

REQUEST FOR PROPOSAL

(EPC Basis)

**BIO-TECHNOLOGY INCUBATION CENTRE &
INDIAN DESIGN PARK**

AT PLOT NO. DP-6/1

SALT LAKE, SECTOR-V, KOLKATA-700091

CLIENT



**WEST BENGAL ELECTRONICS INDUSTRY
DEVELOPMENT CORPORATION LIMITED**

(WBEIDCL)

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VOLUME IV

SCOPE DETAILS - MEP

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SCOPE DEFINIATION CHART - HVAC & BMS

SL NO	DESCRIPTION	SCOPE		REMARKS
		BASE BUILDING	FITOUT	
1	CHILLER AS PER THE CONFIGURATION ARRIVED BASED ON THE DESIGN CONCEPTS MENTIONED UNDER SECTION 17.5. NECESSARY STANDBY TO BE PART OF SCOPE.	YES	-	HEAT LOADS BY CONSIDERING MINIMUM CRITERIA AS MENTIOND UNDER SECTION 17.5 TO BE SUBMITTED.
2	CONTROL VALVES AS SHOWN UNDER SECTION 17.6.9	YES	-	
3	FLOW METER	YES	-	
4	HOT WATER BOILER	YES	-	FOR HEATING AND HUMIDFICATION PROCESS.
5	CHILLER PLANT MANAGEMENT SYSTEM	YES	-	SHOULD INCLUDE AL FIELD DEVICES AND OTHER ACCESSORIES.
6	PRIMARY PUMPS	YES	-	
7	INERTIA BLOCKS FOR PRIMARY PUMPS	YES	-	
8	SECONDARY PUMPS	YES	-	ZONE WISE SECONDARY PUMPS SHOULD BE CONSIDERED IF CENTRALIZED SYSTEM OF AC IS PLANNED FOR BOTH IT / BT.
9	INERTIA BLOCKS FOR SECONDARY PUMPS	YES	-	
10	DIFFERENTIAL PRESSURE SENSORS WITH CONTROL CABLING	YES	-	
11	LOGIC CONTROL PANEL WITH VFD	YES	-	
12	NECESSARY HARDWARE / SOFTWARE FOR INTEGRATION	YES	-	
13	HOT WATER PUMPS	YES	-	
14	INERTIA BLOCKS FOR HOT WATER PUMPS	YES	-	
15	MONORAILS FOR LIFTING AND SHIFTING OF PUMPS, MOTORS, COMPRESSORS ETC.	YES	-	
16	COOLING TOWERS	YES	-	PROPER VENTILATION SPACE SHALL BE PROVIDED FOR GOOD HEAT TRANSFER.
17	STRUCTURAL SUPPORTING SYSTEM FOR BOTH CHILLER AND COOLING TOWER PLATFORM	YES	-	
18	CLOSED LOOP EXPANSION TANK WITH PRESSURIZATION PUMPS	YES	-	
19	AIR SEPERATOR	YES	-	
20	CHILLED WATER PIPING WORKS	YES	-	
21	CHW TAPPING TO EACH TENANT FOR CRTICAL AREA.	YES	-	CHW TAPPING SHALL BE PROVIDED AT ONE LOCATION NEAR EACH TENANT SPACE FOR CRITICAL AREA APPLICATION.
22	HOT WATER PIPING WORKS	YES	-	
23	BUTTERFLY VALVES WITH PN 21 RATING	YES	-	
24	BALL VALVES	YES	-	
25	SEMI AUTOMATIC BALANCING VALVES	YES	-	

SL NO	DESCRIPTION	SCOPE		REMARKS
		BASE BUILDING	FITOUT	
26	SUCTION GUIDE	YES	-	
27	PRESSURE GAUGES	YES	-	
28	TEMPERATURE GAUGES	YES	-	
29	AUTO AIR VENTS	YES	-	
30	FLEXIBLE CONNECTIONS	YES	-	
31	NON RETURN VALVES	YES	-	
32	CHEMICAL DOSING SYSTEM	YES	-	
33	AIR HANDLING UNITS	YES	-	AHU'S COMPLETE WITH PIPING, VALVES,ETC AND DUCT TAPPING TILL TENANT SPACE.
34	CONTROL VALVES AS SHOWN UNDER SECTION 17.6.9 FOR TYPICAL AHU CONNECTION	YES	-	
35	BUTTERFLY VALVES WITH PN 16 RATING	YES	-	
36	SELF DYNAMIC BALNCING VALVES	YES	-	
37	Y STRAINER	YES	-	
38	PRESSURE GAUGES	YES	-	
39	TEMPERATURE GAUGES	YES	-	
40	VFD PANEL MOUNTED ON THE EXTERNAL SUFRACE OF THE AHU.	YES	-	
41	DUCT STATIC PRESSURE SENSOR MOUNTED ON THE OULET OF AHU.	YES	-	
42	FACTORY FABRICATED PLENUM	YES	-	REQUIRED SA OUTLETS AND INLET FOR PLENUM SHALL BE FACTORY MADE WITH PROPER FALNGED CONNECTIONS TO THE VCD
43	FIRE DAMPERS	YES	-	BOTH SUPPLY AND RETURN FIRE DAMPERS WHICH ARE ACTUATOR BASED SHAL BE CONSIDERED
44	VOLUME CONTROL DAMPERS	YES	-	VCD'S WHEREEVER REQUIRED FOR THE ACMV WORKS UNDER BASE BUILDING SCOPE SHALL BE CONSIDERED
45	HEAT RECOVERY WHEELS	YES	-	
46	BACK DRAFT DAMPERS	YES	-	WHEREEVER REQUIRED FOR THE ACMV WORKS UNDER BASE BUILDING SCOPE SHALL BE CONSIDERED
47	GRAVITY LOUVERS	YES	-	WHEREEVER REQUIRED FOR THE ACMV WORKS UNDER BASE BUILDING SCOPE SHALL BE CONSIDERED
48	FILTER SECTIONS	YES	-	FILTERS AS MENTIONED UNDER SECTION 17.5 SHALL BE CONSIDERED. HOWEVER FOR BT HEPA FILTERS WHICH ARE REQUIRED AT THE TERMINALS SHALL BE UNDER TENANT SCOPE.

SL NO	DESCRIPTION	SCOPE		REMARKS
		BASE BUILDING	FITOUT	
49	CABINET TYPE EXHAUST FANS	YES	-	CENTRALIZED EXHAUST SYSTEM FOR TOILET INCLUDING INTERNAL DUCTING AND AIR TERMINAL DEVICES OF TOILET EXHAUST SHALL BE CAPTURED.
50	CABINET TYPE FRESH AIR FANS	YES	-	CENTRALIZED FRESH AIR SYSTEM FOR TOILET INCLUDING INTERNAL DUCTING AND AIR TERMINAL DEVICES OF TOILET EXHAUST SHALL BE CAPTURED.
51	ELECTRICAL ROOM EXHAUST FANS	YES	-	
52	PANTRY EXHAUST FANS	YES	-	
53	PRESSURIZATION FANS	YES	-	STAIRCASE, LIFTLOBBY AND LIFTWELL WHERE EVER APPLICABLE
54	LIFT MACHINE ROOM AC/ VENTILATION	YES	-	
55	STP, PUMP ROOM, DG ROOM VENTILATION	YES	-	REQUIRE MECHANICAL VENTILATION BOTH FRESH AIR AND EXHAUST. STP EXHAUST SHALL BE LET OUT AT A HIGHER LEVEL PREFERABLY TERRACE.
56	SHEET METAL WORKS	YES	-	ALL WORKS RELATED TO BASEBUILDING AS MENTIONED IN THIS CHART SHALL BE CONSIDERED.
57	THERMAL AND ACOUSTIC INSULATION OF INTERIOR DUCTING	YES	-	ALL WORKS RELATED TO BASEBUILDING AS MENTIONED IN THIS CHART SHALL BE CONSIDERED.
58	INTERIOR DUCTING WORKS	-	YES	TENANT SCOPE OF WORK
59	INTERIOR AIR TERMINAL DEVICES	-	YES	TENANT SCOPE OF WORK
60	THERMAL AND ACOUSTIC INSULATION OF INTERIOR DUCTING	-	YES	TENANT SCOPE OF WORK
61	DRAIN PIPING	YES	-	DRAIN PIPE RELATED TO ALL ACMV REQUIREMENTS SHALL BE CONSIDERED.
62	KITCHEN EXHAUST FANS	YES	-	FAN SELECTION AS PER THE MINIMUM CRITERIA GIVEN UNDER SECTION 17.6.6. HOWEVER THIS MAY VARY AS PER THE FINALIZATION OF THE FOOD COURT OR KITCHEN OPERATOR.
63	DRY / WET SCRUBBER	YES	-	KITCHEN EXHAUST SHALL NOT BE LET DIRECTLY TO ATMOSPHERE. THE SAME NEEDS TO BE TREATED USING WET / DRY SCRUBBER.
64	BASEMENT VENTILATION - CENTRIFUGAL FANS	YES	-	
65	BASEMENT VENTILATION - JET FANS	YES	-	
66	CABLING, CONDUITING AND CABLE TRAY WORKS	YES	-	ALL ELECTRICAL WORKS RELATED TO VENTILATION WORKS SHALL BE CAPTURED.
67	CIVIL WORKS SUCH AS WALL OPENINGS / PEDESTALS, FINISHING OF THE OPENINGS AFTER COMPLETION OF WORKS	YES	-	FIRE SEALANT SHALL BE USED WHEREEVER SERVICES CROSSING IS HAPPENING
68	CLOSURE OF SHAFTS	YES	-	
69	STEEL SUPPORTS	YES	-	

SL NO	DESCRIPTION	SCOPE		REMARKS
		BASE BUILDING	FITOUT	
70	DDC CONTROLLERS	YES	-	CONTORLLERS TO BE CAPTURED AS PER THE TYPICAL IO LIST PROVIDED UNDER SECTION 17.5. EACH CONTROLLER SHALL BE STANDALONE TYPE WITH A MINIMUM BATTERY BACKP OF 2 HOURS.
71	OPERATOR WORKSTATION	YES	-	TO BE LOCATED CENTRALLY IN THE BMS ROOM
72	TEMPERATURE SENSORS	YES	-	
73	RH SENSORS	YES	-	
74	SPACE PRESSURE SENSOR FOR INDICATING THE PRESSURE CORRESPONDING TO ADJACENT AREA.			
75	SPACE TEMPERATURE SENSORS	YES	-	
76	DIFFERENTIAL PRESSURE SWITCH TO MONITOR FAN AND FILTER STATUS	YES	-	
77	DUCT SMOKE DETECTORS ALONG WITH IRM'S	YES	-	
78	LEVEL SWICTHES	YES	-	
79	SOFTWARE INTEGRATION FOR ALL MAJOR EQUIPMENTS LIKE CHILLERS, DG'S, DLM'S, UPS, FIRE ALARM, SCADA SYSTEM ETC	YES	-	
80	BTUH METERS WITH MATCH PAIR SENSOR AND HEAT METER INTEGRATOR	YES	-	EACH AHU SHALL BE PROVIDED WITH ONE BTU METER. ALSO BTU METER TO BE CONSIDERED FOR CRITICAL APPLICATION
81	VARIABLE FREQUENCY DRIVES	YES	-	
82	CABLING, CONDUITING AND CABLE TRAY WORKS RELATED TO BMS WORKS	YES	-	
83	WEBEL OFFICE AREA AIRCONDITIONING WORKS INCLUDING DUCTING, DIFFUSERS, THERMAL INSULATION, ACOUSTIC INSULATION ETC ALONG WITH AIR TERMINAL DEVICES	YES	-	
84	ALL COMMON AREA AIRCONDITIONING WORKS INCLUDING DUCTING, DIFFUSERS, THERMAL INSULATION, ACOUSTIC INSULATION ETC ALONG WITH AIR TERMINAL DEVICES	YES	-	
85	CORRIDOR AIRCONDITIONING WORKS INCLUDING DUCTING, DIFFUSERS, THERMAL INSULATION, ACOUSTIC INSULATION ETC ALONG WITH AIR TERMINAL DEVICES	YES	-	
86	FOODCOURT AIRCONDITIONING WORKS INCLUDING DUCTING, DIFFUSERS, THERMAL INSULATION, ACOUSTIC INSULATION ETC ALONG WITH AIR TERMINAL DEVICES	YES	-	
87	ANY OTHER RELATED WORKS WHICH ARE REQUIRED FOR PROPER FUNCTIONING OF THE BASEBUILDING SYSTEM NOT LIMITED TO THE ABOVE MENTIONED POINTS.	YES	-	ANY RELATED EQUIPMENT / ACCESSORIES REQUIRED SHALL BE CONSIDERED.

SCOPE DEFINITION CHART - ELECTRICAL

SL NO	FLOOR / AREA	DESCRIPTION	SCOPE		REMARKS
			BASE BUILDING	FIT OUT	
1	ELECTRICAL				
1	OUTDOOR	ELECTRICAL INFRA STRUCTURE			
1.1		Total cost for studying the feasibility of tapping the power from the 2 different substation upto the proposed site.	YES		
1.2		Total cost for supply of required power through express feeder from 2 different substations to the proposed site as per the cost provided by EB authorities.	YES		
1.3		Total metering yard consisting of RMU, HT metering and HT VCB panel	YES		
1.4		Transformer yards provided near the load centres consisting of HT VCB Panel, Transformers, Bus ducts & LT Kiosk	YES		
1.5		XLPE armoured HT cables	YES		
1.6		Heat shrinkable HT cable terminations	YES		
1.7		Transformer	YES		a)Capacity to be designed for 80% continous rating b) Maximum allowabale losses for oil filled transformet at full load should be 0.98% and at 50% load it should be 0.64% c) Maximum allowabale losses for dry type transformet at full load should be 1% and at 50% load it should be 0.75% d) Winding shall be of copper
1.8		Fault level calculations	YES		
1.9		Liasioning charges for obtaining the power form EB, CEIG	YES		
1.10		Proper earthing as per IS3043 to be provided & earthing calculation to be provided	YES		a)GI Pipe earthing for body and Cu earthing for neutral as per local authorities in good soil conditions. b) For rocky areas or bad soil conditions chemical earthing to be considered
2	INDOOR	DISTRIBUTION PANELS			a)Panels shall be Form-3b Type2 and above. b)For all other points refer design intent item no.3 c)Fault level calculations to be provided from Transformer upto the load
2.1		Main Panel shall be with PLC in Main electrical room	YES		a)PLC control with SCADA system for breaker remote switching and monitoring,
2.2		DG Control and synchronising panel along with AMF, load sharing and SCADA sytem	YES		
2.3		Utility panels	YES		
2.4		Lift panel	YES		
2.5		Individual tenant LT metering	YES		
2.6		Centralised Billing system	YES		
2.7		Rising mains	YES		
2.8		LT Cables from rising main tapp off upto to the individual floor panel		YES	
2.9		Chiller panels	YES		
2.10		Lift panels	YES		

SL NO	FLOOR / AREA	DESCRIPTION	SCOPE		REMARKS
			BASE BUILDING	FIT OUT	
2.11		Automatic Power factor control panel with PF to be improved to 0.98 and shall have indbuilt reactive power compensation to obtain THD less than 5%	YES		
2.12		Pump panel	YES		
2.13		Common area lighting and medium voltage panel	YES		
2.14		STP / ETP panel	YES		
2.15		Fire panel	YES		
2.16		UPS Incoming and outgoing panel panel for labs / office areas		YES	
2.17		UPS Incoming and outgoing panel panel for common areas	YES		
2.18		Floor panel for BT facility	YES		
2.19		Floor panel for IT facility		YES	
2.20		AHU Panels	YES		
3	INDOOR	DISTRIBUTION BOARD			
3.1		MCB distribution for common areas	YES		
3.2		MCB distribution for lab / office spaces		YES	
4	INDOOR	UPS			
4.1		UPS equipment for Office / lab areas		YES	
4.2		UPS equipment for common areas	YES		
5		LT Cables & Termination for common area panels / DB's	YES		Double compression glands should be considered and provided for all the cables.
6		Ceiling fans & Exhaust fans for common utility areas	YES		
7		Power sockets in common utility areas	YES		
		Power sockets in office / lab areas		YES	
8		Circuit and point wiring in common areas and utility areas	YES		
		Circuit and point wiring inside the office / lab spaces		YES	
9	EXTERNAL	LIGHT FIXTURES			
9.1		External Lighting including landscaping	YES		LPD should not exceed 0.12 watts per sq.ft.
9.2		Uncovered parking lots and drive ways	YES		LPD should not exceed 0.15 watts per sq.ft.
9.3		Canopies	YES		LPD should not exceed 1.25 watts per sq.ft.
9.4		Gate way inspection station and guard facility	YES		LPD should not exceed 1.25 watts per sq.ft.
10	INTERNAL	LIGHT FIXTURES			
10.1		Covered parking lots and drive ways	YES		LPD should not exceed 0.3 watts per sq.ft.
10.2		Walk ways less than 10feet wide	YES		LPD should not exceed 1 watts per linear foot
10.3		Walk ways more than 10feet wide	YES		LPD should not exceed 0.2 watts per sq.ft.
10.4		Stairways	YES		LPD should not exceed 1 watts per sq.ft.
10.5		Main entrances	YES		LPD should not exceed 30 watts per linear foot of the door width
10.6		Office lighting		YES	For LPD refer ECBC code document 2007 table 7.3.1
10.7		Lab lighting		YES	For LPD refer ECBC code document 2007 table 7.3.1

SL NO	FLOOR / AREA	DESCRIPTION	SCOPE		REMARKS
			BASE BUILDING	FIT OUT	
10.8		Interior lighting for common areas			LPD should not exceed 0.5 watts per sq.ft.
11	FOOD COURT	Lighting and power sockets including internal distribution	YES		
12	Information & Communication Cell	Lighting and power sockets including internal distribution	YES		
13	INFORMATION CELL	Lighting and power sockets including internal distribution	YES		
14	WEBEL Office	Lighting and power sockets including internal distribution	YES		
15	HR / Project / Public relations / Marketing & Sales cells	Lighting and power sockets including internal distribution	YES		
16	EXTERNAL	EARTHING			
16.1		Transformer earthing	YES		
16.2		DG earthing	YES		
16.3		UPS earthing		YES	
16.4		Server earthing		YES	
16.5		Main LT panel / DG panel / Pump Panel and other common area earthing	YES		
16.6		Floor panel earthing		YES	
16.7		Lab equipment earthing		YES	
16.8		Office equipment earthing		YES	
16.9		Pumps / chiller and other common area equipments earthing	YES		
16.10		DB earthing for common areas	YES		
17	EXTERNAL	PIPES			
17.1		Hume pipes for LAN & Internet services incoming upto the MUG room inside the premises	YES		
17.2		Hume pipes for TP from outside upto the telephone exchange room inside the premises	YES		
17.3		Hume pipes provision for brining the electricity power to the premises	YES		
18	EXTERNAL / INTERNAL	TRAYS			
18.1		Trays for common areas & utility areas	YES		
18.2		Trays inside the lab / office		YES	
19	EXTERNAL	Lightning Protection system	YES		As expanied in the design intent item no.7
20	EXTERNAL / INTERNAL	DG SETS	YES		
21	INTERNAL	BATTERY CHARGER	YES		
22	GENERAL	ANY OTHER RELATED WORKS WHICH ARE REQUIRED FOR PROPER FUNCTIONING OF THE BASEBUILDING SYSTEM NOT LIMITED TO THE ABOVE MENTIONED POINTS..	YES		

SCOPE DELINITION CHART - PHE, FIRE & MECHANICAL SERVICES.

SL NO	SERVICES	DESCRIPTION	SCOPE		REMARKS
			BASE BUILDING	FITOUT	
1.00	PHE WORKS				
1.11		BASEMENT DRAINAGE SYSTEM WITH RC PIPES/ RCC DRAINS & COLLECTION SUMPS	√		
1.12		SUBMERSIBLE DRAINAGE PUMPS WITH VALVES, NRV & ACCESSORIES	√		
1.13		PUMPS TO BE WITH VFD DRIVES & PANELS TO HAVE IBMS CONNECTIVITY	√		
1.14		PUMP ROOM - PUMPS TO BE POSITIVE SUCTION (IE. FOOT VALVE NOT TO BE PROVIDED)	√		
1.15		SUBMERSIBLE MONOBLOCK PUMPS/ HYDROPNEUMATIC SYSTEM FOR POTABLE WATER SYSTEM	√		
1.16		WATER EFFICIENT FIXTURES CATERING TO GREEN BUILDING REQUIREMENT	√		
1.17		CPVC PIPING FOR INTERNAL WATER SUPPLY SYSTEM - SDR 11 GRADE	√		
1.18		ALL CONNECTIONS BETWEEN CP FITTINGS, GI PIPES WITH CPVC PIPES SHALL BE WITH DZR ADAPTORS	√		
1.19		GI 'C' CLASS PIPES IN DUCTS	√		
1.20		PRV'S WITH INBUILT STRAINER & BYPASS LINE WITH VALVE TO BE PROVIDED FOR SUPPLY SYSTEM > 5 FLOORS	√		
1.21		WATER SUPPLY SYSTEM TO BE ZONED FOR EVERY 5 FLOORS	√		
1.22		VALVES AT TERRACE LEVEL, IN SHAFT & CONCEALED STOP COCK/ VALVE INSIDE TOILET TO BE PROVIDED	√		
1.23		LEVEL CONTROLLERS TO BE PROVIDED FOR U.G SUMP & OHT'S	√		
1.24		ALL FLOOR TRAPS TO BE DEEP SEAL TYPE WITH ANTICOCKROCH FACILITY (ANTICOCKROCH TRAP)	√		
1.25		TOILET INTERNAL SWR PVC PIPE TYPE 'B' TO BE PROVIDED	√		
1.26		VERTICAL TOILET STACKS SHALL BE SWR PVC PIPE TYPE 'B' WITH PUSH FIT JOINTS	√		
1.27		ALL HORIZONTAL SOIL & WASTE LINES SHALL BE WITH SOLVENT CEMENT JOINTS	√		
1.28		THE DRAINAGE SYSTEM SHALL BE OF 2 STACK SYSTEM DESIGN WITH STUDOR MAKE VENTS AT APPROPRIATE LOCATIONS	√		
1.29		WASTE LINES TO BE CONNECTED TO INSPECTION CHAMBERS THROUGH GULLY TRAPS & SOIL LINES TO BE CONNECTED TO INSPECTION CHAMBERS DIRECTLY.	√		
1.30		ALL HORIZONTAL SOIL & WASTE LINES SHALL BE LAID TO SLOPE OF 1: 150 - 200	√		
1.31		CLEAR HEAD ROOM OF 2.4M SHALL BE PROVIDED IN THE CAR PARK & OTHER AREAS WHEREVER MANY SERVICES ARE PROVIDED.	√		

SL NO	SERVICES	DESCRIPTION	SCOPE		REMARKS
			BASE BUILDING	FITOUT	
1.32		DRAINAGE SYSTEM FOR UPPER BASEMENT SHALL ALSO BE PLANNED.	√		
1.33		RAIN WATER HARVESTING & REUSE WITH TREATMENT PLANT TO BE PROVIDED. TREATMENT PROPOSED SHALL BE SUITABLE FOR TREATING THE RAIN WATER FOR POTABILITY. TERRACE RAIN WATER DOWNTAKE PIPES TO BE TAKEN SEPERATELY THROUGH RPVC PIPE 6 KG/CM2 & CONNECTED TO RAIN WATER HARVESTING SUMP.	√		
1.34		WATER METERS SHALL BE PROVIDED AT ALL THE FLOORS & SHALL BE LOCATED SUCH THAT THEY ARE EASILY ACCESSIBLE FOR TAKING READINGS & THEY SHALL ALSO BE COMPATABLE FOR INTEGRATION TO IBMS.	√		
1.35		ALL SOIL & WASTE LINES LAID FOR KITCHEN/ PANTRY AREA SHALL BE WITH CI PIPES	√		
1.36		PUMP MOTORS SHALL BE EFFICIENCY -1 MOTORS	√		
1.37		CABLING, CONDUITING & CABLE TRAYS TO BE PROVIDED AS PER REQUIREMENT	√		
1.38		METAL CONDUITS SHALL BE USED FOR ALL CONDUITING REQUIREMENTS	√		
1.39		LIASONING WITH WATER SUPPLY & SEWERAGE BOARD TO GET THE REQUIRED PERMISSIONS SHALL BE PART OF THE BIDDER	√		
1.40		TAPPING OF REQUIRED SIZE OF WATER SUPPLY LINE FROM THE NEAREST AVAILABLE MUNICIPAL MAIN IS PART OF THE SCOPE OF BIDDER	√		
1.41		BIDDER SHALL ALSO PROVIDE THE REQUIRED WATER METER WITH ACCESSORIES TO CATER TO THE MUNICIPAL CONNECTION	√		
1.42		FOR THE ANTICIPATED WATER DEMAND, IF ANY BOREWELLS ARE TO BE DRILLED, THEN THE SAME SHALL BE PART OF THE QUOTE BY THE BIDDER.	√		
1.43		PIPING FROM THE BOREWELL TO THE U.G SUMP WITH FLOW METERS SHALL BE PART OF THE QUOTE.	√		
1.44		ALL THE DUCTS SHALL BE ACCESSIBLE FROM INTERNAL OF THE BUILDING & SHALL HAVE MAINTENANCE PLATFORMS AT ALL THE FLOORS.	√		
1.45	DESIGN INTENT FOR STORAGE TANKS	UG SUMP FOR RAW WATER - 1.5 DAYS IN 2 COMPARTMENTS	√		
1.46		PORTABLE WATER AT U.G SUMP - 1.0 DAY	√		
1.47		U.G SUMP SOFT WATER - 0.5 DAYS	√		
1.48		DM WATER OHT STORAGE - 4 HRS	√		
1.49		DI WATER OHT STORAGE - 2 HRS	√		
1.50		PORTABLE WATER OHT - 0.5 DAYS	√		
1.51		FIRE WATER OHT - 20000 LIT/ WET RISER	√		

SL NO	SERVICES	DESCRIPTION	SCOPE		REMARKS
			BASE BUILDING	FITOUT	
1.52		ALL THE WATER SUPPLY SYSTEMS SHALL BE DESIGNED AS PER HYDRAULIC CALCULATIONS & SAME SHALL BE SUBMITTED FOR APPROVAL PRIOR TO EXECUTION	√		
1.53		BASED ON THE BORELOG DETAILS, SUB SOIL WATER CONDITION TO BE ASCERTAINED & ACCORDINGLY A SUB SOIL DRAIN NETWORK TO BE DESIGNED & IMPLEMENTED	√		
1.54		ANY OTHER RELATED WORKS WHICH ARE REQUIRED FOR PROPER FUNCTIONING OF THE BASEBUILDING SYSTEM NOT LIMITED TO THE ABOVE MENTIONED POINTS..	√		
2.0	FIRE PROTECTION SYSTEM				
2.11		HYDRANT SYSTEM SHALL BE WITH GI 'C' CLASS PIPES	√		
2.12		ALL UNDERGROUND PIPING SHALL BE WRAPPED WITH ANTICORROSIVE TRATMENT & 'HOLIDAY' TESTING IS DONE FOR THE SAME	√		
2.13		HYDRANT ACCESSORIES CAN BE WITH SS OR GUN METAL FITTINGS	√		
2.14		FIRE PROTECTION SYSTEMS SHALL BE PROVIDED IN ACCORDANCE WITH NBC 2005/ TAC REQUIREMENTS WHICHEVER IS STRINGENT & SHALL COMPLY WITH LOCAL FIRE AUTHORITIES	√		
2.15		FIRE PUMPS SHALL BE HORIZONTAL SPLIT CASING TYPE WITH 1500 RPM RATING	√		PUMPS TO BE PROVIDED WITH DOL STARTER & THE INCOMMING CABLE TO BE RATED FOR 150% RATING.
2.16		FIRE PANEL SHALL BE PROVIDED WITH NO/NC CONTACTS TO SUIT TO IBMS REQUIREMENTS	√		
2.17		SPRINKLER SYSTEM SHALL BE PROVIDED AS PER DESIGN INTENT DOCUMENT ATTACHED.	√		
2.18		LIASONING WITH FIRE AUTHORITIES PRIOR TO INSTALLATION & FINAL CERTIFICATION IS PART OF THE SCOPE OF THE VENDOR.	√		
2.19		SUPPORTS/ THRUST BLOCKS FOR THE PIPING SYSTEM SHALL BE PROVIDED IN ACCORDANCE WITH NFPA REGULATIONS	√		
2.20		FIRE EXTINGUISHERS SHALL BE PROVIDED FOR THE COMMON AREAS ONLY IN ACCORDANCE WITH LOCAL FIRE AUTHORITY REQUIREMENTS/ IS CODE	√		
2.21		ADDRESSABLE FIRE ALARM SYSTEM SHALL BE DESIGNED TO CATER TO COMMON AREA REQUIREMENTS & SHALL BE EXPANDABLE TO ACCOMMODATE DETECTORS LOCATED AT TRUE CEILING AS WELL AS FALSE CEILING AT A LATER DATE AS PER THE REQUIREMENT.	√		
2.22		FIRE RETARDENT SEALANTS SHALL BE PROVIDED FOR ALL CROSSINGS OF SERVICES ACROSS ANY FIRE RATED WALLS/ BOARDS	√		

SL NO	SERVICES	DESCRIPTION	SCOPE		REMARKS
			BASE BUILDING	FITOUT	
2.23		SINAGES SHALL BE PROVIDED FOR THE COMMON AREAS ONLY IN ACCORDANCE WITH LOCAL FIRE AUTHORITY REQUIREMENTS/ IS CODE	√		
3.0	SECURITY SYSTEMS				
3.11		CCTV SYSTEM TO BE PROVIDED FOR THE COMMON AREA IN EACH OF THE FLOORS	√		
3.12		THE CAMERAS SHALL BE OF COLOUR WITH VARIFOVAL LENS, PTZ TYPE, DOME CAMERAS, INDOOR & OUTDOOR TYPE.	√		
3.13		THE CAMERAS SHALL BE CONNECTED TO A COMMON IP NETWORK & CONNECTED TO SERVER OF REQUIRED CAPACITY	√		
3.14		ACCESS CONTROL SYSTEM SHALL BE PROVIDED TO THE MAIN ENTRY DOOR AT THE TECHNICAL FLOOR LEVEL (GROUND FLOOR LEVEL) & AT ALL FLOOR LEVELS IN THE COMMON AREAS	√		
3.15		BOOM BARRIERS SHALL BE PROVIDED AT ENTRY & EXIT ROUTES	√		
3.16		MAIN ENTRY DOOR AT GROUND FLOOR LEVEL TO BE AUTOMATED SENSOR OPERATED TYPE	√		
3.17		TURNSTILES TO BE PROVIDED AT THE MAIN ENTRY LEVEL	√		
3.18		CANTEEN MANAGEMENT SYSTEM SHALL BE PROVIDED IN THE FOOD COURT AREA	√		
3.19		PA SYSTEM SHALL BE PROVIDED COVERING ALL THE FLOORS. 6 W SPEAKERS SHALL BE PROVIDED IN THE COMMON AREA AT EACH FLOOR WITH AMPLIFIER & CONSOLE LOCATED AT THE GROUND FLOOR AREA.	√		
3.20		A GOOSE NECK MIC SHALL ALSO BE PROVIDED NEAR THE AMPLIFIER FOR COMMUNICATION.	√		
3.21		ALL THE ABOVE SECURITY SYSTEMS SHALL BE CONNECTED TO IBMS FOR ONE POINT CONTROL	√		
3.22		THE ACCESS CONTROL SYSTEM SHALL BE IP BASED SUCH THAT THERE IS COMPLETE FLEXIBILITY IN THE SYSTEM ARCHITECTURE.	√		
3.23		THE IP NETWORK FOR THE CCTV & ACCESS CONTROL SYSTEM CAN BE COMMON NETWORK COMBINED FOR BOTH THE SYSTEM	√		
3.24		ANY OTHER RELATED WORKS WHICH ARE REQUIRED FOR PROPER FUNCTIONING OF THE BASEBUILDING SYSTEM NOT LIMITED TO THE ABOVE MENTIONED POINTS..	√		
4.0	MECHANICAL SERVICES (FOR LABS)				
4.11		PROVISION FOR POTABLE WATER FOR THE LAB SINKS, DRINKING WATER FOUNTAINS, ETC TO BE PROVIDED. INFRASTRUCTURE PROVISION FOR THE SAME TO BE DONE BY THE BIDDER	√		

SL NO	SERVICES	DESCRIPTION	SCOPE		REMARKS
			BASE BUILDING	FITOUT	
4.12		POTABLE WATER, SOFT WATER, DM WATER, DI WATER, STEAM, HOT WATER, COMPRESSED AIR & VACUUM NETWORK WITH TAPOFF PROVISION TO BE DONE FOR EACH FLOOR OF THE BIOTECH LAB AREA	√		
4.13		INFRASTRUCTURE PROVISION FOR POTABLE WATER FOR DRINKING WATER FOUNTAINS, ETC TO BE EXTENDED TO EACH OF THE 'IT FLOOR' AREAS ALSO.	√		
4.14		DISTRIBUTION FROM THE MAIN HEADER LOCATED IN A SERVICE SHAFT TO BE DONE AS PART OF THE FITOUT FOR ALL THE SERVICES MENTIONED IN SECTION 4.12 ABOVE		√	
4.15		EACH OF THE TAPOFF POINT WILL BE PROVIDED WITH A VALVE & FLOW METER FOR MEASURING THE CONSUMPTION OF THE SAME	√		
4.16		ALL THE CONSUMPTIONS SHALL BE RECORDED IN THE IBMS & THE FLOW METERS SHALL BE SUITABLE FOR THE SAME.	√		
4.17		THE INFRASTRUCTURE FOR SERVICES PROVIDED SHALL BE SUITABLE FOR THE LIST OF LABS MENTIONED IN THE UTILITY CHART ATTACHED. ANY ADDITION/ DELETION OF SERVICES REQUIRED FOR THE PROPER & EFFECTIVE FUNCTIONING OF THE LABS SHALL BE PART OF THE SCOPE OF THE BIDDER.	√		
4.18		FOR DM & DI WATER SYSTEM RETURN LINES WITH PUMPS SHALL ALSO BE PLANNED TO SUIT TO THE REQUIREMEMNT.	√		
4.19		QUALITY OF WATER PROVIDED AT THE END USER POINT SHALL GOVERN THE ENTIRE DESIGN PROCESS	√		
4.20		HSD STORAGE SHALL CATER TO DG RUNNING FOR FOR 4 HRS/ DAY ALONG WITH BOILER REQUIREMENT & CUMULATIVE 7 DAYS STORAGE SHALL BE PLANNED	√		
4.21		2 NOS HSD TANKS SHALL BE PROPOSED WITH 1 NO TANK FOR RAW HSD & OTHER FOR FILTERED HSD THROUGH CENTRIFUGE.	√		
4.22		THE TANKS SHALL BE HORIZONTAL IN NATURE & LAID BELOW GROUND.	√		
4.23		FLAME PROOF & EXPLOSION PROOF STARTERS & FRLS CABLES SHALL BE LAID IN THE HSD STORAGE AREA.	√		
4.24		APPROVAL FROM CCOE NAGPUR/ CHENNAI FOR PROVISION OF HSD STORAGE TANKS SHALL BE PART OF QUOTE BY THE BIDDER	√		
4.25		SECONDARY CONFINEMENT SHALL ALSO BE PROVIDED FOR THE DAY STORAGE TANK LOCATED IN THE DG ROOM AREA	√		

SL NO	SERVICES	DESCRIPTION	SCOPE		REMARKS
			BASE BUILDING	FITOUT	
4.26		SEPARATE DRAINS FOR DOMESTIC WASTE, HAZARDOUS WASTE, NON HAZARDOUS WASTE, RADIOACTIVE WASTE & INFECTIOUS WASTE SHALL BE PROVIDED.	√		
4.27		PIPING MATERIAL SELECTION SHALL BE SUITABLE FOR EACH OF THE APPLICATION & THE SAME TO BE AUTHENTICATED WITH RELEVANT DOCUMENTS.	√		
4.28		ALL THE DRAIN PIPINGS SHALL BE LAID TO SLOPE TO CATER TO GRAVITY SYSTEM. A SLOPE OF 1:150 - 200 SHALL BE PROVIDED FOR THE DRAIN LINES. THE MIN DIA OF DRAIN LINE SHALL BE 75 MM OD & PREFERRABLY IT SHALL BE HDPE/ SS PIPE.	√		
4.29		ALL DRAIN LINES SHALL BE TAKEN OUT SEPERATELY & CONNECTED TO INDEPENDENT EQUILISATION TANKS. NO CROSS CONNECTION OF THE SYSTEM IS ALLOWED.	√		
4.30		EXTERNAL DRAIN LINES SHALL BE LAID THROUGH A NETWORK OF CHAMBERS WHICH WILL BE COATED WITH FRP MATT WITH BISPHENOL RESIN (ACID/ ALKALI RESISTANT)	√		
4.31		A SEPARATE DRAIN LINE SHALL BE PROVIDED TO CATER TO THE FILTER BACK WASH & DM/ DI PLANT REGENERATION BACKWASH.	√		
4.32		GAS PIPING FOR NITROGEN, HYDROGEN, LPG & 3 NOS SPARE GASES IS PROPOSED FOR EACH OF THE BIOTECH LAB AREAS.	√		
4.33		FOR THE SYSTEM A CYLINDER BANK WITH ADEQUATE CAPACITY CYLINDERS, MANIFOLDS, REGULATORS, VALVES, SAFETY REQUIREMENTS SHALL BE PROVIDED	√		
4.34		EACH OF THE FLOOR SPACE WILL BE DIVIDED INTO ZONES & A SET OF CYLINDERS SHALL BE PROVIDED TO CATER TO EACH OF THE SECTORS.	√		
4.35		THE TUBING FOR THE GASES SHALL BE PROVIDED WITH A TAPOFF POINT & VALVE UPTO THE INLET OF THE LAB.	√		
4.36		THE DISTIBUTION OF THE TUBINGS FOR THE LAB TABLES, FUME HOODS, ETC WILL BE PART OF FITOUT.		√	
4.37		AUTOMATIC CHANGE OVER SYSTEM SHALL BE PROVIDED AT THE CYLINDER BANK.	√		
4.38		ANY OTHER RELATED WORKS WHICH ARE REQUIRED FOR PROPER FUNCTIONING OF THE BASEBUILDING SYSTEM NOT LIMITED TO THE ABOVE MENTIONED POINTS..	√		
5.0	WATER TREATMENT PLANTS				

SL NO	SERVICES	DESCRIPTION	SCOPE		REMARKS
			BASE BUILDING	FITOUT	
5.11		BASED ON THE WATER QUALITY, WATER DEMAND, WATER BALANCE, OPERATING PHILOSOPHY, MAINTENANCE COST, RUNNING COST THE PRIMARY/ SECONDARY/ DM/ DI TREATMENT PLANT TO BE PROPOSED	√		
5.12		WATER QUALITY TO BE ASCERTAINED FROM DIFFERENT SOURCES NAMELY MUNCIPLE SUPPLY, BOREWELL, TANKERS & RAIN WATER & THE STRINGENT OF THE LOT TO BE CONSIDERED FOR THE DESIGN OF THE SYSTEM.	√		
5.13		THE SYSTEM SHALL BE DESIGNED WITH FLEXIBILITY OF VARIATION UPTO ± 30% IN PARAMETERS (QUALITY) OR QUANTITY	√		
5.14		SYSTEM SHALL ALSO CATER TO THE END USAGE REQUIREMENTS IN TERMS OF QUANTITY AS WELL AS QUALITY.	√		
6.0	EFFLUENT TREATMENT PLANT				
6.11		DEPENDING UPON THE QUALITY OF EFFLUENT IN EACH OF THE STREAMS, THE SAME IS TO BE FIRST VERIFIED, NEUTRALISED & THEN TREATED FURTHER TO SUIT TO PCB REQUIREMENTS.	√		
6.12		ANY VARIATION OF LOADS UPTO ± 25% SHALL BE CONSIDERED IN THE DESIGN INTENT	√		
6.13		THE VARIATION CAN BE EITHER IN THE QUANTITY OR PARAMETERS OF THE INLET EFFLUENT CHARACTERISTICS.	√		
6.14		FOR THE RADIOACTIVE WASTE PCB AS WELL AS BARC HAVE TO BE CONSULTED PRIOR TO PROPOSING ANY TREATMENT	√		
6.15		DOMESTIC WASTE SHALL ALSO BE TREATED SEPERATELY/ COMBINEDLY AS PER PCB RECOMMENDATIONS.	√		
6.16		OIL & GREASE TRAP (MECHANICAL/ BIO-DEGRADABLE TYPE) AUTOMATIC IN OPERATION SHALL BE PLANNED FOR THE EFFECTIVE FUNCTIONING OF THE SYSTEM	√		
6.17		SYSTEM PROPOSED SHALL BE MODULAR IN NATURE & SHALL BE EXPANDABLE TO SUIT TO DESIGN REQUIREMENT	√		
6.18		ANY OTHER RELATED WORKS WHICH ARE REQUIRED FOR PROPER FUNCTIONING OF THE BASEBUILDING SYSTEM NOT LIMITED TO THE ABOVE MENTIONED POINTS.	√		
7.0	CAPITAL EQUIPMENTS				
7.11		BOILERS SHALL BE HSD FIRED UNITS WITH CAPACITY OF UNIT SUITABLE FOR THE FACILITY	√		
7.12		THESE BOILERS SHALL BE IBMS COMPATIBLE & SHALL HAVE THE SCADA SYSTEM FOR MONITORING THE SAME.	√		

SL NO	SERVICES	DESCRIPTION	SCOPE		REMARKS
			BASE BUILDING	FITOUT	
7.13		THERE WILL BE NO CONDENSATE RETURN & THE BOILER SHALL BE DESIGNED FOR THE FULL LOAD + 30% OVER CAPACITY	√		
7.14		BOILER SHALL BE ABLE TO RUN OPTIMALLY WITH A LOAD VARIATION UPTO ± 30%	√		
7.15		ALL THE PUMPS SHALL BE WITH VFD DRIVES	√		
7.16		COMPRESSORS SHALL BE RECIPROCATING NON LUBRICATED TYPE WITH DRIER (HEATLESS) & RECEIVER & ON LINE FILTERS.	√		
7.17		COMPRESSORS SHALL BE WITH VFD DRIVES & AIR COOLED TYPE (REMOTE RADIATOR COOLED TYPE)	√		
7.18		QUALITY OF COMPRESSED AIR AT THE OUTLET OF DRIER SHALL BE OIL FREE & MOISTURE FREE.	√		
7.19		VACUUM PUMPS SHALL BE WATER RING TYPE WITH WATER CUM COOLER SEPERATOR, VACUUM RECEIVER, SILENCER, ETC	√		
7.20		THE RECEIVER SHALL BE OF SS 316 MATERIAL CAPABLE OF HANDLING CROSSIVE VAPOURS FROM THE LABS.	√		
7.21		INTERNAL PARTS OF THE VACUUM PUMP SHALL BE OF SS316 MATERIAL.	√		
7.22		VACUUM SYSTEM SHALL BE SUITABLE TO HANDLE CORROSIVE VAPOURS ARISING OUT OF THE LIST OF LABS INDICATED IN THE UTILITY CHART.	√		
7.23		VACUUM PUMPS SHALL BE DESIGNED TO TAKE A LOAD VARIATION OF ± 30%	√		
7.24		DESIGNED USING THE SOLAR WATER HEATING SYSTEM BACKED UP WITH ELECTRICAL HEATERS. THE SYSTEM SHALL BE WITH A	√		
7.25		RETURN LINE FOR THE HOT WATER SYSTEM WITH SHALL ALSO BE PLANNED WITH RECIRCULATION PUMPS	√		
7.26		ALL THE ABOVE CAPITAL EQUIPMENTS SHALL BE IBMS COMPATIBLE & SHALL HAVE PLC BASED PANEL WITH REQUIRED NO. OF NO/NC CONTACTS FOR INTEGRATION	√		
8.0	OTHERS/ MISCELLANEOUS				
8.11		ALL CAPITAL EQUIPMENTS SHALL BE DESIGNED WITH 100% STANDBY FACILITY	√		
8.12		ALL PUMPS & MOTORS TO BE WITH VFD DRIVES TO ATTAIN ENERGY EFFICIENT SYSTEM	√		
8.13		ALL STATUTORY CLEARENCS FROM PCB, MOEF, WATER SUPPLY & SEWAGE BOARD, CCOE NAGPUR/ CHENNAI, BOILER INSPECTOR, ETC HAVE TO BE TAKEN FROM THE RESPECTIVE AUTHORITIES PRIOR TO EXECUTION OF PROJECT.	√		

SL NO	SERVICES	DESCRIPTION	SCOPE		REMARKS
			BASE BUILDING	FITOUT	
8.14		ALL DESIGNS, DETAILS, SCHEMATICS, DBR'S, LAYOUTS, GFC DRG'S/ SHOP DRGS HAVE TO BE SUBMITTED TO ARCITECT/ CONSULTANT FOR APPROVAL PRIOR TO EXECUTION	√		
8.15		ANY REQUIREMENTS SUGGESTD BY THE CONSULTANT FOR PROPER FUNCTIONING OF THE SYSTEM & IS AS PER GOOD ENGINEERING PRACTICE, THE SAME SHALL BE COMPLIED WITHOUT ANY COST ESCALATION BY THE FINILISED VENDOR.	√		
8.16		ALL TECHNICAL DETAILS TO BE SUBMITTED BY THE BIDDER AT THE TIME OF BIDDING ITSELF.	√		
8.17		REFER THIS ANNEXURE ALONG WITH DESIRED DESIGN INTENT INDICATED ELSEWHERE IN THE DOCUMENT	√		
8.18		STATUTORY DEPOSITS SHALL BE REIMBURSED BY CLIENT AGAINST DOCUMENTARY PROOFS/ RECEIPTS	√		
8.19		ANY OTHER RELATED WORKS WHICH ARE REQUIRED FOR PROPER FUNCTIONING OF THE BASEBUILDING SYSTEM NOT LIMITED TO THE ABOVE MENTIONED POINTS.	√		