

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF 50 KLD SEWAGE TREATMENT PLANT AT CANARA BANK, MANIPAL (ELECTROMECHANICAL)

PART - A: AERATION SECTION

BLOWER & MOTOR

1	Supply, Installation, Testing and Commsisioning of The blower and motor provide the necessary airflow for fine aeration & air scoring system, facilitating efficient cleaning of MBR membranes. The blower and GI pipes are connected using flanges.				
	BLOWER with bed	FLOW 80 m3 /hr with 0.3kg/cm2 MAKE: Everest/A1/Equivalent	2	NO.	
	MOTOR with bed	3 hp with 1440 RPM Make:CG/A1/LHP	2	NO.	
TOTAL RATE					

BLOWER ACCESSORIES AND AIR DISTRIBUTION LINE : GI C class pipe

2	Supply, Installation, Testing and Commsisioning (Including fabrication) of The blower accessories, such as filters, silencers, and control valves, along with the air distribution line, are essential components for the efficient operation of the blower system in the MBR process.				
	Main header, Distribution line, Diffuser connector	4 inch, 3 inch, 2.5 inches (Vary as per design). MOC: GI C-Class, MAKE: AES	1	LS	
TOTAL RATE					
TOTAL RATE					

ACCESSORIES AND FITTINGS FOR DISTRIBUTION LINE

3	Supply, Installation, Testing and Commsisioning of Fittings and accessories for air distribution line.				
	Varying sizes of Butterfly valve, Flanges, NRV, Pressure gauge, Safety air vent, GI/MS fittings (TEE, Elbow, dummy, ect), Paints, Bolts and Nuts, ect., MOC: CI/GI/MS, MAKE: As per user discretion	1	LS		
	Supply, Installation, Testing and Commsisioning of Fine bubble diffuser	Air flow rate: 10-12 m3/hr, Type: Fine bubble cylindrical type, size : 90*1000, MOC: PVC & EPDM rubber, MAKE: Scogen/Equivalent.	6	NO.	
	Supply, Installation, Testing and Commsisioning of Coarse bubble diffuser	Air flow rate: 5-6 m3/hr, Type: Coarse bubble cylindrical type, size : 5 inch, MOC: PVC & EPDM rubber, MAKE: Scogen/Equivalent.	12	NO.	
Total rate					
TOTAL RATE					

COARSE BUBBLE FOR COLLECTION TANK

4	Supply, Installation, Testing and Commsisioning of Coarse Aeration for collection tank in order to provide uniform solution and to prevent it from being septic				
	Supply, Installation, Testing and Commsisioning of Blowers with motor and Basement Bed	FLOW 80 m3/hr with 0.3kg/cm2 (Varying according to size) MAKE: Everest/A1/Equivalent	2	LS	
TOTAL RATE					

MEMBRANE SECTION

5	MEMBRANE SKID				
	Supply, Installation, Testing and Commsisioning of Houses and supports the membrane modules in the MBR process. The material of construction is made of SS 304. Each skid holds up to 30 membrane modules.				

	MEMBRANE SKID with fabrication charges	Skid is fabricated as per design for capacity of holding and suction capacity for 20 membrane module. MOC: SS 304, MAKE: AES.	1	LS		
	Guiding rod with fabrication.	For placement and easy movement of skid during CIP. MOC :SS 304, MAKE :AES	1	LS		
			TOTAL RATE			
6	Supply, Installation, Testing and Commsioning of Submerged hollow fiber membranes with Reinforced PVDF fiber. Each module has a membrane area of 10 sqm.					
	MEMBRANE module as per design	Submerged hollow fiber membranes.Each module has a membrane area of 10 sqm. MOC: PVDF	20	NO.		
			Total Qty in modules			
			TOTAL RATE			
MEMBRANE LIFTING STRUCTURE						
7	Supply, Installation, Testing and Commsioning of Membrane lifting stand along with manual monorail - sufficient for lifting the membrane in case of any cleaning of CIP as per SOP.					
	Lifting structure as per design	I- Beam section for pathway of trolley with fabrication and fixing.	1	LS		
	Electrical chain pully with lifting system	4 tonne capacity with movement trolley	1	LS		
			TOTAL RATE			
PUMP SECTION						
PUMP						
8	Supply, Installation, Testing and Commsioning of Permeate pump for drawing water from MBR membranes and sending to treated water collection tank. Backwash pump for backwashing of membranes as required. sludge transfer pump suitable for transferring sludge from aeration / MBR chamber to sludge dewatering system / storage system / drying bed. Pump should be self priming with, working standby mode of operation, with separate isolation valve, NRV and other required accessories.					
	Feed Pump	Sewage pump Eterna 750 CW+ -1 HP with 14 m head MOC: SS/CI, MAKE : Kirloskar/Luby/equivalent.	2	NOS.		
	Permeate pump with stand	Self priming pump 0.5 HP with 14 meter head MOC: CI, MAKE : Kirloskar/Luby/equivalent.	2	NOS.		
	CIP Backwash pump with stand	Self priming Pump HP with 14 meter head MOC: CI, MAKE : Kirloskar/Luby/equivalent.	1	NO.		
	Sludge Pump	Sewage pump Eterna 750 CW+ 1 HP with 14 m head MOC: SS/CI, MAKE : Kirloskar/Luby/equivalent.	1	NO.		
	Sludge Pump to screw press	Sewage pump Eterna 750 CW+ -1 HP with 14 m head MOC: SS/CI, MAKE : Kirloskar/Luby/equivalent.	1	NO.		
			TOTAL RATE			
ELECTRIC SUPPLY SECTION						
PANEL						
9	Supply, Installation, Testing and Commsioning of PLC based automatic control panel, suitable for operation of MBR with completely automatic operation as per programme given to PLC. Programme should be such that any parameters for operation of pump, blower and other equipment can be changed on site without any special support of requirement of supplier. Control panel housing should be made up of MSEP - sheets with proper powder coating , along with all switch gears and other components as required. Control panel should have compulsory IOT based model for sending the necessary data to a dedicated server.					
	PANEL with stand	HMI AND PLC with IOT based	1	NO.		

	Electrical wire	Electrical armored cable wiring with cable tray	1	LS		
			TOTAL RATE			
LIQUID PIPINGS						
10	PIPE LINE					
	Supply, Installation, Testing and Commsioning of PIPINGS	All UPVC high grade materials along with brackets and plumbing	1	LS		
	Supply, Installation, Testing and Commsioning of Flow Meter	Electro magnetic flowmeter	1	NO.		
	Supply, Installation, Testing and Commsioning of Electric actuators	For automatic valve controller	2	NOS.		
			TOTAL RATE			
SLUDGE DEWATERING						
11	SCREW PRESS MACHINE					
	Supply, Installation, Testing and Commsioning OF SCREW PRESS	0.5m3/Hr Capacity with compact system for sludge dewatering process.	1	LS		
			TOTAL RATE			
CROSS FLOW SEPERATOR AND CHEMICAL MIXING						
12	CROSS FLOW SEPERATOR AND CHEMICAL MIXING FOR KITCHEN WASTEWATER					
	Supply, Installation, Testing and Commsioning of The Cross flow separator system permits simultaneous separation of floating and settling materials like oils, fibers, sand and heavy particle. Individually applicable as oil and solid separators					
	PLATE SEPARATOR AND FLOCCULATER	Flow - 1500Ltr/Hr with flocculator having 3 dosing pump and one sampling point.	1	LS		
			TOTAL RATE			
13	SUPPLY OF CHEMICALS (Sodium Hypochlorite / Citric Acid (2%)) AND BIO CULTURE required for membrance cleaning and dis infection of treated water on site per year including transportation charges		1	LS		
14	GRAND TOTAL (EXCLUSIVE OF GST)					

PART B - AMC for 5 years after 1 year defect liability period section

14	<p>PERIODIC MAINTENANCE EXCLUDING DAILY OPERATION (FOR FIRST YEAR) INCLUSIONS: PREVENTIVE MAINTENANCE AND BREAKDOWN MAINTENANCE MEMBRANE CLEANING/ MINOR CIP/ MAJOR CIP WHENVER REQUIRED PANEL MAINTENANCE PUMP/ BLOWER HEALTH CHECKUP</p> <p>EXCLUSIONS: SPARES, ELECTRICITY, FRESH WATER FOR BACKWASH, OPERATOR</p>	1	LS		
15	<p>PERIODIC MAINTENANCE EXCLUDING DAILY OPERATION (FOR SECOND YEAR) INCLUSIONS: PREVENTIVE MAINTENANCE AND BREAKDOWN MAINTENANCE MEMBRANE CLEANING/ MINOR CIP/ MAJOR CIP WHENVER REQUIRED PANEL MAINTENANCE PUMP/ BLOWER HEALTH CHECKUP</p> <p>EXCLUSIONS: SPARES, ELECTRICITY, FRESH WATER FOR BACKWASH, OPERATOR</p>	1	LS		
16	<p>PERIODIC MAINTENANCE EXCLUDING DAILY OPERATION (FOR THIRD YEAR) INCLUSIONS: PREVENTIVE MAINTENANCE AND BREAKDOWN MAINTENANCE MEMBRANE CLEANING/ MINOR CIP/ MAJOR CIP WHENVER REQUIRED PANEL MAINTENANCE PUMP/ BLOWER HEALTH CHECKUP</p> <p>EXCLUSIONS: SPARES, ELECTRICITY, FRESH WATER FOR BACKWASH, OPERATOR</p>	1	LS		
17	<p>PERIODIC MAINTENANCE EXCLUDING DAILY OPERATION (FOR FORTH YEAR) INCLUSIONS: PREVENTIVE MAINTENANCE AND BREAKDOWN MAINTENANCE MEMBRANE CLEANING/ MINOR CIP/ MAJOR CIP WHENVER REQUIRED PANEL MAINTENANCE PUMP/ BLOWER HEALTH CHECKUP</p> <p>EXCLUSIONS: SPARES, ELECTRICITY, FRESH WATER FOR BACKWASH, OPERATOR</p>	1	LS		
18	<p>PERIODIC MAINTENANCE EXCLUDING DAILY OPERATION (FOR FIFTH YEAR) INCLUSIONS: PREVENTIVE MAINTENANCE AND BREAKDOWN MAINTENANCE MEMBRANE CLEANING/ MINOR CIP/ MAJOR CIP WHENVER REQUIRED PANEL MAINTENANCE PUMP/ BLOWER HEALTH CHECKUP</p> <p>EXCLUSIONS: SPARES, ELECTRICITY, FRESH WATER FOR BACKWASH, OPERATOR</p>	1	LS		
20	<p>DOCUMENTATION FOR CONSENT FOR ESTABLISHMENT, CONSENT FOR OPERATION INCLUDING LIASONING (EXCLUDING CONSENT FEES) WITH KPCB (END TO END)</p>	1	LS		
21	GRAND TOTAL (EXCLUSIVE OF GST)				