2.00						
6.2.89	DN 75 mm sluice valve	Nr	1.00						
6.2.90	DN 75mm HDPE pipe (PN 12.5)	m	24.00						
6.2.91	Masonry headwall with base slab for Erosion protection at								
0.2.71	discharge point	Ls	1.00						
	Air Valve Chamber Fittings (DN 63mm) -(1No)	+ +							
6.2.92	HDPE DN 63 X 63 X 32 mm Reducer Tee (NB: Must be	+ +	+						
0.2.72	electrofussion)	Nr	1.00						
6.2.93	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	1.00						
0.2.73	PAGE TOTAL CARRIED TO SECTION COLLECTION								
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
	HDPE DN 32 mm PN 16 Male adapter	Nr	1.00		
	HDPE DN 32 mm Pegler brass gate valve	Nr	1.00		
	DN 32 mm Stainless Steel Hex Nipple	Nr	1.00		
6.2.97	DN 32 mm Threaded Air Valve	Nr	1.00		
	Washout (DN 63mm) -(2No)				
6.2.98	HDPE DN 63 X 63 X 63 mm Equal Tee (NB: Must be electrofussion)	Nr	2.00		
6.2.99	HDPE DN 63 mm PN 16 short piece pipe (400 mm long)	Nr	2.00		
	HDPE DN 63 mm PN 16 Flanged adapter	Nr	2.00		
6.2.101	HDPE DN 50 mmFlanged Sluice valve	Nr	2.00		
6.2.102	DN 63 mm HDPE pipe (PN 12.5)	m	48.00		
	Masonry headwall with base slab for Erosion protection at discharge point	Ls	2.00		
	Air Valve Chamber Fittings (DN 50mm) -(1No)				
6.2.104	HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: Must be electrofussion)	Nr	1.00		
6.2.105	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
	HDPE DN 32 mm PN 16 Male adapter	Nr	1.00		
	HDPE DN 32 mm Pegler brass gate valve	Nr	1.00		
6.2.108	DN 32 mm Stainless Steel Hex Nipple	Nr	1.00		
	DN 32 mm Threaded Air Valve	Nr	1.00		
	Washout (DN 50mm) -(1No)	1,1	1.00		
6.2.110	HDPE DN 50 X 50 X 50 mm Equal Tee (NB: Must be electrofussion)	Nr	1.00		
6 2 111	HDPE DN 50 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
	HDPE DN 50 mm PN 16 Flanged adapter	Nr	1.00		
	HDPE DN 50 mmFlanged Sluice valve	Nr	1.00		
	DN 50 mm HDPE pipe (PN 12.5)	m	24.00		
	Masonry headwall with base slab for Erosion protection at discharge point	Ls	1.00		
	Water Draw Off Facilities				
6 2 116	Supply of materials and construct a water kiosk to drawing				
0.2.110	and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix C	Nr.	5.00		
	PAGE TOTAL CARRIED TO SECTION COLLECTION	SHEE	r †		

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	DESCRIFTION	UNII	VII	Kshs.	Kshs.
6.2.117	Supply of materials and construct a cattle/Camel trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 440mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.	Item	1.00		
6.2.118	Supply of materials and construct sheep/goat trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 300mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.	Item	1.00		
6.2.119	Supply of materials and construct a sanitation facility as described to detail in Appendix E	Item	1.00		
6.2.120	Allow for supply and installation of institutional/water kiosk/animal watering points connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.  Chambers (Civil Works)	Nr	5.00		
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2174		01111	V.1	Kshs.	Kshs.
	Includes setting up of each type of chamber, excavation in any				
	type of soil including rock, dewatering, shoring, formwork, in				
	situ construction of reinforced concrete chambers, sump,				
	removal of form work, protecting externally with water				
	proofing tanking membrane and internally with two coats				
	each 400 microns coaltar epoxy or equivalent, backfilling,				
	compacting, providing surface box openings and chamber				
	access openings, providing surface boxes, chamber access				
	covers and frames, ladders, slab lifting hooks, vent pipe with				
	insect screen, reinstating the site to its original condition etc.				
	to make each chamber civil works complete in all respects as				
( 2 121	shown on contract drawings.				
	Washouts	Nr.	7.00		
	Air valves	Nr.	8.00		
5.2.123	Valve chambers	Nr.	10.00		
	ANCILLARIES ITEMS				
6.2.124	Supply and fix marker posts along water Main Route, Road				
	Crossings, change of direction, Air valves, Washouts and	No	76.00		
	valve chambers. All in accordance with drawings and specifications				
	Thrust Blocks				
6.2.125	Construction of thrust block at bends and Tee junctions price				
	includes all cost such as excavation, concrete, Re-steel bar,	Nr	10.00		
	the formwork and others as detailed on drawing				
	S				
	Gulley/ River Crossings				
6.2.126	Allow for gulley crossing for HDPE pipe as detailed in the				
	book of drawings - Road and Seasonal river crossing	m	180.00		
	structural details (dwg Nr KE/WSTF/RE/GW/STD/030)				

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

TEEN4	DESCRIPTION	LINIT	OTV	RATE	AMOUNT
ITEM	DESCRIPTION	UNIT	QTY	Kshs.	Kshs.
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	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
	Page Total, Page 5				
	Page Total, Page 6				
	Bill Total Carried to Grand Summary				

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 6.3: GAMURA SCHEME 6m high 150M3 and 20m high 150m3 Steel elevated Tanks

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE (Vob)	AMOUNT
				(Ksh)	(Ksh)
	6m high Elevated Steel Tank of 150m <sup>3</sup>				
	Supply all materials, tools and equipment, erect, and commission a				
	galvanised 150m <sup>3</sup> steel with liner sectional tank of the Braithwaite				
	type/ Alumzine tank with liner or equal approved standard to				
	include a tank tower of 6 & 20 meters, ladder with ladder guard				
	inside ladder, walkway with walkway guard, water level gauge and				
	tank cover, provision of air vent, support rails, overflows, scour,				
	inlets and outlet for 100mm pipes etc., for complete installation.				
	Foundation of tank pads to be 2.3mx2.3m and depth not less than				
	2.6m. RC works to Specifications. Rebars to be T16 @ 150mm c/c				
	and distribution of T12 @150mm c/c top and bottom mesh. 4Nr	No	1.00		
	Column stud size 500mmx500mm with 8Nr T16 and T8 stirrups	110	1.00		
	each with HFSG bolts galvanised 4nr. 25 dia bolts and nuts with				
	washers @600mm long. 4Nr Beam size 400mmx300mm with 8Nr				
	T12 and T8 stirrups each. Concrete Class to be C30/20 using OPC				
	Cement CEM I Grade 42.5. Base plate 10mm, including grouting				
	base plate interface with column stud. Panel plate thickness 3mm				
	all galvanised. Coat tank inside with approved bituminous paint.				
	All tank components to be Hot-dip galvanized to EN ISO 1461.				
	Tank manufacturer to be KEBS certified and ISO certified. All to the approval of the Engineer				
	Provide and install Elevated Steel Tank Fittings to				
	Specifications upto the chambers. All fittings shall have				
	minimum rating of PN16 and flanged. Pipes shall be epoxy				
	coated outside and cement lined inside. Valves shall have a				
	wedge which is fully vulcanized with EPDM rubber compound				
	or approved equivalent.				
	Overflow PIPEWORK				
6.3.1	DN 150 Steel Flanged spigot pipe 2.2m with puddle flange 75mm	Nr	1		
	from spigot end	INI	1		
6.3.2	DN 150 All flanged 90deg short radius bend		1		
6.3.3	DN 150 Double Flanged pipe piece with puddle flange at 600mm,	Nr	1		
	length 1500mm				
6.3.4	DN 150 Flanged spigot 90deg long radius bend	Nr	1		
(25	Scour Pipework	N	1		
6.3.5	DN 150 Flanged spigot 90 deg short radius bend DN 150 double flanged pipe with puddle flange @ 1500mm from	Nr	1		
6.3.6	one end, length 2000mm	Nr	1		
6.3.7	one end, rength 2000mm				
0.5.7	DN 150 All flanged Globe Control valve PN10 with EPDM lining	Nr	1		
	Inlet Pipework				
6.3.8	DN 100 All flanged steel 90 deg long radius bend	Nr	2.00		
	DN 100 Steel double flanged pipe with puddle flange at 1500mm				
	from one end, length 2000mm	Nr	1.00		
6.3.10	DN 100 Flanged ball valve	Nr	1.00		
6.3.11	DN 100 HDPE Stub end Flange	Nr	1		
6.3.12	DN 100 Double flanged pipe piece, length 3000mm	Nr	1		
	Outlet Pipework	-			
6.3.13	DN 150 Flanged special bell mouth	Nr	1		
	DN 150 All Flanged 90 degree short radius bend	Nr	1		
6.3.15	DN 150 Steel double flanged pipe with double puddle flanges at	Nr	1		
	400mm and 1200mm, length 2000mm	- "-	•		<del>                                     </del>
6.3.16	DN 150 Steel flanged spigot pipe with puddle flange 775mm from	Nr	1		1
6217	spigot end, length 1200mm				-
6.3.17	DN 150 All flanged Sluice valve PN16 EPDM encapsulated	Nr	1		-
0.5.18	DN 150 Electromagnetic meter complete with all accessories and installation sundry for operation	Nr	1.00		
6.3.19	DN 150 Double flanged steel pipe, length 1000mm		1		<del> </del>
0.3.19	27, 150 Double hanged seed pipe, length 1000mm		1		<del> </del>
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### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY PROJECT NO.: KE-WSTF-328819-CS-QCBS

	BILL NO. 6.3: GAMURA SCHEME 6m high 150M3 and 20m high 150m3 Steel elevated Tanks						
ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE (Ksh)	AMOUNT (Ksh)		
6.3.20	DN 100 All flanged semi-motorised Globe Control valve PN16	Nr	1	(====)	()		
6 2 21	EPDM encapsulated fitted with actuator DN 100 dismantling steel joint with central flange	NT.	1.00				
	DN 100 dustraining steer joint with central riange  DN 100 double flanged pipe with puddle flange at 400mm from	Nr	1.00				
6.3.22	one end, length 1000mm	Nr	1.00				
6.3.23	DN 100 HDPE Stub end Flange	Nr	1				
	DN150 mm Bellmouth for Overflow	nr	1.00				
6.3.25	DN150 mm x 90° Double flanged bend for overflow	nr	2.00				
	Expansion Joint						
6.3.26	Supply and Intall plastic or rubber waterstop width 400mm with centre bulb	m	60.00				
6.3.27	m	m2	60.00				
	Provide & lay 300mm x 12mm thick Ruberoid layer between wall						
0.5.20	& roof slab.	m	46.00				
	20m high Elevated Steel Tank of 150m <sup>3</sup>						
6.3.29	Supply all materials, tools and equipment, erect, and commission a galvanised 150m³ steel with liner sectional tank of the Braithwaite type/ Alumzinc tank with liner or equal approved standard to include a tank tower of 20 meters, ladder with ladder guard inside ladder, walkway with walkway guard, water level gauge and tank cover, provision of air vent, support rails, overflows, scour, inlets and outlet for 100mm pipes etc., for complete installation. Foundation of tank pads to be 2.3mx2.3m and depth not less than 2.6m. RC works to Specifications. Rebars to be T16 @ 150mm c/c and distribution of T12 @150mm c/c top and bottom mesh. 4Nr Column stud size 500mmx500mm with 8Nr T16 and T8 stirrups each with HFSG bolts galvanised 4nr. 25 dia bolts and nuts with washers @600mm long. 4Nr Beam size 400mmx300mm with 8Nr T12 and T8 stirrups each. Concrete Class to be C30/20 using OPC Cement CEM I Grade 42.5. Base plate 10mm, including grouting base plate interface with column stud. Panel plate thickness 3mm all galvanised. Coat tank inside with approved bituminous paint. All tank components to be Hot-dip galvanized to EN ISO 1461. Tank manufacturer to be KEBS certified and ISO certified. All to the approval of the Engineer	No.	1.00				
6330	Provide and install Elevated Steel Tank Fittings to Specifications upto the chambers. All fittings shall have minimum rating of PN16 and flanged. Pipes shall be epoxy coated outside and cement lined inside. Valves shall have a wedge which is fully vulcanized with EPDM rubber compound or approved equivalent.  INLET PIPE FITTINGS  100 HDPE Stab End Flange	No	2.00				
	100 mm All flanged pipe piece 1m long	No	3.00				
	100mm flanged spigot pipe piece 1m long	No	1.00				
5.5.52	PAGE TOTAL CARRIED TO SECTION COLLECTION SHI	_	1.00				

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 6.3: GAMURA SCHEME 6m high 150M3 and 20m high 150m3 Steel elevated Tanks

BILL NO. 6.3: GAMURA SCHEME 6m high 150M3 and 20m high 150M3 Steel elevated 1 anks						
ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE (Ksh)	AMOUNT (Ksh)	
6.3.33	100mm All flanged sluice valve	No	1.00	( 2 )		
6.3.34	100mm All flanged G.S 90° bend	No	2.00			
6.3.35	100mm All flanged pipe piece 6m long	No	3.00			
6.3.36	100mm All flanged pipe piece 1.2m long	No	1.00			
6.3.37	100mm All flanged Float switch	No	1.00			
	OVERFLOW AND SCOUR					
	100mm All flanged pipe piece 1.8m long	No	1.00			
	100mm Flanged bell mouth	No	2.00			
	100mm All flanged pipe piece 2.2m long	No	1.00			
	100mm All flanged slice valve	No	2.00			
	100mm flanged adaptor	No	1.00			
	100mm flanged spigot pipe piece 1m long	No	1.00			
	100mm All flanged equal Tee	No	1.00			
	100mm All flanged pipe piece 3.5m long 100mm All flanged pipe 6m long	No No	2.00			
	100mm All flanged G.S 90° bend	No	1.00			
	100 HDPE Stab End Flange	No	2.00			
0.5.40	OUTLET	110	2.00			
6.3 49	100mm flanged pipe 6m long	No	1.00			
	100mm Flanged bell mouth	No	1.00			
	100mm All flanged G.S 90° bend	No	1.00			
	100mm All flanged Slice valve	No	2.00			
6.3.53	100 HDPE Stab End Flange	No	2.00			
6.3.54	Supply, install and test diameter 100mm Electromagnetic Water					
	Meter complete with all gasket bolts etc. Rate to include for all	No	1.00			
	associated fittings					
	Testing					
6.3.55	Supply and apply recommended disinfectant and test the tanks.	Nr.	1.00			
	Fencing					
6.3.56	Excavate for post holes, provide all materials and construct chain					
	link fence on concrete posts at 3 m centres all as per drawing details, including straining posts at every 10th post and additional					
	posts at corners and botton concrete cover to ground level under	m	120.00			
	the fence. Works to include provision and installation of a Double					
	Galvanized Razor Wire protection.					
6.3.57	Provide all materials and construct 6.0 m wide lockable metal gate					
0.5.57	all to detailed. The gate to have a lockable pedestrian gate 1m wide	Nr	1.00			
	opening.					
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#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 6.4: GAMURA WATER SCHEME ADMINSTRATION BUILDING ITEM DESCRIPTION RATE **AMOUNT** UNIT OTY Kshs. Kshs. CLASS E: EARTHWORKS Excavation of surfaces to reduce the level, depth not exceeding 6.4.1 m3 11.58 Foundations and bases for depth not exceeding 1500 mm for strip 41.67 6.4.2 **Excavation Ancillaries** 6.4.3 Trimming of excavated surfaces to recieve blinding concrete 56.70 m2 Filling as Described:-Hardcore 300mm thick hand packed well compacted hardcore including 75 16.20 6.4.4 m3 mm thick blinding layer **Anti-Termite treatment** Treat surface of hardcore with approved anti termite solution 6.4.4b 54.00 m2 applied strictly in accordance with the manufacturers instructions. Damp-Proof Membrane 6.4.5 500 Gauge polythene sheeting, laid over hardcore in two layers 54.00 m2 CLASS F: INSITU CONCRETE: Mass Concrete Class 15/20mm :-6.4.6 75mm Thick blinding under strip footing m3 4.05 Vibrated Reinforced Concrete Reinforced Concrete Class 150mm thick ground slab with BRC A142 mesh laid 40 mm from the top finished with red oxide polish. BRC mesh rate shall be m3 8.10 provided separately. 200 mm Thick Class 25/20 concrete for foundtion footiung of dimension 600x600 mm complete with reinfoced column to of 2.50 m3 300mm x 200mm to a depth not less than 1.5m 6.4.9 200x300 Ring Beam concrete 4.62 m3 CLASS G: CONCRETE ANCILLARIES Formwork Formwork - Fair Finish:-6.4.10 Formwork to sides of 300 mm deep ring beam m2 23.10 6.4.11 Vertical Sides of the 150mm ground slab 9.63 m2 6.4.12 Soffit ring beam 200 mm wide 15.40 m2 Reinforcement Provide and Fix High Tensile Steel Reinforcement to SRN 127 Including Cutting, Bending, Propping with Spacers and Tying as Specified :-6.4.13 High yield tensile steel 12mm diameter to ring beam 64.72 kg PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 6.4: GAMURA WATER SCHEME ADMINSTRATION BUILDING ITEM DESCRIPTION RATE **AMOUNT** UNIT OTY Kshs. Kshs. 6.4.14 High yield tensile steel 10mm diameter to strip footing 300.60 kg 6.4.15 High yield tensile steel 8mm diameter links to ring beam kg 101.96 Fabric Reinforcement No. A142 Mesh Size 150 x 150mm Weighing 2.22 kgs Per m<sup>2</sup>, Including Bends, Tying Wire and Distance Blocks:-Fabric reinforcement with minimum 200mm wide side and end 6.4.16 m2. 54.00 laps, laid in bed- A142 mesh at 25mm from the top Walling. Natural Stone Walling, Medium Chisel Dressed, Reinforced with 20 swg Hoop Iron at Every Two Course, and Bedded, Jointed and Pointed in Cement Mortar (1:3):-45.00 200 mm thick masonry wall in substructure m2 6.4.18 200 mm smooth dressed walling in superstructure 114.00 m2 6.4.19 150 mm smooth dressed walling in superstructure m2 64.60 Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-6.4.20 200mm and 150mm Wide under walls 35.20 m Finishes. 6.4.21 20 mm 1:4 Cement/sand plaster to internal of walls 133.76 m2 3 coats (one undercoat and two other coats) of silicon based 105.64 6.4.22 emulsion paint to external wall surfaces as in Crown Permacote m2 ultra guard rain-proof silicone paint or approved equivalent. 3 coats (one undercoat and two other coats) of emulsion paint to 6.4.23 interior wall surfaces as in Crown Vinyl Matt Emulsion 161.88 m2. with Teflon Surface protector or approved equivalent. CLASS O: TIMBER Roof 6.4.24 50x 100 mm Rafter, ridge piece and tie beams: in trusses 140.50 6.4.25 50x 100 mm: timber beam (GMS posts) 10.00 m 6.4.26 100 x 50 mm: Struts and ties 95.40 m 6.4.27 200 X 25mm fascia and badge 36.00 m 6.4.28 100 x 50 mm Wall plate: fixed to concrete 54.00 6.4.29 75 x 50mm purlins 80.00 6.4.30 28 Gauge Blue prepainted roof sheets including ridge caps 80.00 m2 PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET

#### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 6.4: GAMURA WATER SCHEME ADMINSTRATION BUILDING ITEM DESCRIPTION RATE **AMOUNT** UNIT OTY Kshs. Kshs. Supply and Fix the Following Pressed Metal Louvre Doors with 100 x 50mm Stiles and Top Rails, 150 x 50mm Middle and Bottom Rails With Pressed Metal Infill Louvres and 100 x 50mm Pressed Metal Frames, Including Hinges, Pad Bolts and Tower Bolts, All To Manufacturer's Details, With Three Coats Gloss Paint Complete With Opening Accessories Including Bedding and Pointing Around Frames in Cement Mortar:-Panel doors Single leaf flush door size 2100 x 900 mm high (D1), complete 6.4.31 with frame, with union three (3) lever door lock and any other 3.00 nr ironmongery. 100mm furnished GMS Posts Supply and install 3.5m GMS Posts complete with connectors 6.4.32 and anchors for the concrete base and for the 100mmx150mm 6.00 nr timber beam Steel Casement Windows Supply and Fix the Following Standard Section Steel Casement 6.4.33 Window size 1200x 1200mm high with 1 No. fixed and 2 No. 5.00 Ceilling 12mm Thick Approved Chipboard to BS 2604, Part 2, Density 480-640kgs, Per Square Meter in Sheets Size 2400 x 1200mm Fixed to and Including 50 x 50mm Sawn Cypress Grade 2 Battens at 600mm Centres in Both Directions Complete with Gauge Jointing Material, painting & filler 6.4.34 Horizontal ceiling fixed to underside of trusses 54.00 m2 6.4.35 12mm Cornice 50mm high, plugged m 47.00 **ELECTRIFICATION FITTINGS** Lighting points wired in 1.5mm<sup>2</sup> single core pvc insulated copper cables drawn in HG high impact pvc conduits and accessories all concealed in building fabric for one or two way switching,13 Amps socket outlet points wired in 2.5mm<sup>2</sup> single pvc insulated 1.00 6.4.36 cables enclosed in pvc conduits, accessories and concealed in L. Sum building fabric to form ring main circuits, 15mmx16mm diameter pure electroylite copper earth rods including 35mm<sup>2</sup> earth lead cable, deep driven to permanent moisture level. Rate to include supply of all necessary materials and installation. FURNITURE 6.4.37 Curtains for office for all windows and doors 1.00 Set 6.4.38 Office tables 2.2x0.9 m No 1.00 6.4.39 Standard office chairs No 8.00 6.4.40 Desk 2.2x0.9 m with chair and three lockup drawers 2.00 No SANITATION FACILITY Provide all materials and construct a 1500mmx900mm pit latrine with depth from floor level at 6m. Stone masonry walling shall be 6.4.41 150mm, 125mm floor slab reinforced with T10 @100mm c/c, L. Sum 1.00 Roofing corrugated iron sheets gauge 28 etc.. All details as per the drawing and as directed by engineer. PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET

### CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER - BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 6.4: GAMURA WATER SCHEME ADMINSTRATION BUILDING ITEM DESCRIPTION RATE **AMOUNT** UNIT OTY Kshs. Kshs. Page Total, Page 1 Page Total, Page 2 Page Total, Page 3 Bill Total Carried to Bill Summary

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

## **COUNTY** PROJECT NO.: KE-WSTF-328819-CS-QCBS **BILL NO. 6: GAMURA WATER SUPPLY SCHEME** DESCRIPTION BILL **AMOUNT** No Kshs BOREHOLES AND WELL DEVELOPMENT 6.1 PIPELINE AND FITTINGS 6.2 TANKS (20m high 150m3 Elevated Tank and 6m high 150m3 Elevated Tank) 6.3 BUILDINGS 6.4 Bill 13 -Gamura Water Supply Scheme

LO	Γ III:MALOBOT, ILLERET, MARIME, GOLOLE AND	GAM	URA SCH	EMES IN N	MARSABIT
Item	Description	Unit	Naminal		Amount (Ksh)
No.	•	Unit	Quantity	(Ksh)	Amount (KSII)
	labour - unskilled	hr.	1		
	labour - semi-skilled	hr.	1		
	drillers - jackhammers		1		
	drillers – air tracks	hr.	1		
	drillers - rotary crawler over 150 mm		1		
	powder-men	hr.	1		
	carpenters		1		
	reinforcing steel fixers	hr.	1		
8.1.9	concrete workers		1		
8.1.10	masons, concreters, bricklayers	hr.	1		
8.1.11	plasterers		1		
8.1.12	painters	hr.	1		
8.1.13	plumbers	hr.	1		
8.1.14	electricians	hr.	1		
8.1.15	welders	hr.	1		
8.1.16	fitters	hr.	1		
8.1.17	riggers	hr.	1		
8.1.18	truck drivers - 3 t to 6 t	hr.	1		
8.1.19	truck drivers - 15 t	hr.	1		
8.1.20	truck drivers - 50 t	hr.	1		
8.1.21	tractors operators - heavy (above 200 kw)	hr.	1		
8.1.22	tractors operators - light (under 200 kw)	hr.	1		
8.1.23	front-end loader operators - 2 m3 to 3 m3	hr.	1		
8.1.24	front-end loader operators - 5 m3 to 10m3	0	1		
8.1.25	shovel operator - 2 m3	hr.	1		
8.1.26	shovel operator - 5 m3	hr.	1		
8.1.27	roller drivers	hr.	1		
8.1.28	mobile crane operators	hr.	1		

LO	LOT III:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT						
Item No.	Description	Unit	Nominal Quantity	Unit Rate (Ksh)	Amount (Ksh)		
8.1.29	compressor & pump attendants	hr.	1				
8.1.30	crusher / screening plant operator	hr.	1				
8.1.31	batch mixer		1				
8.1.32	plant operator	hr.	1				
8.1.33	oiler, greasers	hr.	1				
8.1.34	mechanics - up to 10 years experience	hr.	1				
8.1.35	mechanics - over 10 years experience	hr.	1				
	foreman and gangers working with gang	hr.	1				
	ordinary Portland cement - bagged	t	1				
8.2.2	ordinary Portland cement - bulk	t	1				
8.2.3	fine aggregate	$m^3$	1				
8.2.4	coarse aggregate	m <sup>3</sup>	1				
8.2.5	concrete mix at central batch plant characteristic strength 20 MPa, slump 80mm and maximum aggregate size 20mm	m <sup>3</sup>	1				
	reinforcing steel	t	1				
	reinforcing fabric	t	1				
	structural steel	t	1				
8.2.9	explosive - gelatine	kg	1				
8.2.10	explosive - ammonium nitrate	kg	1				
8.2.11	timber - primary hardwood	m <sup>3</sup>	1				
8.2.12	timber - secondary hardwood	m <sup>3</sup>	1				
8.2.13	waterproof plywood - 7.5 mm	m <sup>3</sup>	1				
8.2.14	waterproof plywood - 15 mm	m <sup>3</sup>	1				
8.2.15	waterproof plywood - 20 mm	m <sup>3</sup>	1				
8.2.16	Supply and Installation of Borehole casing 160mm to 200mm	m	1				
	Supply and Installation of Gravel pack	m	1				
8.3.1	excavator, up to and including 1 m <sup>3</sup>	hr.	1				
8.3.2	excavator, 1 m <sup>3</sup> to 2 m <sup>3</sup>	hr.	1				
8.3.3	excavator, over 2 m <sup>3</sup>	hr.	1				
8.3.4	face shovel, over 2 m <sup>3</sup>	hr.	1				
J.J	1000 010 . VII 0 . VI D III	L ·	_				

LO	Γ III:MALOBOT, ILLERET, MARIME, GOLOLE AND	GAM	URA SCH	EMES IN N	MARSABIT
Item No.	Description	Unit	Nominal Quantity	Unit Rate (Ksh)	Amount (Ksh)
	dragline, over 2 m <sup>3</sup>	hr.	1	, )	
	tractor, up to and including 150 kW	hr.	1		
	tractor, 200 kW tractor, 250 kW	hr. hr.	1		
	wheel loader, up to 2 m <sup>3</sup>	hr.	1		
	wheel loader, 2 m <sup>3</sup> to 5 m <sup>3</sup>	hr.	1		
8.3.11	grader, up to 3.7 m blade	hr.	1		
8.3.12	grader, over 3.7 m blade	hr.	1		
8.3.13	rear dump truck, 5 to 10 t	hr.	1		
8.3.14	smooth vibratory roller, 10 t	hr.	1		
8.3.15	rear dump truck, 10 to 15 t	hr.	1		
8.3.16	rear dump truck, 15 to 25 t	hr.	1		
8.3.17	rear dump truck, 10 to 15 t	hr.	1		
8.3.18	lorry - ordinary, up to and including 6 t	hr.	1		
8.3.19	lorry - ordinary, 6 to 10 t	hr.	1		
8.3.20	lorry - tipper, up to and including 6 t	hr.	1		
8.3.21	lorry - tipper, 6 to 10 t	hr.	1		
8.3.22	mobile crane, up to and including 5 t	hr.	1		
8.3.23	mobile crane, 5 to 10 t	hr.	1		
8.3.24	mobile crane, 10 to 15 t	hr.	1		
8.3.25	mobile crane, 15 to 25 t	hr.	1		
8.3.26	mobile crane, over 25 t	hr.	1		
8.3.27	derrick crane w. jib, up to and incl. 5 t	hr.	1		
8.3.28	grout pump, piston type	hr.	1		
	grout pump, diaphragm type	hr.	1		
8.3.30	concrete pump, including supply pipeline, 15 $\mbox{m}^3/\mbox{h}$ to 20 $\mbox{m}^3/\mbox{h}$	hr.	1		

LO	LOT III:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT					
Item	Description	  Unit	Nominal	Unit Rate	Amount (Ksh)	
No.	•		Quantity	(Ksh)		
8.3.31	portable pump including hoses, strainer, etc., 50 mm delivery	hr.	1			
8.3.32	portable pump including hoses, strainer, etc., 100 mm delivery	hr.	1			
8.3.33	portable pump including hoses, strainer, etc., 150 mm delivery	hr.	1			
8.3.34	pump, portable, including hoses, strainer, etc., over 150 mm delivery	hr.	1			
8.3.35	shotcrete machine, up to and including 0.5 m3	hr.	1			
8.3.36	shotcrete machine, over 0.5 m3	hr.	1			
8.3.37	concrete vibrators, immersion type, up to and including 75 mm	hr.	1			
8.3.38	concrete vibrators, immersion type, over 75 mm	hr.	1			
8.3.39	concrete mixer, up to 1 m3	hr.	1			
8.3.40	transit mixer 5 to 6 m3	hr.	1			
8.3.41	portable compressor, up to and including 7 m3/min	hr.	1			
8.3.42	portable compressor, over 7 m3/min	hr.	1			
8.3.43	jack hammer	hr.	1			
8.3.44	track drill, 35 to 89 mm	hr.	1			
8.3.45	track drill, 64 to 115 mm	hr.	1			
8.3.46	welding and cutting set, oxy-acetylene	hr.	1			
8.3.47	welding and cutting set - electric	hr.	1			
8.3.48	generator set, up to 5 kVA	hr.	1			
8.3.49	generator set, 5 to 20 kVA	hr.	1			
8.3.50	generator set, over 20 kVA	hr.	1			

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

### PROJECT NO.: KE-WSTF-328819-CS-QCBS

## BILL: LOTURTUR WATER SUPPLY SCHEME

	APPENDIX A: PROVIDE, FURNISH AND MAINTAIN THE R.E.'S OFFICE								
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT				
				(KSHS)	(KSHS)				
	1. ENGINEER'S MAIN OFFICE AND FURNITURE								
A01	Executive desk 2.2x0.9 m with six lockup drawers		1						
A02	Desk 2.2x0.9 m with chair and three lockup drawers	No	3						
A03	Office tables 2.2x0.9 m		2						
A04	Executive Swivel orthopedic chair adjustable height	No	1						
A05	Standard office chairs		5						
A06	Typist's desk	No	1						
A07	Typist's chair		1						
A08	Medium size steel filing cabinet, 2 lockable drawers	No.	2						
A09	Bookshelf, 1.5 m wide 3 shelves (for box files) sliding glass door	No.	1						
A10	Conference table with 10 chairs	No.	1						
A11	Ordinary 2 hole paper punch	No	1						
A12	Heavy duty 2 hole paper punch	No	1						
	A4 Wi-Fi Duplex All-in-One Colour Printer with ADF, Print, Scan,								
	Copy, Compact integrated tank design, Print speeds up to 15.5ipm for								
	black and 8.5ipm for colour, Auto-Duplex printing, ADF capability,								
	Ethernet & Wi-Fi Direct, Seamless setup with Epson Smart Panel,								
A13	Borderless Printing up to A4 size, Spill-free ink refilling	No	1						
	A3/A4 Wi-Fi Duplex All-in-One Ink Printer, print speed of up to 25.0								
	ipm, prints up to A3+ (for simplex), Automatic duplex printing, Ultra-								
	high page yield of 7,500 pages (black) and 6,000 pages (colour), Wi-Fi,								
	Wi-Fi Direct, Ethernet, Connect (iPrint, Email Print and Remote Print								
	Driver, Scan to Cloud) preferably Epson EcoTank L15150 or approved								
A14	equivalent.	No	1						
A15	Filing Tray - set of 3no.	set	3						
A16	Drinking water dispenser, hot/cold	No	5						
A17	Table - 0.8 m <sup>2</sup> surface area	No	1						
A18	Cupboard, 0.15 m <sup>3</sup> , lockable	No	1						
A19	Reams of A4 photocopying paper	No	70						
A20	Reams of A3 photocopying paper	0	50						
A21	Stapling machine Offrex size 50 or similar with 5000 staples	No	3						
A22	Heavy duty punch and spiral binder, IBICO AG or similar approved	No	2						
	Appendix A Bill Item Collection Page to office equipment								

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

	APPENDIX B: BOREBOLE PUMP AND GUAR	CD HOUS	E BUILDI	INGS	
TEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
B.1	PROPOSED PUMP HOUSE & CONTROL ROOM				
	EARTHWORKS				
	GENERAL EXCAVATION				
B.1.1	Excavate 200mm top soil and dispose	m2	15.0		
B.1.2	Excavate all materials max. depth 0.2 - 3 m for disposal		15.0		
	FILLING AND COMPACTION				
3.1.3	300 mm thick hardcore bed, handpacked, well watered and well comapcted in 100 mm layers.		30.0		
	IN-SITU CONCRETE				
B.1.4	Provide and place Concrete Grade: 15/20		1.0		
B.1.5	Provide and place Concrete Grade: 25/20	m3	4.0		
	CONCRETE ANCILLARIES				
	FORMWORK: FAIR FINISH				
B.1.6	Fair finish to vertical sides of floor slab, plinth and ring beam	m <sup>2</sup>	5.4		
	REINFORCEMENT				
	High yield steel bars to SSRN 126 or 127				
B.1.7	Diameter: 10 mm	kg	217.0		
B.1.8	Diameter: 12 mm and above	kg	192.0		
B.1.9	Fabric Fabric Reinfrocement BRC A-142	m2	37.3		
	TIMBER				
	Fittings and fastenings				
B.1.10	Bolts	nr	50.0		
	Roofing with cypress	0			
B.1.11	50x 100 mm Rafter, ridge piece and tie beams: in trusses	m	54.6		
	100 x 50 mm: Struts and ties; Wall plate fixed to concrete	m	39.0		
B.1.13	200 X 25mm fascia and badge	m	25.2		
B.1.14	75 x 50mm purlins	m	64.0		
	BRICKWORK, BLOCKWORK & MASONRY				
	Natural Stone Walling, Medium Chisel Dressed, Reinforced with 20 swg Hoop Iron at Every Two Course, and Bedded, Jointed and Pointed in Cement Mortar (1:3):-				
B.1.16	200 mm thick masonry wall in substructure		24.0		1
B.1.17	200 mm smooth dressed walling in superstructure	m2	90.0		
B.1.18	150 mm smooth dressed walling in superstructure	m2	-		
	Blockwork ancillaries				
B.1.19	Damp proof course.	m	21.0		
B.1.20	Single layer of 500 gauge polythene sheeting laid on blinded hardcore with 150mm side laps to receive concrete	m2	19.0		
	PAGE TOTAL CARRIED FORWARD TO COLLECTION S	SHEET			

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS							
TEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.		
	Anti-Termite treatment						
	Treat surface of hardcore with approved anti termite solution						
3.1.21	applied strictly in accordance with the manufacturers	m2	19.0				
	instructions.						
	PAINTING						
	3 coats (one undercoat and two other coats) of silicon based						
3.1.22	emulsion paint to external wall surfaces as in Crown Permacote	m2	72.0				
	ultra guard rain-proof silicone paint or approved equivalent.						
	3 coats (one undercoat and two other coats) of emulsion paint to						
3.1.23	interior wall surfaces as in Crown Vinyl Matt Emulsion	m2	54.0				
	with Teflon Surface protector or approved equivalent.						
	Rendering with proprietary mix mortar	İ			1		
	Internal 20mm mortar rendering, cement/sand 1:4 painted 'soft				†		
B.1.24	white" to Ks 10 B 15 or similar	m2	54.0				
	MISCELLANEOUS WORK						
	Drainage to structures above ground						
B.1.25	Gutters inclusive of all the fittings	m	5.0				
B.1.26	Downpipes inclusive of all the fittings	m	4.0				
	Windows		1				
	Supply and Fix the Following Standard Section Steel Casement						
	Windows, including 4mm Thick Clear Sheet Glass glazed to						
	Steel Casements with Putty, Complete with Opening						
	Accessories, including Building in Lugs to Jambs and Head and						
	Water-Proofing and Filling Around Opening With Approved						
	Compound; and Including Burglar-Proofing Fabricated from 12						
	x 12mm Mild Steel Square Bars at 150mm Centres Vertically						
	•						
	and 150mm Horizontally and Fixed Internally to Surrounding						
	Wall with 12mm Mild Steel Fish-Tailed Lugs at Maximum 600mm Centres; all Finished with Three Coats Oil Paint:-						
	1000mm Centres; all Finished with Three Coals Oil Paint:-						
	Provide and install 1200x900 Window as specified in the						
B.1.27	drawing	nr	1.0				
5 4 60	Provide and install 1800x900 window as specified in the		1.0				
B.1.28	drawing	nr	1.0				
	Doors						
B.1.29	Mild steel, external Single leaf, standard, 900mm wide	nr	1.0				
3.1.30	Ditto, 2000mm wide double leaf door.	nr	1.0		1		
	Other						
D 1 21	Louvered Precast concrete vent blocks of approved type by	2	20.0				
B.1.31	Engineer	m2	20.0				
	PAGE TOTAL CARRIED FORWARD TO COLLECTION S	HEET					

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

	APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS						
ITEM	DESCRIPTION	TINITE	OTV	RATE	AMOUNT		
ITEM		UNIT	QTY	Kshs.	Kshs.		
	CEILING						
	12mm Thick Approved Chipboard to BS 2604, Part 2,						
	Density 480-640kgs, Per Square Meter in Sheets Size 2400 x						
	1200mm Fixed to and Including 50 x 50mm Sawn Cypress						
	Grade 2 Battens at 600mm Centres in Both Directions						
	Complete with Gauge Jointing Material, painting & filler						
B.1.32	Horizontal ceiling fixed to underside of trusses	m2	18.0				
B.1.33	12mm Cornice 50mm high, plugged	m	-				
1	Provide for supply and installation of all electrical fittings in the						
B.1.33	house as directed by the Engineer. Include for complete wiring,	Ls	1.0				
D.1.33	installation of consumer meters, power sockets, lighting systems	LS	1.0				
	and installation of solar powered grid of 1kW.						
B.2	GUARD HOUSE						
	CLASS E: EARTHWORKS						
B.2.1	Excavation of surfaces to reduce the level, depth not exceeding	m3	16.0				
D.2.1	1m	1113	10.0				
B.2.2	Foundations and bases for depth not exceeding 1500 mm for	m3	8.0				
D.2.2	strip footing	1113	0.0				
	Excavation Ancillaries						
B.2.3	Trimming of excavated surfaces to recieve blinding concrete	m2	16.0				
	Filling as Described:-						
	Hardcore						
B.2.4	300mm thick hand packed well compacted hardcore including 75	m3	16.0				
D.2.4	mm thick blinding layer	1113	10.0				
	Anti-Termite treatment						
	Treat surface of hardcore with approved anti termite solution						
B.2.4b	applied strictly in accordance with the manufacturers	m2	16.0				
	instructions.						
	Damp-Proof Membrane						
B.2.5	500 Gauge polythene sheeting, laid over hardcore in two layers	m2	16.0				
	CLASS F: INSITU CONCRETE:						
	Mass Concrete Class 15/20mm :-						
B.2.6	75mm Thick blinding for floor and strip footing	m3	1.0				
	Vibrated Reinforced Concrete Reinforced Concrete Class						
	25/20mm:-						
	150mm thick ground with BRC A142 mesh laid 40 mm from the						
B.2.7	top finished with red oxide polish. BRC mesh rate shall be	m3	2.5				
	provided separately.						
	200 mm Thick Class 25/20 concrete for foundtion footiung of						
B.2.8	dimension 600x600 mm complete with reinfoced column to of	m3	2.4				
	300mm x 200mm to a depth not less than 1.5m						
	PAGE TOTAL CARRIED FORWARD TO COLLECTION S	HEET					

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS						
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.	
B.2.9	200x400 Ring Beam concrete	m3	1.4	IXSHS.	IXSIIS.	
B.2.10	150mm thick RC roof slab slanted at 22.5 <sup>0</sup> .	m3	3.2		+	
<b>D.2.10</b>	Allow for connection to the rising main from the generator room	ms	3.2		+	
	to the staff house. The fittings shall be DN20mm includes a float					
B.2.45	valve to the plastic tank, GI pipes, elbows, unions, tees, nipples,	Ls	1.0			
	pegler isolating gate valves etc all to PN25.					
	CLASS G: CONCRETE ANCILLARIES					
	Formwork					
	Formwork - Fair Finish:-					
3.2.10	Formwork to sides of 300 mm deep ring beam	m2	12.0			
B.2.11	Vertical Sides of the 150mm ground and roof slab	m2	3.0			
B.2.12	Soffit ring beam 200 mm wide and roof slab	m2	16.0			
	Reinforcement					
	Provide and Fix High Tensile Steel Reinforcement to SRN 127					
	Including Cutting, Bending, Propping with Spacers and Tying as					
	Specified:-					
B.2.13	High yield tensile steel 12mm diameter to ring beam	kg	91.0			
3.2.14	High yield tensile steel 10mm diameter to strip footing	kg	425.0			
	Fabric Reinforcement No. A142 Mesh Size 150 x 150mm					
	Weighing 2.22 kgs Per m <sup>2</sup> , Including Bends, Tying Wire and					
	Distance Blocks:-					
B.2.16	Fabric reinforcement with minimum 200mm wide side and end	m2	9.0			
D.2.10	laps, laid in bed- A142 mesh at 25mm from the top	1112	9.0			
	Walling.					
	Natural Stone Walling, Medium Chisel Dressed, Reinforced					
	with 20 swg Hoop Iron at Every Two Course, and Bedded,					
2.0.17	Jointed and Pointed in Cement Mortar (1:3):-	2	10.0			
3.2.17	200 mm thick masonry wall in substructure	m2	19.0			
3.2.18	200 mm smooth dressed walling in superstructure	m2	76.0			
	Damp-Proof Course: Bituminous Felt Damp-Proof Course as					
B.2.20	Described:- 200mm and 150mm Wide under walls		19.0		+	
D.Z.ZU		m	19.0		+	
2 2 21	Finishes.	2	7(0			
3.2.21	20 mm 1:4 Cement/sand plaster to internal of walls	m2	76.0			
ຊາາ	3 coats (one undercoat and two other coats) of silicon based emulsion paint to external wall surfaces as in Crown Permacote	m2	76.0			
B.2.22	ultra guard rain-proof silicone paint or approved equivalent.	11112	/0.0			
	3 coats (one undercoat and two other coats) of emulsion paint to				+	
B.2.23	interior wall surfaces as in Crown Vinyl Matt Emulsion	m2	76.0			
2.23	with Teflon Surface protector or approved equivalent.		, 0.0			
	,					
	PAGE TOTAL CARRIED FORWARD TO COLLECTION S	HEET			1	

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

	APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT		
ITEM		UNII		Kshs.	Kshs.		
	Panel doors						
B.2.31	Single steel door size 2100 x 900 mm high (D1), complete with 50x50x3mm fixed angle frame, 3mm thick chekered plate build into the panel with union three (3) lever steel door lock, 3x200mm lockable tower bolts	Nr	3.0				
	Steel Casement Windows						
	Supply and Fix the Following Standard Section Steel Casement Windows, including 4mm Thick Clear Sheet Glass glazed to Steel Casements with Putty, Complete with Opening Accessories, including Building in Lugs to Jambs and Head and Water-Proofing and Filling Around Opening With Approved Compound; and Including Burglar-Proofing Fabricated from 12 x 12mm Mild Steel Square Bars at 150mm Centres Vertically and 150mm Horizontally and Fixed Internally to Surrounding Wall with 12mm Mild Steel Fish-Tailed Lugs at Maximum						
	600mm Centres; all Finished with Three Coats Oil Paint:-						
B.2.33	Window size 1000x 1200mm high with 2 No. side hung opening bottom sashes and with 2 No. fixed and 1 No. top-hung top ventilators 200mm high with permanent ventilator hood over	Nr	3.0				
	FURNITURE						
B.2.37	Curtains for guard house for all windows and doors	Set	1.0				
B.2.38	Office tables 0.9x0.6 m	No	1.0				
B.2.39	Vinyl padded seat with a powder-coated square tube frame	No	1.0				
B.2.40	Beds single 4x6 with inner spring mattresses and 2 pairs of beddings	Ls	1.0				
	ELECTRIFICATION FITTINGS						
B.2.36	Lighting points wired in 1.5mm <sup>2</sup> single core pvc insulated copper cables drawn in HG high impact pvc conduits and accessories all concealed in building fabric for one or two way switching,13 Amps socket outlet points wired in 2.5mm <sup>2</sup> single pvc insulated cables enclosed in pvc conduits, accessories and concealed in building fabric to form ring main circuits, 15mmx16mm diameter pure electroylite copper earth rods including 35mm <sup>2</sup> earth lead cable, deep driven to permanent moisture level. Rate to include supply of all necessary materials and installation.	L. Sum	1.0				
					1		
					1		
					1		
					1		
					1		
	PAGE TOTAL CARRIED FORWARD TO COLLECTION S	HEET					

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

	APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS							
TEEN	DESCRIPTION	LINIT	OTV	RATE	AMOUNT			
ITEM	DESCRIPTION	UNIT	QTY	Kshs.	Kshs.			
	Water and Sanitation Facilities							
B.2.41	Wastewater system to include internal plumbing services, fittings and fixtures within the building, inspection chambers and associated pipework as directed by the engineer. Rate to include 5 m3 septic tank and connection.	Sum	1.0					
B.2.42	Sanitary appliances and fittings include: Twyfords equivalent glazed W.C suit complete, wash hand basin complete, bowl urinal complete with automatic cistern (1 Person), recessed toilet paper roll holder, Recessed soap dish, Soap dispenser	nr	1.0					
B.2.43	Supply and installed 5,000 litres plastic water container as manufactured by KENTANK (K) LTD or equally approved by the Engineer .	Nr	1.0					
	PAGE TOTAL CARRIED FORWARD TO COLLECTION S	SHEET						
	Page Total, Page 1							
	Page Total, Page 2							
	Page Total, Page 3							
	Page Total, Page 4							
	Page Total, Page 5							
	Page Total, Page 6							
	Bill Total Carried to Grand Summary							

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### ADDENDIY C WATED KIOSK

APPENDIX C WATER KIOSK							
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount (Kshs)		
~.							
C1	CLASS E: EARTHWORKS						
	<u>Excavations</u>						
G1 1	Rates for excavation to include for disposal	3	0.0				
C1.1	Excavations to reduced levels and cart away	m <sup>3</sup>	9.0				
C1.2	Excavate foundation trenches n.e 1500mm deep from stripped level		18.0				
	Filling						
	Filling to completed structures including compaction as specified.						
C1.3	300 mm thick hardcore bed, handpacked, well watered and well comapcted in 100 mm layers with 50mm thick quarry dust/murram binding on a hardcore bed.		5.4				
C1.4	Return fill and ram - make up level	$m^3$	3.6				
C1.5	Supply and application of Termidor 96 S pesticide treatment for the control of termites to the soil beneath the foundations, executed by a Pesticides Control Products Board licenced professional pest control operator, with a ten year guarantee to surfaces of excavations	m <sup>2</sup>	18.0				
	Approved damp proof course (bituminous)						
C1.6	500g polyethylene damp proof membrane laid with 300 end laps under the floor slab, on hardcore to engineers approval	m	12.0				
C1.7	Single layer of 100 gauge polythene sheeting on blinded hardcore with 150 mm side laps to receive concrete	m <sup>2</sup>	18.0				
	CLASS F: CONCRETE WORK						
	Provide and Place Mass concrete Class 15						
C1.8	75mm Concrete 1:4:8 Blinding	m <sup>3</sup>	1.4				
	Provide and Place structural concrete Class 25						
C1.9	Strip foundation	0	2.3				
C1.10	Floor and roof slab	m <sup>3</sup>	8.8				
C1.11	Bases, Column and Beams	m <sup>3</sup>	5.6				
	Provide and place paving slab around the water kiosk.  Rate to include levelling and compacting the surface.						
C1.12	Provide and place 600 x 600 x 50 mm thick grey precast concrete paving slabs on 75 mm thick sand bed.	m <sup>2</sup>	10.4				
	Page Total carried to the Collection Sheet						

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### ADDENDIY C WATED KINSK

APPENDIX C WATER KIOSK							
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount (Kshs)		
	CLASS G: CONCRETE ANCILLARIES			/	,		
	REINFORCEMENTS						
	Rates to include for binding wire						
	High yield steel bars to BS 4449						
C1.13	High yield bars (to BS4449) Diameter: 8mm	kg	85.0				
C1.14	High yield bars( to BS4449) Diameter 10mm	kg	228.3				
C1.15	High yield bars(to BS4449) Diameter 12mm	kg	218.1				
	Steel fabric mesh reinforcement to B.S. 4483						
	BRC mesh fabric reinforcement ref A142 (weighing						
C1.16	2.2kg/m <sup>2</sup> ) laid in Floor slab (measured net-no allowance	$m^2$	18.0				
	made for lamps)	""					
	FORMWORK						
	Sawn formwork (fair finish) to: -						
C1.17	Vertical and soffits of slabs	m <sup>2</sup>	11.8				
C1.17		m	11.6				
C1.18	Vertical sides and soffit of beams, columns and fetching	$m^2$	44.2				
	bay						
	CONCRETE A COEGGORIEG						
	CONCRETE ACCESSORIES						
C1.19	40mm x 30mm drainage groves in concrete to detail	m	13.8				
	drawings						
C1.20	Cement screed on the top surface of roof slab to minimum	$m^2$	11.8				
	fall gradient of 1.50						
C1.21	Bituminous felt cover on the surface of the cement screed	$m^2$	11.8				
	on the roof slab.Allow for 300mm lapping.						
C1.22	Allow for 25mm nominal core bore class B G1 pipe	m	4.0				
	through inserts in floor slab, roof slab and window sill						
	CLASS I: PIPEWORK - PIPES						
	Drainage system						
C1.23	110mm OD HDPE pipe class PN 10 in trench, depth n.e	m	10.0				
	1.5m						
	Para I Darilla a Cara la ca						
	Piped Building Services						
	Portable water supply installation to detail drawings for Water Kiosk						
	Provide, test and commission pipework fittings to connect						
	to the existing system with the kiosk as shown in the						
C1.24	drawing including the plastic tank, 3 dispensing outlets	Ls	1.0				
01.2.	and integration with the water dispensing ATM and as		110				
	directed by the Engineer.						
	Supply and installed 5,000 litres plastic water tank as						
	manufactured by KENTANK (K) LTD or equally						
C1.25	approved by the Engineer . The tank shall be coated with	Nr	1.0				
01.23	epoxy coating outside prior enclosing in a masonry	1,11	1.0				
	walling.						
	Provide, install, test and commission PN25 Floater valve						
C1.26	for the plastic tank complete with all installation sundry	Nr	1.0				
C1.27	Foldable ladder 4m high	Nr	1.0				
C1.27	Page Total carried to the Collection Sheet	111	1.0				
	11 ago 10tai carriou to the Concetton Sheet						

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### APPENDIX C WATER KIOSK

APPENDIX C WATER KIOSK							
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount (Kshs)		
	Soak Away Pit			(=====)	(=====)		
C1.28	Construct soak pit to details as provided in the drawings complete with associated drainage details and as directed by the Engineer. Hardcore filled soak pit size 1500 mm internal dia and 2400 mm deep c/w 100 mm diameter HDPE drain pipe and plastic sheet including excavation and backfill and disposal. Gulley trap chamber internal size 300 x 300 x 300 mm high with 150 mm thick sides and rebated to edge for and including 500 x 400 x 50 mm thick precast concrete cover including bedding UPVC gulley, dishing base of gulley, all necessary formwork, excavation and disposal	Ls	1.0				
	CLASS U: MASONRY NATURAL STONE						
	Approved stone walling of minimum compressive strength of 10N/mm2 bedded in cement sand (1:3) mortar reinforced with and including gauge 12 hoop soft wire gauge hoop iron at every alternate course. Keying to be done on exterior wall surfaces for the superstructure						
C1.29.1	225mm thick solid masonry block walling in cement/sand for substructure, reinforced with hoop iron at each course	m <sup>2</sup>	14.4				
C1.29.2	200mm thick solid masonry block wall in cement/sand (1:3) mortar reinforced with hoop iron at every alternate courses for superstructure	m <sup>2</sup>	23.0				
C1.29.3	150mm thick solid masonry block wall in cement/sand (1:3) mortar reinforced with hoop iron at every alternate courses to enclose plastic tank on the kiosk	m <sup>2</sup>	33.8				
C1.31	Provide (32x32x3)mm RSA bars and cast into concrete to all edges of the walls as specified in drawings.	m	6.0				
	SHELVES, WINDOWS AND DOORS						
C1.32	Provide and fix 350mm wide x 25mm thick timber cypress shelves, length 2m (to detail drawings.)	Nr	3.0				
	Supply and Fix the following purpose made steel windows and door as per detail manufactured from heavy duty standard sections primed with one coat of red oxide primer and fixing to masonry or concrete head and jambs complete with closing mechanism and other fittings.						
C1.33	Window size 1200 x 900 mm high overall	Nr	1.0				
C1.34	Single swing door overall size 900 x 2100mm high	Nr	1.0				
C1.35	Heavy-Duty Alarm Lock Siren Padlock (Large). To be approved by the Engineer	Nr	2.0				
	INTERNAL WALL FINISHES  15mm thick lime plaster (1:2:9) as described to:-						
C1.36	Interior surfaces of walls	m <sup>2</sup>	56.8				
C1.37	On roof slab soffit	$m^2$	11.8				
C1.38	Exposed front areas of fetching bay. Rate to include instalation of angle sections as per the drawings	m <sup>2</sup>	2.0				
	Page Total carried to the Collection Sheet						

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT PROJECT NO.: KE-WSTF-328819-CS-QCBS

APPENDIX C WATER KIOSK								
ITEM NO.		UNIT	QUANTITY	RATE (Kshs)	Amount (Kshs)			
	CLASS V: PAINTING							
	Prepare and apply							
C1.39	Plastered Internal surfaces of walls 2-coats of emulsion undercoat paint and 3-coats of first grade oil paint	m <sup>2</sup>	20.8					
C1.40	2-coats of primer paint and 3-coats of first grade oil paint to vertical surfaces of metal doors and windows.	Ls	1.0					
	WATER KIOSK ATM							
C1.41	Suply and install Automated water dispensing ATM designed to offer a reliable and user-friendly way to access and pay for water using a keypad, screen, tag pay option, and integration with MPesa for payment processing with the following specifications -Keypad, Screen (LCD), Tag Pay Option (RFID/NFC) -Web based dashboard subscription for 10 year -Hybrid dispensing -MPesa Integration for Payment upto 3 taps max -water Flow Sensor -Solar power - charger, controller, battery and solar panel. The rate to include the first 50 token chips for 50nr. households.	Nr	1.0					
	Steel Frame Structure							
	Supply and joint/weld		1					
C1.42	50x50x3mm vertical stanchions	m	12.0					
C1.43	M10 bolts & nuts complete with Ø25mm washers; to be anchored into concrete slab to drawing detail OR Ø10mm, 100mm long expanding Rawl Plugs or similar approved by the Engineer, for already existing concrete slabs (rate to include for drilling through concrete slab section)	Ls	1.0					
C1.44	3mm thick base plates welded to stanchion end	nr	4.0					
C1.45	50x50x3mm RHS Horizontal Rafters	m	28.0					
01.13	Roof Cladding		20.0					
	Supply and fix		1					
C1.46	Supply and Install Roofing Sheets, Prepainted (Blue colour) Gauge 26 Industrial Tough 5 (IT 5). Include for all the installation acessories. Rate to include bolting to the steel section support framing. (Type specifications attached)	m²	9.0					
C1.47	Supply and Install polynium sheeting underneath the iron sheet roofing. Specification as attached.	m²	9.0					
	Class V: Painting							
	Prepare and apply							
C1.48	One coat red oxide, one coat primer and one coat first grade oil paint to all metal surfaces; all applied per	LS	1.0					
	Branding							
C1.49	Allow a lumpsum for branding of the facility as directed by the Engineer	Ls	1.00					
	Page Total carried to the Collection Sheet							

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT

## PROJECT NO.: KE-WSTF-328819-CS-QCBS APPENDIX C WATER KIOSK UNIT QUANTITY ITEM DESCRIPTION **ITEM** RATE Amount NO. (Kshs) (Kshs) **Appendix C Bill Item Collection Page** Page 1 Total Page 2 Total Page 3 Total Page 4 Total

Appendix C Bill Item Collection Page to Water Kiosk Bill Item

APPENDIX C1 WATER KIOSK WITH REVERSE OSMOSIS SYSTEM								
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount (Kshs)			
C1	CLASS E: EARTHWORKS							
	Excavations							
	Rates for excavation to include for disposal	2						
C1.1	Excavations to reduced levels and cart away	m <sup>3</sup>	9.0					
C1.2	Excavate foundation trenches n.e 1500mm deep from stripped level		18.0					
	Filling							
	Filling to completed structures including compaction as							
	specified.							
	300 mm thick hardcore bed, handpacked, well watered and							
C1.3	well comapeted in 100 mm layers with 50mm thick quarry dust/murram binding on a hardcore bed.		5.4					
C1.4	Return fill and ram - make up level	$m^3$	3.6					
C1.5	Supply and application of Termidor 96 S pesticide treatment for the control of termites to the soil beneath the foundations, executed by a Pesticides Control Products Board licenced professional pest control operator, with a ten year guarantee to surfaces of excavations	m <sup>2</sup>	18.0					
C1.6	Approved damp proof course (bituminous) 500g polyethylene damp proof membrane laid with 300 end laps under the floor slab, on hardcore to engineers approval	m	12.0					
C1.7	Single layer of 100 gauge polythene sheeting on blinded hardcore with 150 mm side laps to receive concrete	m <sup>2</sup>	18.0					
	CLASS F: CONCRETE WORK							
	Provide and Place Mass concrete Class 15							
C1.8	75mm Concrete 1:4:8 Blinding	m <sup>3</sup>	1.4					
	Provide and Place structural concrete Class 25							
C1.9	Strip foundation	0	2.3					
C1.10	Floor and roof slab	m <sup>3</sup>	8.8					
C1.11	Bases, Column and Beams	m <sup>3</sup>	5.6					
C1.12	Provide and place paving slab around the water kiosk. Rate to include levelling and compacting the surface.  Provide and place 600 x 600 x 50 mm thick grey precast concrete paving slabs on 75 mm thick sand bed.	m <sup>2</sup>	10.4					

APPENDIX C1 WATER KIOSK WITH REVERSE OSMOSIS SYSTEM  ITEM   ITEM DESCRIPTION   UNIT QUANTITY  RATE (Kshs)   Amount								
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount (Kshs)			
но.					(IXSIIS)			
	CLASS G: CONCRETE ANCILLARIES							
	REINFORCEMENTS							
	Rates to include for binding wire							
	High yield steel bars to BS 4449							
C1.13		kg	85.0					
C1.14		kg	228.3					
C1.15		kg	218.1					
	Steel fabric mesh reinforcement to B.S. 4483							
	BRC mesh fabric reinforcement ref A142 (weighing							
C1.16	2.2kg/m <sup>2</sup> ) laid in Floor slab (measured net-no allowance	$m^2$	18.0					
	made for lamps)	111						
	FORMWORK							
	Sawn formwork (fair finish) to: -							
C1.17	Vertical and soffits of slabs	m <sup>2</sup>	11.8					
	Vertical sides and soffit of beams, columns and fetching							
C1.18	bay	$m^2$	44.2					
	CONCRETE ACCESSORIES							
	40mm x 30mm drainage groves in concrete to detail							
C1.19	drawings	m	13.8					
	Cement screed on the top surface of roof slab to minimum	2						
C1.20	fall gradient of 1.50	m <sup>2</sup>	11.8					
~1.01	Bituminous felt cover on the surface of the cement screed	2	11.0					
C1.21	on the roof slab.Allow for 300mm lapping.	m <sup>2</sup>	11.8					
G1 00	Allow for 25mm nominal core bore class B G1 pipe		4.0					
C1.22	through inserts in floor slab, roof slab and window sill	m	4.0					
	CLASS I: PIPEWORK - PIPES							
	Drainage system							
C1.23	110mm OD HDPE pipe class PN 10 in trench, depth n.e		10.0					
C1.23	1.5m	m	10.0					
	Piped Building Services							
	Portable water supply installation to detail drawings							
	for Water Kiosk							
	Provide, test and commission pipework fittings to connect							
	to the existing system with the kiosk as shown in the							
C1.24	drawing including the plastic tank, 3 dispensing outlets	Ls	1.0					
	and integration with the water dispensing ATMs and as							
	directed by the Engineer.							
	Supply and installed 5,000 litres plastic water tank as							
	manufactured by KENTANK (K) LTD or equally							
C1.25	approved by the Engineer . The tank shall be coated with	Nr	1.0					
	epoxy coating outside prior enclosing in a masonry							
	walling.							
C1.26	Provide, install, test and commission PN25 Floater valve	Nr	1.0					
	for the plastic tank complete with all installation sundry							
C1.27	Foldable ladder 4m high	Nr	1.0					

PROJECT NO.: KE-WSTF-328819-CS-QCBS APPENDIX C1 WATER KIOSK WITH REVERSE OSMOSIS SYSTEM									
ITEM	ITEM DESCRIPTION			RATE (Kshs)	Amount				
NO.				· ´	(Kshs)				
	Soak Away Pit								
C1.28	Construct soak pit to details as provided in the drawings complete with associated drainage details and as directed by the Engineer. Hardcore filled soak pit size 1500 mm internal dia and 2400 mm deep c/w 100 mm diameter HDPE drain pipe and plastic sheet including excavation and backfill and disposal. Gulley trap chamber internal size 300 x 300 x 300 mm high with 150 mm thick sides and rebated to edge for and including 500 x 400 x 50 mm thick precast concrete cover including bedding UPVC gulley, dishing base of gulley, all necessary formwork, excavation and disposal CLASS U: MASONRY NATURAL STONE	Ls	1.0						
	Approved stone walling of minimum compressive strength of 10N/mm2 bedded in cement sand (1:3) mortar reinforced with and including gauge 12 hoop soft wire gauge hoop iron at every alternate course. Keying to be done on exterior wall surfaces for the superstructure								
21.29.1	225mm thick solid masonry block walling in cement/sand for substructure, reinforced with hoop iron at each course 200mm thick solid masonry block wall in cement/sand (1:3	m <sup>2</sup>	14.4						
21.29.2	) mortar reinforced with hoop iron at every alternate courses for superstructure	m <sup>2</sup>	23.0						
	150mm thick solid masonry block wall in cement/sand (1:3) mortar reinforced with hoop iron at every alternate courses to enclose plastic tank on the kiosk	m <sup>2</sup>	33.8						
C1.31	Provide (32x32x3)mm RSA bars and cast into concrete to all edges of the walls as specified in drawings.	m	6.0						
C1.32	SHELVES, WINDOWS AND DOORS  Provide and fix 350mm wide x 25mm thick timber cypress shelves, length 2m (to detail drawings.)  Supply and Fix the following purpose made steel windows and door as per detail manufactured from heavy duty standard sections primed with one coat of red oxide primer and fixing to masonry or concrete head and jambs complete with closing mechanism and other fittings.	Nr	3.0						
C1.33	Window size 1200 x 900 mm high overall	Nr	1.0						
C1.34	Single swing door overall size 900 x 2100mm high	Nr	1.0						
C1.35	Heavy-Duty Alarm Lock Siren Padlock (Large). To be approved by the Engineer	Nr	2.0						
	INTERNAL WALL FINISHES  15 mm thick lime plactor (1:2:0) as described to:								
C1 26	15mm thick lime plaster (1:2:9) as described to:-	2	5.00						
	Interior surfaces of walls	m <sup>2</sup>	56.8						
C1.37	On roof slab soffit	m <sup>2</sup>	11.8						
C1.38	Exposed front areas of fetching bay. Rate to include instalation of angle sections as per the drawings	m <sup>2</sup>	2.0						

	PROJECT NO.: KE-WSTF-328819-CS-QCBS								
	APPENDIX C1 WATER KIOSK WITH RE								
ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount				
NO.	CY A CO YY DA WYDYYG				(Kshs)				
	CLASS V: PAINTING								
	Prepare and apply								
C1.39	Plastered Internal surfaces of walls 2-coats of emulsion	$m^2$	20.8						
	undercoat paint and 3-coats of first grade oil paint								
C1.40	2-coats of primer paint and 3-coats of first grade oil paint to vertical surfaces of metal doors and windows.	Ls	1.0						
	to vertical surfaces of frictal doors and windows.								
	WATER KIOSK ATM								
	Suply and install Automated water dispensing ATM								
	designed to offer a reliable and user-friendly way to access								
	and pay for water using a keypad, screen, tag pay option,								
	and integration with MPesa for payment processing with								
	the following specifications								
	-Keypad								
	-Screen (LCD)								
C1.41	-Tag Pay Option (RFID/NFC)	Nr	2.0						
	-Web based dashboard subscription for 10 year								
	-Hybrid dispensing								
	-MPesa Integration for Payment upto 3 taps max -water Flow Sensor								
	-Solar power - charger, controller, battery and solar panel. The rate to include the first 50 token chips for 50nr.								
	households.								
	nouscholds.								
	Steel Frame Structure								
G1 40	Supply and joint/weld		12.0						
C1.42	50x50x3mm vertical stanchions	m T -	12.0						
	M10 bolts & nuts complete with Ø25mm washers; to be	Ls							
	anchored into concrete slab to drawing detail OR Ø10mm, 100mm long expanding Rawl Plugs or similar approved by								
C1.43	the Engineer, for already existing concrete slabs (rate to		1.0						
	include for drilling through concrete slab section )								
	morade for drining direagn concrete side section )								
C1.44	3mm thick base plates welded to stanchion end	nr	4.0						
C1.45	50x50x3mm RHS Horizontal Rafters	m	28.0						
	Doof Cladding								
	Roof Cladding Supply and fix								
	Supply and fix Supply and Install Roofing Sheets, Prepainted (Blue								
	colour) Gauge 26 Industrial Tough 5 (IT 5). Include for all								
C1.46	the installation acessories. Rate to include bolting to the	m <sup>2</sup>	9.0						
01.40	steel section support framing. (Type specifications	111	7.0						
	attached)								
	Supply and Install polynium sheeting underneath the iron								
C1.47	sheet roofing. Specification as attached.	m <sup>2</sup>	9.0						
	Class V: Painting								
	Prepare and apply								
C1.48	One coat red oxide, one coat primer and one coat first grade oil paint to all metal surfaces; all applied per	LS	1.0						
	Page Total carried to the Collection Sheet								

	APPENDIX C1 WATER KIOSK WITH RE	EVERS	SE OSMOSIS	SYSTEM	
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount (Kshs)
	Branding				
C1.49	Allow a lumpsum for branding of the facility as directed by the Engineer	Ls	1.00		
C1.50	Supply all materials, tools and equipment, erect, test and commission a 10m³ Fiber glass Reinforced plast Tank, aluzinc steel or approved equivalent to act as the Sump for the RO system. Rate to include for Access ladder, and Bottom slab reinforced concrete class 30/20.  Note- Item shall also include necessary excavation, preparation of surfaces, disposal of excavated material, shoring sides of excavation, backfilling and removal of redundant services. Concrete, reinforcement, formwork, joints and finishes, mobilization and demobilization of personnel, machinery/equipment, delivery to site and all necessry fees.	Item	1.00		
C1.51	Supply, install, test and commission a containerized solar powered Reverse Osmosis Water Treatment System or approved equivalent at the water draw off points capable of >95% reduction of total dissolved solids and as per WHO standards. Feed water , 2.5m3/h Water Quality analysis summary - Turbidty (47/25) , iron(2/0.3),Manganese(0.3/0.1) and Sulphate(405/400) _Comprehensive water quality analysis available; Bidders to submit the proposed system with tender	Item	1.00		
	Page Total carried to the Collection Sheet				
	Appendix C Bill Item Collection Page				
	Page 1 Total				
	Page 2 Total				
	Page 3 Total				
	Page 4 Total				
	Page 5 Total				

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

### PROJECT NO.: KE-WSTF-328819-CS-QCBS

### APPENDIX D TROUGH

ITEM NO.	ITEM DESCRIPTION	UNIT	QTY	RATE (Kshs)	Amount
D	ANIMALS TROUGH				
	Clearance of trough area and removal of trees and stumps		66		
D1.1	Excavate over site soil material to reduce levels not exceeding	m2	66		
D1.1	225mm deep and cart away	1112	00		
D1.2	Excavation for raft foundation not exceeding 1.0 metres deep		22		
D1.2	starting from reduced levels.		22		
D1.3	225 mm thick approved hard-core filling, levelled and	m2	22		
D1.5	compacted in 150mm layers.	1112			
D1.4	Level and blind surface of hard-core with 50mm thick 1:4:8		1.1		
	concrete mix blinding				
	Formwork to sides of floor slab 150mm thick	m	26		
D1.6	Reinforcement bars D8. include for tying to floor slab		102		
D1.7	Insitu reinforced concrete:(mix 1:2:4) grade 20(20 mm	m3	2.7		
	aggregate):vibrated in foundation strip 150mm thick				
	6"x9" approved local/bush stone; squared; and rough chisel				
D1.8	dressed one side, bedding and jointing in cement mortar (1:3)		13		
	in Walls 150mm Thick				
	Reinforcement bars D8. include for tying to walling	Kg	32		
	Plaster; 9mm first coat of cement: sand (1:3) steel trowelled in				
D1.10	25 mm thick 2 No. Coat work to sides of cattle trough				
	internally. Include for water proofing	m2	13		
	Plaster; 9mm first coat of cement: sand (1:3) steel trowelled in		4.0		
D1.11	25 mm thick 2 No. Coat work to sides of cattle trough	m2	18		
	externally				
D1 10	Supply, deliver to site approved hard- core, place and join with		40		
D1.12	1:3 cement mortar to form grouted riprap as directed. Include	m2	48		
	for levelling.				
	Fabricate and install a 700mmx1000mm lockable 16g steel		1		
1.13	plate manhole hole cover framed and cross reinforced with	NO	1		
D1 14	16g, 25mm hollow section steel cover.  Fittings from tank to trough				
	2" Ø GI pipes "B'	No	2		
	2" Ø GI long nipple	No No	2		
	2" Ø GI elbow	No	4		
	2" Ø GI backnut	No	4		
	2" diameter union	No	1		
	2" diameter union 2" diameter gate valve	No	1		
	2"x1½" Ø reducing socket	0	1		
	2 X1/2 Ø reducing socket 1½" Ø plain socket	No	1		
	1½" Ø ball valve Pegler	No	1		
11.23	Total for Cattle trough summary	110	1		
	1 out for Carrie trough summary	l			

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### APPENDIX E-LATRINE Description Unit Otv Kshs Item Rate Element No.1: Excavation & Earth Works General excavation to remove top soil to an average depth of 250mm 10.77 E.1 Bulk excavation for latrine pit of plan dimension 1.5m m by 3.2m E.2 m3 28.80 length to a maximum depth of 6m from the striped level 0-6m depth E.6 Excavation for wall footing, 450mm wide by 100mm thick 0.42 Cart away surplus excavated material & deposit at designated area for E.7 m3 30.00 dumping constrution wastes E.8 Approved hard-core, well compacted under the entrance apron. 1.26 Element No.2: Masonry Work Provide and construct with natural stone as pit linning and substructure walling bedded in cement sand mortar 1:3. Rate to included E.9 40.00 mild steel reinforcement of 6mm diameter after every two consecutive courses. Avoid use of quarry rejected stones E.10 10mm thick DPM under walls or approved equivalent M 12.00 Supply and place 150mmx225mmx400mm Machine cut stone as pit lining and sub-structure walling bedded in cement sand mortar 1:3. E.11 48.00 Rate to include mild steel reinforcement of 6mm diameter after every two consecutive courses. Avoid use of quarry rejected stones. **Element No.3: Concrete Work** Supply materials, transport, place and compact reinforced concrete class 25/20 in 6No. 300x200mm reinforced columns and beams in E.13 m3 1.08 Latrine Allowing for water proofing using sikacim water proofing Ditto 150mm thick and 450mm wide reiforced concrete class 25 E.15 0.37 m3 (1:2:4) in foundation footing. Ditto 150mm concrete class 25 (1:2:4) in latrine slab (to cover pit, urinal, handwashing and general area as one unit). Offset the slab 2 E.16 m3 2.00 feet beyond wall base to form a pavement around the latrine. Provide expansion joints to slab as instructed on site Backfill around masonry foundation footing with selected granular material well rammed in layers not exceeding 150mm thick to completely cover any substructure reveals and create a region around E.17 m3 5.00 the block that drains/slightly slopes away from the latrine block. Include cost of Anti-termite Gladiator or any other approved solution and apply 1 litre per 8 m2. 200mm X 150mm Concrete Grade 25 (1:2:4) in ring beam m3 1.00 Element No. 4: Concrete Ancillaries and openings Formwork Provide cut and fix in position sawn timber formwork or equivalent. E.21 side of foundation footing 150mm wide m2 13.20 E.22 edges floor slab 150mm wide m2 14.00 E.23 Under floor slab m2 12.00 E.24 Side of ring beam 300mm deep 4.98 E.25 support props and floor slab Item 1.00 27.90 E.26 on substructure columns and beams m2 PAGE TOTAL CARRIED TO SECTION COLLECTION PAGE

### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT **COUNTY**

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### APPENDIX E-LATRINE Item Description Unit Otv Rate Kshs Reinforcement Steel reinforcement cut, bend & placed in position, unit price to include cutting, bending & placing in position with binding wire and concrete seats In Foundation Footing 10mm diameter high tensile steel (0.89kg/m) (in strip footing as 2 16.82 No. main reinforcement at 150mm) 8mm diameter mild steel (0.39kg/m) in substructure strip footing as E.28 6.76 Kg distrubution steel at 200mm C/C Substructure columns 12mm diameter high tensile steel (0.89kg/m) (in columns as 4 No. E.29 Kg 64.08 main reinforcement ) 8mm diameter mild steel (0.39kg/m) in columns as distrubution steel E.30 Kg 126.36 at 200mm C/C Substructure and ground beams 8mm diameter mild steel (0.39kg/m) in substructure beams and E.31 29.00 Kg columns as distrubition steel 12mm diameter high tensile steel (0.89kg/m) (as 4No. In E.32 Kg 45.57 substructure and ground beams) E.33 BRC A 142 in the floor slab 12.00 m2 Superstructure Lintel/Ring beam E.34 8mm diameter mild steel (0.39kg/m)as distribution steel in ring beam 41.00 Kg 8mm diameter mild steel (0.39 kg/m) as main reinforcement in ring E.35 21.00 Kg beam **Openings** Allow for forming of pit hole and construction of foot rest to details E.36 for all pits ensuring that a self cleansing finish with smooth steel float No. 2.00 as shall be guided by the supervising engineer **Element No.5: Roofing** Roof cover in Gauge 28 CIS Nailed to 50 X 75mm purlins. Use pre 12.00 painted Box Profile iron sheets Timber Work All structure truss members shall be in seasoned cypress wood or most preferably eucalyptus wood and painted two coats of anti termite solution and shall be tight fixed with top tie beam with 6mm diameter plain bar. E.38 a) 100 X 50mm wall plate M 14.00 E.39 b) 50X 100mm rafter 22.40 M E.41 c)225 X 50mm Fascia Board 14.00 M E.42 e) 50x75mm roof purlin 24.00 **Element No.6: Fixtures and Fittings** Doors Provide and install the following purpose made doors complete with fittings and locks. Consider the cost of installing ventilation or Louvre block at the back of the latrine block and above the latrine door covered with a net screen or a gauze

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### LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT **COUNTY**

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### APPENDIX E-LATRINE **Description** Unit Otv Rate Kshs Item Wooden shutter butend door 750 X 2100mm to normal latrine. E.43 3.00 No Provide internal and external locks/latches **Element No.7: Finishes** Apply plater in ratio 1:3 of cement: sand clean river sand to beam E.45 surface internally and externally and to all wall surfaces to achieve a $lm^2$ 10.00 smooth steel float finnis Apply one priming coat and two finishing coats of 1st grade paint ton E.46 beam surface internally and externally and to. Use either dura coat, 10.00 crown or sadolin paint Cement sand screed with 0.1 aggregate mix, price to urinal platform, cost to includes chiselling of floor in all latrines to ensure a selg E.47 m2 25.00 draining gradient that directs flow into the pit latrine with smooth steel finish Branding: Provide labour and inscribe on concrete (or printed on durable and weatherproof material eg vinyl) with World Vision Logo E.49 Item 1.00 and with visible wording as directed by the site engineer on a surface prepared on the wall by plaster Vent Pipe Provide a PVC vent pipe 150 mm diameter complete with fly screen E.50 and cap to 200mm above the roof pitch, installed external to the 2.00 No latrine wall Element No.8: Drainage and Water Supply E.54 Provide and install urinal bowl to height 0.5m above ground surface No 2.00 Branding Allow a lumpsum for branding of the facility as directed by the E.55 Ls 1.00 Engineer PAGE TOTAL CARRIED TO SECTION COLLECTION PAGE Appendix D Bill Item Collection Page Page 1 Total Page 2 Total Page 3 Total

Appendix D Bill Item Collection Page to Sanitation Bill Item