

TICEL BIO PARK LTD

COMPETITIVE TECHNO COMMERCIAL TENDER

INSTALLATION, TESTING AND COMMISSIONING OF DIESEL GENERATOR AND ALLIED WORKS IN CONSTRUCTION OF

TICEL BIO PARK – III,

**At SF No. 66, 67, 68 & 75, Off Maruthamalai Road, Somayampalayam Village,
Bharathiyar University P.O, Coimbatore - 641 046
(G +13 UPPER FLOORS)**

BILL OF QUANTITIES

VOLUME - IV

DUE DATE FOR SUBMISSION: ON OR BEFORE 03.04.2019 BY 15.00 Hours

TO BE SUBMITTED TO:

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ENGINEERING CONSULTANTS:M/s TAAMAESSEK ENGINEERING CONSORTIUM

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TENDER SUBMITTED BY:

M/s. _____

Address _____

2019

INSTALLATION, TESTING AND COMMISSIONING OF DIESEL GENERATOR AND ALLIED WORKS IN CONSTRUCTION OF TICEL BIO PARK – III				
Sl.No	Description of Works	Total Supply	Total Erection	Total Amount
01.00.00	Sub Head I: DISMANTLING THE DG SET & ALLIED COMPONENTS			
02.00.00	Sub Head II: LOADING & TRANSPORTING			
03.00.00	Sub Head III: DG SET RE-ERECTION WORKS AT TICEL-III			
04.00.00	Sub Head IV: SYN PANEL			
05.00.00	Sub Head V: EXHAUST SYSTEM			
06.00.00	Sub Head VI: FUEL SYSTEM			
07.00.00	Sub Head VII: BUS DUCT			
08.00.00	Sub Head VIII: EARTHING			
09.00.00	Sub Head IX: POWER & CONTROL CABLE			
10.00.00	Sub Head X: DG SET SERVICE WORKS AT TICEL-III, Coimbatore.			
11.00.00	Sub Head XI: ROOM TREATMENT			
12.00.00	Sub Head XII: SAFETY			
13.00.00	Sub Head XIII: LIASIONING CEIG			
14.00.00	Sub Head XIII: UNDER GROUND DIESEL TANK AND CONNECTED WORKS			
15.00.00	Sub Head XVI: LIASIONING CCOE			
Total				

INSTALLATION, TESTING AND COMMISSIONING OF DIESEL GENERATOR AND ALLIED WORKS IN CONSTRUCTION OF TICEL BIO PARK – III								
BILL OF QUANTITIES								
SL.No	Description	Qty	Units	Supply	Erection	Total Supply	Total Erection	Total Supply Erection
01.00.00	Sub Head I: DISMANTLING THE DG SET & ALLIED COMPONENTS							
01.01.00	Dismantling the 750 KVA, 415 V, 3 Phase Cummins Make DG set with base frame after removing the Exhaust pipe with silencer, fuel lines, Battery Connections, Exhaust Fans, Attenuators, control cables, earth flats ,990 Liters day tank, 1250 A 3phase and 4 wire copper indoor bus ducts from DG sets to Synch. Panel and from synch. Panel to Main MV Panel.	2	Lots					
01.02.00	Dismantling the 30 M Chimney and allied Exhaust pipes out side the DG Room at TICEL / Chennai.	1	Nos					
	Total for Sub Head No:I							
02.00.00	Sub Head II: LOADING & TRANSPORTING							
02.01.00	Charges for loading ,transportation of 750 KVA DG set, Panels, Bus duct, diesel tank, Silencer,40000 CFM fresh air fan, HOT AIR ATTENUTORS, ascoustic wall and ceiling panels to TICEL-3 location	2	Nos					
02.02.00	Charges for loading, transportation, unloading at site for CHIMNEY, Ladders and Platform to TICEL-3 location	1	Job					
	Total for Sub Head No:II							
03.00.00	Sub Head III: DG SET RE-ERECTION WORKS AT TICEL-III							
03.01.00	1 X 750 KVA DG SET Charges for Positioning of DG set & Day tank to the prepared foundation at TICEL -3 Coimbatore location	2	Job					
03.02.00	Supply and installation of required number of Anti vibration mounts suitable for 750 KVA Cummins DG set.(1 set= required number of antivibration mount for one 750 KVA DG set)	2	Each					
03.03.00	Supply and installation of 24 V, 180 Ah, stationary type, high discharge performance sealed maintenance free battery (VRLA or tubular) with all required accessories and connecting cable suitable for 750 KVA DG set for Electric starting of the DG sets with Initial Charge(1 set = required number 24 V, 180 AH batteries for one number DG set)	2	Each					
03.04.00	Supply and installation of New latest Engine Control Panel suitable for 750 KVA , 415V, 3 Phase, 50 HZ DG set with Cummins Make Engine Type KTA-2300-G with all required accessories and cables	2	Each					
	Total for Sub Head No:III							

SL.No	Description	Qty	Units	Supply	Erection	Total Supply	Total Erection	Total Supply Erection
04.00.00	Sub Head IV: SYN PANEL							
04.01.00	Supply ,Installation and commissioning of DG Synch Panel with AMF facility suitable for 2Nos X 750 KVA, DG set , as per the specification and Power Schematic including supply of all ACBs, Bus bars and all required Protection system for the Engine, Protection Relays, Reverse Power Relay, Synchronising relays, Synchronos cope, Indication Lamps Auto manual facility, battery charger, Providing TNC switch, emergency lockable push button, and meters and required accessories and as per the brief specification and drawings enclosed and with ACBS for incoming , outgoing and bus coupler cum sych ACB as detailed below and as per Vol. III.	1	Set					
	DG INCOMER No. 1							
	1250 AMPS, 50 KA (lcs), 4 Pole, EDO type ACB with Microprocessor based relay having Over current, short circuit with time setting and 6NO + 6 NC, indication for test, service, isolated ON /OFF trip indications, Shutter Assembly, Racking interlock Manual /Electrical closing& tripping and 320 Amps 3 pole motorised MCCB for Neutral earthing. as specified in the technical Specifications.							
	Metering Compartment							
	1 No. Multi parameter Enercon make 6400 or eqvt. With RS 485 MODUBUS protocol with suitable CTs .							
	BUS Coupler							
	2500 AMPS ACB, 50KA (lcs) AC Motor operated Draw Out (EDO)Type Four Pole Microprocessor based relay having Over current, short circuit with time setting and 6NO + 6 NC, indication for test, service, isolated ON /OFF trip indications, Shutter Assembly, Racking interlock Manual /Electrical closing& tripping . as specified in the technica ISpecifications.through which the both 750 KVA DG set will be synchronised.							
	DG INCOMER - No.2							

SL.No	Description	Qty	Units	Supply	Erection	Total Supply	Total Erection	Total Supply Erection
	1250 AMPS, 50 KA (Ics), 4 Pole, EDO type ACB with Microprocessor based relay having Over current, short circuit with time setting and 6NO + 6 NC, indication for test, service, isolated ON /OFF trip indications, Shutter Assembly, Racking interlock Manual /Electrical closing& tripping and 320 Amps 3 pole motorised MCCB for Neutral earthing. as specified in the technical Specifications.							
	Metering Compartment:							
	1 No. Multi parameter Enercon make 6400 or eqvt. With							
	RS 485 MODUBUS protocol with suitable CTs .							
	OUTGOING No. 1							
	2500 AMPS ACB, 50 KA (Ics) AC Motor operated Draw Out (EDO)Type Four Pole Microprocessor based relay having Over current, short circuit with time setting and 6NO + 6 NC, indication for test, service, isolated ON /OFF trip indications, Shutter Assembly, Racking interlock Manual /Electrical closing& tripping . as specified in the technical Specifications.							
	Metering Compartment:							
	1 No. Multi parameter Enercon make 6400 or eqvt. With							
	RS 485 MODUBUS protocol with suitable CTs .							
	OUTGOING No. 2							
	1 250 AMPS ACB,50 KA (Ics) AC Motor operated Draw Out (EDO)Type Four Pole Microprocessor based relay having Over current, short circuit with time setting and 6NO + 6 NC, indication for test, service, isolated ON /OFF trip indications, Shutter Assembly, Racking interlock Manual /Electrical closing& tripping . as specified in the technical Specifications.							
	Metering Compartment:							
	1 No. Multi parameter Enercon make 6400 or eqvt. With							
	RS 485 MODUBUS protocol with suitable CTs .							
	BUSBAR CHAMBER							
	1 Set of 2500 A, 4P Aluminium Busbar Chamber for the entire length.							
	2 Nos 25x3 mm earth bus through out the panel and earthing provision							
	Total for Sub Head No:IV							
05.00.00	Sub Head V: EXHAUST SYSTEM							
05.01.00	supply, installation, testing and commissioning of 200mm dia MS exhaust pipe B Class with all accessories such as bends,.flanges, gaskets.	35	Mtrs					

SL.No	Description	Qty	Units	Supply	Erection	Total Supply	Total Erection	Total Supply Erection
05.02.00	Supply & Installation of Thermal insulation with 50mm thick Mineral wool, chicken mesh and aluminium sheeet thickness of 24 SWG cladding for 200mm dia exhuaast pipe , complete as per the specifications etc. as required.	35	Mtrs					
05.03.00	Design, manufacture, supply, installation, testing and commissioning of 300mm dia MS exhaust pipe B Class with all accessories such as bends,..flanges, gaskets.	35	Mtrs					
05.04.00	Supply & Installation of Thermal insulation with 50mm thick Mineral wool, chicken mesh and aluminium sheeet thickness of 24 SWG cladding for 300mm dia exhaust pipe complete as per the specifications etc. as required.	35	Mtrs					
05.05.00	Erection of existing silencers	4	nos					
05.06.00	Supply & Installation of Thermal insulation for silencer with the thickness of 75 mm thick glass wool of , chicken mesh and aluminium sheeet thickness of 24 SWG cladding complete as per the specifications etc. as required.	2	set					
05.07.00	Supply installation of " Y " piece for connecting the exhaust pipe as per manufacturers requirement to common pipe to the Chimney.	2	nos					
05.08.00	Erection of existing SS Flexible Bellows with new fastners	8	nos					
05.09.00	Painting charges for the existing chimney - 30mtrs with one coat of primer and two coats of enamel paint (Considered 600 deg heat resistance paint)	1	job					
05.10.00	Charges for Erection of Chimney with ladder and platform at TICEL-III Coimbatore Location. DG set with exhaust gas flow with wind pressure suitable for coimbatore condition and exhaust gas velocity, necessary stiffner rings & flanges, sampling ports, foundation bolts, lightning arrestor, earth strip of 25 x 6mm GI for Earthing stack and LA, insulators, foundation bolts etc. Detail design for civil foundation should be furnished by the supplier well in advance to make the foundation ready by other agency. Design data should be furnished for wind pressure, base diameter and thickness of plate at cone and shaft areas. The rate shall include Lightning Protection.	1	job					

SL.No	Description	Qty	Units	Supply	Erection	Total Supply	Total Erection	Total Supply Erection
05.11.00	Supply and Erection of MS Supports with one coat of primer and two coats of enamel paint .(Not considered any kind of blasting and metalizing) Make - Re rolled	3000	kgs					
	Total for Sub Head No:V							
06.00.00	Sub Head VI: FUEL SYSTEM							
06.01.00	Supply and Installation of 25 mm dia, Class 'B' NB SCHEDULE 25, A 106 MS seamless pipe for the interconnection of the Day fuel tank with the engines, with necessary welding, jointing and painting etc.,	40	Mtrs					
06.02.00	Supply and Installation of 25 mm dia, Ball value sutiable for the interconnection of the Day fuel tank with the engines, with necessary welding, jointing and painting etc.,	2	Nos					
06.03.00	Fuel unloading hand pump.	1	Each					
06.04.00	PVC Hose	20	Mtr					
	Total for Sub Head No:VI							
07.00.00	Sub Head VII: BUS DUCT							
07.01.00	Erection of exisiting 1250 A TPN Copper bus duct from dg set to Syn panel (includeing bends , rubber bellow , flexible)	25	Mtrs					
07.02.00	Supply,Erection,Testing and Commissioning of 2500 A TPN 433v, 50HZ, LV BUS duct comprising of TPN Aluminium Busbar housed in 14 swg CRCA sheet enclosure necessary right angle bends, Adapter chambers, 25 x 6mm twin copper earth bus for the entire length and required MS supports, from DG SET to MV panel.(As per the detailed Technical Specification enclosed.)	19	Meter					
	The Phase Bus bar shall be 2 Runs of 125 x 12.5 mm. and the Neutral bar shall be 1 Runs of 125 x 12.5 mm.							

SL.No	Description	Qty	Units	Supply	Erection	Total Supply	Total Erection	Total Supply Erection
07.03.00	Supply,Erection,Testing and Commissioning of 2500A Aluminium Flexible expansion joints (jointing portion to be tinned) at the DGSET side and AMF panel side with required Standard Accessories etc., complete as required.(1 set = R,Y,B& N)(Each 5Meter to be provide flexible joints for each phase and neutral busbar)	4	Set					
07.04.00	Supply,Erection,Testing and Commissioning of 1250 A TPN 433v, 50HZ, LV BUS duct comprising of TPN Aluminium Busbar housed in 14 swg CRCA sheet enclosure necessary right angle bends, Adapter chambers, 25 x 6mm twin copper earth bus for the entire length and required MS supports, from DG SET to MV panel.(As per the detailed Technical Specification enclosed.)	25	Meter					
	The Phase Bus bar shall be 2 Runs of 75 x 12 mm. and the Neutral bar shall be 1 Runs of 75 x 12 mm.							
07.05.00	Supply,Erection,Testing and Commissioning of 1250A Aluminium Flexible expansion joints (jointing portion to be tinned) at the DGSET side and AMF panel side with required Standard Accessories etc., complete as required.(1 set = R,Y,B& N)(Each 5Meter to be provide flexible joints for each phase and neutral busbar)	5	Set					
	Total for Sub Head No:VII							
08.00.00	Sub Head VIII: EARTHING							
08.01.00	Design, supply, erection of 600 x 600 x 3 mm Cu. plate with suitable interconnection of 2 runs of copper plates, buried in ground in a depth of 3.0 M from ground level with alternate layer of charcoal and salt including supply and fixing of 38 mm dia. perforated GI pipe with funneling for watering purpose including construction masonry works, CI cover. The cover shall be heavy duty to suit heavy vehicle movements as required and as per IS 3043.	4	set					
08.02.00	Design, supply, erection of GI Pipe earthing in a depth of 3.0 M from ground level with alternate layer of charcoal and salt including supply and fixing of 100 mm dia. CI pipe with funneling for watering purpose including construction masonry works with CI cover etc.,. The cover shall be heavy duty to suit heavy vehicle movements as required and as per IS 3043.(DG Body-2 NOS+Exhaust stack/Scrubber-1Nos)	3	set					

SL.No	Description	Qty	Units	Supply	Erection	Total Supply	Total Erection	Total Supply Erection
08.03.00	Supply and laying of 40 x 6 mm copper flat for 750 KVA generator neutral earthing joint connections brazing.	59	Mtrs					
08.04.00	Supply and laying of 25 x 3mm copper flat for generator body earthing joint connections brazing.	154	Mtrs					
08.05.00	Supply and laying of 8 Gauge bare copper wire for Gland earthing.	50	Mtrs					
	Total for Sub Head No:VIII							
09.00.00	Sub Head IX: POWER & CONTROL CABLE							
	Supplying and laying of the following XLPE insulated, PVC sheathed armoured Copper conductor cabling from engine control panel to Synchronisation control panel and battery charger, day tank with suitable clamping arrangement, end terminations, earthing the glands, laying on the existing cable tray /trench, painting complete etc. as required.							
09.01.00	8C x 2.5 sq.mm XLPE insulated Copper cable	50	Mtr.					
09.02.00	12 C x 2.5 sq.mm XLPE insulated Copper cable	QRO	Mtr.					
09.03.00	4C x 2.5 sq.mm XLPE insulated Copper cable	150	Mtr.					
09.04.00	4C x 1.5 sq.mm XLPE insulated Copper cable	50	Mtr.					
09.05.00	2.5 sqmm PVC insulated Copper cable Screened communciation cable	30	Mtr.					
09.06.00	4C x 4.0 sq.mm XLPE insulated Copper cable	50	Mtr.					
09.07.00	supplying and laying of rubber mat of 2 mm thick with ISI : 15652-2006 marked suitable for the 3.3 KV grade etc. as required.(size 1m wide x 2m length)	6	Each					
09.08.00	Supply, fixing, testing and commissioning of 20W LED for Emergency lamp.	2	Each					
09.09.00	150 mm x 3 mm Cable Tray with Supports	50	Mtrs					
	Total for Sub Head No:IX							
10.00.00	Sub Head X: DG SET SERVICE WORKS AT TICEL-III, Coimbatore.							
10.01.00	Supply of Entire Spares required for conducting "D" Maintenance Check as per Cummins Maintenance Manual for the Cummins Engine KTA-2300-G (The copy of Original Invoice to be given along with Bill. The replaced old spares to be handed overtop TICEL) A brief description of it furnished in Volume III.	2	Lot					
10.02.00	Labour charges for conducting "D" Maintenance Check as per Cummins Maintenance Manual engaging the technicians and supervisor of Cummins Authorised Dealer/ Distributor. For the erected DG sets.	2	Ls					
10.03.00	Charges for cleaning the radiator cores by chemical cleaning and by pressure flushing and do the necessary repair for the damages if any so that there is no leak and radiator is capable of absorbing the heat from water jacket and reheat rejection from the radiator fully on full load.	2	Nos					

SL.No	Description	Qty	Units	Supply	Erection	Total Supply	Total Erection	Total Supply Erection
10.04.00	Supply and fixing the New Radiator suitable for the 750 KVA Cummins Diesel Engine Type KTA-2300 G with required accessories.	QRO	Nos					
10.05.00	Charges for Commissioning the DG sets and conducting load test after erection in all respect and after conducting "D" check as per Maintenance Manual. Fuel for load Test will be supplied by TICEL.	2	Nos					
	Total for Sub Head No:X							
11.00.00	Sub Head XI: ROOM TREATMENT							
11.01.00	Removing chargers for ascoustic wall and ceiling panels and Re fixing of old acoustic wall and ceiling panels	200	Sqmtrs					
11.02.00	Supply and erection of MS supports for acoustic wall and ceiling panels	2500	Kgs					
11.03.00	Supply and installation of acoustic wall and ceiling panels wilth 100 thick rock wool .	250	Sqmtrs					
11.04.00	Supply and fixing of Fresh Air Attenuators (1nos). If required size 3.5 x 3.5 mtrs	1	set					
11.05.00	Supply and fixing of Fresh Air Louvers (1nos). If required size 1.5 x 3.5 mtrs	1	set					
11.06.00	Supply and fixing of Hot Air Attenuators (1nos). If required size 3.5 x 3.5 mtrs	1	set					
11.07.00	Erection of existing hot air attenuators, ducting along with canvas cloth (SAME HOT AIR ATTENUATORS HAS TO BE USE AT COIMBATORE)	1	Nos					
11.08.00	Supply and fixing of GI ducting with 25 mm thick ascoutic treated intercation between the radiator and the dg set.	50	Sqmtrs					
11.11.00	Design, supply and install - Double canvas cloth interconnection between the radiator and the sound attenuator to avoid transmission of vibration from the DG set to the sound attenuator through the treated duct.	2	LS					
11.12.00	Supply and fixing of Acoustic Double Leaf Door (1.8 Mtrs Width x 2.1 Mtrs Height)	1	nos					
11.13.00	Supply and fixing of Acoustic Single Leaf Door (.8 Mtrs Width x 2.1 Mtrs Height)	1	nos					
11.14.00	Charges for hiring the Scaffolding for room treatment work	1	LS					
11.15.00	Supply and fixing of attenators for exhaust fans .	2	set					
11.16.00	Erection of 40000 CFM fresh air fan	1	set					

SL.No	Description	Qty	Units	Supply	Erection	Total Supply	Total Erection	Total Supply Erection
11.17.00	Supply and Installation of indoor type starter panel for 1 nos of 40000 CFM fresh air & 2 nos of 10000 CFM exhaust fan. Design, Manufacture, supply and erection of mechanical forced draft type ventilation fans & exhaust fans as required as per vendor's design as adequate number for Diesel Generator room to limit the temperature rise within 5°C above outdoor ambient air dry bulb temperature with suitable motor. The impellers shall be die cast aluminium or MS powder coated . The fan shall be statically and dynamically balanced. The fan motor shall be suitable for three phase operations. The system shall be suitable for 2 Nos.X 750 KVA DG Sets The Supply and Installation of spare ventilationfans shall also be included in the scope,The rate shall include necessary ducting, supporting angles, motors, fans, control switches, single phase preventor, filters, starters, switchboard etc.	1	nos					
	Total for Sub Head No:XI							
12.00.00	Sub Head XII: SAFETY							
12.01.00	Supply and fixing of fire dry type extiensugher of 3.5 KG	2	Nos					
12.02.00	Supply and fixing of fire co2 type extiensugher of 5 KG	2	Nos					
12.03.00	supply & fixing of danger board with the local launguage .	1	Nos					
12.04.00	Supply & fixing of shock treatment char with the local and the common laungauge.	1	set					
	Total for Sub Head No:XII							
13.00.00	Sub Head XIII: LIASIONING CEIG							
13.01.00	CEIG : Preparation of the drawing and submission to the statutory authorities such as Chief Electrical Inspectorate to Govt. of TAMILNADU, TAMILNADU ELECTRICITY BOARD, etc for commissioning the system including arranging inspection and also necessary approval / safety certificate from authorities including statutory fees/charges for the Electrical / DG Installation.	1	Job					
	Total for Sub Head No:XIII							
14.00.00	Sub Head XIII: UNDER GROUND DIESEL TANK AND CONNECTED WORKS							
	DIESEL STORAGE &TRANSFER							

SL.No	Description	Qty	Units	Supply	Erection	Total Supply	Total Erection	Total Supply Erection
14.01.00	Designing, Supply of storage tank, piping and pipe fittings, valves, Gaskets and supports structural, Installation, pre commissioning, painting as per code and commissioning and getting approval of storage & pumping system for Diesel unloading and transfer from diesel storage yard to plant use as per technical specification and codes and Indian standards and also as per rules and regulation stipulated by chief Controller of explosive dept and The petroleum Rules 2002 amended by 2005							
	Diesel Tank							
	Diesel tank of following capacity horizontal cylindrical type to with stand maximum pressure of 1kg/cm2 in IS 2062 MOC mild steel plates with safety accessories with complete supporting structure, roof Hand rail, ladder, walkway platform , flanged nozzles, manhole Vent valve with Box trap over flow valve, isolation valves and drain Valve shall be provided and IS10987-1992:Code of practice for design, fabrication, testing & installation of underground horizontal cylindrical steel storage tanks single skin shell for petroleum products and as per rules and regulation of Chief controller of Explosive Dept . Fabrication, Transportation, insurance, Unloading at site, Installation, Testing & Comissioning of HSD tank suitably designed for Under ground installation as per enclosed drawing and as per rules and regulation stipulated by chief control of explosive dept and The petroleum Rules 2002 amended by 2005..							
	Tank to be suitably fabricated out of M.S. plate shell minimum 6mm& end plate minimum 8mm) with stiffeners single wall leak proof , necessary accessories such as outlet, inlet, manhole, Aluminium dipstick, bolts, nuts and necessary brackets on the tank for holding turn buckle etc.complete all as per approved design/drawing Tank dia is outer dia 2.75m & Length is 6.40m Duly treated with necessary anti corrosive compound externally and stiffener angle for endplate ,bottom pad plate and tumbuckles with support arrangement, The tanks to be tested for leaks under water fill test .Rate quoted shall include for necessary transportation, loading, unloading at site as directed, including necessary anticorrosive treatment to tank etc.complete. Propervent pipe with end with ss mesh(mesh size 10-25mesh) flanged end to avoid insects entry							
	Painting :2 coats of Epoxy primer and 2 coats of epoxy paint.							
	Test Certificates :Hydraulic test, and radiographic test as per standards and as per rules and regulation of Chief controller of Explosive Dept To be Furnished.							
	Diesel transfer Pumping control system having Solenoid valve control & instrumentation with level sensor, indicating and control instrument, valve and accessories							
	Capacity :30 KL	1	Each					
	TRANSFER PUMP:							

SL.No	Description	Qty	Units	Supply	Erection	Total Supply	Total Erection	Total Supply Erection
14.02.00	Supply, Transportation, Insurance, Unloading at site, decanting, installation & commissioning of HSD Unloading pump of approved type and make of centrifugal pump capacity of 6 cum/hr. against head of 20 Mtrs approx. to work on 3 Phase 415 V 50 cycles with necessary suction and discharge piping with valve cum strainer, non return valve flame proof motor, flame proof starter suitable for outdoor installation, suction and delivery outlets, companion flange nuts, bolts, gaskets etc. complete. Rate quoted shall include for foundation bolts, motor guard, flame proof glands, terminations for starters and motors, adequate size cable from starter to motors. and earthing inside the yard MS supports as necessary for pump installation. Pumps are as per DIN 24255/ ISO 2858 /API 610							
	Type Centrifugal pumps/positive suction (screwed type)							
	Capacity flow :4CMH							
	Total Head : 20MWC							
	Speed RPM :2990							
	Shaft EN9/SS304							
	Casing :CI							
	Impeller :CS /CI							
	Coupling :DIRECT							
	Gland : MECHANICAL SEAL							
	Base Frame with FRP coating To be provided							
	Qty 1W+ 1 Stand by-1 SET							
	Make :Rotomack pump with Kirloskar / cromptron/ABB	1	Set					
	In the Inlet Y strainer Filter (500 microns) is to be provided							
	ELECTRICAL CONTROL PANEL							
14.03.00	Supplying, installing, testing and commissioning of flame proof starter panel for HSD unloading and transfer pumps.	1	Set					
	PIPING							
14.04.00	DIESEL piping carried out of out of MS class 'C' pipes as per IS 1239 of latest version for sizes wall thickness for pipes 150-mm and as per IS 3589 with 6.25-mm for above 200-mm size with seamless fittings as per technical specifications and standard The works shall include the standard pipe fitting like equal tee, unequal tee, reducer, elbow, bend etc.all inclusive all necessary SECONDARY supports, painting & banding as per specifications. ALL JOINTS ARE TO BE WELDED For both indoor and outdoor Over head and under ground pipes Make: TATA/JINDAL/Equivalent							

SL.No	Description	Qty	Units	Supply	Erection	Total Supply	Total Erection	Total Supply Erection
14.04.01	40 mm NB	120	RMT					
14.04.02	25mm NB	20	RMT					
14.04.03	50 mm NB	20	RMT					
14.04.04	80 mmNB	10	RMT					
14.05.00	Cast Steel BALL valves with flanged fasteners, support arrangement as per specifications of sizes and quantities as detailed below: The rate quoted shall include for providing flange with necessary gaskets, nuts, bolts, washers, etc							
14.05.01	40 mm NB AUDCO /ANIL/FLOCON /ADVANCE MAKE	14	Each					
14.05.02	40 mm NB Cast STEEL Non Return VALVE	2	Each					
14.05.03	50 mm NB AUDCO /ANIL/FLOCON /ADVANCE MAKE	2	Each					
14.05.04	80 mm NB AUDCO /ANIL/FLOCON /ADVANCE MAKE	1	Each					
14.06.00	Flanged end size 40 NB BUCKET TYPE strainer stain less steel mesh of size 300Micron strainer body made out of hot tipped Galvanized /CI Flanged connection CI 150 ANSI	2	Each					
14.07.00	Flanged end size 80 NB BUCKET TYPE strainer stain less steel mesh of size 300Micron strainer body made out of hot tipped Galvanized /CI Flanged connection CI 150 ANSI	1	Each					
14.08.00	FLEXIBLE UNLOADING HOSE :Supply of Neoprene hose as per BS 1435/1968 suitable for diesel oil including fitting of one end flanged and other end with suitable coupler. (Decanting Hose) a) 80 mm dia. X3 Mtrs long	1	Nos					
	FIRE EXTINGUISHERS							
14.14.00	Supplying, installing and commissioning Portable Fire extinguishers of following type & capacity. MECHANICAL FOAM TYPE - 9 LTRS Mechanical foam type fire extinguisher of 9 Ltrs. Capacity, with initial filling in brand new cylinder with powder coated finish fitted with Gun metal union, discharge hose, complete, confirming to IS code.	3	Nos					
14.10.00	SAND FILLED GI BUCKETS -4nos With Holding Stand Made in MS Painted two coats of anticorrosive enamel paint over a coat of Red Oxide Primer, with painted safty letter as instructed.	1	Set					
14.14.00	Supply, fabrication & fixing pipe supports in M.S angle iron/plates, pipes, etc., as per dwg., instruction at site Rate quotedshall include for supply & providing necessary welding, cutting,U clamps, bolts, nuts, washers as per specification.	500	kg					

SL.No	Description	Qty	Units	Supply	Erection	Total Supply	Total Erection	Total Supply Erection
14.14.00	Supply, fabrication & installation of M.S FENCING using chainlink 10cm x 10cm using M.S angle /channel/Wire Mesh for height of 2.50 mtrs height. Quoted rate shall include for supply & providing necessary welding, cutting, clamps, bolts, nuts, washers, civil works with concrete for foundation support for fencing post members including painting the fence & angle with two coats of anti corrosive paint over one coat of Red oxide primer and necessary gate opening arrangement as instructed and as per specification to meet the norms as per CCOE and other statutory rules and regulations.	1	Set					
14.14.00	Supply, installation, testing & Commissioning of 100mm dia 13mm thick 2500mm long earth electrode as per IS 3043 complete with all works like excavation, refilling with soil treating media like charcoal, salt, Bentanite powder, watering the system etc. equipped with heavy duty top cover madeout of Cast iron or RCC slab meant for Heavy duty 75 ton truck loads. Rate shall be inclusive of testing of earth electrode to acheive combined earth resistance less than 2 Ohms.	2	Set					
14.14.00	Flow Meter to suit oil flow measurement with internal contact, parts made out of stainless steel and compatible system							
14.14.01	50 mm NB	1	Each					
14.15.00	TRANSFER & LEVEL CONTROL SYSTEM DIESEL TRANSFER PUMPING CONTROL SYSTEM -SOLENOID VALVE Control For the below said control, instrumentation with level sensor, indicating and control instrument, valve and accessories are to installed with necessary electrical cabling work upto HSD storage pump house to start/stop the supply pump. 1) When the tank level reaches high, feed incoming valve gets closed & LAH starts. 2) When tank level reaches low, LAL starts & discharge pump stops. 3) When level reaches high -high >80% of volume of tank -LAHH starts.	1	Each					
14.16.00	Supply and fixing of the Digital level indicator with RS485 Port for the under ground storage tank with necessary matching flanges.	1	Each					
	Total for Sub Head No:XIII							
15.00.00	Sub Head XVI: LIASIONING CCOE							
15.01.00	CCOE : Preparation of the drawing and submission to the statutory authorities such as Pollution Control Board etc and final certificate for ug tank .(the necessary Govt fee will be paid actual extra)	1	Job					
	Total for Sub Head No:XIII							
	Sub Total (Sub Head No:I to XIII)							

SL.No	Description	Qty	Units	Supply	Erection	Total Supply	Total Erection	Total Supply Erection
Grand Total (Sub Head No:I to XII)								
Note:								
1	QRO will not to considered for evaluate purpose.But if requiring during execute,payment will be made at the quoted rate.							