

CONTRACT NO : RFP207/2024  
CONSTRUCTION OF PHASE 1 ROOIWAL WWTW

## **PART 2: ELECTRICAL AND MECHANICAL BOQ NORTH AND WEST WORKS**

**CITY OF TSHWANE**  
**CONTRACT NO : RFP207/2024**  
**CONSTRUCTION OF PHASE 1 ROOIWAL WWTW**  
**ELECTRICAL AND MECHANICAL FINAL SUMMARY**

ITEM	DESCRIPTION	AMOUNT
1	PRELIMINARY AND GENERAL	
2	ELECTRICAL WORKS	
3	MECHANICAL WORKS	
	SUBTOTAL	
	ADD CONTINGENCY 10% This sum will be under the sole control of the Engineer and may be deducted in part or full.	
	EPWP TRAINING Contractor to Allow for EPWP Training	R2,000,000.00
	SUBTOTAL Excl VAT	
	ADD VAT (15%)	
TOTAL CARRIED TO FORM OF OFFER		

CITY OF TSHWANE CONTRACT NO : RFP207/2024 CONSTRUCTION OF PHASE 1 ROOIWAL WWTW ELECTRICAL AND MECHANICAL SECTION: P&GS					
ITEM	DESCRIPTION	UNIT	QTY	PRICES	
				UNIT	RATES
	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.				
1	<b>Schedule No 1 Preliminary and General Fixed charge items</b>				
1.1	Site establishment Allow for site establishment, and for storage of plant, materials and equipment including protection thereof.	Item	1		R0.00
					R0.00
1.2	Site disestablishment Allow for the demolishing and removal of the site camp upon completion of the contract.	Item	1		R0.00
					R0.00
1.3	Commissioning and testing Supply all test equipment and labour for testing and commissioning of the final installation.	Item	1		R0.00
					R0.00
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		R0.00
					R0.00
1.5	Additional fixed charge items Any additional item(s) that the tenderer may wish to detail and price.	Item	1		R0.00
					R0.00
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		R0.00
					R0.00
1.7	Training of Staff	Sum	1		R0.00
					R0.00
1.8	OPERATING & MAINTENANCE MANUALS Compilation of an O & M manual	Sum	1		R0.00
					R0.00
1.9	Environmental Specialist to be appointed by the project manager	Prov Sum	1	1,500,000.00	R0.00
					R0.00
1.10	.14 Provisional sum for salary of CLO and travel assistance of Project Steering Committee Members appointed by Employer	Prov Sum	1	300,000.00	R0.00
					R0.00
1.10	Profit and attendance on item 1.10	%		300,000.00	R0.00
					R0.00
1.11	Occupational Health and Safety:				R0.00
					R0.00
1.11.1	General safety obligations				R0.00
					R0.00
1.11.1	Mandatory Signage / Road signs	Sum			R0.00
					R0.00
1.11.2	Safety Poster including Acts & Regulations	Sum			R0.00
					R0.00
<b>TOTAL CARRIED FORWARD</b>					<b>R0.00</b>

BROUGHT FORWARD					R0.00
1.11.3	Safety office / shed or container	Month			R0.00
					R0.00
1.11.4	Allowance for toilets (Gender specific)	Each			R0.00
					R0.00
1.11.5	Lay down & storage areas	Sum			R0.00
					R0.00
1.11.6	Employee eating area	Sum			R0.00
					R0.00
1.11.7	Hand washing & sanitizing stations	Sum			R0.00
					R0.00
1.12	Safety Planning				R0.00
					R0.00
1.12.1	Safety file and Risk Assessment	Sum			R0.00
					R0.00
1.12.2	Health and safety plan	Sum			R0.00
					R0.00
1.12.6	Medical assessment of employees (Entrance & Exit) & Vaccines for for employees working within sewer	Sum			R0.00
					R0.00
1.12.7	Fall Protection Plan	Sum			R0.00
					R0.00
1.12.8	Traffic Management Plan	Sum			R0.00
					R0.00
1.13	Safety Personnel				R0.00
					R0.00
1.13.2	Construction safety officer (Full time)	Month			R0.00
					R0.00
1.14	OHS Training				R0.00
					R0.00
1.14.1	Safety Representative Training	Each			R0.00
					R0.00
1.14.2	First Aid Training	Each			R0.00
					R0.00
1.14.3	Construction vehicle operators	Each			R0.00
					R0.00
1.14.4	Working at Heights training	Each			R0.00
					R0.00
1.14.5	Fire fighting training	Each			R0.00
					R0.00
TOTAL CARRIED FORWARD					R0.00

BROUGHT FORWARD					R0.00
1.15	Personal Protective Equipment (PPE)				
1.15.1	Work overalls - Reflective Conti suits (Min 2 pairs each)	Each			R0.00
1.15.2	Safety Shoes	Each			R0.00
1.15.3	Gum Boots	Each			R0.00
1.15.4	Hardhats	Each			R0.00
1.15.5	Reflective vests	Each			R0.00
1.15.6	Ear Plugs (100's)	Box			R0.00
1.15.7	Ear Muffs	Each			R0.00
1.15.8	Full body Safety Harness (Double lanyard)	Each			R0.00
1.15.9	Life Lines	Each			R0.00
1.15.10	Dust / Cloth Masks (100s)	Box			R0.00
1.15.11	Eye protection (Safety Glasses)	Each			R0.00
1.15.12	Hand Protection (Gloves) 100pcs	Bulk			R0.00
1.15.13	Barricade Netting (1 x 50m)	Sum			R0.00
1.15.14	Edge protection material & equipment	Sum			R0.00
1.15.15	Fire Extinguishers (9kg)	Each			R0.00
1.15.16	First Aid box (GR3 kit). Including refill kits required.	Each			R0.00
1.15.17	Spill kit (120litre)	Each			R0.00
1.15.18	Lock out items (locks, tags,safes, etc..)	Sum			R0.00
1.15.19	Emergency air siren	Each			R0.00
1.15.20	Rescue equipment	Sum			R0.00
1.16	Contractor to allow for CIDB Built Programme	Prov Sum	1	R6,500,000.00	R0.00
1.17	Profit and attendance on item 1.16	%	0%	R0.00	R0.00
TOTAL CARRIED FORWARD TO FINAL SUMMARY PAGE					R0.00

## CITY OF TSHWANE

CONTRACT NO : RFP207/2024

## ELECTRICAL &amp; ELECTRONICS SECTION

SCHEDULE	DESCRIPTION	TOTAL	TOTAL
		LABOUR	MATERIAL
Schedule 1:	North Inlet PST Works	R 0.00	R 0.00
Schedule 2:	North Inlet Incinerator Building	R 0.00	R 0.00
Schedule 3:	North Reactors & SSTs	R 0.00	R 0.00
Schedule 4:	North Chlorine & Final Effluent Dam	R 0.00	R 0.00
Schedule 5:	West Works	R 0.00	R 0.00
Schedule 6:	WAS & Dewatering Works	R 0.00	R 0.00
Schedule 7:	IT Networks (Fibre)	R 0.00	R 0.00
Total Labour and Material		R 0.00	R 0.00
<u>Provisional sums</u>			
	PLC programming and HMI / SCADA configuration		R 850,000.00
	Lightning Protection System		R 1,200,000.00
	MVB Equipment & Switchgear Repair & Upgrade		R 3,200,000.00
	Rerfubishment of 16 X Highmast Light Structures & Kiosks		R 2,320,000.00
	East & West Balancing Tanks Electrical Works		R 1,800,000.00
Subtotal			R 0.00
VAT			R0.00
<b>TOTAL CARRIED FORWARD TO FINAL SUMMARY PAGE</b>			<b>R0.00</b>

## ELECTRICAL SECTION: NORTH WORKS - INLET PST

TOTAL CARRIED FORWARD	
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BROUGHT FORWARD					R0.00	R0.00
2.3	LV CABLE PVC/SWA/PVC copper conductor cables strapped to cable ladders. (trenches, sleeves and cable terminations measured elsewhere):					
a	120mm2 x 4 core (MCC supply)	m	60		R0.00	R0.00
b	95mm2 Kwena earthing conductor	m	60		R0.00	R0.00
c	16mm2 x 4 core (PST DB)	m	20		R0.00	R0.00
d	4mm2 x 4 core (PST Drive cable)	m	350		R0.00	R0.00
e	4mm2 x 4 core (Grit Classifier cable)	m	420		R0.00	R0.00
e	6mm2 x 4 core (welding socket)	m	170		R0.00	R0.00
f	1.5mm2 x 3 core (emergency stop cable)	m	120		R0.00	R0.00
					R0.00	R0.00
3.4	LV CABLE TERMINATION: PVC/SWA/PVC Exe corrosion guard cable glands (IP68) complete including conductor & earth termination, lugs, tapes, drilling etc				R0.00	R0.00
a	120mm2 x 4 core (MCC supply)	No	2		R0.00	R0.00
b	95mm2 Kwena earthing conductor	No	2		R0.00	R0.00
c	16mm2 x 4 core (PST DB)	No	2		R0.00	R0.00
d	4mm2 x 4 core (PST Drive cable)	No	12		R0.00	R0.00
e	4mm2 x 4 core (Grit Classifier cable)	No	12		R0.00	R0.00
e	6mm2 x 4 core (welding socket)	No	8		R0.00	R0.00
f	1.5mm2 x 3 core (emergency stop cable)	No	10		R0.00	R0.00
					R0.00	R0.00
3.5	CABLE EXCAVATION:				R0.00	R0.00
a	Pickable material	m <sup>3</sup>	100		R0.00	R0.00
b	Soft Rock	m <sup>3</sup>	52		R0.00	R0.00
c	Hard Rock	m <sup>3</sup>	50		R0.00	R0.00
d	Backfilling & Compaction	m <sup>3</sup>	202		R0.00	R0.00
					R0.00	R0.00
3.6	CABLE ROUTE MARKERS: The supply and installation of concrete cable route markers	No	10		R0.00	R0.00
TOTAL CARRIED FORWARD					R0.00	R0.00



<b>BROUGHT FORWARD</b>					R0.00	R0.00
3.7	CABLE LADDER AND TRAY: OL55 duplex coating (exterior polyester) 3CR12 cable ladder including all accessories mounted to concrete slabs / walls.				R0.00	R0.00
a	100mm cable ladder	m	15		R0.00	R0.00
b	100mm 90° bends	No	2		R0.00	R0.00
c	T - Bends	No	10		R0.00	R0.00
c	100mm duplex coating 3CR12 cable tray.	m	90		R0.00	R0.00
3.8	LOCAL EMERGENCY STOP STATIONS:				R0.00	R0.00
a	Surface mounted IP65 emergency stop push buttons.	No	18		R0.00	R0.00
b	Stainless Steel support stands Emergency Stop/Start Buttons	No	18		R0.00	R0.00
3.9	Surface mounted 35A, 5 pin 3 phase welding socket including male plug, IP65. (Wall Mounted)	No	15		R0.00	R0.00
	<b>LIGHTING AND SMALL POWER</b>				R0.00	R0.00
3.1	GALVANISED CONDUIT:				R0.00	R0.00
a	Surface mounted 20mm galvanised conduit including couplings, galvanised saddles and all accessories.	m	80		R0.00	R0.00
c	Surface mounted round galvanised 20mm conduit boxes including galvanised cover plate.	No	16		R0.00	R0.00
3.11	PHOTO CELL:				R0.00	R0.00
a	Royce Thompson photo cell including conduit box.	No	1		R0.00	R0.00
<b>TOTAL CARRIED FORWARD</b>					R0.00	R0.00

<b>BROUGHT FORWARD</b>						R0.00	R0.00
a	1.5mm2	m	0			R0.00	R0.00
b	2.5mm2	m	100			R0.00	R0.00
c	4.0mm2	m	150			R0.00	R0.00
d	6.0mm2	m	40			R0.00	R0.00
						R0.00	R0.00
3.13	EARTH WIRING BCEW drawn into galvanised conduit:					R0.00	R0.00
a	1.5mm2	m	0			R0.00	R0.00
b	2.5mm2	m	40			R0.00	R0.00
c	4.0mm2	m	50			R0.00	R0.00
d	6.0mm2	m	20			R0.00	R0.00
						R0.00	R0.00
3.14	LUMINAIRES To be mounted to suspended ceilings and to brick walls:					R0.00	R0.00
a	2 x 36W IP65 vapour proof LED luminaire complete Driver.	No	4			R0.00	R0.00
						R0.00	R0.00
b	2 x 36W IP65 vapour proof LED Emergency Maintained luminaire complete Driver.	No	2			R0.00	R0.00
						R0.00	R0.00
c	2 x 18W LED compact Outdoor bulkhead luminaire complete with Driver	No	2			R0.00	R0.00
						R0.00	R0.00
d	2 x 100W LED Floodlight with Driver Mounted on a 5.7m Stainless Steel Mast	No	3			R0.00	R0.00
						R0.00	R0.00
3.16	SOCKET OUTLETS Industrial surface mounted 16A single switched socket outlets.	No	1			R0.00	R0.00
<b>TOTAL CARRIED FORWARD TO SUMMARY</b>						<b>R0.00</b>	<b>R0.00</b>

**CITY OF TSHWANE**  
**CONTRACT NO : RFP207/2024**

**ELECTRICAL SECTION: NORTH WORKS - INLET INCINERATOR BUILDING**

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
<b>1</b>	<b>Schedule No 1 NORTH WORKS - INLET WORKS</b>						
1.1	Decommission and Deliver to Tshwane Stores old RMU, Transformer & Kiosk. Rehabilitate the grounds	No	1			R -	R -
1.2	Returbish existing MCC by Repalcing Aux. Equipment (New Power Meter, Ammeters, Voltmeters, Hour Meters) and rewire existing MCC as shown in the specifications and drawings(Single Line Diagrams). The refurbishment works are stated in the Scope of Works Document.	No	1			R -	R -
<b>3.3</b>	<b>Generator and ATS</b>						
a	500kVA Generator Set Complete with ATS, ,PIInth and 48 hour Diesel Backup Tank	m	1			R -	R -
<b>3.3</b>	<b>LV CABLE PVC/SWA/PVC copper conductor cables strapped to cable ladders. (trenches, sleeves and cable terminations measured elsewhere):</b>						
a	16mm2 x 4 core (Incinerator Blg. DB)	m	45			R -	R -
b	4mm2 x 4 core	m	0			R -	R -
c	6mm2 x 4 core (welding socket)	m	80			R -	R -
d	1.5mm2 x 3 core (emergency stop cable)	m	90			R -	R -
<b>TOTAL CARRIED FORWARD</b>						<b>R0.00</b>	<b>R0.00</b>

BROUGHT FORWARD						R0.00		R0.00	
3.4	LV CABLE TERMINATION: PVC/SWA/PVC Exe corrosion guard cable glands (IP68) complete including conductor & earth termination, lugs, tapes, drilling etc					R	-	R	-
a	16mm2 x 4 core (IncineratorDB)	No	2			R	-	R	-
b	4mm2 x 4 core	No	0			R	-	R	-
c	6mm2 x 4 core (welding socket)	No	8			R	-	R	-
d	1.5mm2 x 3 core (emergency stop cable)	No	8			R	-	R	-
3.5	CABLE EXCAVATION:					R	-	R	-
a	Pickable material	m <sup>3</sup>	10			R	-	R	-
b	Soft Rock	m <sup>3</sup>	5			R	-	R	-
c	Hard Rock	m <sup>3</sup>	5			R	-	R	-
d	Backfilling & Compaction	m <sup>3</sup>	20			R	-	R	-
3.6	CABLE ROUTE MARKERS: The supply and installation of concrete cable route markers	No	4			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	0			R	-	R	-
b	100mm 90° bends	No	1			R	-	R	-
c	T - Bends	No	0			R	-	R	-
c	100mm duplex coating 3CR12 cable tray.	m	40			R	-	R	-
3.8	LOCAL EMERGENCY STOP STATIONS:					R	-	R	-
a	Surface mounted IP65 emergency stop push buttons.	No	5			R	-	R	-
b	Stainless Steel support stands Emergency Stop/Start Buttons	No	5			R	-	R	-
TOTAL CARRIED FORWARD						R0.00		R0.00	

BROUGHT FORWARD						R0.00		R0.00	
3.9	Surface mounted 35A, 5 pin 3 phase welding socket including male plug, IP65. (Wall Mounted/Station Mounted)	No	4			R	-	R	-
5.15	DIFFERENTIAL ULTRASONIC LEVEL DETECTOR: (Inlet Works in & Outflow)					R	-	R	-
a	FDU92 level sensor including 20m of cable.	No	2			R	-	R	-
b	304 stainless steel support bracket for the sensor head.	No	2			R	-	R	-
c	FMU90 ultrasonic level transmitter.	No	2			R	-	R	-
d	Programming of the ultrasonic level transmitter.	No	2			R	-	R	-
e	FEB for the transmitter including terminals, surge arrestors, circuit breaker & stainless steel pedestal.	No	2			R	-	R	-
						R	-	R	-
	<b>LIGHTING AND SMALL POWER</b>					R	-	R	-
3.1	GALVANISED CONDUIT:					R	-	R	-
a	Surface mounted 20mm galvanised conduit including couplings, galvanised saddles and all accessories.	m	120			R	-	R	-
c	Surface mounted round galvanised 20mm conduit boxes including galvanised cover plate.	No	42			R	-	R	-
3.11	PHOTO CELL:					R	-	R	-
a	Royce Thompson photo cell including conduit box.	No	1			R	-	R	-
TOTAL CARRIED FORWARD						R0.00		R0.00	

BROUGHT FORWARD						R0.00	R0.00
3.12	WIRING PVC insulated copper conductors drawn into galvanised conduit:						
a	1.5mm2	m	0			R -	R -
b	2.5mm2	m	360			R -	R -
c	4.0mm2	m	400			R -	R -
d	6.0mm2	m	240			R -	R -
						R -	R -
3.13	EARTH WIRING BCEW drawn into galvanised conduit:					R -	R -
a	1.5mm2	m	0			R -	R -
b	2.5mm2	m	120			R -	R -
c	4.0mm2	m	140			R -	R -
d	6.0mm2	m	80			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 -
c	2 x 18W LED compact Outdoor bulkhead luminaire complete with Driver	No	4			R -	R -
						R -	R -
d	2 x 50W LED Floodlight with Driver Mounted on a 3.5m Stainless Steel Mast	No	6			R -	R -
						R -	R -
3.15	LIGHT SWITCHES Industrial surface mounted 16A single lever one way switch.	No	2			R -	R -
						R -	R -
3.16	SOCKET OUTLETS Industrial surface mounted 16A single switched socket outlets.	No	1			R -	R -
						R -	R -
TOTAL CARRIED FORWARD TO SUMMARY						R -	R -

## ELECTRICAL SECTION: NORTH WORKS - REACTORS & SSTs

ITEM	DESCRIPTION	UNIT	QTY	UNIT LABOUR	RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
2	<b>Schedule No 1 NORTH WORKS - INLET WORKS</b>						
2.1	300A, 30kA three pole circuit breaker complete to be installed in existing Blower House M/S DB to Return Screw P/S 1 to 3	No	3			R -	R -
2.2	Design , Manufacture, supply, off loading, installation & Commissioning of new Reactor 1 & 2 Return Cycle Pumps MCC as shown in the specifications and drawings. The MCC(Located in Hums P/S No.1) comprises of the Equip as per SLD RWWTW-E-BNR-01.	No	1			R -	R -
2.2	Design , Manufacture, supply, off loading, installation & Commissioning of new Reactor 3 Return Cycle Pumps MCC as shown in the specifications and drawings. The MCC(Located in Hums P/S No.1) comprises of the Equip as per SLD RWWTW-E-BNR-02.	No	1			R -	R -
1.2	Refurbish existing MCC by Repalcing Aux. Equipment (New Power Meter, Ammeters, Voltmeters, Hour Meters) and rewire existing MCCs(Return Scree P/S 1 to 3) as shown in the specifications and drawings(Single Line Diagrams). The refurbishment works are stated in the Scope of Works Document.	No	3			R -	R -
<b>TOTAL CARRIED FORWARD</b>						R -	R -

BROUGHT FORWARD						R	-	R	-
2.3	LV CABLE PVC/SWA/PVC copper conductor cables strapped to cable ladders. (trenches, sleeves and cable terminations measured elsewhere):					R	-	R	-
						R	-	R	-
a	300mm2 x 4/C/AL/PVC/SWA/PVC (MCC supply)[Return Screw P/Stations Cable]	m	600			R	-	R	-
b	150mm2 Kwena earthing conductor	m	600			R	-	R	-
a	185mm2 x 4/C/AL/PVC/SWA/PVC (MCC supply) [Humus p/s Cable for Internal Screw Pumps MCCs	m	410			R	-	R	-
b	95mm2 Kwena earthing conductor	m	410			R	-	R	-
c	16mm2 x 4 core (Local DB Cable)	m	100			R	-	R	-
d	10mm2 x 4 core (Internal Recycl Pumps cable)	m	2050			R	-	R	-
e	4mm2 x 4 core (cable)	m	0			R	-	R	-
e	6mm2 x 4 core (welding socket)	m	390			R	-	R	-
f	1.5mm2 x 3 core (emergency stop cable)	m	2000			R	-	R	-
TOTAL CARRIED FORWARD						R	-	R	-



BROUGHT FORWARD					R	-	R	-
3.4	LV CABLE TERMINATION: PVC/SWA/PVC Exe corrosion guard cable glands (IP68) complete including conductor & earth termination, lugs, tapes, drilling etc							
a	300mm2 x 4/C/AL/PVC/SWA/PVC (MCC supply)[Return Screw P/Stations Cable]	No	6		R	-	R	-
b	150mm2 Kwenā earthing conductor	No	6		R	-	R	-
	185mm2 x 4/C/AL/PVC/SWA/PVC (MCC supply) [Humus p/s Cable for Internal Screw Pumps MCCs	No	4		R	-	R	-
	95mm2 Kwenā earthing conductor	No	4		R	-	R	-
c	16mm2 x 4 core (Local DB Cable)	No	10		R	-	R	-
d	10mm2 x 4 core (Internal Recycl Pumps cable)	No	12		R	-	R	-
e	4mm2 x 4 core (cable)	No	0		R	-	R	-
e	6mm2 x 4 core (welding socket)	No	18		R	-	R	-
f	1.5mm2 x 3 core (emergency stop cable)	No	36		R	-	R	-
					R	-	R	-
3.5	CABLE EXCAVATION:				R	-	R	-
a	Pickable material	m <sup>3</sup>	360		R	-	R	-
b	Soft Rock	m <sup>3</sup>	50		R	-	R	-
c	Hard Rock	m <sup>3</sup>	50		R	-	R	-
d	Backfilling & Compaction	m <sup>3</sup>	460		R	-	R	-
					R	-	R	-
3.6	CABLE ROUTE MARKERS: The supply and installation of concrete cable route markers	No	12		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	60		R	-	R	-
b	100mm 90° bends	No	12		R	-	R	-
c	T - Bends	No	12		R	-	R	-
c	100mm duplex coating 3CR12 cable tray.	m	1100		R	-	R	-
TOTAL CARRIED FORWARD					R	-	R	-

BROUGHT FORWARD					R	-	R	-
3.8	LOCAL EMERGENCY STOP STATIONS:							
a	Surface mounted IP65 emergency stop push buttons.	No	27		R	-	R	-
b	Stainless Steel support stands Emergency Stop/Start Buttons	No	27		R	-	R	-
					R	-	R	-
3.9	Surface mounted 35A, 5 pin 3 phase welding socket including male plug, IP65. (Wall Mounted)	No	9		R	-	R	-
					R	-	R	-
3.1	<b>LIGHTING AND SMALL POWER GALVANISED CONDUIT:</b>				R	-	R	-
					R	-	R	-
a	Surface mounted 20mm galvanised conduit including couplings, galvanised saddles and all accessories.	m	360		R	-	R	-
c	Surface mounted round galvanised 20mm conduit boxes including galvanised cover plate.	No	72		R	-	R	-
3.11	<b>PHOTO CELL:</b>				R	-	R	-
a	Royce Thompson photo cell including conduit box.	No	5		R	-	R	-
					R	-	R	-
3.12	<b>WIRING</b> PVC insulated copper conductors drawn into galvanised conduit:				R	-	R	-
a	1.5mm2	m	0		R	-	R	-
b	2.5mm2	m	400		R	-	R	-
c	4.0mm2	m	600		R	-	R	-
d	6.0mm2	m	160		R	-	R	-
					R	-	R	-
3.13	<b>EARTH WIRING</b> BCEW drawn into galvanised conduit:				R	-	R	-
a	1.5mm2	m	0		R	-	R	-
b	2.5mm2	m	140		R	-	R	-
c	4.0mm2	m	200		R	-	R	-
d	6.0mm2	m	60		R	-	R	-
TOTAL CARRIED FORWARD					R	-	R	-

BROUGHT FORWARD						R	-	R	-
3.14	LUMINAIRES To be mounted to suspended ceilings and to brick walls:								
a	2 x 36W IP65 vapour proof LED luminaire complete Driver.	No	20			R	-	R	-
						R	-	R	-
b	2 x 36W IP65 vapour proof LED Emergency Maintained luminaire complete Driver.	No	10			R	-	R	-
						R	-	R	-
c	2 x 18W LED compact Outdoor bulkhead luminaire complete with Driver	No	12			R	-	R	-
						R	-	R	-
d	2 x 100W LED Floodlight with Driver Mounted on a 3.5m Stainless Steel Mast	No	9			R	-	R	-
						R	-	R	-
d	2 x 100W LED Floodlight with Driver Mounted on a 5.7m Stainless Steel Mast	No	60			R	-	R	-
						R	-	R	-
3.16	SOCKET OUTLETS Industrial surface mounted 16A single switched socket outlets.	No	5			R	-	R	-
TOTAL CARRIED FORWARD TO SUMMARY						R	-	R	-

**CITY OF TSHWANE**  
**CONTRACT NO : RFP207/2024**

**ELECTRICAL SECTION: NORTH WORKS - Chlorine & Final Effluent Dam**

ITEM	DESCRIPTION	UNIT	QTY	UNIT		RATES		TOTAL	
				LABOUR	MATERIAL	LABOUR	MATERIAL	LABOUR	MATERIAL
<b>2</b>	<b>Schedule No 1 NORTH WORKS - INLET WORKS</b>								
2.1	400A, 30kA three pole circuit breaker complete to be installed in existing Blower House M/S DB to Return Screw P/S 1 to 3	No	1			R	-	R	-
2.2	Design , Manufacture, supply, off loading, installation & Commissioning of new Reactor 1 & 2 Return Cycle Pumps MCC as shown in the specifications and drawings. The MCC(Located in Hums P/S No.1) comprises of the Equip as per SLD RWWTW-E-BNR-01.	No	1			R	-	R	-
<b>2.3</b>	<b>LV CABLE PVC/SWA/PVC copper conductor cables strapped to cable ladders. (trenches, sleeves and cable terminations measured elsewhere):</b>								
a	300mm2 x 4/C/AL/PVC/SWA/PVC (MCC supply) Cable	m	120			R	-	R	-
b	150mm2 Kwena earthing conductor	m	120			R	-	R	-
a	185mm2 x 4/C/AL/PVC/SWA/PVC	m	240			R	-	R	-
b	95mm2 Kwena earthing conductor	m	240			R	-	R	-
c	16mm2 x 4 core (Local DB Cable)	m	30			R	-	R	-
d	10mm2 x 4 core	m	120			R	-	R	-
e	4mm2 x 4 core (cable)	m	60			R	-	R	-
e	6mm2 x 4 core (welding socket)	m	60			R	-	R	-
f	1.5mm2 x 3 core (emergency stop cable)	m	400			R	-	R	-
<b>TOTAL CARRIED FORWARD</b>						R	-	R	-

BROUGHT FORWARD						R	-	R	-
3.4	LV CABLE TERMINATION: PVC/SWA/PVC Exe corrosion guard cable glands (IP68) complete including conductor & earth termination, lugs, tapes, drilling etc					R	-	R	-
a	300mm2 x 4/C/AL/PVC/SWA/PVC	No	2			R	-	R	-
b	150mm2 Kwena earthing conductor	No	2			R	-	R	-
	185mm2 x 4/C/AL/PVC/SWA/PVC	No	8			R	-	R	-
	95mm2 Kwena earthing conductor	No	8			R	-	R	-
c	16mm2 x 4 core (Local DB Cable)	No	2			R	-	R	-
d	10mm2 x 4 core	No	4			R	-	R	-
e	4mm2 x 4 core (cable)	No	0			R	-	R	-
e	6mm2 x 4 core (welding socket)	No	6			R	-	R	-
f	1.5mm2 x 3 core (emergency stop cable)	No	12			R	-	R	-
						R	-	R	-
3.5	CABLE EXCAVATION:					R	-	R	-
a	Pickable material	m <sup>3</sup>	60			R	-	R	-
b	Soft Rock	m <sup>3</sup>	15			R	-	R	-
c	Hard Rock	m <sup>3</sup>	15			R	-	R	-
d	Backfilling & Compaction	m <sup>3</sup>	90			R	-	R	-
						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	40			R	-	R	-
b	100mm 90° bends	No	6			R	-	R	-
c	T - Bends	No	6			R	-	R	-
c	100mm duplex coating 3CR12 cable tray.	m	100			R	-	R	-
						R	-	R	-
3.8	LOCAL EMERGENCY STOP STATIONS:					R	-	R	-
a	Surface mounted IP65 emergency stop push buttons.	No	8			R	-	R	-
b	Stainless Steel support stands Emergency Stop/Start Buttons	No	8			R	-	R	-
						R	-	R	-
3.9	Surface mounted 35A, 5 pin 3 phase welding socket including male plug, IP65. (Wall Mounted)	No	3			R	-	R	-
TOTAL CARRIED FORWARD						R	-	R	-

BROUGHT FORWARD					R	-	R	-
3.1	<b>LIGHTING AND SMALL POWER GALVANISED CONDUIT:</b> Surface mounted 20mm galvanised conduit including couplings, galvanised saddles and all accessories.	m	100		R	-	R	-
					R	-	R	-
					R	-	R	-
					R	-	R	-
a					R	-	R	-
c	Surface mounted round galvanised 20mm conduit boxes including galvanised cover plate.	No	30		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	0		R	-	R	-
b	2.5mm2	m	300		R	-	R	-
c	4.0mm2	m	400		R	-	R	-
d	6.0mm2	m	100		R	-	R	-
					R	-	R	-
3.13	EARTH WIRING BCEW drawn into galvanised conduit:				R	-	R	-
a	1.5mm2	m	0		R	-	R	-
b	2.5mm2	m	100		R	-	R	-
c	4.0mm2	m	130		R	-	R	-
d	6.0mm2	m	40		R	-	R	-
TOTAL CARRIED FORWARD					R	-	R	-

BROUGHT FORWARD						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	6			R	-	R	-
						R	-	R	-
b	2 x 36W IP65 vapour proof LED Emergency Maintained luminaire complete Driver.	No	2			R	-	R	-
						R	-	R	-
c	2 x 18W LED compact Outdoor bulkhead luminaire complete with Driver	No	4			R	-	R	-
						R	-	R	-
d	2 x 100W LED Floodlight with Driver Mounted on a 3.5m Stainless Steel Mast	No	0			R	-	R	-
						R	-	R	-
d	2 x 100W LED Floodlight with Driver Mounted on a 5.7m Stainless Steel Mast	No	2			R	-	R	-
						R	-	R	-
3.16	SOCKET OUTLETS Industrial surface mounted 16A single switched socket outlets.	No	2			R	-	R	-
						R	-	R	-
						R	-	R	-
						R	-	R	-
TOTAL CARRIED FORWARD TO SUMMARY						R	-	R	-

### ELECTRICAL SECTION: NORTH WORKS - WEST WORKS

[illegible]



BROUGHT FORWARD						R0.00		R0.00	
c	16mm2 x 4 core	No	19			R	-	R	-
d	10mm2 x 4 core	No	10			R	-	R	-
e	4mm2 x 4 core (cable)	No	12			R	-	R	-
e	6mm2 x 4 core	No	6						
f	1.5mm2 x 3 core (emergency stop cable)	No	20						
						R	-	R	-
3.5	CABLE EXCAVATION:					R	-	R	-
a	Pickable material	m³	100			R	-	R	-
b	Soft Rock	m³	20			R	-	R	-
c	Hard Rock	m³	20						
d	Backfilling & Compaction	m³	140			R	-	R	-
3.6	CABLE ROUTE MARKERS: The supply and installation of concrete cable route markers	No	10						
						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	100						
						R	-	R	-
b	100mm 90° bends	No	10						
						R	-	R	-
c	T - Bends	No	8						
c	100mm duplex coating 3CR12 cable tray.	m	600						
						R	-	R	-
3.8	LOCAL EMERGENCY STOP STATIONS:					R	-	R	-
a	Surface mounted IP65 emergency stop push buttons.	No	10						
b	Stainless Steel support stands Emergency Stop/Start Buttons	No	10			R	-	R	-
3.9	Surface mounted 35A, 5 pin 3 phase welding socket including male plug, IP65. (Wall Mounted)	No	4						
	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	200						
c	Surface mounted round galvanised 20mm conduit boxes including galvanised cover plate.	No	50			R	-	R	-
TOTAL CARRIED FORWARD						R0.00		R0.00	

BROUGHT FORWARD						R0.00		R0.00	
3.11	PHOTO CELL:					R	-	R	-
a	Royce Thompson photo cell including conduit box.	No	2			R	-	R	-
						R	-	R	-
3.12	WIRING PVC insulated copper conductors drawn into galvanised conduit:					R	-	R	-
a	1.5mm2	m	0						
b	2.5mm2	m	300						
c	4.0mm2	m	500			R	-	R	-
d	6.0mm2	m	90			R	-	R	-
						R	-	R	-
3.13	EARTH WIRING BCEW drawn into galvanised conduit:					R	-	R	-
a	1.5mm2	m	0						
b	2.5mm2	m	100						
c	4.0mm2	m	170			R	-	R	-
d	6.0mm2	m	30						
						R	-	R	-
3.14	LUMINAIRES To be mounted to suspended ceilings and to brick walls:								
a	2 x 36W IP65 vapour proof LED luminaire complete Driver.	No	6			R	-	R	-
b	2 x 36W IP65 vapour proof LED Emergency Maintained luminaire complete Driver.	No	2			R	-	R	-
c	2 x 18W LED compact Outdoor bulkhead luminaire complete with Driver	No	4			R	-	R	-
d	2 x 100W LED Floodlight with Driver Mounted on a 3.5m Stainless Steel Mast	No	0			R	-	R	-
d	2 x 100W LED Floodlight with Driver Mounted on a 5.7m Stainless Steel Mast	No	10						
						R	-	R	-
3.16	SOCKET OUTLETS Industrial surface mounted 16A single switched socket outlets.	No	4			R	-	R	-
TOTAL CARRIED FORWARD						R0.00		R0.00	

BROUGHT FORWARD						R0.00		R0.00	
						R	-	R	-
2.9.7	INSTRUMENTATION CABLES Dekoron or similar approved SW armoured electronic instrument cable strapped to cable ladder & laid in cable trench (type M872 individually & overall screened pairs) (cable ladder, trenching and cable terminations measured elsewhere):						0		0
a	1mm2 x 1 pair	m	150						
b	1mm2 x 2 pair	m	150						
						R	-	R	-
2.9.8	LV CABLE TERMINATION PVC/SWA/PVC Exe corrosion guard cable glands (IP68) complete including conductor & earth termination, lugs, heatshrink, drilling, etc:					R	-	R	-
a	1mm2 x 1 pair	No	12			R	-	R	-
b	1mm2 x 2 pair	No	12			R	-	R	-
						R	-	R	-
2.9.9	ULTRASONIC LEVEL DETECTOR:					R	-	R	-
a	FDU92 level sensor including 20m of cable.	No	1			R	-	R	-
b	304 stainless steel support bracket for the sensor head.	No	1			R	-	R	-
c	FMU90 ultrasonic level transmitter.	No	1			R	-	R	-
d	Programming of the ultrasonic level transmitter.	No	1			R	-	R	-
e	FEB for the transmitter including terminals, surge arrestors, circuit breaker & stainless steel pedestal.	No	1			R	-	R	-
						R	-	R	-
2.9.11	ULTRASONIC OPEN CHANNEL FLOW METER:					R	-	R	-
a	FDU92 flow sensor including 20m of cable.	No	1			R	-	R	-
b	304 stainless steel support brackets for the sensor head.	No	1			R	-	R	-
c	FMU90 ultrasonic flow transmitter.	No	1			R	-	R	-
d	Programming of the ultrasonic flow transmitter.	No	1			R	-	R	-
e	FEB for the transmitter including terminals, surge arrestors, circuit breaker & stainless steel pedestal.	No	1			R	-	R	-
TOTAL CARRIED FORWARD TO SUMMARY						R	-	R	-

## **ELECTRICAL SECTION: NORTH WORKS - WAS & DEWATERING WORKS**

<b>TOTAL CARRIED FORWARD</b>	R0.00	R0.00
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BROUGHT FORWARD						R0.00		R0.00	
b	95mm2 Kwena earthing conductor	m	100			R	-	R	-
c	16mm2 x 4 core (Local DB Cable)	m	60			R	-	R	-
d	10mm2 x 4 core	m	200			R	-	R	-
e	4mm2 x 4 core (cable)	m	120			R	-	R	-
e	6mm2 x 4 core (welding socket)	m	120			R	-	R	-
f	1.5mm2 x 3 core (emergency stop cable)	m	600			R	-	R	-
						R	-	R	-
3.4	LV CABLE TERMINATION: PVC/SWA/PVC Exe corrosion guard cable glands (IP68) complete including conductor & earth termination, lugs, tapes, drilling etc					R	-	R	-
a	300mm2 x 4/C/AL/PVC/SWA/PVC	No	0			R	-	R	-
b	150mm2 Kwena earthing conductor	No	0			R	-	R	-
	185mm2 x 4/C/AL/PVC/SWA/PVC	No	2			R	-	R	-
	95mm2 Kwena earthing conductor	No	2			R	-	R	-
c	16mm2 x 4 core (Local DB Cable)	No	2			R	-	R	-
d	10mm2 x 4 core	No	4			R	-	R	-
e	4mm2 x 4 core (cable)	No	0			R	-	R	-
e	6mm2 x 4 core (welding socket)	No	6			R	-	R	-
f	1.5mm2 x 3 core (emergency stop cable)	No	12			R	-	R	-
						R	-	R	-
3.5	CABLE EXCAVATION:					R	-	R	-
a	Pickable material	m³	70			R	-	R	-
b	Soft Rock	m³	20			R	-	R	-
c	Hard Rock	m³	20			R	-	R	-
d	Backfilling & Compaction	m³	110			R	-	R	-
						R	-	R	-
3.6	CABLE ROUTE MARKERS: The supply and installation of concrete cable route markers	No	6			R	-	R	-
TOTAL CARRIED FORWARD						R0.00		R0.00	

BROUGHT FORWARD						R0.00		R0.00	
	CABLE LADDER AND TRAY: OL55 duplex coating (exterior polyester)					R	-	R	-
3.7	3CR12 cable ladder including all accessories mounted to concrete slabs / walls.					R	-	R	-
a	100mm cable ladder	m	30			R	-	R	-
b	100mm 90° bends	No	4			R	-	R	-
c	T - Bends	No	4			R	-	R	-
c	100mm duplex coating 3CR12 cable tray.	m	80			R	-	R	-
						R	-	R	-
3.8	LOCAL EMERGENCY STOP STATIONS:					R	-	R	-
a	Surface mounted IP65 emergency stop push buttons.	No	6			R	-	R	-
b	Stainless Steel support stands	No	6			R	-	R	-
	Emergency Stop/Start Buttons					R	-	R	-
3.9	Surface mounted 35A, 5 pin 3 phase welding socket including male plug, IP65. (Wall Mounted)	No	4			R	-	R	-
						R	-	R	-
3.1	<b>LIGHTING AND SMALL POWER</b> 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	16			R	-	R	-
3.11	PHOTO CELL:					R	-	R	-
a	Royce Thompson photo cell including conduit box.	No	2			R	-	R	-
TOTAL CARRIED FORWARD						R0.00		R0.00	

BROUGHT FORWARD						R0.00		R0.00	
3.12	WIRING PVC insulated copper conductors drawn into galvanised conduit:								
a	1.5mm2	m	0			R	-	R	-
b	2.5mm2	m	200			R	-	R	-
c	4.0mm2	m	300			R	-	R	-
d	6.0mm2	m	120			R	-	R	-
						R	-	R	-
3.13	EARTH WIRING BCEW drawn into galvanised conduit:					R	-	R	-
a	1.5mm2	m	0			R	-	R	-
b	2.5mm2	m	130			R	-	R	-
c	4.0mm2	m	100			R	-	R	-
d	6.0mm2	m	60			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	6			R	-	R	-
						R	-	R	-
b	2 x 36W IP65 vapour proof LED Emergency Maintained luminaire complete Driver.	No	2			R	-	R	-
						R	-	R	-
c	2 x 18W LED compact Outdoor bulkhead luminaire complete with Driver	No	4			R	-	R	-
						R	-	R	-
d	2 x 100W LED Floodlight with Driver Mounted on a 3.5m Stainless Steel Mast	No	0			R	-	R	-
						R	-	R	-
d	2 x 100W LED Floodlight with Driver Mounted on a 5.7m Stainless Steel Mast	No	4			R	-	R	-
						R	-	R	-
3.16	SOCKET OUTLETS Industrial surface mounted 16A single switched socket outlets.	No	4			R	-	R	-
						R	-	R	-
						R	-	R	-
TOTAL CARRIED FORWARD TO SUMMARY						R	-	R	-

**CITY OF TSHWANE**  
**CONTRACT NO : RFP207/2024**

**ELECTRICAL SECTION: IT NETWORKS**

ITEM	DESCRIPTION	UNIT	EST QTY	UNIT LABOUR	PRICES		
					RATES MATERIAL	TOTAL LABOUR	TOTAL MATERIAL
<b>6</b>	<b>Schedule No 6 IT / NETWORK:</b>						
6.1	PVC/SWA/PVC 4 core multi mode fiber optic cable. To be installed in cable trench.	m	800			R -	R -
6.2	CABLE EXCAVATION:						R -
a	Pickable material	m3	140			R -	R -
b	Backfilling of cable trenches.	m3	80			R -	R -
c	PVC warning tape	m	80			R -	R -
d	Concrete cable route markers	No	22			R -	R -
6.3	Splicing of fibre optic cores	No	12			R -	R -
<b>TOTAL CARRIED FORWARD TO SUMMARY</b>						<b>R -</b>	<b>R -</b>



**CONTRACT NO : RFP207/2024**  
**Mechanical Summary**  
**Rooiwal Water Treatment Plant Contract No: RFP207/2024**

Item	Description	Amount
1	Bill No 1-Rooiwall North Mechanical	R0.00
2	Bill No 2-Rooiwall West Mechanical	R0.00
2	Bill No 3- Pump Station	R0.00
	Total Carried forward to Main Summary Exclusive of VAT	R0.00

CONTRACT NO : RFP207/2024

**Mechanical Bill of Quantities**  
**North Water Treatment Works**  
**Rooiwal Water Treatment Plant**  
**CONTRACT NO : RFP207/2024**

Item	Description	Unit	Quantity	Rate	Total
<b>1</b>	<b><u>Inlet Water Treatment Works</u></b>				
<b>1.01</b>	Decommission and Remove existing Conveyor Belt system including screening bin	ea	2		R0.00
					R0.00
<b>1.02</b>	Supply and Install Heavy Duty conveyor belt system minimum 800mm wide and 10mm thick as per specification provided. The system must be installed with oblique arranged conveyor rollers and idlers to give the Belt a U Shaped profile for spillage control.	ea	2		R0.00
<b>1.03</b>	Break up a portion of the wall to make an opening to extend the conveyor discharge to the bins outside the existing brick building. The opening shall be made neat and blend in with the existing brick work.	ea	1		R0.00
<b>1.03</b>	Supply, install, and commission washer press complete with two pumps, gearbox, motor, piping, fittings, and other things required for its effective operation.	ea	2		
					R0.00
<b>1.04</b>	Supply and Install new screening bins to match existing trailers as per drawing and specification	ea	2		R0.00
					R0.00
<b>1.05</b>	Provision for supply and install Reciprocating scraping mechanism to match.	ea	1		R0.00
					R0.00
<b>TOTAL CARRIED FORWARD</b>					<b>R0.00</b>

<b>BROUGHT FORWARD</b>					<b>R0.00</b>
<b>2</b>	<b>Grit Chambers</b>				
<b>2.01</b>	Supply and Install HCP or equivalently approved degritter submersible pumps (3,7kW x 4 pole Motor x Vortex Impeller with duty of 16l/s @ 8m Head)	ea	6		R0.00
					R0.00
<b>2.02</b>	Replace NB80mm flexible hoses for the Degritter Pumps	rolls	6		R0.00
					R0.00
<b>2.03</b>	Remove existing degritter piping and fittings	ea	1		R0.00
					R0.00
<b>2.04</b>	Supply and Install Stainless Steel piping Gr 304 x 4,5mm thick to run from the degritter pumps to the grit classifiers complete with bends and supports as per drawing and specification	m	120		R0.00
					R0.00
<b>2.05</b>	Decommission and remove existing Grit Classifiers.	ea	2		R0.00
					R0.00
<b>2.06</b>	Supply and Install new grit classifier complete with screw and grit collector bins as per specification and drawing	ea	6		R0.00
					R0.00
<b>2.07</b>	Supply and Install new Hoist System for Degritter Pumps.	ea	6		R0.00
					R0.00
<b>TOTAL CARRIED FORWARD</b>					<b>R0.00</b>

<b>BROUGHT FORWARD</b>					<b>R0.00</b>
<b>3</b>	<b><u>Primary Settling Tanks</u></b>				
<b>3.01</b>	Replace 0,55kW x 4 Pole Motors for Settling Tank Bridges	ea	4		R0.00
					R0.00
<b>3.02</b>	Refurbish the main bridge structure, and replace :the centre bearing, bridge drive gearbox and motor, the rolling wheels,scraper support,scraper and scrapper rubbers.Derust,repair ,treat corrosion and repaint the main bridge structure, mentis handrailing,test and perform full operational commissioning of the bridge structure.	ea	2		R0.00
					R0.00
<b>3.03</b>	Decommssioning and removal of existing desludging pumps.	ea	3		R0.00
					R0.00
<b>3.04</b>	Supply and install PST Desludging Pumps-Gorman Rupp T63AS self priming pumps	ea	3		R0.00
					R0.00
<b>3.05</b>	Supply and Install resilient seal isolating gate valves and other fittings to accompany the desludging valves.	ea	4		R0.00
					R0.00
					R0.00
<b>4</b>	<b><u>Biological Reactors</u></b>				R0.00
					R0.00
<b>4.01</b>	Refurbish Vaughan Model HE8N100SR existing axial flow internal return pumps at BR1,1	ea	3		R0.00
					R0.00
<b>4.03</b>	Relocate 7,5kw Mixers from the anoxic to the aerobic	ea	2		R0.00
					R0.00
<b>4.04</b>	Supply and Install new Stainless Steel Davits for the Anoxic	ea	2		R0.00
					R0.00
<b>4.05</b>	Supply and Install new 10kw Mixers	ea	4		R0.00
					R0.00
<b>4.06</b>	Supply and Install new Stainless Steel Davits for the anoxic	ea	2		R0.00
					R0.00
<b>TOTAL CARRIED FORWARD</b>					<b>R0.00</b>

<b>BROUGHT FORWARD</b>					<b>R0.00</b>
<b>4.07</b>	Comprehensive Refurbishment of the outlet sluice gates.	ea	18		R0.00
					R0.00
<b>4.08</b>	Refurbishment of the twist lock gate for scum removal weir	ea	18		R0.00
					R0.00
<b>4.09</b>	Replacement of the airflow meters for Anaerobic Zone.	ea	4		R0.00
					R0.00
<b>4.1</b>	Replacement of the Airflow meters for aeration zone 1-4	ea	4		R0.00
					R0.00
<b>4.11</b>	Replacement of air compression equipment preferably Atlas copco or equivalently approved as per specification	ea	3		R0.00
					R0.00
<b>4.12</b>	Provision for repairs to the compressed air line.	ea	1		R0.00
					R0.00
<b>5 Secondary Sedimentation Treatment</b>					R0.00
					R0.00
<b>5.03</b>	Refurbish manual 400 dia scour hand valves to the dissolved air flotation plant.	ea	18		R0.00
					R0.00
					R0.00
					R0.00
					R0.00
<b>TOTAL CARRIED FORWARD</b>					<b>R0.00</b>

<b>BROUGHT FORWARD</b>					<b>R0.00</b>
<b>6</b>	<b><u>Waste Activated Sludge Pumpstation</u></b>				
	<b>Total Refurbishment of the entire pumpstation including new piping, new sludge pumps, valves, flow meters, actuated sluice gates piping, electricals, controls and instrumentation as well as inclusion of remote monitoring and operation systems.</b>				
<b>6.01</b>	Refurbish Waste Activated Sludge Gorman Rupp Pumps	ea	6		R0.00
					R0.00
<b>6.02</b>	Supply and Install of piping, resilient seal gate valves strainers, non return valves, couplings and all accompanying pipe fittings.	lot	1		R0.00
					R0.00
	<b><u>Balancing Tank Pumpstation</u></b>				R0.00
					R0.00
<b>7</b>	Removal of all Endsuction Balancing Tank Pumps.	ea	3		R0.00
					R0.00
<b>7.01</b>	Supply and installation of ABS Pump Model XFP 400M-CH2 PE 750/6 with duty 415l l/s @ 10m Head End suction Pumps or equivalently approved including motors, variable speed control, panelling with provision for remote monitoring and control.	ea	3		R0.00
					R0.00
<b>7.02</b>	Supply and install HCP Drainage submissile pump (1,5kw x vortex Impeller with duty of 3l/s @ 8m Head) complete with NB50mm mild steel piping (make provision for 15m)	ea	1		R0.00
					R0.00
<b>8</b>	<b><u>Dewatering Plant</u></b>				R0.00
					R0.00
<b>8.01</b>	Supply and install 12m long stainless steel 304 screw conveyor complete with lining on the surrounding walls, motor, and gearbox. The conveyor system is to be adequately supported throughout its full length.	ea	1		R0.00
					R0.00
<b>8.02</b>	Supply and install Fines screens complete with double rakes, buckets, a chain, a sprocket, bar grating, gearbox and motor. Rake opening shall be 6mm and bar grating 10mm with each rake opening matching a grate bar.	ea	2		R0.00
<b>8.03</b>	Supply and install new Gorman Rupp sludge Pumps with 8m head.	ea	3		R0.00
	<b><u>Total carried forward to Mechanical Summary</u></b>				<b>R0.00</b>

CONTR/                      **Mechanical Bill of Quantities**  
**West Water Treatment Works**  
**Rooiwal Water Treatment Plant**  
**CONTRACT NO : RFP207/2024**

Item	Description	Unit	Quantity	Rate	Total
<b>1</b>	<b><u>Farmers Pump Station</u></b>				
<b>1.01</b>	Decommission and remove pumps and equipment in the pump station	ea	1		R0.00
					R0.00
<b>1.02</b>	Supply ,install and commission Gorman Rupp VS6A60-BFM or equivalently better Centrifugal Complete with new baseplate, variable speed drive and control panel to run on a two duty one standby basis	ea	1		R0.00
					R0.00
<b>1.03</b>	Supply and Install piping,valves and accompanying fittings for the new Pump	ea	1		R0.00
					R0.00
<b>2</b>	<b><u>Return Activated Sludge Internal Recirculaton Pumpstation</u></b>				R0.00
					R0.00
<b>2.01</b>	Decommission and remove pump and equipment in the pump station	ea	3		R0.00
					R0.00
<b>2.02</b>	Supply ,install and commision new Gorman Rupp T6A3S-BFM Pumps Complete with new variable speed drive and control panel programmed to run on a two duty one standby basis	ea	3		R0.00
					R0.00
<b>2.03</b>	Supply and Install piping,valves,flowmeters and accompanying fittings for the new Pumps	ea	3		R0.00
<b>TOTAL CARRIED FORWARD</b>					<b>R0.00</b>

<b>BROUGHT FORWARD</b>				<b>R0.00</b>
<b>3</b>	<b>Waste Activated Sludge Pumpstation</b>			
<b>3.01</b>	Decommission and remove pump and equipment in the pump station	ea	3	R0.00
				R0.00
<b>3.02</b>	Supply ,install and commision new Gorman Rupp T6A3S-BFM Pumps Complete with new variable speed drive and control panel programmed to run on a two duty one standby basis	ea	3	R0.00
				R0.00
<b>3.03</b>	Supply and Install piping,valves,flowmeters and accompanying fittings for the new Pumps	ea	3	R0.00
				R0.00
<b>4</b>	<b>Anaerobic Digesters</b>			R0.00
				R0.00
<b>4.01</b>	Replace all isolating valves 200NB Manual Valves at the 7 Anaerobic digesters	ea	42	R0.00
				R0.00
	<b><u>Total carried forward to Mechanical Summary</u></b>			<b>R0.00</b>



	<b>New Pumpstation - Rooiwal</b>				
	<b>CONTRACT NO : RFP207/2024</b>				
Item	Description	Unit	Qty	Rate	Total
<b>1</b>	<b><u>Desludging valves and Actuators</u></b>				
<b>1.01</b>	Supply and Install DN350 Knife Edge gate valves for the primary sludge PS06 to the sludge sump	sum	2		R0.00
<b>1.02</b>	Supply and Install DN350 Knife Edge gate valves for the primary sludge PS05 to the sludge sump	sum	2		R0.00
<b>1.03</b>	Supply and Install Electric Modulating Actuators preferably Rotork or Auma to operate the gate valves with minimum torque rating of 70Nm, a 0-10mA control signal, manual override characteristics and SCADA integration capabilities. Rate must include gearbox, controls and electrical wiring and full operational commissioning.	sum	4		R0.00
<b>1.04</b>	Supply and Install electromagnetic flow meters, preferably Kronhne Optiflux 2300 or equivalently better from PP01 to PP03 complete with electrical power supplies and conduits.	ea	2		R0.00
<b>1.05</b>	Supply and Install electromagnetic flow meter preferably Kronhne Optiflux 2300 or equivalently better from PP02 to PP03 complete with electrical power supplies and conduits.	ea	2		R0.00
<b>1.06</b>	Supply and install a DN350 Sch40 Mild steel Pipe that is coated and corrosion protected complete with supports and brackets running from PS05 and PS06 to Sludge sump PP03.	m	40		R0.00
<b>1.07</b>	Supply and install a DN350 Sch40 Mild steel Pipe that is coated and corrosion protected complete with supports and brackets running from PP01 and PP02 to Sludge sump PP03.	m	80		R0.00
<b>1.08</b>	Supply and install Gorman Rupp Sludge Pumps Model V3A-B-1 operating at 35l/s @ 38m TDH.	ea	2		R0.00
<b>1.09</b>	Supply and Install 3/kW IP54 Rated Integral Pump Control Panel Complete with Variable Speed Drive including electrical cables and controls to the pumps. Control panel must come with provision for future connections to the SCADA.	ea	1		R0.00
<b>1.10</b>	Supply and Install DN350mm Isolating Resilient Seated Gate Valves.	ea	5		R0.00
<b>1.11</b>	Supply and Install DN350 Non Return Valve.	ea	2		R0.00
	<b><u>Primary Sludge Pump-station-Feed to West</u></b>				
<b>2</b>	<b><u>Works Tower</u></b>				
<b>2.01</b>	Supply and install Gorman Rupp Sludge Pumps Model T10A-B-4 operating at 70l/s @ 15m TDH.	ea	2		R0.00
<b>2.02</b>	Supply and Install 22kW IP54 Rated Integral Pump Control Panel Complete with Variable Speed Drive including electrical cables and controls to the pumps. Control panel must come with provision for future connections to the SCADA.	ea	1		R0.00
<b>TOTAL CARRIED FORWARD</b>					<b>R0.00</b>

<b>BROUGHT FORWARD</b>					<b>R0.00</b>
<b>2.03</b>	Supply and Install DN300mm Isolating Resilient Seated Gate Valves.	ea	5		R0.00
<b>2.04</b>	Supply and Install DN300 Non Return Valves.	ea	2		R0.00
<b>2.05</b>	Supply and Install NB300mm Mild Steel Pipe (Minimum 6mm thick) that is Corrosion protected with epoxy polyurethane Piping as per drawing in the plantroom including reducers, tees, bends and end caps complete with supports. Piping must include connection to the concrete line running from the plantroom to the West Sludge anaerobic digester line.	m	30		R0.00
<b>2.06</b>	Supply and Installation of 50mm Air valves.	ea	2		R0.00
<b>2.07</b>	Supply and install a drainage submersible pump(1,5kW Motor x Vortex Impeller operating at 3l/s@ 12m Head) preferably HCP or any other equivalently approved complete with float switch and piping(NB50mm) to drain back into the sludge sump.	ea	1		R0.00
<b>2.08</b>	Supply and Install electromagnetic flow meter preferably Kronhne Optiflux 2300 or equivalently better from PP03 to the west works Tower complete with electrical power supplies and conduits.	ea	1		R0.00
<b>TOTAL CARRIED FORWARD</b>					<b>R0.00</b>

<b>BROUGHT FORWARD</b>					<b>R0.00</b>
<b>3</b>	<b><u>Primary Sludge Pump-station-Feed to East Works P/S</u></b>				
	Supply and install Gorman Rupp Sludge Pumps Model T10A-B-4 operating at 70l/s@ 15m TDH.	ea	2		R0.00
<b>3.01</b>	Supply and install 22kV IP67 Rated Integral Pump Control Panel Complete with Variable Speed Drive including electrical cables and controls to the pumps. Control panel must come with provision for future connections to the SCADA.	ea	1		R0.00
<b>3.02</b>	Supply and Install DN300mm Isolating Resilient Seated Gate Valves.	ea	5		R0.00
<b>3.03</b>	Supply and Install DN300 Non Return Valve.	ea	2		R0.00
<b>3.04</b>	Supply and install 1500mm OD Steel Pipe (6mm thick) that is Corrosion protected with epoxy polyurethane Piping as per drawing in the plantroom including reducers, tees, bends and end caps complete with supports. Piping must include connection to the concrete line running from the plantroom to the East Sludge anaerobic digester line.	m	30		R0.00
<b>3.05</b>	Supply and Installation of 50mm Air valves.	ea	2		R0.00
<b>3.06</b>	Supply and Install electromagnetic flow meter preferably Kronhne Optiflux 2300 or equivalently better from PP03 to the east works complete with electrical power supplies and conduits.	ea	1		R0.00
<b>3.07</b>					
<b>TOTAL CARRIED FORWARD</b>					<b>R0.00</b>

<b>BROUGHT FORWARD</b>				<b>R0.00</b>
<b>4</b>	<b><u>Plantroom Ventilation</u></b>			
	Supply and install Freudenberg or equivalent similar modular Fresh Air Unit to supply 680l/s@ 380Pa to maintain plantroom positive pressure. Modular Unit must come with primary panel filtration only, its own panel with alarm indicators for dirty filters and fan trip. The Unit to be mounted outside the plantroom as per the drawing and specification.	ea	1	R0.00
<b>4.01</b>	500 x 250 Uninsulated Ducting and air terminals to Drop down to plantroom lower level including supports.	m	10	R0.00
<b>4.02</b>	Electrical Supplies to the Modular Filtered Fresh Air Unit.	m	10	R0.00
<b>4.03</b>				R0.00
				R0.00
<b>5</b>	<b><u>Plantroom Fire Protection</u></b>			
<b>5.01</b>	Supply and Install 9kg CO2 Fire Extinguishers.	ea	2	R0.00
<b>5.02</b>	Supply and Install Photoluminescent Fire Signage.	sum	1	R0.00
				R0.00
<b>6</b>	<b>Construction Drawings</b>	ea	1	R0.00
<b>7</b>	<b>As Built Drawings</b>	ea	1	R0.00
<b>8</b>	<b>Maintenance Guarantees</b>	ea	1	R0.00
	<b>Datapack Including all commissioning</b>			
<b>9</b>	<b>Certificates: Fire, HVAC and Pumps.</b>	ea	1	R0.00
	<b><u>Total carried forward to Mechanical Summary</u></b>			<b>R0.00</b>