



## NKANGALA DISTRICT MUNICIPALITY



### C2.2 BILL OF QUANTITIES – INSTALLATION AND REFURBISHMENT



<b>SCHEDULE RATE</b>			
<b>CHILLER 1 - CONTROLS AND ELECTRICAL UPGRADE</b>			
<b>Description</b>	<b>Quantity</b>	<b>Unit price</b>	<b>Amount (R)</b>
Chiller Controller (Programmable) Complete With Digital Display and Operating Buttons	1		
Extension Module	1		
Electronic Expansion Valve Module	2		
Condenser Fan Drivers	3		
Electronic Expansion Valves	2		
Head Pressure Sensor	2		
Head Pressure Safety Switch	2		
Back Pressure Sensor	2		
Discharge Temperature Sensor	2		
Suction Temperature Sensor	2		
PHE Temperature Sensor	1		
Outdoor Air Temperature Sensor	1		
Chilled Water in Temperature Sensor	1		
Chilled Water Out Temperature Sensor	1		
Water Flow Switch	1		
Control Wires	1		
Provision For Circuit Breakers	1		
Provision For Relays	1		
Accessories, Consumables and Utilities	1		
Labour Per Hour	1		

<b>SCHEDULE RATE</b>			
<b>CHILLER 1 - MECHANICAL UPGRADE</b>			
<b>Description</b>	<b>Quantity</b>	<b>Unit price</b>	<b>Amount (R)</b>
Polyol Ester – POE63 Oil / Litre	16		
Refrigerant 407C / Kilogram	52		
Replacement Heat Exchanger Insulation	1		
Replacement Chilled Water Piping Insulation, including painting and cladding	1		
Accessories, Consumable and Utilities	1		
Labour Per Hour	1		
Mileage	780		
<b>CHILLER 1 TOTAL:</b>			<b>R</b>



<b>+SCHEDULE RATE</b>			
<b>CHILLER 2 - CONTROLS AND ELECTRICAL UPGRADE</b>			
<b>Description</b>	<b>Quantity</b>	<b>Unit price</b>	<b>Amount (R)</b>
Chiller Controller (Programmable) Complete With Digital Display and Operating Buttons	1		
Extension Module	1		
Electronic Expansion Valve Module	2		
Condenser Fan Drivers	3		
Electronic Expansion Valves	2		
Head Pressure Sensor	2		
Head Pressure Safety Switch	2		
Back Pressure Sensor	2		
Discharge Temperature Sensor	2		
Suction Temperature Sensor	2		
PHE Temperature Sensor	1		
Outdoor Air Temperature Sensor	1		
Chilled Water in Temperature Sensor	1		
Chilled Water Out Temperature Sensor	1		
Water Flow Switch	1		
Control Wires	1		
Provision For Circuit Breakers	1		
Provision For Relays	1		
Accessories, Consumables and Utilities	1		
Labour Per Hour	1		
Mileage	780		

<b>SCHEDULE RATE</b>			
<b>CHILLER 2 – MECHANICAL UPGRADE</b>			
<b>Description</b>	<b>Quantity</b>	<b>Unit price</b>	<b>Amount<sup>®</sup></b>
Polyol Ester – POE63 Oil / Litre	16		
Refrigerant 407C / Kilogram	52		
Replacement Heat Exchanger Insulation	1		
Replacement Chilled Water Piping Insulation, including painting and cladding	1		
Accessories, Consumable and Utilities	1		
Labour Per Hour	1		
Mileage	780		
<b>CHILLER 2 TOTAL</b>			<b>R</b>



SCHEDULE RATE			
CHILLER 3 - CONTROLS AND ELECTRICAL UPGRADE			
Description	Quantity	Unit price	Amount (R)
Chiller Controller (Programmable) Complete With Digital Display and Operating Buttons	1		
Extension Module	1		
Electronic Expansion Valve Module	2		
Condenser Fan Drivers	3		
Electronic Expansion Valves	2		
Head Pressure Sensor	2		
Head Pressure Safety Switch	2		
Back Pressure Sensor	2		
Discharge Temperature Sensor	2		
Suction Temperature Sensor	2		
PHE Temperature Sensor	1		
Outdoor Air Temperature Sensor	1		
Chilled Water in Temperature Sensor	1		
Chilled Water Out Temperature Sensor	1		
Water Flow Switch	1		
Control Wires	1		
Provision For Circuit Breakers	1		
Provision For Relays	1		
Accessories, Consumables and Utilities	1		
Labour Per Hour	1		
Mileage	780		

SCHEDULE RATE			
CHILLER 3 - MECHANICAL UPGRADE			
Description	Quantity	Unit price	Amount (R)
Polyol Ester – POE63 Oil / Litre	16		
Refrigerant 407C / Kilogram	52		
Replacement Heat Exchanger Insulation	1		
Replacement Chilled Water Piping Insulation, including painting and cladding	1		
Accessories, Consumable and Utilities	1		
Mileage	780		
<b>CHILLER 3 TOTAL:</b>			<b>R</b>



SCHEDULE RATE			
CHILLER 4 - CONTROLS AND ELECTRICAL UPGRADE			
Description	Quantity	Unit price	Amount (R)
Chiller Controller (Programmable) Complete With Digital Display and Operating Buttons	1		
Extension Module	1		
Electronic Expansion Valve Module	2		
Condenser Fan Drivers	3		
Electronic Expansion Valves	2		
Head Pressure Sensor	2		
Head Pressure Safety Switch	2		
Back Pressure Sensor	2		
Discharge Temperature Sensor	2		
Suction Temperature Sensor	2		
PHE Temperature Sensor	1		
Outdoor Air Temperature Sensor	1		
Chilled Water in Temperature Sensor	1		
Chilled Water Out Temperature Sensor	1		
Water Flow Switch	1		
Control Wires	1		
Provision For Circuit Breakers	1		
Provision For Relays	1		
Accessories, Consumables and Utilities	1		
Labour Per Hour	1		
Mileage	780		

SCHEDULE RATE			
CHILLER 4 - MECHANICAL UPGRADE			
Description	Quantity	Unit price	Amount (R)
Polyol Ester – POE63 Oil / Litre	16		
Refrigerant 407C / Kilogram	52		
Replacement Heat Exchanger Insulation	1		
Replacement Chilled Water Piping Insulation, including painting and cladding	1		
Accessories, Consumable and Utilities	1		



Accessories, Consumable and Utilities	1		
Labour Per Hour	1		
Mileage	780		
<b>CHILLER 4 TOTAL</b>			<b>R</b>

SCHEDULE RATE			
PROGRAMMING AND COMMISSIONING			
Description	Quantity	Unit price	Amount (R)
Programming including integration and commissioning	1		
Mileage	260		
<b>PROGRAMMING AND COMMISSIONING TOTAL:</b>			<b>R</b>

SCHEDULE RATE			
PUMP 1 – PUMP OVERHAUL			
Description	Quantity	Unit price	Amount (R)
Replacement Impeller	1		
Replacement Shaft	1		
Drive End Bearing	1		
Non Drive End Bearing	1		
Spacer Ring	1		
Impeller Lock Nut	1		
Shaft Seal	1		
Impeller Shaft Key	1		
Gasket Set	1		
Replacement Complete Coupling	1		
Consumables, Utilities and accessories (All)	1		
Labour Per Hour	1		
Mileage	260		



SCHEDULE RATE			
PUMP 1 – ELECTRIC MOTOR OVERHAUL			
Description	Quantity	Unit price	Amount (R)
Replacement Drive End Bearing	1		
Replacement Non Drive End Bearing	1		
Consumables, utilities and accessories (All)	1		
Labour Per Hour	1		
Mileage	260		
<b>PUMP 1 TOTAL:</b>			<b>R</b>

SCHEDULE RATE			
PUMP 2 – PUMP OVERHAUL			
Description	Quantity	Unit price	Amount (R)
Replacement Impeller	1		
Replacement Shaft	1		
Drive End Bearing	1		
Non Drive End Bearing	1		
Spacer Ring	1		
Impeller Lock Nut	1		
Shaft Seal	1		
Impeller Shaft Key	1		
Gasket Set	1		
Replacement Complete Coupling	1		
Consumables, Utilities and accessories (All)	1		
Labour Per Hour	1		
Mileage	260		

SCHEDULE RATE			
PUMP 2 – ELECTRIC MOTOR OVERHAUL			
Description	Quantity	Unit price	Amount (R)
Replacement Drive End Bearing	1		
Replacement Non Drive End Bearing	1		
Consumables, utilities and accessories (All)	1		
Labour Per Hour	1		
Mileage	260		
<b>PUMP 2 TOTAL:</b>			<b>R</b>



SCHEDULE RATE			
PUMP 3 – PUMP OVERHAUL			
Description	Quantity	Unit price	Amount (R)
Replacement Impeller	1		
Replacement Shaft	1		
Drive End Bearing	1		
Non Drive End Bearing	1		
Spacer Ring	1		
Impeller Lock Nut	1		
Shaft Seal	1		
Impeller Shaft Key	1		
Gasket Set	1		
Replacement Complete Coupling	1		
Consumables, Utilities and accessories (All)	1		
Labour Per Hour	1		
Mileage	260		

SCHEDULE RATE			
PUMP 3 – ELECTRIC MOTOR OVERHAUL			
Description	Quantity	Unit price	Amount (R)
Replacement Drive End Bearing	1		
Replacement Non Drive End Bearing	1		
Consumables, utilities and accessories (All)	1		
Labour Per Hour	1		
Mileage	260		
<b>PUMP 3 TOTAL:</b>			<b>R</b>



SCHEDULE RATE			
PUMP 4 – PUMP OVERHAUL			
Description	Quantity	Unit price	Amount (R)
Replacement Impeller	1		
Replacement Shaft	1		
Drive End Bearing	1		
Non Drive End Bearing	1		
Spacer Ring	1		
Impeller Lock Nut	1		
Shaft Seal	1		
Impeller Shaft Key	1		
Gasket Set	1		
Replacement Complete Coupling	1		
Consumables, Utilities and accessories (All)	1		
Labour Per Hour	1		
Mileage	260		

SCHEDULE RATE			
PUMP 4 – ELECTRIC MOTOR OVERHAUL			
Description	Quantity	Unit price	Amount (R)
Replacement Drive End Bearing	1		
Replacement Non Drive End Bearing	1		
Consumables, utilities and accessories (All)	1		
Labour Per Hour	1		
Mileage	260		
<b>PUMP 4 TOTAL:</b>			<b>R</b>



### SUMMARY TABLE OF THE BILL

<b>CHILLER 1-4</b>	R
<b>PROGRAMMING AND COMMISIONING</b>	R
<b>PUMP 1-4</b>	R
<b>SUB-TOTAL</b>	R
<b>VAT @ 15%</b>	R
<b>TOTAL</b>	R
<b>TOTAL AMOUNT TO BE FORWARDED TO THE FORM C 1.1 (FORM OF OFFER)</b>	

NB:THIS PROJECT WILL BE IMPLEMENTED IN TWO FINANCIAL YEARS (2021/22 AND 2022/2023 FY)