

**INFRASTRUCTURE FOR BIODIVERSITY
CONSERVATION IN KIDEPO VALLEY
NATIONAL PARK**

**Drilling of Five (05) Borehole in Selected
Locations**

USAID/Uganda Biodiversity for Resilience (B4R) Activity

**BIDDING DOCUMENTS
VOLUME 05 OF 06
BILLS OF QUANTITIES**

Prepared by:

USAID/Uganda A & E Design and Construction Management Services,
implemented by: MBW Consulting Ltd and Cardno I.D. USA

February 2023

**USAID - Infrastructure for Biodiversity Conservation in Kidepo Valley
National Park**

**DRILLING OF FIVE (05) NUMBER BOREHOLE IN SELECTED
LOCATIONS**

DOCUMENTS SUMMARY PAGE

VOL NO. **DESCRIPTION** **PAGE No..**

Bills of Quantities ; Comprising:-

Grand Summary	G.S 1
Preliminaries	Bill No. 1
Lokumoit Gate	Bill No. 2
Kaekem	Bill No. 3
Karua / Natedekitoi	Bill No. 4
Natabe Gate	Bill No. 5
OP Lokorimongin	Bill No. 6

BOREHOLES

GRAND SUMMARY

BIODIVERSITY INFRASTRUCTURE IN KIDEPO VALLEY NATIONAL PARK

DRILLING OF FIVE (05) BOREHOLES IN SELECTED LOCATIONS

UGANDA WILDLIFE AUTHORITY - GENERAL SUMMARY

	AMOUNT	Units	TOTAL AMOUNT Ugx
BILL No. 1 : PRELIMINARIES			-
BILL No. 2 : LOKUMOIT GATE			-
BILL No. 3 : KAEKEM			-
BILL No. 4 : KARUA/NATEDEKITOI			-
BILL No. 5 : NATABA			-
BILL No. 6 : LOKORIMONGIN			-
SUB-TOTAL 1			-
ADD PROVISIONAL SUM FOR CONTINGENCY (5%)			-
SUB - TOTAL 2			-
GRAND TOTAL			-

BOREHOLES

PRELIMINARIES

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

PRELIMINARY

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx
	BILL No. 1: PRELIMINARIES				
A	Insurance of Works, construction Plant and against damage to persons and property.	LS	1		-
B	Mobilisation of equipments and personel.	LS	1		-
C	Provision of all temporary facilities for use of the Contractor.	LS	1		-
D	Occupational health and safety measures	No.	1		-
E	Preparation and submission of Reports.(logs, pumping test, water quality,Casting and installations (two hard copies and soft copy)	LS	1		-
F	Setting up, Dismantling and movement at every site	LS	1		-
	Total for Bill No. 1 carried to summary				-

**BOREHOLE
AT
LOKUMOIT**

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

LOKUMOIT GATE

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	ELEMENT No. 1: BOREHOLE CONSTRUCTION WORKS					
A	<i>DRILLING FOR A SUCCESSFUL BOREHOLE</i>					
	Item "1.01 to 1.11" only apply to a successful boreholes where the expexcted water yield is achieved					
	<i>Hydro-geological survey to locate suitable site for borehole.</i>					
1.01	Drilling in overburden with a minimum of 10 5/8" Tricone roller/ DRAG bits in overburden including instalation and removal of 10" ID MS temporary casings.	m	25		-	
1.02	Drilling 8" (200mm) bore 25-80 mbgl in semi consolidated formation or fractured zone	m	35		-	
1.03	Drilling in hard rock at 6 7/8" dia. (50-130mbgl)	m	70		-	
1.04	Sampling and storage of drill cuttings at 3m intervals or as instructed by the Engineer	No.	43		-	
1.05	Supply and Installation of uPVC plain casings (5"ND), including centralizers and bottom cap, 3m long, Class 10 (UNBS approved)	m	118		-	
1.06	Supply and Installation of uPVC screens (5"ND), 3m long, Class 10 (UNBS approved)	m	12		-	
1.07	Supply and installation of cement grouting	kg	100		-	
1.08	Supply and installation of gravel pack 50 Kg Bag	Kg	60		-	
1.09	Supply and Installation of inert backfill	No.	1		-	
1.10	Casting of sanitary seal	No.	1		-	
1.11	Well development	Hr	3		-	
B	<i>DRILLING OF A NON SUCCESSFUL BOREHOLE (DRY HOLE)</i>					
1.12	Allow for the drilling of a dry/low yield well, its treatment; including mobilisation, movement, demobilisation and all associated works	Sum	1		RATE ONLY	-
Total for ELEMENT No. 1 carried to Summary					-	-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

LOKUMOIT GATE

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	ELEMENT NO.2 TEST PUMPING, WATER QUALITY ANALYSI AND COMPLETION					
2.01	Test Pumping Installation & Removal	No.	1		-	
2.02	Pumping Time (for hand pump)	Hr	3		-	
2.03	Recovery Time (for hand pump)	Hr	1.5		-	
2.04	Step test and long duration test (for yield above 1,500 l/hr at end of well development)	Hr	28		RATE ONLY	-
2.03.1	Recovery Time (after step test & long duration)	Hr	6		RATE ONLY	-
2.04.2	Well capping	No.	1		-	
2.05	Water quality analysis (Physical, Chemical and Bacteriological) "water quality test to include tests for arsenic, fluoride and faecal matter in accordance with the WHO standards" at WRMD/NWSC Laboratories	LS	1		-	
2.06	Clearing Site	No.	1		-	
2.07	Standing Time	Hr	2		RATE ONLY	-
	Total for ELEMENT No. 2 carried to Summary				-	-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

LOKUMOIT GATE

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	ELEMENT NO. 3					
	PLATFORM CONSTRUCTION, INSTALLATION OF HAND PUMP					
3.01	Clearing and reducing level 150mm deep	Item	1		-	
3.02	Excavate pit 760mm x 760mm x 400mm for handpump and channel foundation	No	1		-	
3.03	Supply & place telescopic pedestal over casing pipe and construct concrete up to top of legs	No	1		-	
3.04	Level ground around the telescopic pedestal and lay mould as per design drawings	No	1		-	
3.05	Construction of handpump platform,(overall size 1500mm diameter platform with 6000mm long x 500mm wide splash) comprising 100mm thick class 20 slab with BRC A142 mesh, 150 x 300mm deep ground beams with 12mm reinforcement bars, including excavation, backfill, foundation fills, formwork and installation of telescopic pedestal as per drawing	No	1		-	
3.06	Plaster platform and drainage channel in waterproof cement screed (1:3) to smooth finish	No	1		-	
3.07	Cure concrete for 7days using wetted gunny bags and protect from disturbances using thony bushes, etc	No	1		-	
3.08	Supply and installation of approved heavy duty U2 pumps (Complete with Cylinder, handle, head) 32 mm or 1 1/4" stainless steel riser pipes and connecting rods in 3m length with O ring a welded seamless sockets in AISI304 . 1Pc of nipple adaptor stainless AISI 316; or equivalent also inclusive of handle guard rail fabricated with used 1 1/4" inch diameter GI pipes preferably from Ajay or Victoria pump as approved by the engineer	m	45		-	
	<u>SOLAR PV INSTALLATION</u>					
	<u>Supply, install, connect and set to work the following:</u>					
	<u>Solar PV Array and System Components</u>					
3.09	Supply and installation of a GRUNDFOS SQF3-105, Maximum Total Dynamic Head 140m, Qmax 2m ³ /h	No	1		RATE ONLY	-
3.1	Solar PV monocrystalline panel 330 W peak power, 2No. Arrays of 5No Solar PV panels each	No	8		RATE ONLY	-
3.11	100 A charge controller as Power-Tarom 4110 110/92 A 48 V or equal approved.	No	1		RATE ONLY	-
3.12	Switch box Control Unit 1O50 complete with all accessories	No	1		RATE ONLY	-
3.13	DC disconnect switch, PVDIST1000/40A	No	2		RATE ONLY	-
3.14	PV Combiner- PVCOMBI	No	1		RATE ONLY	-
3.15	UV resistant cables.	Item	1		RATE ONLY	-
3.16	Allow for pump automation, to include pressure switch, pressure gauge, signal cable, check valve and all accessories necessary for automation.	Item	1		RATE ONLY	-
3.17	Solar PV panel mount frames made of dixon type mild steel angle iron with perforations and galvanised. (2No. Solar arrays of 5No panels each)	No	2		RATE ONLY	-
3.18	Installation materials including cables and all sundries.	Item	2		RATE ONLY	-
	Total carried to collection of ELEMENT No. 3				-	-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

LOKUMOIT GATE

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	<u>Tank</u>					
3.19	5,000L stainless steel tank as made by steel and tube or equal approved complete with 25mm ball valve, 25mm washout and 25mm overflow pipe.	No	1		RATE ONLY	-
	<u>Steel Tank Tower</u>					
3.20	6m Steel Tower for mounting above tank to Structural Engineers' detail, complete with safety caged cat ladder, 600mm walkway all around, 1.5m high guard rails, 3.0m demountable ladder and all	Item	1		RATE ONLY	-
	<u>Pumping and Distribution Line</u>					
3.21	50mm HDPE PN16 pumping line from borehole to overhead tank complete with all accessories.	m	207		RATE ONLY	-
3.22	40mm HDPE pipe PN16 water supply line complete with all accessories.	m	60		RATE ONLY	-
3.23	Supply and installation of borehole ID out of non reflective aluminium plate engravement and reveted on the pump head assembly as approved by the project manager	No	1		-	-
3.24	Borehole disinfection with Chroline as per Specification section 10.	Item	1		-	-
3.25	Construction soak away pits 1500mm diameter x 1500mm depth complete with hardcore, all accessories as per specification	Item	1		-	-
3.26	Allow for landscpaing planting indigeneous trees and grassing around the Borehole	Item	1		-	-
3.27	Construct a gauge 10 chainlink fencing, 2.1m high, including c25 reinforced concrete post at 3.00m spacing, an access gate and all foundation works as per drawing to protect the pump and borehole from animals (approximately 30 meters)	Item	1		-	-
	Total carried to collection of ELEMENT No. 3				-	-
	COLLECTION					
	Collection 01				-	-
	Collection 02				-	-
	Total for ELEMENT No. 3 carried to Summary				-	-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

LOKUMOIT GATE

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	SUMMARY					
1	Drilling works				-	
2	Testpumping and completion				-	
3	Platform construction and hand pump installation				-	
4	TOTAL RATE ONLY ITEMS; Drilling dry holes, Test pumping for boreholes yield >1.5m ³ , supply and installation of solar pumps, pannels and pipeworks (total amount for all items with "RATE ONLY"; in amount column)				-	-
	Total Amount to Grand Summary				-	-

**BOREHOLE
AT
KAEKEM**

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

KAEKEM

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	ELEMENT No. 1: BOREHOLE CONSTRUCTION WORKS					
A	<i>DRILLING FOR A SUCCESSFUL BOREHOLE</i>					
	Item "1.01 to 1.11" only apply to a successful boreholes where the expexcted water yield is achieved					
	<i>Hydro-geological survey to locate suitable site for borehole.</i>					
1.01	Drilling in overburden with a minimum of 10 5/8" Tricone roller/ DRAG bits in overburden including instalation and removal of 10" ID MS temporary casings.	m	25		-	
1.02	Drilling 8" (200mm) bore 25-80 mbgl in semi consolidated formation or fractured zone	m	35		-	
1.03	Drilling in hard rock at 6 7/8" dia. (50-130mbgl)	m	70		-	
1.04	Sampling and storage of drill cuttings at 3m intervals or as instructed by the Engineer	No.	43		-	
1.05	Supply and Installation of uPVC plain casings (5"ND), including centralizers and bottom cap, 3m long, Class 10 (UNBS approved)	m	78		-	
1.06	Supply and Installation of uPVC screens (5"ND), 3m long, Class 10 (UNBS approved)	m	12		-	
1.07	Supply and installation of cement grouting	kg	100		-	
1.08	Supply and installation of gravel pack 50 Kg Bag	Kg	60		-	
1.09	Supply and Installation of inert backfill	No.	1		-	
1.10	Casting of sanitary seal	No.	1		-	
1.11	Well development	Hr	3		-	
B	<i>DRILLING OF A NON SUCCESSFUL BOREHOLE (DRY HOLE)</i>					
1.12	Allow for the drilling of a dry/low yield well, its treatment; including mobilisation, movement, demobilisation and all associated works	Sum	1		RATE ONLY	-
Total for ELEMENT No. 1 carried to Summary						-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

KAEKEM

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	ELEMENT NO.2 TEST PUMPING, WATER QUALITY ANALYSI AND COMPLETION					
2.01	Test Pumping Installation & Removal	No.	1		-	
2.02	Pumping Time (for hand pump)	Hr	3		-	
2.03	Recovery Time (for hand pump)	Hr	1.5		-	
2.04	Step test and long duration test (for yield above 1,500 l/hr at end of well development)	Hr	28		RATE ONLY	-
2.03.1	Recovery Time (after step test & long duration)	Hr	6		RATE ONLY	-
2.04.2	Well capping	No.	1		-	
2.05	Water quality analysis (Physical, Chemical and Bacteriological) "water quality test to include tests for arsenic, fluoride and faecal matter in accordance with the WHO standards" at WRMD/NWSC Laboratories	LS	1		-	
2.06	Clearing Site	No.	1		-	
2.07	Standing Time	Hr	2		RATE ONLY	-
	Total for ELEMENT No. 2 carried to Summary				-	-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

KAEKEM

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	ELEMENT NO. 3					
	PLATFORM CONSTRUCTION, INSTALLATION OF HAND PUMP					
3.01	Clearing and reducing level 150mm deep	Item	1		-	
3.02	Excavate pit 760mm x 760mm x 400mm for handpump and channel foundation	NO	1		-	
3.03	Supply & place telescopic pedestal over casing pipe and construct concrete up to top of legs	NO	1		-	
3.04	Level ground around the telescopic pedestal and lay mould as per design drawings	NO	1		-	
3.05	Construction of handpump platform,(overall size 1500mm diameter platform with 6000mm long x 500mm wide splash) comprising 100mm thick class 20 slab with BRC A142 mesh, 150 x 300mm deep ground beams with 12mm reinforcement bars, including excavation, backfill, foundation fills, formwork and installation of telescopic pedestal as per drawing	NO	1		-	
3.06	Plaster platform and drainage channel in waterproof cement screed (1:3) to smooth finish	No	1		-	
3.07	Cure concrete for 7days using wetted gunny bags and protect from disturbances using thony bushes, etc	No	1		-	
3.08	Supply and installation of approved heavy duty U2 pumps (Complete with Cylinder, handle, head) 32 mm or 1 1/4" stainless steel riser pipes and connecting rods in 3m length with O ring a welded seamless sockets in AISI304 . 1Pc of nipple adaptor stainless AISI 316; or equivalent also inclusive of handle guard rail fabricated with used 1 1/4" inch diameter GI pipes preferably from Ajay or Victoria pump as approved by the engineer	LM	45		-	
	<u>SOLAR PV INSTALLATION</u>					
	<u>Supply, install, connect and set to work the following:</u>					
	<u>Solar PV Array and System Components</u>					
3.09	Supply and installation of a GRUNDFOS SQF3-105, Maximum Total Dynamic Head 140m, Qmax 2m ³ /h	No	1		RATE ONLY	-
3.1	Solar PV monocrystalline panel 330 W peak power, 2No. Arrays of 5No Solar PV panels each	No	8		RATE ONLY	-
3.11	100 A charge controller as Power-Tarom 4110 110/92 A 48 V or equal approved.	No	1		RATE ONLY	-
3.12	Switch box Control Unit 1O50 complete with all accessories	No	1		RATE ONLY	-
3.13	DC disconnect switch, PVDIST1000/40A	No	2		RATE ONLY	-
3.14	PV Combiner- PVCOMBI	No	1		RATE ONLY	-
3.15	UV resistant cables.	Item	1		RATE ONLY	-
3.16	Allow for pump automation, to include pressure switch, pressure gauge, signal cable, check valve and all accessories necessary for automation.	Item	1		RATE ONLY	-
3.17	Solar PV panel mount frames made of dixon type mild steel angle iron with perforations and galvanised. (2No. Solar arrays of 5No panels each)	No	2		RATE ONLY	-
3.18	Installation materials including cables and all sundries.	Item	2		RATE ONLY	-
	Total carried to collection of ELEMENT No. 3				-	-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

KAEKEM

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	<u>Tank</u>					
3.19	5,000L stainless steel tank as made by steel and tube or equal approved complete with 25mm ball valve, 25mm washout and 25mm overflow pipe.	No	1		RATE ONLY	-
	<u>Steel Tank Tower</u>					
3.20	6m Steel Tower for mounting above tank to Structural Engineers' detail, complete with safety caged cat ladder, 600mm walkway all around, 1.5m high guard rails, 3.0m demountable ladder and all	Item	1		RATE ONLY	-
	<u>Pumping and Distribution Line</u>					
3.21	50mm HDPE PN16 pumping line from borehole to overhead tank complete with all accessories.	m	207		RATE ONLY	-
3.22	40mm HDPE pipe PN16 water supply line complete with all accessories.	m	60		RATE ONLY	-
3.23	Supply and installation of borehole ID out of non reflective aluminium plate engravement and reveted on the pump head assembly as approved by the project manager	No	1		-	-
3.24	Borehole disinfection with Chroline as per Specification section 10.	Item	1		-	-
3.25	Construction soak away pits 1500mm diameter x 1500mm depth complete with hardcore, all accessories as per specification	Item	1		-	-
3.26	Allow for landscpaing planting indigeneous trees and grassing around the Borehole	Item	1		-	-
3.27	Construct a gauge 10 chainlink fencing, 2.1m high, including c25 reinforced concrete post at 3.00m spacing, an access gate and all foundation works as per drawing to protect the pump and borehole from animals (approximately 30 meters)	Item	1		-	-
	Total carried to collection of ELEMENT No. 3				-	-
	COLLECTION					
	Collection 01				-	-
	Collection 02				-	-
	Total for ELEMENT No. 3 carried to Summary				-	-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

KAEKEM

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	SUMMARY					
1	Drilling works				-	
2	Testpumping and completion				-	
3	Platform construction and hand pump installation				-	
4	TOTAL RATE ONLY ITEMS; Drilling dry holes, Test pumping for boreholes yield >1.5m ³ , supply and installation of solar pumps, pannels and pipeworks (total amount for all items with "RATE ONLY"; in amount column)				-	-
	Total Amount to Grand Summary				-	-

**BOREHOLE
AT
KARUA**

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

KARUA

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	ELEMENT No. 1: BOREHOLE CONSTRUCTION WORKS					
A	<i>DRILLING FOR A SUCCESSFUL BOREHOLE</i>					
	Item "1.01 to 1.11" only apply to a successful boreholes where the expexcted water yield is achieved					
	<i>Hydro-geological survey to locate suitable site for borehole.</i>					
1.01	Drilling in overburden with a minimum of 10 5/8" Tricone roller/ DRAG bits in overburden including instalation and removal of 10" ID MS temporary casings.	m	25		-	
1.02	Drilling 8" (200mm) bore 25-80 mbgl in semi consolidated formation or fractured zone	m	35		-	
1.03	Drilling in hard rock at 6 7/8" dia. (50-130mbgl)	m	70		-	
1.04	Sampling and storage of drill cuttings at 3m intervals or as instructed by the Engineer	No.	43		-	
1.05	Supply and Installation of uPVC plain casings (5"ND), including centralizers and bottom cap, 3m long, Class 10 (UNBS approved)	m	78		-	
1.06	Supply and Installation of uPVC screens (5"ND), 3m long, Class 10 (UNBS approved)	m	12		-	
1.07	Supply and installation of cement grouting	kg	100		-	
1.08	Supply and installation of gravel pack 50 Kg Bag	Kg	50		-	
1.09	Supply and Installation of inert backfill	No.	1		-	
1.10	Casting of sanitary seal	No.	1		-	
1.11	Well development	Hr	3		-	
B	<i>DRILLING OF A NON SUCCESSFUL BOREHOLE (DRY HOLE)</i>					
1.12	Allow for the drilling of a dry/low yield well, its treatment; including mobilisation, movement, demobilisation and all associated works	Sum	1		RATE ONLY	-
Total for ELEMENT No. 1 carried to Summary						-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

KARUA

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	ELEMENT NO.2 TEST PUMPING, WATER QUALITY ANALYSI AND COMPLETION					
2.01	Test Pumping Installation & Removal	No.	1		-	
2.02	Pumping Time (for hand pump)	Hr	3		-	
2.03	Recovery Time (for hand pump)	Hr	1.5		-	
2.04	Step test and long duration test (for yield above 1,500 l/hr at end of well development)	Hr	28		RATE ONLY	-
2.03.1	Recovery Time (after step test & long duration)	Hr	6		RATE ONLY	-
2.04.2	Well capping	No.	1		-	
2.05	Water quality analysis (Physical, Chemical and Bacteriological) "water quality test to include tests for arsenic, fluoride and faecal matter in accordance with the WHO standards" at WRMD/NWSC Laboratories	LS	1		-	
2.06	Clearing Site	No.	1		-	
2.07	Standing Time	Hr	2		RATE ONLY	-
	Total for ELEMENT No. 2 carried to Summary				-	-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

KARUA

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	ELEMENT NO. 3					
	PLATFORM CONSTRUCTION, INSTALLATION OF HAND PUMP					
3.01	Clearing and reducing level 150mm deep	Item	1		-	
3.02	Excavate pit 760mm x 760mm x 400mm for handpump and channel foundation	NO	1		-	
3.03	Supply & place telescopic pedestal over casing pipe and construct concrete up to top of legs	NO	1		-	
3.04	Level ground around the telescopic pedestal and lay mould as per design drawings	NO	1		-	
3.05	Construction of handpump platform,(overall size 1500mm diameter platform with 6000mm long x 500mm wide splash) comprising 100mm thick class 20 slab with BRC A142 mesh, 150 x 300mm deep ground beams with 12mm reinforcement bars, including excavation, backfill, foundation fills, formwork and installation of telescopic pedestal as per drawing	NO	1		-	
3.06	Plaster platform and drainage channel in waterproof cement screed (1:3) to smooth finish	No	1		-	
3.07	Cure concrete for 7days using wetted gunny bags and protect from disturbances using thony bushes, etc	No	1		-	
3.08	Supply and installation of approved heavy duty U2 pumps (Complete with Cylinder, handle, head) 32 mm or 1 1/4" stainless steel riser pipes and connecting rods in 3m length with O ring a welded seamless sockets in AISI304 . 1Pc of nipple adaptor stainless AISI 316; or equivalent also inclusive of handle guard rail fabricated with used 1 1/4" inch diameter GI pipes preferably from Ajay or Victoria pump as approved by the engineer	LM	45		-	
	<u>SOLAR PV INSTALLATION</u>					
	<u>Supply, install, connect and set to work the following:</u>					
	<u>Solar PV Array and System Components</u>					
3.09	Supply and installation of a GRUNDFOS SQF3-105, Maximum Total Dynamic Head 140m, Qmax 2m3/h	No	1		RATE ONLY	-
3.1	Solar PV monocrystalline panel 330 W peak power, 2No.Arrays of 5No Solar PV panels each	No	8		RATE ONLY	-
3.11	100 A charge controller as Power-Tarom 4110 110/92 A 48 V or equal approved.	No	1		RATE ONLY	-
3.12	Switch box Control Unit 1O50 complete with all accessories	No	1		RATE ONLY	-
3.13	DC disconnect switch, PVDIST1000/40A	No	2		RATE ONLY	-
3.14	PV Combiner- PVCOMBI	No	1		RATE ONLY	-
3.15	UV resistant cables.	Item	1		RATE ONLY	-
3.16	Allow for pump automation,to include pressure swith,pressure gauge,signal cable ,check valve and all accessories necessary for automation.	Item	1		RATE ONLY	-
3.17	Solar PV panel mount frames made of dixon type mild steel angle iron with perforations and galvanised. (2No. Solar arrays of 5No panels each)	No	2		RATE ONLY	-
3.18	Installation materials including cables and all sundries.	Item	2		RATE ONLY	-
	Total carried to collection of ELEMENT No. 3				-	-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

KARUA

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	<u>Tank</u>					
3.19	5,000L stainless steel tank as made by steel and tube or equal approved complete with 25mm ball valve, 25mm washout and 25mm overflow pipe.	No	1		RATE ONLY	-
	<u>Steel Tank Tower</u>					
3.20	6m Steel Tower for mounting above tank to Structural Engineers' detail, complete with safety caged cat ladder, 600mm walkway all around, 1.5m high guard rails, 3.0m demountable ladder and all	Item	1		RATE ONLY	-
	<u>Pumping and Distribution Line</u>					
3.21	50mm HDPE PN16 pumping line from borehole to overhead tank complete with all accessories.	m	207		RATE ONLY	-
3.22	40mm HDPE pipe PN16 water supply line complete with all accessories.	m	60		RATE ONLY	-
3.23	Supply and installation of borehole ID out of non reflective aluminium plate engravement and reveted on the pump head assembly as approved by the project manager	No	1		-	-
3.24	Borehole disinfection with Chroline as per Specification section 10.	Item	1		-	-
3.25	Construction soak away pits 1500mm diameter x 1500mm depth complete with hardcore, all accessories as per specification	Item	1		-	-
3.26	Allow for landscpaing planting indigeneous trees and grassing around the Borehole	Item	1		-	-
3.27	Construct a gauge 10 chainlink fencing, 2.1m high, including c25 reinforced concrete post at 3.00m spacing, an access gate and all foundation works as per drawing to protect the pump and borehole from animals (approximately 30 meters)	Item	1		-	-
	Total carried to collection of ELEMENT No. 3				-	-
	COLLECTION					
	Collection 01				-	-
	Collection 02				-	-
	Total for ELEMENT No. 3 carried to Summary				-	-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

KARUA

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	SUMMARY					
1	Drilling works				-	
2	Testpumping and completion				-	
3	Platform construction and hand pump installation				-	
4	TOTAL RATE ONLY ITEMS; Drilling dry holes, Test pumping for boreholes yield >1.5m ³ , supply and installation of solar pumps, pannels and pipeworks (total amount for all items with "RATE ONLY"; in amount column)				-	-
	Total Amount to Grand Summary				-	-

**BOREHOLE
AT
NATABA**

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

NATABA

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	ELEMENT No. 1: BOREHOLE CONSTRUCTION WORKS					
A	<i>DRILLING FOR A SUCCESSFUL BOREHOLE</i>					
	Item "1.01 to 1.11" only apply to a successful boreholes where the expexcted water yield is achieved					
	<i>Hydro-geological survey to locate suitable site for borehole.</i>					
1.01	Drilling in overburden with a minimum of 10 5/8" Tricone roller/ DRAG bits in overburden including instalation and removal of 10" ID MS temporary casings.	m	25		-	
1.02	Drilling 8" (200mm) bore 25-80 mbgl in semi consolidated formation or fractured zone	m	35		-	
1.03	Drilling in hard rock at 6 7/8" dia. (50-130mbgl)	m	70		-	
1.04	Sampling and storage of drill cuttings at 3m intervals or as instructed by the Engineer	No.	43		-	
1.05	Supply and Installation of uPVC plain casings (5"ND), including centralizers and bottom cap, 3m long, Class 10 (UNBS approved)	m	118		-	
1.06	Supply and Installation of uPVC screens (5"ND), 3m long, Class 10 (UNBS approved)	m	12		-	
1.07	Supply and installation of cement grouting	kg	100		-	
1.08	Supply and installation of gravel pack 50 Kg Bag	Kg	60		-	
1.09	Supply and Installation of inert backfill	No.	1		-	
1.10	Casting of sanitary seal	No.	1		-	
1.11	Well development	Hr	3		-	
B	<i>DRILLING OF A NON SUCCESSFUL BOREHOLE (DRY HOLE)</i>					
1.12	Allow for the drilling of a dry/low yield well, its treatment; including mobilisation, movement, demobilisation and all associated works	Sum	1		RATE ONLY	-
Total for ELEMENT No. 1 carried to Summary						-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

NATABA

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	ELEMENT NO.2 TEST PUMPING, WATER QUALITY ANALYSI AND COMPLETION					
2.01	Test Pumping Installation & Removal	No.	1		-	
2.02	Pumping Time (for hand pump)	Hr	3		-	
2.03	Recovery Time (for hand pump)	Hr	1.5		-	
2.04	Step test and long duration test (for yield above 1,500 l/hr at end of well development)	Hr	28		RATE ONLY	-
2.03.1	Recovery Time (after step test & long duration)	Hr	6		RATE ONLY	-
2.04.2	Well capping	No.	1		-	
2.05	Water quality analysis (Physical, Chemical and Bacteriological) "water quality test to include tests for arsenic, fluoride and faecal matter in accordance with the WHO standards" at WRMD/NWSC Laboratories	LS	1		-	
2.06	Clearing Site	No.	1		-	
2.07	Standing Time	Hr	2		RATE ONLY	-
	Total for ELEMENT No. 2 carried to Summary				-	-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

NATABA

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	ELEMENT NO. 3					
	PLATFORM CONSTRUCTION, INSTALLATION OF HAND PUMP					
3.01	Clearing and reducing level 150mm deep	Item	1		-	
3.02	Excavate pit 760mm x 760mm x 400mm for handpump and channel foundation	NO	1		-	
3.03	Supply & place telescopic pedestal over casing pipe and construct concrete up to top of legs	NO	1		-	
3.04	Level ground around the telescopic pedestal and lay mould as per design drawings	NO	1		-	
3.05	Construction of handpump platform,(overall size 1500mm diameter platform with 6000mm long x 500mm wide splash) comprising 100mm thick class 20 slab with BRC A142 mesh, 150 x 300mm deep ground beams with 12mm reinforcement bars, including excavation, backfill, foundation fills, formwork and installation of telescopic pedestal as per drawing	NO	1		-	
3.06	Plaster platform and drainage channel in waterproof cement screed (1:3) to smooth finish	No	1		-	
3.07	Cure concrete for 7days using wetted gunny bags and protect from disturbances using thony bushes, etc	No	1		-	
3.08	Supply and installation of approved heavy duty U2 pumps (Complete with Cylinder, handle, head) 32 mm or 1 1/4" stainless steel riser pipes and connecting rods in 3m length with O ring a welded seamless sockets in AISI304 . 1Pc of nipple adaptor stainless AISI 316; or equivalent also inclusive of handle guard rail fabricated with used 1 1/4" inch diameter GI pipes preferably from Ajay or Victoria pump as approved by the engineer	LM	45		-	
	<u>SOLAR PV INSTALLATION</u>					
	<u>Supply, install, connect and set to work the following:</u>					
	<u>Solar PV Array and System Components</u>					
3.09	Supply and installation of a GRUNDFOS SQF3-105, Maximum Total Dynamic Head 140m, Qmax 2m ³ /h	No	1		RATE ONLY	-
3.1	Solar PV monocrystalline panel 330 W peak power, 2No. Arrays of 5No Solar PV panels each	No	8		RATE ONLY	-
3.11	100 A charge controller as Power-Tarom 4110 110/92 A 48 V or equal approved.	No	1		RATE ONLY	-
3.12	Switch box Control Unit 1O50 complete with all accessories	No	1		RATE ONLY	-
3.13	DC disconnect switch, PVDIST1000/40A	No	2		RATE ONLY	-
3.14	PV Combiner- PVCOMBI	No	1		RATE ONLY	-
3.15	UV resistant cables.	Item	1		RATE ONLY	-
3.16	Allow for pump automation, to include pressure switch, pressure gauge, signal cable, check valve and all accessories necessary for automation.	Item	1		RATE ONLY	-
3.17	Solar PV panel mount frames made of dixon type mild steel angle iron with perforations and galvanised. (2No. Solar arrays of 5No panels each)	No	2		RATE ONLY	-
3.18	Installation materials including cables and all sundries.	Item	2		RATE ONLY	-
	Total carried to collection of ELEMENT No. 3				-	-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

NATABA

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	<u>Tank</u>					
3.19	5,000L stainless steel tank as made by steel and tube or equal approved complete with 25mm ball valve, 25mm washout and 25mm overflow pipe.	No	1		RATE ONLY	-
	<u>Steel Tank Tower</u>					
3.20	6m Steel Tower for mounting above tank to Structural Engineers' detail, complete with safety caged cat ladder, 600mm walkway all around, 1.5m high guard rails, 3.0m demountable ladder and all	Item	1		RATE ONLY	-
	<u>Pumping and Distribution Line</u>					
3.21	50mm HDPE PN16 pumping line from borehole to overhead tank complete with all accessories.	m	207		RATE ONLY	-
3.22	40mm HDPE pipe PN16 water supply line complete with all accessories.	m	60		RATE ONLY	-
3.23	Supply and installation of borehole ID out of non reflective aluminium plate engraving and reveted on the pump head assembly as approved by the project manager	No	1		-	-
3.24	Borehole disinfection with Chroline as per Specification section 10.	Item	1		-	-
3.25	Construction soak away pits 1500mm diameter x 1500mm depth complete with hardcore, all accessories as per specification	Item	1		-	-
3.26	Allow for landscpaing planting indigeneous trees and grassing around the Borehole	Item	1		-	-
3.27	Construct a gauge 10 chainlink fencing, 2.1m high, including c25 reinforced concrete post at 3.00m spacing, an access gate and all foundation works as per drawing to protect the pump and borehole from animals (approximately 30 meters)	Item	1		-	-
	Total carried to collection of ELEMENT No. 3				-	-
	COLLECTION					
	Collection 01				-	-
	Collection 02				-	-
	Total for ELEMENT No. 3 carried to Summary				-	-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

NATABA

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	SUMMARY					
1	Drilling works				-	
2	Testpumping and completion				-	
3	Platform construction and hand pump installation				-	
4	TOTAL RATE ONLY ITEMS; Drilling dry holes, Test pumping for boreholes yield >1.5m ³ , supply and installation of solar pumps, pannels and pipeworks (total amount for all items with "RATE ONLY"; in amount column)				-	-
	Total Amount to Grand Summary				-	-

**BOREHOLE
AT
LOKORIMONGIN**

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

OP LOKORIMONGIN

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	ELEMENT No. 1: BOREHOLE CONSTRUCTION WORKS					
A	DRILLING FOR A SUCCESSFUL BOREHOLE					
	Item "1.01 to 1.11" only apply to a successful boreholes where the expexcted water yield is achieved					
	<i>Hydro-geological survey to locate suitable site for borehole.</i>					
1.01	Drilling in overburden with a minimum of 10 5/8" Tricone roller/ DRAG bits in overburden including instalation and removal of 10" ID MS temporary casings.	m	25		-	
1.02	Drilling 8" (200mm) bore 25-80 mbgl in semi consolidated formation or fractured zone	m	35		-	
1.03	Drilling in hard rock at 6 7/8" dia. (50-130mbgl)	m	70		-	
1.04	Sampling and storage of drill cuttings at 3m intervals or as instructed by the Engineer	No.	43		-	
1.05	Supply and Installation of uPVC plain casings (5"ND), including centralizers and bottom cap, 3m long, Class 10 (UNBS approved)	m	118		-	
1.06	Supply and Installation of uPVC screens (5"ND), 3m long, Class 10 (UNBS approved)	m	12		-	
1.07	Supply and installation of cement grouting	kg	100		-	
1.08	Supply and installation of gravel pack 50 Kg Bag	Kg	60		-	
1.09	Supply and Installation of inert backfill	No.	1		-	
1.10	Casting of sanitary seal	No.	1		-	
1.11	Well development	Hr	3		-	
B	DRILLING OF A NON SUCCESSFUL BOREHOLE (DRY HOLE)					
1.12	Allow for the drilling of a dry/low yield well, its treatment; including mobilisation, movement, demobilisation and all associated works	Sum	1		RATE ONLY	-
Total for ELEMENT No. 1 carried to Summary						-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

OP LOKORIMONGIN

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	ELEMENT NO.2 TEST PUMPING, WATER QUALITY ANALYSI AND COMPLETION					
2.01	Test Pumping Installation & Removal	No.	1		-	
2.02	Pumping Time (for hand pump)	Hr	3		-	
2.03	Recovery Time (for hand pump)	Hr	1.5		-	
2.04	Step test and long duration test (for yield above 1,500 l/hr at end of well development)	Hr	28		RATE ONLY	-
2.03.1	Recovery Time (after step test & long duration)	Hr	6		RATE ONLY	-
2.04.2	Well capping	No.	1		-	
2.05	Water quality analysis (Physical, Chemical and Bacteriological) "water quality test to include tests for arsenic, fluoride and faecal matter in accordance with the WHO standards" at WRMD/NWSC Laboratories	LS	1		-	
2.06	Clearing Site	No.	1		-	
2.07	Standing Time	Hr	2		RATE ONLY	-
	Total for ELEMENT No. 2 carried to Summary				-	-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

OP LOKORIMONGIN

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3.06	Plaster platform and drainage channel in waterproof cement screed (1:3) to smooth finish	No	1		-	
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3.17	Solar PV panel mount frames made of dixon type mild steel angle iron with perforations and galvanised. (2No. Solar arrays of 5No panels each)	No	2		RATE ONLY	-
3.18	Installation materials including cables and all sundries.	Item	2		RATE ONLY	-
	Total carried to collection of ELEMENT No. 3				-	-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

OP LOKORIMONGIN

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	<u>Steel Tank Tower</u>					
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	Total carried to collection of ELEMENT No. 3				-	-
	COLLECTION					
	Collection 01				-	-
	Collection 02				-	-
	Total for ELEMENT No. 3 carried to Summary				-	-

Drilling of Five (05) Boreholes in the Selected Locations of Kidepo Valley National Park.

OP LOKORIMONGIN

Item	Description	Unit	Qty	Rate Ugx	Amount Ugx	Rate only Items AmountUgx
	SUMMARY					
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2	Testpumping and completion				-	
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4	TOTAL RATE ONLY ITEMS; Drilling dry holes, Test pumping for boreholes yield >1.5m ³ , supply and installation of solar pumps, pannels and pipeworks (total amount for all items with "RATE ONLY"; in amount column)				-	-
	Total Amount to Grand Summary				-	-