

<b>BOQ for Weiwei irrigation scheme Rehabilitaion Works(revised)</b>					
<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate</b>	<b>Amount Kshs.</b>
<b>I</b>	<b>Preliminary and general -provisional</b>				
	<b>Provide Contractual Requirements</b>				
I.1	Insurance of works	Sum	1	150,000	150,000
I.2	Insurance against damage to persons and property	Sum	1	150,000	150,000
	<b>Provisional Cost Sums</b>				
I.3	Provide for supervision cost to include Supply of stationary , airtime to supervising engineer's office and staff to be directed by project engineer	Sum	1	850,000	850,000
I.4	Provide and install the project's sign board as per drawings and as directed by the Engineer	Sum	2	50,000	100,000

1.5	Provide for survey work during setting out the project pipeline and hydraulic structures to the resident engineer's instructions and specifications	Sum	1	450,000	450,000
1.6	Payment of project site meetings during contract period as directed by the Engineer	Sum	1	550,000	550,000
1.7	Provide for 15% cost adjustment on items 1.2.1 to 1.2.4 above	Sum	1		292,500
	<b>sub total carried to summary</b>				<b>2,542,500.00</b>
2.0	<b>Intake</b>				
2.1	general clearance of the intake area , road works allowing for proper access to the weir.	m2	1500		
2.2	Desilting of the upstream of the intake location and removal of boulders length 70m from the weir,	m3	1750		

2.3	Provide all required materials and Rehabilitate Intake structure. Works to include toe and apron repair by installation of reinforced concrete works as directed by engineer class 20	m3	36		
2.4	intake protection work installation riprap concrete mortised 300mm	m3	80		
2.5	Removal and installation of new wash outcontrol gates galvanised steel high gauge 3mm thick with approved framing	no.	3		
2.6	fencing of the intake area with heavy duty barbed wire, precast concrete poles 125 mmx100mm x2.5m high & 14 gauge tripple twist chain link with two pedestrian steel gates all mortised in concrete as directed by the engineer	m	130		
2.7	Supply and intall 4m by 2m metallic cover for intake chamber I use 16 gauge ms sheet with approved framing	Nr.	1		

2.8	Supply and replace damaged Kee Klamp guardrails at the intake as per Engineers instructions, ground concreted as directed and drawing ,use 1.5 inch dia ms black pipe high 1.2m double rail vertical poles spaced 2m	M	150		
2.9	Supply, place and hand pack 2x1x1m gabion mesh with river stones to protect eroded river bank above the intake from floods as specified by the engineer (2x1x1)m gabion basket galvanised (60x 80) mm mesh size, wire dia 2.5mm, salvedge 3.2mm	no.	50		
3.10.	Smart water meter as per WRA recommendations 1000mm diameter pipe.	No.	1		
3.11	EO on main pipeline for gabions on hard rocks and boulders excavation at intake (provisional) to be directed by engineer	m3	500		
		<b>Sub-total</b>			

3.0	<b>1000 mm diameter Pipeline works</b>				
3.1	Protection of the 50 m length: Construction of gabions, and cover pipe with concrete mix. Protection of the hanging washout chamber (2x1x1)m gabion basket galvanised (60x 80) mm mesh size, wire dia 2.5mm, salvedge 3.2mm	No.	50		
3.2	Repair of 2 No. air valves and install on the 1000mm pipe as directed	Nr.	2		
3.3	Supply and Install 2 No. Manhole Covers - Square Fiber Manhole Cover 18" x 18" (450mmx450mm)	Nr.	2		
3.4	Excavate in pipe trench average of 1,2 m but not exceeding 3 m deep, 200 m long, minimum pipe cover 1000mm, backfilling after pipe fixing and spread extra materials at the leakge sections.	m3	120		

3.5	construct and Install 4 No. 400mmx400mm support reinforced concrete anchor pillars on the exposed hanged 1000mm main pipe class 20	m3	4.5		
3.6	provide 300mm mass concrete cover on exposed 1000mm Dia. pipe across the natural channel as directed.class 20	m3	50		
3.7	construct rc pillars size 400mm x400mm ,8 meter high to support exposed pipe 1000mm Area B class 20	m3	12		
3.8	provide protection to rc pillars buolders and mass concrete class 20	m3	40		
3.9	Provide and install manhole covers reinforced concrete 1.2mx1mx150mm for the wash outs along the main line	no.	3		
3.10.	Road repair works bush clearing 3km	m2	2100		
3.11	Road repair works light grading, light murraming and drainage works 4 km	m2	5200		

	<b>Sub-total</b>				
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	<b>Phase I &amp; 2 Works</b>				
4	<b>BOX CULVERT</b>				
4.1	<b>Prepare, compact and construct reinforced concrete double box culvert (10m high x 0.3m thick x 5.6m wide and 6 m long) as shall be directed by the engineer.</b>				
4.2	a)Excavation and placement of well compacted rock fill 300mm	m3	30		
	b)E O excavation (provisional) on hard rock for base and cannal lining for stability to be directed by engineer	m3	500		
4.3	Provide, place and compact Class 15(20) concrete blinding as instructed by the Engineer	m3	10		
4.4	Provide, place and compact reinforced concrete class 25(20) to base slab, wing walls,head wall,abutment wall,top and bottom slabs,Apron,Toe wall,,and approach slabs as shown in drawings.	m3	90		
4.5					-

4.6	<b><u>Reinforcement: Provide, cut, bend &amp; fix into position steel reinforcement as shown in the drawings or as instructed by the Engineer</u></b>				-
4.7	High yield reinforcement steel bars to BS 4461 equal to or less than 16mm diameter bar size	kg	10,015		
4.8	<b><u>Formwork : Provide,erect and afterwards dismantle and remove all the formwork as specified by the Engineer</u></b>				
4.9	Provide & fix in place vertical form work to achieve class F1 finish	m2	120		
4.10	Ditto but horizontal	m2	60		
4.11	Ditto but sloped.	m2	60		
4.12	Vertical form work to achieve class F3 finish	m2	120		
4.13	Provide material,prefabricate and erect metal handrail as shown in drawing and as directed by engineer ,use 50mm dia black pipems black pipe hieght 1.2m double rail vertical poles spaced 2m	m	60		



	<b>Protection Works</b>				-
4.14	Provide stone pitching on approach and downstream of the culvert channel. , and walls and as shall be directed.	m2	600		
4.15	Top soiling and grassing of disturbed and fill areas using set aside topsoil	m2	1,000		
4.16	Provide diversion canal to avoid erosion and at the upstream section of the embankment wall to the down stream till the bed of the stream	m3	675		
4.17	Excavate for and provide gabion checks along the diversion canal. Rate to include excavation, filling with boulders and downstream apron protection. Gabions to be 0.6m above canal bottom level. add-(2x1x1)m gabion basket galvanised (60x 80) mm mesh size, wire dia 2.5mm, salvedge 3.2mm	no.	25		
	<b>TOTAL FOR BOX CULVERT CARRIED TO SUMMARY PAGE</b>				-

5.0	<b>Replacement of the 450mm dia hdpe in area A</b>				
5.1	Supply and replace/lay galvanized steel pipe DN 450 mm, 30 m length together with couplings complete with ring bolts, nuts and washers (Leakage) class C	m	30		
5.2	supply install 450 mm steel elbows   35 degrees	no.	2		
5.3	Supply and Install 14 No. Manhole Covers - Square Fiber Manhole Cover 18" x 18" (450mmx450mm) for both phase 1 and 2 plots	no.	14		
5.4	provide mass concrete cover to 450mm dia pipe class 20	m3	45		
6.0	<b>Valve Chambers and control gates</b>				
	<b>valve chamber area A</b>				

6.1	Construct Masonry Sluice Gate Valve Chambers 2m x 2m x2m and install cast iron gate/control valve pegler type,complete with scour pipe to replace the broken valve in Area A meant to control flow to Phase III	no.	1		
	<b>Area F</b>				
6.2	Supply and replace/lay hdpe pipe DN250 mm, pn 12.5 class D, 30 m length together with couplings complete with ring bolts, nuts and washers (Leakage)	m	30		
	<b>Area D</b>				
6.3	Install/repair cast iron gate/control valve pegler type,complete with scour pipe to replace the leaked valve in Area D meant to control flow to Phase III	No.	2		
7.0	<b>Other infield works</b>				
7.1	open up clogged farm drainages in area C, D, F and G using a backhoe.	M	2,000		

7.2	provide 400mm VJ coupling /double socket pvc slip coupler rubber ring joint for pvc	Nr.	3		
7.3	provide 315mm VJ coupling /double socket pvc slip coupler rubber ring joint for pvc	Nr.	3		
7.4	provide 250mm VJ coupling /double socket pvc slip coupler rubber ring joint for pvc	Nr.	3		
7.5	Seal the leaked main steel pipe in area C and leaked steel air valve by welding	Lumpsum	1		
7.6	provide and install 32mm diameter Ball valve (pegler)	Nr.	50		
		<b>Sub-total</b>			
	<b>Road works</b>				
8.1	Light grade new and existing carriageway to camber including slopes and ditches in area A and D as instructed by the engineer.	m2	50,000		
8.2	Farm road murraming /re gravelling	<b>m3</b>	2000		

8.30	supply irrigation equipment <b>set</b> for two hectare ; which has the following; 6m long ,diameter 50mm/ 0.7 mm galvanised steel laterals ; (24no. plain and 8 no. with riser orifice complete with couplers rubber rings and end caps, ) 4no sprinkler stands/clamps 3/4 " ,1.5 m high with stabilizer foot and all fittings and one 90 degree elbow steel 50mm with quick couplers	<b>Set</b>	25		
	<b>Phase 3</b>				
8.40	Supply and Install 30 No. Manhole Covers - Square Fiber Manhole Cover 18" x 18" (450mmx450mm)	Nr.	30		
		<b>Sub-total</b>			
9.0	<b>flyover repairs due to flood damage</b>				
9.1	supply install 315 mm dia galvanised steel flanced pipes class C at river rates to include appropriate steel and RC anchors class20 as directed by the engineer	<b>m</b>	54		
9.2	install flanged coupling gavanised steel to uvpc 315 mm	<b>no.</b>	6		
9.3	315mm galvanised steel elbow class D 135 degrees	<b>no.</b>	1		

9.3	RC protection concrete on 315 pipe and angors class 20	m3	7		
9.4	supply install upvc 315 pipes class D rates to include for excavation and backfilling depth ne 1.5m	m	90		
		<b>sub total</b>			
	<b>Summary Page</b>				
<b>1.0</b>	<b>Preliminary and general</b>				<b>2,542,500.00</b>
<b>2.0</b>	<b>Intake</b>				
<b>3.0</b>	<b>1000 mm diameter Pipeline works</b>				
<b>4.0</b>	<b>;Box Culvert</b>				
<b>Bill5, 6 and 7</b>	<b>Replacement of the 450mm dia hdpe in area A,Valve Chambers and control gates</b>				
<b>8.0</b>	<b>Infield and Road works</b>				
<b>9.0</b>	<b>Flyover repairs due to flood damage</b>				
		<b>Total</b>			
<b>9.0</b>	<b>Dayworks (provisional)</b>	10% of the total works			
		<b>Grand Total</b>			