

CONTRACT NO : RFP208/2024
CONSTRUCTION OF PHASE 1 ROOIWAL WWTW

PART 3: ELECTRICAL AND MECHANICAL EAST WORKS BOQ

CITY OF TSHWANE
CONTRACT NO : RFP208/2024
CONSTRUCTION OF PHASE 1 ROOIWAL WWTW EAST WORKS
ELECTRICAL AND MECHANICAL FINAL SUMMARY

ITEM	DESCRIPTION	AMOUNT
1	PRELIMINARY AND GENERAL	
2	ELECTRICAL WORKS	
3	MECHANICAL WORKS	
	SUBTOTAL	
	This sum will be under the sole control of the Engineer and may be deducted in part or full.	
	ADD CONTINGENCY 10%	
	EPWP TRAINING	
	Allow for EPWP Training	R1,000,000.00
	SUBTOTAL Excl VAT	
	ADD VAT (15%)	
TOTAL CARRIED TO FORM OF OFFER		

CITY OF TSHWANE
CONTRACT NO : RFP208/2024
CONSTRUCTION OF PHASE 1 ROOIWAL WWTW
ELECTRICAL AND MECHANICAL SECTION: P&GS

ITEM	DESCRIPTION	UNIT	QTY	RATES	AMOUNT
1	The supply, installation, testing, commissioning and a 52 week defects liability period in accordance with this bill of material, Local Supply Authority's by-laws & regulations, National Building Regulations, detailed electrical specification, SANS 10142-1: 2003 (Code of Practice), Occupational Health and Safety Act, General Conditions of Contract and drawings listed in the detailed specification. Schedule No 1 Preliminary and General Fixed charge items				
1.1	Site establishment Allow for site establishment, and for storage of plant, materials and equipment including protection thereof.	Item	1		
1.2	Site disestablishment Allow for the demolishing and removal of the site camp upon completion of the contract.	Item	1		
1.3	Commissioning and testing Supply all test equipment and labour for testing and commissioning of the final installation.	Item	1		
1.4	Guarantee Allow for a guarantee period of 12 months against defect in equipment, material and workmanship, but wear and tear and normal maintenance excluded.	Item	1		
1.5	Additional fixed charge items Any additional item(s) that the tenderer may wish to detail and price.	Item	1		
1.6	AS BUILT DRAWINGS The marking - up of "As Built" drawings during the contract to ensure that accurate "As Built" drawings are submitted to the Engineer at the end of the contract.	Sum	1		
1.7	Training of Staff	Sum	1		
1.71	Contractor to allow for CIDB Built Programme	Prov Sum	1	5%	
1.8	OPERATING & MAINTENANCE MANUALS Compilation of an O & M manual	Sum	1		
1.90	.14 Provisional sum for salary of CLO and travel assistance of Project Steering Committee Members appointed by Employer	Prov Sum	1	300,000.00	-
1.10	Profit and attendance on item 1.10	%		300,000.00	
TOTAL CARRIED FORWARD					-

CITY OF TSHWANE
CONTRACT NO : RFP208/2024
CONSTRUCTION OF PHASE 1 ROOIWAL WWTW
ELECTRICAL AND MECHANICAL SECTION: P&GS

ITEM	DESCRIPTION	UNIT	QTY	RATES	AMOUNT
BROUGHT FORWARD					-
1.11	Occupational Health and Safety:				
1.11.1	General safety obligations				
1.11.1	Mandatory Signage / Road signs	Sum			
1.11.2	Safety Poster including Acts & Regulations	Sum			
1.11.3	Safety office / shed or container	Month			
1.11.4	Allowance for toilets (Gender specific)	Each			
1.11.5	Lay down & storage areas	Sum			
1.11.6	Employee eating area	Sum			
1.11.7	Hand washing & sanitizing stations	Sum			
1.12	Safety Planning				
1.12.1	Safety file and Risk Assessment	Sum			
1.12.2	Health and safety plan	Sum			
1.12.6	Medical assessment of employees (Entrance & Exit) &	Sum			
1.12.7	Fall Protection Plan	Sum			
1.12.8	Traffic Management Plan	Sum			
1.13	Safety Personnel				
1.13.2	Construction safety officer (Full time)	Month			
1.14	OHS Training				
1.14.1	Safety Representative Training	Each			
1.14.2	First Aid Training	Each			
1.14.3	Construction vehicle operators	Each			
1.14.4	Working at Heights training	Each			
1.14.5	Fire fighting training	Each			
1.15	Personal Protective Equipment (PPE)				
1.15.1	Work overalls - Reflective Conti suits (Min 2 pairs each)	Each			
1.15.2	Safety Shoes	Each			
1.15.3	Gum Boots	Each			
1.15.4	Hardhats	Each			
1.15.5	Reflective vests	Each			
1.15.6	Ear Plugs (100's)	Box			
1.15.7	Ear Muffs	Each			
1.15.8	Full body Safety Harness (Double lanyard)	Each			
TOTAL CARRIED FORWARD					-

CITY OF TSHWANE
CONTRACT NO : RFP208/2024
CONSTRUCTION OF PHASE 1 ROOIWAL WWTW
ELECTRICAL AND MECHANICAL SECTION: P&GS

ITEM	DESCRIPTION	UNIT	QTY	RATES	AMOUNT
BROUGHT FORWARD					-
1.15.9	Life Lines	Each			
1.15.10	Dust / Cloth Masks (100s)	Box			
1.15.11	Eye protection (Safety Glasses)	Each			
1.15.12	Hand Protection (Gloves) 100pcs	Bulk			
1.15.13	Barricade Netting (1 x 50m)	Sum			
1.15.14	Edge protection material & equipment	Sum			
1.15.15	Fire Extinguishers (9kg)	Each			
1.15.16	First Aid box (GR3 kit). Including refill kits required.	Each			
1.15.17	Spill kit (120litre)	Each			
1.15.18	Lock out items (locks, tags,safes, etc..)	Sum			
1.15.19	Emergency air siren	Each			
1.15.20	Rescue equipment	Sum			
TOTAL CARRIED FORWARD TO FINAL SUMMARY PAGE					-

CITY OF TSHWANE

CONTRACT NO : RFP208/2024

ELECTRICAL & ELECTRONICS SECTION

SCHEDULE	DESCRIPTION	TOTAL	TOTAL
		LABOUR	MATERIAL
Schedule 1:	East Works Electrical	R 0.00	R 0.00
Total Labour and Material			
<u>Provisional sums</u>			
	Lightning Protection System		R 35 000.00
	MV Equipment & Switchgear Repair & Upgrade		R 125 000.00
	Rerfubishment of 16 X Highmast Light Structures & Kiosks		R 320 000.00
TOTAL CARRIED FORWARD TO FINAL SUMMARY PAGE			R 0.00

CITY OF TSHWANE
CONTRACT NO :RFP208/2024
ELECTRICAL SECTION: EAST WORKS

				PRICES			
ITEM	DESCRIPTION		EST	UNIT	RATES	TOTAL	TOTAL
		UNIT	QTY	LABOUR	MATERIAL	LABOUR	MATERIAL

3		Schedule No 3 EAST WORKS									
	3.1	300A, 30kA three pole circuit breaker and cradle to be installed into existing mini substation.	No		1			R	-	R	-
	3.2	Manufacture, supply, off loading and installation of the Inlet Works IP66 Stainless Steel MCC including commissioning as detailed in the specifications and drawings.	No		1			R	-	R	-
	3.3	Manufacture, supply, off loading and installation of the Inlet Works IP66 Stainless Steel MCC including commissioning as detailed in the specifications and drawings to cater for 2 x Mechanical Screens, 2 x Conyeros, PLC, Local DB& 2x Compressors)	No		1			R	-	R	-
	3.4	Refurbish and rewire of the existing MCC including commissioning as detailed in the specifications and drawings.	No		1			R	-	R	-
	3.3	LV CABLE PVC/SWA/PVC copper conductor cables strapped to cable ladders. (trenches, sleeves and cable terminations measured elsewhere):						R	-	R	-
a		95mm2 x 4 core (MCC / DB supply)	m		200			R	-	R	-
b		70mm2 Kwena earthing conductor	m		200			R	-	R	-
c		16mm2 x 4 core (panel)	m		20			R	-	R	-
d		6mm2 x 4 core (compressor cable)	m		20			R	-	R	-
e		6mm2 x 4 core (welding socket)	m		10			R	-	R	-
f		1.5mm2 x 3 core (emergency stop cable)	m		30			R	-	R	-
	3.4	LV CABLE TERMINATION: PVC/SWA/PVC Exe corrosion guard cable glands (IP68) complete including conductor & earth termination, luas, tapes, drilling etc						R	-	R	-
a		95mm2 x 4 core (MCC / DB supply)	No		2			R	-	R	-
b		70mm2 Kwena earthing conductor	No		2			R	-	R	-
c		16mm2 x 4 core (control panel)	No		2			R	-	R	-
d		6mm2 x 4 core (compressor cable)	No		6			R	-	R	-
e		1.5mm2 x 3 core (emergency stop cable)	No		4			R	-	R	-
TOTAL CARRIED FORWARD								R	-	R	-

BROUGHT FORWARD						R	-	R	-
	3.5	CABLE EXCAVATION:							
a		Pickable material	m ³	50		R	-	R	-
b		Soft Rock	m ³	20		R	-	R	-
c		Hard Rock	m ³	20		R	-	R	-
d		Backfilling & Compaction	m ³	90		R	-	R	-
	3.6	CABLE ROUTE MARKERS: The supply and installation of concrete cable route markers	No	10		R	-	R	-
						R	-	R	-
	3.7	CABLE LADDER AND TRAY: OL55 duplex coating (exterior polyester) 3CR12 cable ladder including all accessories mounted to concrete slabs / walls.				R	-	R	-
a		100mm cable ladder	m	20		R	-	R	-
b		100mm 90o bends	No	4		R	-	R	-
c		100mm duplex coating (exterior polyester) 3CR12 cable tray.	m	20		R	-	R	-
						R	-	R	-
	3.8	LOCAL EMERGENCY STOP STATIONS:				R	-	R	-
a		Surface mounted IP65 emergency stop push buttons.	No	2		R	-	R	-
b		Stainless Steel support stands for the above item.	No	2		R	-	R	-
						R	-	R	-
	3.9	Surface mounted 35A, 5 pin 3 phase welding socket including male plug. (to be mounted brick wall)	No	1		R	-	R	-
		LIGHTING AND SMALL POWER				R	-	R	-
	3.1	GALVANISED CONDUIT:				R	-	R	-
a		Surface mounted 20mm galvanised conduit including couplings, galvanised saddles and all accessories.	m	60		R	-	R	-
c		Surface mounted round galvanised 20mm conduit boxes including galvanised cover plate.	No	7		R	-	R	-
	3.11	PHOTO CELL:				R	-	R	-
a		Royce Thompson photo cell including conduit box.	No	1		R	-	R	-
						R	-	R	-
	3.12	WIRING PVC insulated copper conductors drawn into galvanised conduit:				R	-	R	-
a		1.5mm2	m	150		R	-	R	-
b		2.5mm2	m	200		R	-	R	-
						R	-	R	-
	3.13	EARTH WIRING BCEW drawn into galvanised conduit:				R	-	R	-
a		2.5mm2	m	350		R	-	R	-
						R	-	R	-
	3.14	LUMINAIRES To be mounted to suspended ceilings and to brick walls:				R	-	R	-
a		2 x 36W IP65 vapour proof LED luminaire complete Driver.	No	4		R	-	R	-
						R	-	R	-
b		2 x 36W IP65 vapour proof LED Emergency Maintained luminaire complete Driver.	No	2		R	-	R	-
						R	-	R	-
	3.15	LIGHT SWITCHES Industrial surface mounted 16A single lever two way switch.	No	2		R	-	R	-
TOTAL CARRIED FORWARD TO SUMMARY						R	-	R	-

	Mechanical				
Section	Rooiwal East				
	Description	Unit	Qty	Rate	Total
1	<u>Inlet Screens</u>				
1.01	Refurbish inlet sluice gates: This should include removal, disassembly, corrosion treatment, lubrication, handwheel maintenance, refurbishment of guides and all associated seals.	ea	3	R0.00	R0.00
1.02	Provision of for Derusting and Corrosion protection of inlet works mentis grid hand railing.	sum	1	R0.00	R0.00
1.03	Corrosion protection of all the floor gratings at the inlet works	sum	1	R0.00	R0.00
1.04	Supply and installation of 1500mm x 1500mm fine expanded metal or grating downstream of the three rung steps at inlet channel number 2.	ea	1	R0.00	R0.00
1.05	Refurbishment of the mechanical inlet screen no 1 including repairs to the chain rollers, sprockets, supply of new proximity switch, new chains, damaged floating bars, damaged scraper bucket, replacement of the rakes with double sided rakes, service of the screen motor and replacement of the stainless steel four rakes at the scrapper.	ea	1	R0.00	R0.00
1.06	Supply and installation of a new mechanical inlet screen to readily fit into the 1700mm wide inlet channel number 2. The mechanical screen must be supplied as per the provided specification and similar to the mechanical screen on inlet 1. The screen must come complete with motor and accessories to empty into the horizontal screw.	ea	1	R0.00	R0.00
1.07	Provision for major service of the removed screen on inlet channel no 2.	ea	1	R0.00	R0.00
1.08	Refurbish horizontal screw including changing of the bearings and modification at the bearing block to prevent ingress of water into the bearings.	ea	1	R0.00	R0.00
1.09	Supply and Install rising (inclined) screw conveyor including the replacement of shaft (Ø50mm x 4m), flight and modifications to the bearing blocks to prevent ingress of water as per specification provided.	ea	1	R0.00	R0.00
1.1	Refurbish Outlet sluice gates: This includes removal, disassembly, corrosion treatment, lubrication, handwheel maintenance, refurbishment of guide, and all associated seals.	ea	3	R0.00	R0.00
1.11	Supply and install of plain stainless steel identification plates at the inlet screens.(130mm x35mm x1mm Thick must include punching of ID Codes with Stainless Steel wire crimp)	sum	1	R0.00	R0.00
					R0.00
	Total Brought Forward from Last Page				R0.00
2	<u>Degritter Chamber</u>				
2.01	Refurbish Degritter Inlet sluice gates: This includes removal, disassembly, corrosion treatment, lubrication, handwheel maintenance, refurbishment of guides and all associated seals.	ea	2	R0.00	R0.00

2.02	Replacement of all the deflector plates (400mm × 200mm) at the degritter chamber. The plates to be corrosion protected.	ea	26	R0.00	R0.00
2.03	Removal, corrosion protection, painting, and reinstallation of the the mentis handrails at the Degritter Chambers.	ea	1	R0.00	R0.00
2.04	Corrosion Protection of the floor grating at the degritter chamber bridge 1200mm × 600mm in size.	ea	4	R0.00	R0.00
2.05	Supply and Installation of new mild steel and corrosion protected Grit scrapers as per specifications provided.	ea	2	R0.00	R0.00
2.06	Replacement of the grit scraper drive motor (0,75kW Motor).	ea	1	R0.00	R0.00
2.07	Refurbish grit scraper motor gearbox.	ea	2	R0.00	R0.00
2.08	Supply and Installation of new grit removal submissible pumps preferably HCP or equivalently approved (4 Pole Motor x Vortex Impellers with duty 16l/s@ 8m Head).	ea	2	R0.00	R0.00
2.09	Supply of flexible hose for degritter pumps (Ø80mm).	m	30	R0.00	R0.00
2.1	Supply and Installation of new gate valves for grit classifier piping (Ø100mm).	ea	4	R0.00	R0.00
2.11	Supply and installation of Non return valves for grit removal piping (Ø100mm).	ea	2	R0.00	R0.00
2.12	Replace Motor and Gearbox for the screw conveyor at the grit classifier 1 (0,75kW).	ea	1	R0.00	R0.00
2.13	Refurbish grit classifier No 1 including corrosion protection of the screw, changing of the Ø50mm bearings and modifications at the bearing blocks to prevent ingress of water into bearings, and refurbishment of the wear lining. Refurb and paint grit classifier return line.	ea	1	R0.00	R0.00
2.14	Refurbish grit classifier No 2.	ea	1	R0.00	R0.00
2.15	Derust, repair, corrosion protection and painting of the Ø150mm return piping from the grit classifiers 1 and 2 including replacement of gaskets and rusted bolts at the flanges.	m	20	R0.00	R0.00
2.16	Supply and Install a new screw conveyor at grit classifier no 2 as per the specification provided. This includes a new shaft, flight, linings, bearings, and wear lining.	ea	1	R0.00	R0.00
2.17	De-rust and painting of manual lifting equipment at the grit chambers.	ea	2	R0.00	R0.00
2.18	De-rust and paint the degritter bridge beams.	ea	2	R0.00	R0.00
2.19	Supply and install of plain stainless steel identification plates at the degritter chambers.(130mm x35mm x1mm Thick must include punching of ID Codes with Stainless Steel wire crimp)	sum	1	R0.00	R0.00
	Total Carried forward to Next Page				R0.00
	Total Brought Forward from Last Page				R0.00
3	<u>Primary Settling Treatment</u>				
3.01	Refurbish Sluice gates at the PST Division Chambers.	ea	4	R0.00	R0.00
3.02	Refurbish Sluice gates at the PST Inlets.	ea	8	R0.00	R0.00

3.03	Replace all the asbestos scum baffles at the Primary settling tanks with Stainless Steel baffles preferably Grade 304 or better approved.	ea	8	R0.00	R0.00
3.04	Replace the entire scum remover mechanicals including the motor, gearbox, scraper arm, scraper rubber, draw off line, and scraper bridge.	ea	8	R0.00	R0.00
3.05	Supply and Installation of New Tip Valves x Ø200mm made from 304 Stainless Steel.	ea	8	R0.00	R0.00
3.06	Refurbishment of scum isolating valves (Ø450mm).	ea	8	R0.00	R0.00
3.07	Refurbish all IQ12 x 81Nm Rotork Actuators for Primary Sludge Draw off.	ea	8	R0.00	R0.00
3.08	Supply and installation of lateral supports for the shafts connecting the draw off valves and the rotork actuators.	ea	8	R0.00	R0.00
3.09	Refurbish the fine screens 1: The refurbishment should include the changing of the bottom bearing for the bottom shaft, top bearing for the top shaft, replacement of the broken stainless steel racks (four off) and conveyor shaft. New rakes must be double raked with teeth opening of 6mm and bar gaps 10mm.	ea	1	R0.00	R0.00
3.1	Refurbish the fine screens 2: The refurbishment should include the changing of the bottom bearing for the bottom shaft, top bearing for the top shaft, replacement of the 0,5kW Gearbox and motor, replacement of the broken stainless steel racks (four off) and conveyor shaft. New rakes must be double raked with teeth opening of 6mm and bar gaps 10mm.	ea	1	R0.00	R0.00
3.11	Supply of new fine screen bins as per specification and drawings.	ea	1	R0.00	R0.00
3.12	Supply and install of plain stainless steel identification plates at the primary settling tanks.(130mm x35mm x1mm Thick must include punching of ID Codes with Stainless Steel wire crimp)	sum	1	R0.00	R0.00
	Total Carried forward to Next Page				R0.00
	Total Brought Forward from Last Page				R0.00
4	Primary Sludge Pump Station				
4.01	Refurbish the Manual Isolation Ø300mm valves into the Primary Sludge Pump station. This includes the bypass valve between sump 1 and 2.	ea	3	R0.00	R0.00
4.02	Refurbish Manual Suction Isolating valves for the sludge pumps x Ø300mm.	ea	5	R0.00	R0.00
4.03	Supply and install HCP or equivalently approved submersible (1,5kW x 2-Pole Motor x Vortex Impeller with Duty 3l/s @ 14m Head) drainage pump including float switch and piping to discharge (Allow for Ø50mm pipe x 6m of mild steel piping) back into the primary sump.	ea	1	R0.00	R0.00
4.04	Derust, corrosion treatment, and painting of the 2T beam inside the plant room.	ea	1	R0.00	R0.00
4.05	Load Test and certify 2T Single Beam lifting equipment.	ea	1	R0.00	R0.00

4.06	Supply and install of plain stainless steel identification plates at the primary sludge Pumpstation.(130mm x35mm x1mm Thick must include punching of ID Codes with Stainless Steel wire crimp)	sum	1	R0.00	R0.00
4.09	Fines Screen No 1: Refurbish bars, rake, top and bottom bearings. Rakes to be double-raked. Replace motor and gearbox. Rake teeth opening of 6mm, bars shall have a gap of 10mm.	each	1	R0.00	R0.00
4.10	Fines Screen No 2: Refurbish the fine screen including the replacement of the conveyor motor and gearbox.	each	1	R0.00	R0.00
5	<u>Anaerobic Digester Plant</u>				
5.01	Replace Mixing Pumps (Vaughan Model HE8N100SB × 1900m3/h @ 39m Head) complete with Motor .	ea	3	R0.00	R0.00
5.02	Refurbish Inflow Isolating Valves (Ø400mm).	ea	8	R0.00	R0.00
5.03	Refurbish Manual Outflow Isolating Valves (Ø400mm).	ea	8	R0.00	R0.00
5.04	Refurbish Manual Supernatant Water Isolating Valves (Ø80mm).	ea	24	R0.00	R0.00
5.05	Refurbish Mixing Valves (Ø250mm).	ea	24	R0.00	R0.00
5.06	Refurbish Rotork actuators for the mixer Inlet valves.	ea	8	R0.00	R0.00
5.07	Derusting, corrosion protection and painting of all exposed piping and fittings at each digester tank.	ea	8	R0.00	R0.00
5.08	Refurbish sludge feed manifold Isolating valves (Ø400mm)	ea	2	R0.00	R0.00
5.09	Supply and install of plain stainless steel identification plates for the Anaerobic digester Plant.	sum	1	R0.00	R0.00
5.1	Piping Labeling at each Digester Plant.	ea	1	R0.00	R0.00
5.11	Supply and install of plain stainless steel identification plates at the Anaerobic Digester Plant.(130mm x35mm x1mm Thick must include punching of ID Codes with Stainless Steel wire crimp)	sum	1	R0.00	R0.00
	Total Carried forward to Next Page				R0.00
	Total Brought Forward from Last Page				R0.00
6	<u>Digested Sludge Pump Station</u>				
6.01	Refurbish the Gorman Rupp Ultra V6A60 pumps, including replacing missing components to restore the pump to full operation.	ea	1	R0.00	R0.00
6.02	Replace Gorman Rupp Ultra V6A60 Pump as per specification.	ea	1	R0.00	R0.00
6.03	Refurbish all manual suction and discharge valves (Ø225mm).	ea	4	R0.00	R0.00
6.04	Supply and install HCP or equivalently approved submersible (1,5kW x 2-Pole Motor x Vortex Impleller with Duty 3l/s @ 14m Head) drainage pump including float switch and piping to discharge (Allow for Ø50mm pipe x 6m of mild steel piping) back into the primary sump.	ea	1	R0.00	R0.00
6.05	Derust, corrosion treatment, and painting of the 2T beam inside the plantroom.	ea	1	R0.00	R0.00

6.06	Load Test and certify 2T Single Beam lifting equipment.	ea	1	R0.00	R0.00
6.07	Supply and install of plain stainless steel identification plates at the Digested Sludge Pump Station.(130mm x35mm x1mm Thick must include punching of ID Codes with Stainless Steel wire crimp)	sum	1	R0.00	R0.00
6.08	Refurbishment of Ø300mm inlet valves in situ at Digested sludge Pumpstation	ea	2	R0.00	R0.00
7	Bio Filters			R0.00	R0.00
7.01	Refurbish Sluice Gates at the main dividing chambers.	ea	8	R0.00	R0.00
7.02	Refubish the dosing siphon cast iron dome which includes rust removal, corrosion treatment and coating.	ea	8	R0.00	R0.00
7.03	Replace dome pipe and fittings (Ø60mm × Sch 80).	m	64	R0.00	R0.00
7.04	Supply and Install dome Supports(Minimum of 3 supports per dome required)	ea	48	R0.00	R0.00
7.05	Supply and Install Hand Stops at the Biofilter dividing Chambers.	ea	16	R0.00	R0.00
7.06	Quote to Strip and Refurbish biofilter centre columns. Refurbishment must include crannage removal, disassembly, assessment, replacement of top bearings, replacement of the bottom bushing, bottom centre housing, sandblasting, corrosion treatment, reassembly and reinstalling crannage.	ea	8	R0.00	R0.00
7.07	Provision for Replacement of the center columns.	ea	8	R0.00	R0.00
7.08	Replacement of cross wire ropes holding distribution piping including replacement of the turnbuckles.	ea	64	R0.00	R0.00
7.09	Replacement of wire ropes from the supporting rods including the replacement of turnbuckles	ea	64	R0.00	R0.00
7.1	Refurbish the scour valves (Ø125mm).	ea	16	R0.00	R0.00
7.11	Supply and install of plain stainless steel identification plates at the Biofilters.(130mm x35mm x1mm Thick must include punching of ID Codes with Stainless Steel wire crimp)	sum	1	R0.00	R0.00
	Total Carried forward to Next Page				R0.00
	Total Brought Forward from Last Page				R0.00
8	Ferri Dosing Plant				
8.01	Supply and Installation of a pre-assembled Dosseuro or equivalently approved Ferri Dosing plant with four duty peristaltic pumps @ 271l/h + one standby pump. New plant must come fully tested and precommissioned to connect only to the existing outlet piping.	ea	1	R0.00	R0.00
8.02	Replace all PVC Piping inside the plantroom.	sum	1	R0.00	R0.00
8.03	Integrity Test and Certification of existing Ferri Bulk Tanks including sealing off the gap between the tank bottom and the floor with concrete.	ea	2	R0.00	R0.00
8.04	Replace all the PVC Ferri Chloride piping from the refill points,to the ferri tanks and then to the ferri dosing plant (Ø50mm).	sum	1	R0.00	R0.00
8.05	Supply and install of plain stainless steel identification plates at the Ferri Dosing Tanks.	sum	1	R0.00	R0.00

9	<u>Humus Tanks</u>				
9.01	Refurbish inlet sluice gates at the dividing chambers	ea	16	R0.00	R0.00
9.02	Replace all the asbestos scum baffles at the Primary settling tanks with Stainless Steel baffles preferably Grade 304 Or better approved.	ea	12	R0.00	R0.00
9.03	Supply of Towable Diesel Atlas Copco Compressor or equivalently approved better for unblocking sludge lines (200cfm minimum 7-12 Bars).	ea	1	R0.00	R0.00
9.04	Refurbish sludge and scum outlet valves (Ø100mm).	ea	12	R0.00	R0.00
9.05	Supply and install of plain stainless steel identification plates at the Humus Tanks.(130mm x35mm x1mm Thick must include punching of ID Codes with Stainless Steel wire crimp)	sum	1	R0.00	R0.00
	Total Carried forward to Next Page				R0.00
	Total Brought Forward from Last Page				R0.00
10	<u>Effluent and Humus Pump Station</u>				
10.01	Refurbish Isolating manual valves at the sump (Ø400mm).	ea	4	R0.00	R0.00
10.02	Refurbish Isolating manual humus valves at the humus pumps (Ø500mm).	ea	4	R0.00	R0.00
10.03	Paint all the humus piping inside the plantroom.	ea	1	R0.00	R0.00
10.04	Supply and Install 140l/s @ 25m Head End Suction Farmer Pump.	ea	1	R0.00	R0.00
10.05	Repair all leaks, treat corrosion and paint all piping at the farmers pumps (Ø600mm).	ea	1	R0.00	R0.00
10.06	Derust, corrosion protect and paint the 5T Single beams inside the plantroom.	ea	2	R0.00	R0.00
10.07	Certify and load Test beams and lifting equipment.	ea	2	R0.00	R0.00
10.08	Supply and install HCP or equivalently approved submersible (1,5kW x 2-Pole Motor x Vortex Impleller with Duty 3l/s @ 14m Head) drainage pump including float switch and piping to discharge (Allow for Ø50mm pipe x 6m of mild steel piping) back into the primary sump.	ea	1	R0.00	R0.00
10.09	Supply and install of plain stainless steel identification plates at the Effluent and Humus Pumpstation.(130mm x35mm x1mm Thick must include punching of ID Codes with Stainless Steel wire crimp)	sum	1	R0.00	R0.00
9	Construction Mechanical Drawings(Per Section)	ea	10	R0.00	R0.00
10	As Built Mechanical Drawings(Per Section)	ea	10	R0.00	R0.00
11	Datapak(Per Section)	ea	10	R0.00	R0.00
12	Training of Staff	ea	1	R0.00	R0.00
13	Maintenance Guarantees	ea	1	R0.00	R0.00
	Total Carried forward to Summary				R0.00