



No. AAI/PB/Elect(E)/NITB/STP/2021-22/98

Date: 01.02.2022

To,

✓ M/s. Sawen Consultancy Services Pvt Ltd.
417 A & B, Sahara Shopping Centre,
Faizabad Road Lucknow.
Uttar Pradesh, India-226016

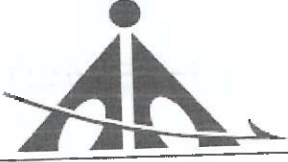
Name of work: Construction of New Integrated Terminal Building at VSI Airport, Port Blair. SH: Provision of STP- MEP work.

Reference:

- i) Your e-bid No. 346019 Dt. 26.11.2021(Tender ID No. 2021_AAI_92240_1) opened on 20.12.2021 & Reverse Auction executed on dtd. 23.12.2021.

Dear Sir,

1. Your E-tender for the work mentioned above is hereby accepted on behalf of Chairman, Airports Authority of India at the item rates quoted by totaling to Rs. 2,20,76,450 (Two Crore Twenty Lakh Seventy Six Thousand Four Hundred and Fifty Rupees only), (excluding GST) which is 12.04% below the estimated cost put to tender of Rs. 2,50,98,328.00 (excluding GST).
2. Jt .GM (Engg-Elect), Airports Authority of India, Port Blair Airport, shall be the Engineer-in-charge of the work. You are requested to depute your accredited representative, empowered to sign the contract agreement on your behalf to attend this office by 21.02.2022 to sign and complete the contract agreement. The contract agreement shall be executed on a Non-Judicial Stamp Paper of Value Rs. 100/- and the cost of the same shall be borne by you.
3. Please deposit Rs.22,07,645.00(Twenty Two Lakh Seven Thousand Six Hundred forty five Rupees only) towards security deposit within 10 days from the date of issue of this letter, failing which, the same will be deducted from your running bills as per GCC Clause 1A on page 17 of the contract document.
4. You are requested to comply with the provision of Contract labour (Regulation and abolition) Act 1970 and contract labor (Regulation and Abolition) Central rules 1971 Child Labor (Prohibition & Regulation) Act. 1986, Construction Workers (Regulation of employment and Condition of Service). Act 1996, Building and other construction Workers Welfare Cess Act 1996 and Employee Provident Fund & Miscellaneous Provision Act, 1952 & ESI Act, 1948 as specified in GCC / Supplementary Conditions and Particular Specification Under Annual Comprehensive Maintenance Contracts of tender and rules of Central and State Governments.



भारतीय विमानपत्तन प्राधिकरण
AIRPORTS AUTHORITY OF INDIA
वीरसावरकरअंतर्राष्ट्रीयहवाई अड्डा, पोर्टब्लेयर
VSI AIRPORT, PORT BLAIR



5. You are directed to contact Senior Manager (Engg-Elect) Airports Authority of India, Port Blair Airport Immediately who will arrange to hand over the site to you.
6. Please note that as per tender clause 5 on page no. 130 the time allowed for carrying out the work shall be 06 months (Six Months) and same shall be reckoned from the 10th day from the date of issue of this letter.
7. Any further correspondence in connection with the contract should normally be addressed to Engineer in-charge Airports Authority of India.
8. Please acknowledge the receipt and return the duplicate copy of this letter enclosed herewith after signing it to the undersigned as a token of acceptance.

Enclosure: Schedule of Quantities.

Yours faithfully


(J. Ravi) 01/02/2022

Jt. GM (Engg-Elect)
AAI, VSI Airport
Port Blair

SCHEDULE OF QUANTITY					
Name of Work: Construction of New Integrated Terminal Building at Port Blair Airport					
Sub Head: Provision of STP -MEP work.					
S. NO.	ITEM DESCRIPTION	QTY	UNITS	Rate	Amount
A.	SEWAGE TREATMENT PLANT (MBBR TECHNOLOGY) Sub Head - A1				
1	Design, supply, installation, testing & commissioning of Sewage Treatment Plant (excluding excavation, back filling & disposal of surplus earth MS/Civil construction work) for the following duty: Nature of effluent - Domestic Sewage from toilet, kitchen waste water shall be discharged into the STP. Design to take consideration of same. Daily average flow - 540 Cum / Day pH - 6.5 – 8.5 BOD - 250 – 450 Mg/L S. Solids - 200 – 400 Mg/L COD - 600 – 800 Mg/L Oil & Grease - 50 Mg / L Effluent discharge standard after treatment(required to meet the latest CPCB norms.) pH - 6.5 – 8.5 BOD - Less than 10Mg/L S. Solids - Less than 5 Mg/L COD - Less than 50 Mg/L Oil & Grease - Less than 5 Mg / L etc. Sewage treatment plant shall include the following items: Grit Chamber Screen Chamber Sewage equalization tank/sump Anoxic Tank MBBR Reactor Chlorine contact tank Secondary Settling Tank Sludge Holding Tank Filtration through MGF & ACF Ultrafiltration Softener Air Blowers, Pumps & equipment Piping, valves etc. Note:5 years warranty shall be provided for STP Plant and associated systems by STP Vendor after 1 year of DLP.				
1.1	Supply, installation, testing & commissioning of 2 Nos Stainless Steel Perforated, Corrugated Bar Screen with suitable lifting arrangement (size 500 mm wide x 800 mm high approx)	1	Set	82182.48	82182.48
1.2	Supply of MS hot dip galvanized puddle flanges in accordance to BS:10 table D as required to be provided (in the structural slab and wall) of various diameters. Puddle flanges shall be provided for all the structural component of the STP.	10	Each	684.85	6848.54
1.3	Supply and installation of plastic manhole step/foot rest (@ 300 mm c/c) with polypropylene compound injection molded around 12 mm dia (Fe-415) steel reinforcing bar. Provision of the foot rest is envisaged in various tanks/ components of the STP for the purpose of accessibility.	10	Job	502.23	5022.26
1.4	Supply, installation, testing & commissioning of 10 mm thick MS chequered plate rectangular manhole cover with frame for the feasibility of access in the tank with locking arrangement. Size : 600mm x 900mm	10	Each	3195.99	31959.85
1.5	Supply of vent pipes of 100 mm dia with mosquito proof grating suitable for the ventilation purpose of the various tanks.	30	Mtr	502.23	15066.79
1.6	Supply, installation, testing & commissioning of electronic type level indicator and controller for automatic operation of the system with high/low level alarm complete with auxillary NO/NC contacts for each tank.	1	Lot	6848.54	6848.54
1.7	Supply, installation, testing & commissioning of sight tube (of 3.5 to 4.5 m length) with isolation valve at top/bottom, demarcation on tube & for making the installation complete. (Contractor shall ensure submission of detailed GA drawings (Plan & Section), P & I diagram, schematic diagram for the above mentioned component and additional component if so required for the complete working of the STP.)	5	Each	182627.72	913138.61
1.8	Supply, installation, testing & commissioning of non clogging type pumps capable of handling solids upto 35mm having SS casing & SS impeller complete with all accessories, motor of required IE3 capacity. Delivery header with isolation valve, pressure gauge on delivery line with isolation cock, level controller (with wiring) to control the level of sump automatically. Pumps shall have following duty:				

S. NO.	ITEM DESCRIPTION	QTY	UNITS	Rate	Amount
1.8.1	Submersible Pumps with SS casing & SS impeller for Equilisation tanks (2 Nos. 1 working & 1 standby) :- Flow rate (each) = 7.5 LPS Head = 10 Mtr	1	Set	118708.02	118708.02
1.8.2	Sludge disposal pump with SS casing & SS impeller (2 Nos - 1 working + 1 Standby) Flow rate (each) = 1.4 LPS Head = 20-25 Mtr (Solid handling size for this pump shall be 35 mm).	1	Set	127839.41	127839.41
1.8.3	Plant room sump pump with CI body & CI impeller pump (2 Nos - one standby) Flow rate = 11.10 LPS Head = 12 Mts (Solid handling size for this pump shall be 15 mm).	1	Set	255678.81	255678.81
	Note-1: Cost shall be inclusive of PVC flexible Hose pipe (for piping submerged in effluent) with MS epoxy piping (for piping non-submerged in effluent)				
	Note-2: Provision of guide ropes to guide submersible pump from upper level to operational level in sump basin with channels / angle section of MSEP shall be made by the agency.				
1.9	Air diffusion system shall include the following:				
1.9.1	2 No. twin type rotary air blowers (1W + 1S) capable of delivering 500 cum/hr of free air at 0.5 kg/cm ² driven through "V" belt or directly coupled through flexible coupling to a TEFC motor of suitable HP Suitable for 415 ± 10% volts, 3 phase, 50 cycles A/C supply.	1	Set	639197.03	639197.03
1.9.2	Air piping shall comprise of pipes droppers/ laterals with MS (epoxy coated) Header complete with all fittings such as tees, crosses, plugs, sockets, elbows, reducers, supports & clamps, puddle flanges etc cutting chases & making good. Contactor to submit detailed P & I indicating their proposal	1	Lot	228284.65	228284.65
1.9.3	Non clog type air dispersion system capable of handling 3-5 cfm of air with oxygen transfer efficiency of 3-4% per/meter water depth. Air dispersion grid shall be assembled in modular form so that they can be replaced / repaired easily from platform at the top. (Imported fine bubble membrane diffusers)	1	Lot	54788.32	54788.32
1.9.4	Bronze Ball valve and air dispersion grid as required for STP as described above.	1	Lot	7305.11	7305.11
	Note: Air dispersion system shall be provided for Sewage Sump, aeration tank and Sludge Holding Tank.				
1.10	Providing and fixing all piping (as described below) and isolation control valves for making the system complete. SS 304 or Higher Grade : Submerged air piping MS Epoxy : Air piping & pumped effluent riser (non-submerged) PVC piping : Pumped effluent (submerged) & tank overflow pipe line GI (Heavy) : Interconnecting pipe line after delivery header of pump/ filter	1	Job	319598.51	319598.51
1.11	Supply, installation, testing and commissioning of FAB media of suitable capacity as per relevant standards or specifications in standard practice etc. complete as required.	1	Job	273941.58	273941.58
1.12	Supply, installation, testing and commissioning of PVC tube deck settling media to be installed in secondary settling tank etc. complete as required.	1	Job	146102.18	146102.18
1.13	Supply, installation, testing & commissioning of Chlorine dosing system comprising of 100 ltrs HDPE/FRP tank with 0-12 lph electronic metering type pump.	1	Set	22828.47	22828.47
1.14	Supply, installing, testing & commissioning of ultraviolet disinfection unit. The unit shall have over 99.9 % bacterial reduction from inlet to outlet. The disinfection chamber shall be constructed of SS 316L on all wetted parts. The UV lamp shall be of low pressure mercury vapour type with hard glass enclosure, the sockets shall be water tight & vibration resistant. The lamp life shall be rated for 6000 hours. The unit shall be complete with temperature safety control, lamp out alert circuit & UV radiometer with 4 – 20 mA output. The UV unit shall have with reactor, cabinet housing, cabinet cooling, treatment chamber, electrical panel, temperature safety control, lampout alert, UV radiometer along with UV monitoring system and UV monitoring readout panel. The UV Dosage should be > 60,000 uW – Sec / sq.cm. The lamps should be selected based upon the flow requirement of respective unit. Flow Rate : 9.4 LPS	1	Set	159799.26	159799.26
1.15	Design, Supply and installation of Submersible mixer for Nitrogen removal etc. complete as required.	1	No	41091.24	41091.24
1.16	Supplying, installing, testing & commissioning of horizontal centrifugal filter feed water pumps CI Head & Base, Bronze Impeller along with motor, pressure gauge with isolation cock, Isolation valve, NRV on delivery line. Isolation valve, strainer (with by-pass) at suction. Mechanical seal, suitable vibration elimination pads of approved design, with suitable electric consumption IE3 motor, drain pipe with valve (25 dia) for the pump. The pump shall be suitable for 415±10% volts 3 phase AC supply. (1 Working + 1 Standby) = 1 set				
1.16.1	Capacity : 9.4 LPS each Head : 30 M				

S. NO.	ITEM DESCRIPTION	QTY	UNITS	Rate	Amount
	RPM : 2900	1	Set	173496.34	173496.34
	(Filter Feed Pumps)				
1.16.2	Capacity : 4.7 LPS each				
	Head : 30 M				
	RPM : 2900	1	Set	73051.09	73051.09
	(Softner Feed Pumps)				
1.16.3	Capacity : 2.2 LPS each				
	Head : 30 M				
	RPM : 2900	1	Set	63919.70	63919.70
	(Irrigation pumps)				
1.16.4	Capacity : 4 LPS each				
	Head : 30 M				
	RPM : 2900				
	(UF Feed Pumps)	1	Set	73051.09	73051.09
1.17	PUMPING SYSTEM				
	Supply, Installation, Testing And Commissioning of Compact Self Contained Skid Mounted Hydropneumatic System As Follows:				
	a. In-Line, Multistage, centrifugal pumps with SS-304 casing and impeller and SS-316 shaft, CI base & head TEFC motor (with mechanical seal)				
	(Vendor to submit performance curves and technical catalog of the proposed model for review & information)				
	The pump shall be selected for performance at best efficiency point. However, the pump selection shall be suitable for performance with set point @ + 20% of the rated head.				
	b. External Pump mounted or wall mounted microprocessor PID controller and frequency inverter integrated in a single body or as separate components with pressure sensor transmitter minimum two lined LCD display, diodes to indicate pump ready, pump running and fault and capable to communicate with other controllers following MODBUS-RTU or BACNET Class-2 protocol through RS485 port. System should be capable to compensate for frictional losses at lower flows. All alarms should be displayed in the controller. System should be equipped with dry running protection				
	Quantity : 1 No.				
	c. Complete (Skid mounted wall mounted / floor mounted) electrical control panel comprising of all accessories such as PLCs, pressure switches, pressure transducers, control wiring and any other necessary imports etc. (list to be provided by the vendor)				
	d. Precharged diaphragm pressure vessel with food grade membrane, charging connection, connected to outlet header with necessary flanges, gaskets, isolating valves, nuts/bolts etc complete.				
	e. Set of accessories such as pressure switches, pressure transducers, inter connecting power & control cabling etc. complete				
	f. Accessories like pressure gauge, MS base frame (Synthetic enamel painted over a coat of primer), complete in all respects as per directions of Engineer in charge.				
	Hydropneumatic system as follows:				
	No. of pumps= 2				
	Water Flow Rate =6.4 LPS each				
	Head= 50-60 M				
	RPM= 2900	2	Set	730510.89	1461021.78
1.18	Providing, fixing, testing & commissioning of vertical MSEP filter with adequate dirt holding capacity. Fabricated from MS sheet as per manufacturer's specifications complete with initial charge filter media including painting inside with two coats of non toxic epoxy and with one coat of zinc chromate two coats of synthetic enamel paint outside. Including concrete foundation with cement plaster complete as required. The filter shall also be provided with set of internals for raw water inlet and bottom collecting system. Complete with frontal piping (heavy) and butterfly valves designed on 1.50 m / sec velocity.				
1.18.1	Filter for Domestic Water services.				
	Filteration Rate 20000L/Sqm/Hr				
	Capacity : 9.4 LPS each	1	Set	173496.34	173496.34
1.18.2	Activated Carbon Filter				
	Filteration Rate 15000L/Sqm/Hr				
	Capacity : 9.4 LPS each	1	Set	182627.72	182627.72
1.19	Providing, fixing, testing & commissioning of MSEP water softening plant (suitable for 3 Kg/Sqm working pressure) complete with initial charge with T-40 NA Resin, multiport valve with built in ejector for controlling all operations), regeneration system and HDPE tank, pressure gauge at inlet, outlet and back wash (each with isolation cock), valves, fittings and water hardness testing kit & associated works. Softener shall be suitable for the following duty:				
	Velocity in frontal pipe and valves : 1.5 M/Sec				
	Output soft Water Rate : 4.7 LPS				
	(Incoming hardness 300 mg / Ltr (Approx))				
	Working pressure 3.0 Kg / Cum)				
	Outgoing hardness-commercial zero	1	Set	228284.65	228284.65

S. NO.	ITEM DESCRIPTION	QTY	UNITS	Rate	Amount
1.20	Supplying, installing, testing & commissioning of hypochlorite solution doser comprising of 100 Litres capacity FRP tank with inlet / outlet connection, piping & valves alongwith metering (0-6 lph) pump & SS agitator with motor for dosing.	1	Set	59354.01	59354.01
1.21	Providing and laying GI pipes (heavy class) (Tertiary Treatment Equipment Piping) of approved make conforming to IS:1239-1982 complete with GI fittings such as tees, crosses, plugs, sockets, elbows, reducers, unions, flanges, sleeve pieces, check nuts etc in including cutting and making good the walls, floors, RCC work etc cutting chases & filling the same with cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) or cement mortar 1:4 (1 cement:4 coarse sand) as required, including painting the exposed pipes with desired shade of enamel paint over a coat of primer.				
1.21.1	50 mm dia	180	RM	410.91	73964.23
1.21.2	65 mm dia	150	RM	593.54	89031.01
1.21.3	80 mm dia	100	RM	776.17	77616.78
1.21.4	100 mm dia	80	RM	1004.45	80356.20
1.22	Providing and fixing cast iron butterfly valves tested to 15 kg/ Sqcm pressure including rubber gasket, flanges, nuts, bolts, washers & painting complete as required..				
1.22.1	50 mm dia	1	Nos.	1232.74	1232.74
1.22.2	65 mm dia	1	Nos.	1506.68	1506.68
1.22.3	80 mm dia	14	Nos.	1689.31	23650.29
1.22.4	100 mm dia	2	Nos.	2054.56	4109.12
1.23	Providing and fixing horizontal flap type non-return valve tested to 15 kg/Sqcm pressure of approved make (including flanges)				
1.23.1	50 mm dia	1	Nos.	1004.45	1004.45
1.23.2	65 mm dia	1	Nos.	1278.39	1278.39
1.23.3	80 mm dia	1	Nos.	1506.68	1506.68
1.24	Supply, installation, testing and commissioning of Centrifuge system of Suitable Capacity with Filter press feed pump – 2 No. (1 working + 1 standby) with 1 No. standby stator, interconnecting piping and poly dosing system.	1	Set	251113.12	251113.12
1.25	Supply, installation testing and commissioning-of Magnetic flow meter suitable for 9.4 cu.m /hour flow with preamplifier and microprocessor including necessary cabling, conduit, etc complete suitable for raw sewage application.	2	No.	41091.24	82182.48
1.26	PLC based Ultrafiltration system, including pre-cartridge filter, UF module, UF back wash pump, UF cleaning tank, Hypodosing system, connecting piping and accessories for 9.4 KLH, with a permeate flow of 235 KL with a filtration operation cycle of 16 hours per day complete as required to match the desired plant demand and capacity of STP system.	1	Set	3195985.14	3195985.14
1.27	Supply, installation testing and commissioning of online STP outlet parameter monitoring system based on uv septrometer along with all sensors and server system to transmit the online parameter to other side.				
	Parameter -Ph, BOD,COD,TSS.	1	Job	2282846.53	2282846.53
1.28	MAIN DISTRIBUTION BOARD (SEWAGE TREATMENT PLANT) Design, installation, testing and commissioning of the following integrated, cubicle type, dead front, extensible, CRCA sheet & PLC based panel with touch screen . The panel shall be suitable for 415 volts, 50hz, 4 wire, supply. IP-42 protection compartmentalized modular design from CRCA sheet steel of 2mm thick to 3mm thick for gland plate inclusive cleaning and finishing complete with 7 tank process for powder coating in approved shade, having 4 pole aluminium alloy busbar for high conductivity, SMC busbar supports with SC withstand capacity of 35 kA, bottom base channel of MS section not less than 100mmx50mmx5mm thick. Fabrication shall be done in transportable section, entire panel shall have a common copper earth busbar of size 25mmx5mm at the rear with 2 nos of earth stud, solid/flexible connection from main busbar to switch gear and from switch gear output to cable termination in cable alley with required size of aluminium conductors/busbar and control wiring with 2.5 sqmm PVC insulated copper conductor wire (FRLSH), cable alley, cable gland plate in two half, inclusive of providing following switchgears/accessories as per specifications				
	Incomer				
	2 No 160A FP(Ics=Icu=35kA) MCCB with built in thermal magnetic release unit with adjustable setting as per specification and with following accessories				
	Each incomer shall have one set of 0-500V digital voltmeter flush pattern with selector switch along with 2 A MCBs-1 set. 1 no. digital ammeter(0-200A) with selector switch and 1 set of 3 nos CT's of suitable rating with class accuracy and 15 VA burden-1 set. 3 nos of phase indication LED lamps with 2 A backup MCB.				
	Buscoupler				
	1 No 160A FP(Ics=Icu=35kA) MCCB with built in thermal magnetic release unit with adjustable setting.				
	Busbar				

S. NO.	ITEM DESCRIPTION	QTY	UNITS	Rate	Amount
	4 pole aluminium busbar with minimum 200 A capacity with heat shrinkable colored sleeves inclusive SMC busbar at required interval complete for cross section, side supports and their specifications etc. for withstanding fault level of 35 kA for one second.				
	Outgoings				
	Suitable rating of MCCB of 10 kA for electrical load (motorblowers/ventilation fans/other installations) to supply the electrical power for complete STP plant as per site requirement.				
	Suitable rating of VFD starters (5 HP and above) for motors having all safety features like overcurrent, phase indication, phase reversal trip, earth fault trip, short circuit protection and phase indicating lamps with toggle switches, indications lamps for ON/OFF/TRIP etc. complete as per site requirements.				
	Suitable rating of DOL starters (below 5 HP) for motors having all safety features like overcurrent, phase indication, phase reversal trip, earth fault trip, short circuit protection and phase indicating lamps with toggle switches, indications lamps for ON/OFF/TRIP etc. complete as per site requirements.				
	Spare MCCBs - 2 sets with highest capacity of outgoing panel.				
	For each busbar section - 1 set of surge protection device type 2 (class C), 4 mode, MOV type suitable for 8/20 us surge. Voltage protection level upto 1.8kV, operating temperature -40°C to 80°C, connected between 3 nos phase to neutral and 1 nos neutral to earth with discharge current max ≥ 40 kA per mode and $In \geq 20$ kA per mode. SPD with 63 A 4P HRC fuses of 100A breaking capacity. For connecting SPDs of minimum 10 sqmm copper wire must be used and length of connecting leads shall not be more than 500 for per mode connection including all necessary accessories. The SPD shall be in compliance with IEC 61643-1)				
	1 set of earth leakage relay (ELR, 30-300ma) with CBCT and trip due to earth leakage, Indicating LED lamps with 2 A MCB for each outgoing MCCB.	1	Set	730510.89	730510.89
	SUBHEAD-A2				
	Submersible Pumps for drainage & sewage pits				
1.29	Supply, installation, testing and commissioning of continuous duty submersible centrifugal non-clogging drainage pumps complete with 3 phase motor with all necessary protection and mechanical seal etc. complete with all ancillaries including float type level controllers, electrical control panels fabricated from 14 gauge CRCA sheet volt meter ammeter with selector switch, suitable TPNMCB, 5 VA CL : CTs, phase indicating lamps protected by 2 amp SP MCB, necessary wiring, cable trays, earthing, interlocking, starter with Automatic float type level controller, provision of high level alarm, sequence timer, potential free contact to starter for connection to BAS, both pumps may run simultaneously at pre determined level. (1 Working + 1 Standby) Vendor to submit proposed pump model with duty curve.				
1.29.1	Flow rate : 10 LPS each Head : 12 Mts Solid Handling : 10-12 MM Location : Sump of Plant Room (Lower Ground Floor) Purpose : Plant Room Drainage MOC : SS body SS Impeller & Shaft	1	Set	219153.27	219153.27
1.29.2	Flow rate : 10 LPS each Head : 15 Mts Solid Handling : 10 - 12 MM Location : Lower Ground Floor Purpose : Storm water drainage MOC : CI	5	Set	127839.41	639197.03
1.29.3	Flow rate : 10 LPS each Head : 12 Mts Solid Handling : 50 MM Location : Sewage Ejector Pit Purpose : Sewage Disposal MOC : CI	7	Set	127839.41	894875.84
1.30	Supplying and installing in the sump pit pump installation and lifting assembly suitable for 2 no. of submersible ejector pumps including ready made electro-galvanized MS lifting chain & sliding guide rail. The installation shall be complete with provision of anti-vibrator flexible connector, auto coupling union flange provision on discharge pipeline for feasibility of removing the pumps and all necessary indigenous accessories as required to complete the installation.				
	For pumps as per Item No. 1.29.3	1	Set	109576.63	109576.63
1.31	Submersible Pumps-External Sewage (Pumping Station)				
	Submersible Centrifugal Non-clog Sewage Pump				

S. NO.	ITEM DESCRIPTION	QTY	UNITS	Rate	Amount
	Supply, installation, testing and commissioning of continuous duty submersible centrifugal non-clogging sewage pumps complete with 3 phase motor with all necessary protection and mechanical seal etc. complete with all ancillaries including float type level controllers, electrical control panels fabricated from 14 gauge CRCA sheet volt meter ammeter with selector switch, suitable TPNMCB, 5 VA CL : CTs, phase indicating lamps protected by 2 amp SP MCB, necessary wiring, cable alleys, earthing, interlocking, starter with Automatic float type level controller, provision of high level alarm, sequence timer, potential free contact to starter for connection to BAS, both pumps may run simultaneously at pre determined level. (2Working + 1Standby)				
	Vendor to submit proposed pump model with duty curve.				
	Flow rate : 20 LPS each				
	Head : 20-25 Mts				
	Solid Handling : 50 MM				
	Location : Sewage Ejector Pit				
	Purpose : Sewage Disposal				
	MOC : CI	1	Set	520489.01	520489.01
1.32	Supplying and installing in the sump pit pump installation and lifting assembly suitable for 3 no. of submersible ejector pumps including ready made electro-galvanized MS lifting chain & sliding guide rail. The installation shall be complete with provision of anti-vibrator flexible connector, auto coupling union flange provision on discharge pipeline for feasibility of removing the pumps and all necessary indigenous accessories as required to complete the installation.				
	For pumps as per Item No. 1.31	1	Set	127839.41	127839.41
1.33	Providing and fixing in position GI pipe and fittings of heavy class (c) conforming to IS:1239 Including fixing chasing in wall / ceiling level supported by galvanized clamps and hangers, two coats of synthetic enamel paint of approved shade as per pipe colour.				
1.33.1	80 mm dia	300	RM	593.54	178062.03
1.33.2	100 mm dia	100	RM	776.17	77616.78
1.34	Providing two coats of synthetic enamel paint of approved shade as per pipe colour code over a coat of primer for waste & Vent pipe & fittings.				
1.34.1	80 mm dia	300	RM	593.54	178062.03
1.34.2	100 mm dia	100	RM	776.17	77616.78
1.35	Providing & fixing dual plate C.I. wafer type check valve tested to a pressure not less than 16 Kg/sqcm, including rubber gasket, flanges, union, nuts, bolts, washers & painting complete as required.				
1.35.1	80 mm dia	2	No.	2648.10	5296.20
1.35.2	100 mm dia	1	No.	1643.65	1643.65
1.36	Design, fabrication, assembling, wiring, supply, installation, testing and commissioning of motor control centre shall be fabricated out of 14 gauge CRCA sheet steel in form in 3b formation with reinforcement of suitable size angle iron, channel 'T' sections irons and /or flats wherever necessary. Cable gland plates shall be provided on top as well as at the bottom of the panels. Panels shall be treated with all anticorrosive process before painting as per specifications with 2 coats of red oxide primer and final approved shade of powder coated paint. 2 Nos. earthing terminals shall be provided for 3 phase, 4 wire, 50 Hz supply system. Lifting hooks shall also be provided in case of large panels. Approval shall be taken for each panel before fabrication. Cadmium Plated hardware shall be used in fabrication of panels.				
	MCC-1 for Plumbing system (Submersible Pumps)				
	Incoming				
	160 amps TPN MCCB with the following accessories:				
	a. 0-500 volts 96 x 96 mm square voltmeter with selector switch protected by 2 amps TP MCB. 1 Set				
	b. 0-160 amps 96 x 96 mm square ammeter with selector switch and 160/5 amps 10 VA CL:1 CTs. 1 Set				
	c. Phase indicating lamps protected by 2 amp SP MCB 3 Set				
	d. Should have BMS compatibility				
	Bus Bar				
	200 amps TPN (25 KA) aluminium bus bar with heat shrinkable insulation sleeves.				
	Outgoings				
	a. 2 Nos. suitable rating MPCB for operation of pumps mentioned in Item No. 1.1.1, each DOL starter and outgoing feeder to drainage sump pumps in plant room-Lower Ground Floor (Basement) (including 1 Nos. standby). Each compartment shall contain auto / manual selector switch and indicating / pushbutton lamps with MCB for ON / OFF / TRIP of motor.				
	b. 10 Nos. suitable rating MPCB for operation of pumps mentioned in Item No. 1.1.2, each DOL starter and outgoing feeder to drainage sump pumps in lower ground floor (basement) (including 5 Nos. standby). Each compartment shall contain auto / manual selector switch and indicating / pushbutton lamps with MCB for ON / OFF / TRIP of motor.				
	c. 14 Nos. suitable rating MPCB for operation of pumps mentioned in Item No. 1.1.3, each DOL starter and outgoing feeder to Sewage sump pumps in lower ground floor (basement) (including 7 Nos. standby). Each compartment shall contain auto / manual selector switch and indicating / pushbutton lamps with MCB for ON / OFF / TRIP of motor.				

S. NO.	ITEM DESCRIPTION	QTY	UNITS	Rate	Amount
	d. 3 Nos. suitable rating MPCB for operation of pumps mentioned in Item No. 3.1.1, each Star Delta starter and outgoing feeder to Sewage Sump Pumps-External Sewage Pumping Station (including 1 Nos. standby). Each compartment shall contain auto / manual selector switch and indicating / pushbutton lamps with MCB for ON / OFF / TRIP of motor.				
	i. 32 amps TPN MCB's	3 Nos.			
	ii. 20 amps TPN MCB's	3 Nos.			
	e. Necessary cable alleys, internal wiring, and interlocking, for all equipment shall also included				
	Notes :				
	a. All MCCBs shall be of 25 KA breaking capacity and suitable for motor duty application.				
	b. Provision shall be made for providing potential free contacts to all pumps starters for connection to BMS				
	c. Provision shall be made to ensure system protection from dry running of the pump				
		1	Set	109576.63	109576.63
A-3	Cables, Pipes and End Termination				
1.37	Supply of XLPE insulated PVC inner sheathed, armoured aluminium conductor underground power cable of 1.1 KV grade of following size conforming to IS:7098(Part-I) 1988, with upto date amendments etc., complete as required.				
1.37.1	4x16 sqmm	150	meter	136.97	20545.62
1.37.2	4x 25 Sq.mm	150	meter	228.28	34242.70
1.37.3	3.5x 35 Sq.mm	150	meter	273.94	41091.24
1.37.4	3.5x 50 Sq.mm	150	meter	319.60	47939.78
1.37.5	3.5x 150 Sq.mm	250	meter	593.54	148385.02
1.38	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing RCC/ HUME/ METAL/HDPE pipe as required.				
1.38.1	Upto 35 sq.mm	150	meter	73.05	10957.66
1.38.2	Above 35 sqmm upto 95 sqmm	50	meter	114.14	5707.12
1.38.3	Above 95 sqmm upto 185 sqmm	200	meter	228.28	45656.93
1.39	Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface as required.				
1.39.1	Upto 35 sq. mm	150	meter	73.05	10957.66
1.39.2	Above 35 sqmm upto 95 sqmm	50	meter	114.14	5707.12
1.39.3	Above 95 sqmm upto 185 sqmm	25	meter	228.28	5707.12
1.40	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing masonry open duct as required.				
1.40.1	Upto 35 sq. mm	150	meter	73.05	10957.66
1.40.2	Above 35 sqmm upto 95 sqmm	50	meter	114.14	5707.12
1.40.3	Above 95 sqmm upto 185 sqmm	25	meter	228.28	5707.12
1.41	Supplying and laying of following size DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II (with latest amendments) complete with fitting and cutting, jointing etc. direct in ground (75 cm below ground level) including excavation and refilling the trench but excluding sand cushioning and protective covering etc. complete as required.				
1.41.1	63mm dia-OD	450	meter	639.20	287638.66
1.41.2	90mm dia-OD	400	meter	730.51	292204.36
1.42	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
1.42.1	4 X 16 sq. mm (28mm)	25	each	109.58	2739.42
1.42.2	4 X 25 sq. mm (28mm)	25	each	164.36	4109.12
1.42.3	3½ X 35 sq. mm (32mm)	15	each	200.89	3013.36
1.42.4	3½ X 50 sq. mm (35mm)	10	each	319.60	3195.99
1.42.5	3½ X 150 sq. mm (50mm)	15	each	593.54	8903.10
1.43	Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.	250	meter	228.28	57071.16
1.44	Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.	600	meter	109.58	65745.98
1.45	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	4	Set	10044.52	40178.10
A-4	Operation & Maintenance				
1.46	Operation & Maintenance of Sewage Treatment Plant (including all submersible sump pumps, panels etc.) and its associated works, as per standard OEM recommendations & practices and as per conditions of contract : (1 Year Under DLP & 5 Year After DLP)	6	Per Year	821824.75	4930948.51
	Total in figures	Total			22076450.02
	Say as				22076450.00
	Rupees Two Crore Twenty Lakh Seventy Six Thousand four hundred fifty Only)				


 (J.Ravi) 6/02/20
Jt.GM(Engg-Elect)
AAI,VSI Airport
Port Blair