

**RFP No. HML / INFRA / 01 / 2021**

**REQUEST FOR PROPOSAL (RFP)  
FOR SELECTION OF  
DESIGN & BUILD CONTRACTOR  
FOR DEVELOPMENT OF PHYSICAL INFRASTRUCTURE AND  
CONSTRUCTION OF ADMINISTRATIVE BLOCK AT  
MEDIPARK IN CHENGALPATTU DISTRICT, TAMIL NADU**

**VOLUME III - SPECIAL CONDITIONS OF CONTRACT**



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## Contents

<b>SPECIAL CONDITIONS OF CONTRACT .....</b>	<b>4</b>
<b>APPENDIX- I- SCOPE OF WORK .....</b>	<b>7</b>
<b>1.1. Key Work Components .....</b>	<b>7</b>
1.1.1. Overall Responsibility .....	10
1.1.2. Site Grading, Roads Network and Storm Water Drainage .....	11
1.1.3. Electrical Distribution System .....	12
1.1.4. Water Supply Network .....	13
1.1.6. Administrative Block .....	18
1.1.7. Miscellaneous Civil Works (Arch Gates, Security Rooms etc.) .....	22
1.1.8. Civil & Finishing Works - List of Approved Makes of Materials .....	23
<b>1.2. Design, Approvals and Construction .....</b>	<b>31</b>
1.2.1. Detailed Design .....	31
1.2.2. Statutory Approvals .....	31
1.2.3. Construction, Trial and Testing .....	32
1.2.4. Accountability of Design Error .....	33
1.2.5. As-built drawings .....	33
1.2.6. Communication Flows .....	33
<b>1.3. Quality Assurance, Monitoring and Supervision .....</b>	<b>34</b>
1.3.1. Quality of Materials and workmanship .....	34
1.3.2. Quality control system .....	34
1.3.3. Methodology .....	35
1.3.4. Inspection and technical audit by the Authority .....	35
1.3.5. External technical audit .....	35
1.3.6. Inspection of construction records .....	36
1.3.7. Monthly progress reports .....	36
1.3.8. Inspection .....	37
1.3.9. Samples .....	38
1.3.10. Tests .....	38
1.3.11. Examination of work before covering up .....	39
1.3.12. Rejection .....	39
1.3.13. Remedial work .....	40
1.3.14. Delays during construction .....	41
1.3.15. Quality control records and Documents .....	41
1.3.16. Video recording .....	41

1.3.17. Suspension of unsafe Construction Works .....	41
1.3.18. Staff and Labour.....	42
1.4. Conditions for Environmental Compliance .....	45
APPENDIX- II: DESIGN AND SPECIFICATIONS .....	51
APPENDIX-III: PAYMENT SCHEDULE .....	52
APPENDIX-IV: KEY PERSONNEL AND QUALIFICATION .....	55

**SPECIAL CONDITIONS OF CONTRACT**

- 1.1 Special Conditions of Contract (SCC) shall be read in conjunction with all the Volumes i.e. Volume I, II, III and IV of this RFP.
- 1.2 Where any portion of the GCC is repugnant to or at variance with any provisions of the Special Conditions of Contract, then unless a different intention appears, the provision(s) of the Special Conditions of Contract shall be deemed to override the provision(s) of GCC only to the extent that such repugnancies or variations in the Special Conditions of Contract are not possible of being reconciled with the provisions of GCC.
- 1.3 Wherever it is stated in this Bidding Document that such and such a supply is to be effected or such and such a work is to be carried out, it shall be understood that the same shall be effected/carried out by the Contractor at his own cost, unless a different intention is specifically and expressly stated herein or otherwise explicit from the context. Contract Price shall be deemed to have included such cost.
- 1.4 In case of irreconcilable conflict between relevant Indian Standards, GCC, Special Conditions of Contract, Specifications, Drawings and Schedule of Rates, the following shall prevail to the extent of such irreconcilable conflict, in order of precedence:
- (i) Letter of Award (along with Statement of Agreed Variations, if any, and its enclosures such as Schedule of Rates, Labour Rates, etc.)
  - (ii) Special Conditions of Contract (SCC)
  - (iii) General Conditions of Contract (GCC)
  - (iv) Drawings
  - (v) Technical Specifications

**1.5 STATEMENTS TO COMPLEMENT THE GENERAL CONDITIONS OF CONTRACT**

S.No.	CONDITIONS	STATEMENTS
1.	Scope of Work	The Scope of Work shall be as described in <b>Appendix-I</b> of the SCC, along with the Design and Specifications provided in Appendix II, and associated Schedules
2.	Billing and terms of Payment	The Contractor shall submit the bills/ invoice, in duplicate, for the work done as per the Milestone listed in Appendix - III. The Contractor shall submit all relevant documents including any additional documentation specifically asked by Authority's Engineer, for certification of invoice.
3.	Mode of Payment	<b>By electronic Transfer</b>
4.	Currency of Payment	Indian Rupee (INR)
5.	Project Milestone	During Construction period, the Contractor shall comply with the requirements set forth in <b>Appendix-III</b> of the SCC for each of the Project milestone and the Scheduled Completion Date. Within 15 (fifteen) days of the date of completion of each Project milestone, the Contractor shall notify the Authority of such compliance along with necessary particulars thereof.
6.	Construction Water and Power Supply	No water and power shall be provided by Authority. It shall be the responsibility of the Contractor to arrange water and power at his own cost for execution of work. This includes water and sewage required for testing and commissioning of WTP and STP.
7.	Quality Assurance	As per relevant IS (Indian Standards), BIS and inspection by the client
8.	Payment of Taxes, duties and other Levies.	The Contractor shall be paid GST (at actuals) as extra amount. All other taxes other than GST to be borne by the contractor.
9.	Defects Liability Period	Refer Clause 13.4 of Volume II. Defects Liability Period shall in no case be less than 12 (twelve) months from the date of Completion Certificate for and in respect of works for which time Extension was granted.
10.	Liquidated Damage	Please refer to Clause 14 of Volume II
11.	Project Site	Located and spread across Vallam, Alappakkam And Tirumani Villages in Chengalpattu District, Tamil Nadu
12.	Percentage of	Please refer to Clause 6.7.3 of Volume I

S.No.	CONDITIONS	STATEMENTS
	contract price to be retained as Retention Money	
13.	Key Personnel	<p>Minimum Level of Supervision and Qualification/Experience of Key Staff shall be as per APPENDIX IV of this document.</p> <p>If the contractor fails to deploy the staff, a proportionate amount will be deducted from the contractor's running bill on account of manpower cost. HML reserves the right to deploy the deficient personnel on behalf of the contractor in case the contractor fails. In such case all responsibility lies on contractor as if these personnel were deployed by them.</p>
14.	Claims	Only if approved and sanctioned by HML
15.	List of Machineries and Equipment	The list of machineries and equipment owned by the bidder shall be furnished in the format provided in Annexure 10.8 of the RFP document, as part of bid submission.

## **APPENDIX- I- SCOPE OF WORK**

HML has decided to undertake the development of infrastructure works comprising of the Physical infrastructure and construction of Administration Block (as Phase 1 A infrastructure works) in the Medipark in Design & Build (the “DESIGN & BUILD”) model. Further, the master plan is prepared whose details are available in Volume IV for reference of the participants of this RFP. The master plan of the park consists of manufacturing units, common scientific facilities, commercial facilities and support infrastructure and other facilities with due consideration of operational, environmental and safety requirements. HML intends to engage a Contractor for developing Phase 1A of Medipark measuring about 477868.71 sq. meters or 118.03 acres. Contractor to be selected should undertake various Works and complete it, in a span of 12 months. Thereafter Contractor shall maintain the Works till the expiry of Defects Liability Period.

### **1.1. Key Work Components**

The contractor will be responsible for planning, designing, executing and maintaining of the following Works:

- Site Grading, Roads Network and Storm Water Drainage
- Electrical Distribution System
- Water Supply Network
- Wastewater System and Sewerage Treatment Plant
- Administrative Block (construction and interiors)
- Miscellaneous Civil Works (Arch Gates, Security Rooms etc.)

**Note :** (a) The detailed Standards / Specifications, Technical Drawings for each of the above Works are provided in Volume IV

(b) Execution of the Works shall be in conformity with environmental compliance conditions provided in Clause 1.4

Key details of works to be undertaken in Phase 1 A are as under:

<b>1</b>	<b>Administrative Block (construction and interiors)</b>	
	Total site area (40.11m x 54.34m)	2180.0 Sqm.
	Total Built-up Area (Ground Floor)	566.0 Sqm.
	Total Built-up Area (Part in First Floor)	47.0 Sqm.
	Total Carpet Area	548.0 Sqm.
	Total Roof Area (RCC for GF and FF).	613.0 Sqm.
	Height	3.5m (floor to floor)
	<i>(Further details are provided in Schedule 6)</i>	
<b>2</b>	<b>Road network (as per IRC standards) along with Storm Water Drains along the roads</b>	
	Total road length	3.30 km
	24m ROW length	1.53 km (existing 1.53 km road to be strengthened)
	18m ROW length	1.67 km
	15m ROW length	0.10 km
	Design speed	30 kmph
	<i>(Further details are provided in schedule 2)</i>	
<b>3</b>	<b>Electrical distribution system</b>	
	Power Load	23.6MW
	Electrical works	<ul style="list-style-type: none"> <li>11KV, HT Electrical works Distribution Scheme considering overhead lines</li> <li>LT works with Transformer and LT panels for Admin Building and Common services loads</li> <li>External Lighting works</li> <li>Earthing System</li> <li>DG Works for Admin, External Lighting and Common Services</li> <li>11KV, HT Panels, HT Cables and DP structures works</li> <li>1.1KV, LT Cables for LT Panels</li> </ul>
	<i>(Further details are provided in schedule 3)</i>	
<b>4</b>	<b>Water supply storage and distribution system</b>	
	Raw water source	Palaar river



	Raw water sump capacity	9,00,000 litres
	Filtered water sump capacity	3,00,000 litres
	Water treatment plant capacity	300 KLD
	Overhead tank capacity	3,00,000 litres
	<b>Under Ground Sump Tank with Pump room</b>	
	Outer dimensions (overall)	24.6m x 20m
	Internal dimensions (Raw water)	18.0m x 19.60m, Height – 2.8m (clear)
	Internal dimensions (Treated water)	6.0m x 19.60m, Height – 2.8m (clear)
	Pump room	8m x 10m, Height – 2.8m
	Total Plinth Area (Pump room)	87.36 Sqm.
	Total Carpet Area (Pump room)	80.0 Sqm.
	Total Roof Area (Pump room)	87.36 Sqm.
	<b>Over Head Water Tank with staging</b>	
	Outer dimensions (overall)	10.8m dia.
	Internal dimensions (Raw water)	10.0m dia., Height – 4.10m (clear)
	Total staging height (from Plinth to OHT bottom)	11.60m
	Total staging height (from Plinth to OHT top slab)	16.20m
	Total Plinth Area	91.56 Sqm.
	<i>(Further details are provided in schedule 4)</i>	
<b>5</b>	<b>Wastewater system and treatment plant</b>	
	Sewage treatment plant	300 KLD (to be designed)
	Sewerage treatment technology	MBBR technology
	<b>Sewage treatment plant (200 KLD)</b>	To be established
	Outer dimensions (overall)	22.2m x 7.7m
	Height	6.75m (3.55m below ground and 3.20m above ground)
	Internal dimensions	21.8m x 7.3m, Height – 6.30m (clear)
	Total Plinth Area	170.94 Sqm.
	<i>(Further details are provided in schedule 5)</i>	
<b>6</b>	<b>Miscellaneous Civil Structures</b>	
	<b>Main Entrance Arch</b>	
	— Size of the Entrance Arch	24 m x 3.5 m
	— Height (Clear height above road level)	6 m
	— Total Plinth Area	84 sqm
	— Total Roof Area (RCC)	84 sqm
	<b>Security Room (near main entrance)</b>	7.0 m x 3.5 m, height – 3.0m

	(Clear)
— Total Plinth Area	24.50 sqm
— Total Carpet Area	20.46 sqm
— Total Roof Area (RCC)	24.50 sqm
— <b>Security Room (near CLTRI)</b>	7.0 m x 3.5 m, height – 3.0m (Clear)
— Total Plinth Area	24.50 sqm
— Total Carpet Area	20.46 sqm
— Total Roof Area (RCC)	24.50 sqm
<b><i>(Further details are provided in schedule 7)</i></b>	

#### 1.1.1. Overall Responsibility

- i. The contractor is required to carry out the necessary soil investigation survey (at all locations where proposed civil structures will come up), topographical survey and geo-technical investigations of the site, at their own cost, to verify the data given in the document before designing of the different components of this project and submit it to HML.
- ii. The detailed design and drawings of all the components of the project shall be prepared by the contractor and get the approvals from institute / agencies (such as Anna University / IIT Madras, etc.) to be submitted to HML for necessary approvals before construction. Please refer to Payment Schedule.
- iii. The contractor shall be required to design and execute every such item of work which are considered required or necessary for the satisfactory completion and functioning of the entire work, even if such items of work are not specified in the bid document but are essential to complete the project.
- iv. The contractor shall be responsible to engage the labor, machinery, equipment etc. during the project period.
- v. The contractor shall have the authorised and experienced design engineer of each work component who will have to inspect and certify the works at every level and time to time as per progress of work.
- vi. The contractor shall be responsible to maintain all the aforementioned works till the defects liability period.
- vii. In case of any damage/failure either during construction, testing or after commissioning, whether due to faulty design or defective construction, all repairs or reconstruction of the structure shall have to be carried out by the contractor, entirely at his risk and cost.

### 1.1.2. Site Grading, Roads Network and Storm Water Drainage

The proposed site for the development requires Site Grading / Land Filling. The total area for site grading is 118 acres, which includes area earmarked for Internal Roads, Plots and Common Amenities.

- i. The Site grading shall be including, cutting, removing and disposal of all material, bushes, shrubs, stumps, roots, grass, weeds etc.
- ii. All material arising from clearing and grading shall be disposed by the Contractor at suitable sites with all leads and lifts.
- iii. The disposal shall be in accordance with Local, State and Central regulations.
- iv. The construction of embankments, subgrades, earthen shoulders and miscellaneous backfills by the contractor shall be in accordance with the 5<sup>th</sup> Revision of the Specifications for Road and Bridge Works published by the Ministry of Road Transport & Highways (MoRTH), Govt. of India (MORTH 5<sup>TH</sup> Revision).
- v. The subbase shall be with granular material and shall satisfying the gradation requirement of MORTH 5th revision.
- vi. The contractor shall be responsible to level the land with reference to the temporary benchmark level as per the necessary survey carried out for the site with adequate filling material.
- vii. Post completion of levelling, the Contractor shall undertake plotting of the manufacturing units area (343765.18 sq. m. or 84.91 acres) of the Master Plan as per the requirements of the Authority.

The Contractor shall also be responsible for designing, engineering, construction, testing & commissioning of 15m, 18m and 24 m road stretches based on IRC prescribed design standards with latest additions and amendments.

- i. The total length of the road network proposed within the Medipark is approximately 3.30 km along with storm water drain and/or cross over natural drainage channels. This includes strengthening of 1.53 km of 24-meter road that already exists at the Medipark site.
- ii. The geometric and loading standards must be complied with the current practices and that adopted and recommended by IRC and MORTH Specifications for road and bridge works 5th Revision.
- iii. The road cross-sections are developed based on the RoW provided for various categories of roads in the master plan. The cross sections also include foot path cum such as storm water, drinking water, sewage water, and recycled water
- iv. The design speed to be considered is 30 kmph for roads. The alignments and

gradient of the roads are to be designed as per IRC standards.

- v. The intersections are to be designed in accordance with IRC standards.
- vi. The pavement has to be designed considering the loading pattern, design life, growth factor and sub-grade strength.

The storm water drains shall be constructed along the road. The storm water drains are proposed at the ends of ROW

- i. Rainfall data needs to be collected for the area and accordingly the drain must be designed so that the final disposal of the drain water is discharged in a suitable location.
- ii. Box culverts needs to be constructed wherever necessary
- iii. Sizes of the storm water drain be based on the hydrology and hydraulic calculation.

Storm water collection systems shall be designed to provide adequate surface drainage. Surface drainage is a function of transverse and longitudinal pavement roughness, inlet spacing and inlet capacity.

### **1.1.3. Electrical Distribution System**

- i. The Contractor shall be responsible for the electrical works supply and installation comprising of;
  - 11KV, HT Electrical works distribution scheme considering overhead lines
  - LT works with Transformer and LT panels for Administrative Block and Common services loads
  - External Lighting works
  - Earthing System
  - DG Works for Administrative Block, External lighting and Common services
  - 11KV, HT Panels, HT Cables and DP structures works
  - 1.1KV, LT Cables for LT Panels
  - Contractors' scope will be tapping power supply from TNEB premises (in Medipark) to the Plot Entrance through Overhead line distribution system. Further power tapping scope will be with the Plot Owner during Plot Building construction.
  - Contractor should do compulsory third party testing for all cables and wires and submit the report to the Authority.
  - Contractor scope is to get Electrical Inspectorate and TNEB permission for the energizing the HT/LT installation works for Administrative Block, Common Services Loads

- ii. The total power demand for the park is estimated at 23.6 MW for Phase 1 A.
- iii. 11 KV Power Distribution Scheme including laying of power distribution lines as specified in Schedule 3 of Volume IV
- iv. 11KV HT and LT Distribution Schemes as detailed in Schedule 3 of Volume IV
- v. Transformer, DG sets yard, main electrical room (for LT panels) shall be located near the administrative block.
- vi. The External Street lights works includes, OHT tank Road lighting, TNEB Substation Road Lighting, Main Entrance Existing Road Lighting as shown in the Tender Drawings
- vii. The site has to be clear upto TNEB substation for easy access.

#### 1.1.4. Water Supply Network

The scope of work of the Contractor shall broadly include supply, installation, testing & commissioning of the following services:

- a. Internal and external water supply distribution network
  - b. Above ground drainage system
  - c. Landscape irrigation system
  - d. Underground drainage system including construction of manholes and all other related appurtenances
  - e. Inlet and outlet connections, over-flows and drain connections in the water storage tanks using puddle flanges,
- i. All works shall be carried out as per statutory requirements/regulations laid down in codes.
  - ii. Surface water source is from Palar River.
  - iii. Other related details shall be as follows:

SN	DETAILS OF WORK	DESCRIPTION OF WORKS
<b>Water supply &amp; Distribution system</b>		
1.	<b>OVERHEAD TANK</b>	<b>Distribution</b> to all PLOTS with a master control valve- for easy maintenance.
		<b>Pumping water</b> from Filter water sump to OHT through separate piping network as per the requirement.
		<b>RCC</b> structure OHT proposed as per the standards, inlet and outlet details provided as per the norms and requirements.
2.	<b>PIPING SYSTEM</b>	Water supply piping is proposed to use uPVC pipes of schedule 80,

		with all appropriate control valve and connections to be provided as per the requirement. With all appropriate diameter of pipe likes uPVC pipes of sizes- 50mm,65mm,80mm,100mm, 150mm diameter pipes to be used for the overall development.
3.	<b>CONTROL SYSTEM</b>	<b>Water supply</b> from OHT to be supplied through the gravity system to each plot with a master control valve for future easy maintenance.
4.	<b>UG SUMP</b>	<b>RCC Structure</b> of UG sump proposed for the collection and distribution system

- iv. The Contractor shall be responsible for designing, engineering, vetting, providing, construction, testing & commissioning of underground sump, water treatment plant, overhead tank and laying of water supply network as detailed in Schedule 4 of Volume IV
- v. The site has to be clear up to Overhead tank for easy access.

#### 1.1.5. Wastewater System and Sewerage Treatment Plant

- i. The Contractor shall be responsible for designing, engineering, vetting, providing, construction, testing & commissioning of sewage treatment plant with capacity of 200 KLD. The contractor shall also be responsible for providing, supply, laying, testing and commissioning of the sewerage network. The detailed Scope of Work is specified in Schedule 4 of Volume IV.
- ii. The design of the Sewage Treatment Plant (STP) and subsequently the installation should be certified (from Anna University, IIT Madras, etc.) for its adequacy and a report in this regard should be submitted to the Authority before the project is commissioned for operation. Explore the less power consuming systems viz baffle reactor, etc., for the treatment of sewage.
- iii. The facility shall provide dual plumbing in such a way that the sewage generated shall be discharged into the Under-Ground Sewerage system.
- iv. The Contractor shall provide flow meter with recording arrangement at the following points
  - a. Inlet point of water uptake to monitor the daily water consumption
  - b. Inlet and outlet point of STP
  - c. At the point of disposal of treated wastewater to underground Sewer line.
- v. The specification for the Sewerage Treatment Plant shall be as follows:

S No.	STP SYSTEM	DESCRIPTION OF WORKS
1	<b>MBBR SYSTEM</b>	Proposed base on the entire layout for about <b>200 KLD of MBBR STP REPORT.</b>
		The sewage from the soil/ sewer line connected to stack shall be connected to the sewer header running below ground level collected from the Individual Plot and provided with adequate slope to achieve the smooth flow in the system be separately connected to the sewer header
		Finally, the sewage from the sewer header shall be discharged to a Manholes/Inspection chamber located near the periphery of the building.
		It is proposed to install a sewage treatment plant, to treat the domestic effluent generated from the toilets/Labs and re-use the water for gardening. The treated sewage water will be designed to meet the discharge limits as per the rules stipulated by the Tamil Nadu Pollution Control Board (TNPCB), in order to conserve water
		The sewage treatment plant will be designed to ensure that treated effluent characteristics are well below / within the permissible limits, even under varying flow conditions, which are typical for such systems. This implies that the selected process will be able to withstand the shock load situation
2	<b>BIOLOGICAL CHARACTERISTIC OF STP – MBBR SYSTEM</b>	<b>Biological Treatment</b> BOD Removal = 85 – 90% COD Removal = 70 – 80% <b>Tertiary Treatment</b> BOD Removal = 80 – 90% of residual S. S Removal = 90 – 95%
3.	<b>MECHANICAL EQUIPMENTS</b>	As per the MBBR STP System entire system with complete supply and installation to be provided.
4.		Entire plant with complete maintenance and co-ordination and one-year service maintenance to be provided from the vendor.

#### Standards and Specifications

#### SEWAGE TREATMENT PLANT (STP) FOR 200 KLD - Civil Works

- a) Clearing the site of light jungle/ Scrub jungle

- b) Earthwork excavation for STP, to required size and depth, in all types of soil/ soft rock/ hard rock including depositing excavated earth away from the excavation area with all lead & lift, trimming the bottom and sides, all as per standard practice and structural requirement.
- c) Plain cement concrete of grade M-10 for bed concrete with necessary form work.
- d) Filling to sides of footings/ foundations and inside plinth either with available earth or with borrowed earth as per requirement including consolidation and having 100mm thick PCC M10 bed concrete on top.
- e) Machine batched and machine mixed design mix M-25 grade cement concrete for RCC works, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Engineer-in-charge.
- f) Centering and shuttering including strutting, propping etc. and removal of form for
  - Foundations, footings, bases of columns, etc. for mass concrete
  - Walls (any thickness) including attached pilasters, buttresses, plinth and string courses etc.
  - Suspended floors, roofs, landings, balconies and access platform
  - Lintels, Beams, Plinth beams, Girders, Bressumers and cantilevers
  - Columns, Pillars, Piers, Abutments, Posts and Struts
  - Weather shade, chajjas, corbels etc. including edges
- g) Reinforcement to all RCC works as per design/ drawings/ details using thermo mechanically treated bars of grade FE-500D or more
- h) Masonry work for walls, piers and architectural features, in CM 1:6 for super-structure using solid concrete blocks of approved quality, size and of grade D(3.5) blocks as per IS: 2185 (Part I) - 1979 including necessary scaffolding, raking of joints, finishing, curing etc., complete with all lead & lift for all materials & labour and as directed (with minimum compressive strength of blocks should be 35 kgs./ sqcm.).
- i) Flagging concrete around the building to a width of 1000mm with PCC 1:3:6 concrete including finishing the top surface with 15mm thick cement plaster 1:4 and with a floating coat of neat cement.

#### SEWAGE TREATMENT PLANT (STP) FOR 200 KLD - Finishing Works

- a) 52 mm thick cement concrete flooring with concrete hardener topping, under layer 40 mm thick cement concrete 1:2:4 (based on Mix strength M15) and top layer 12 mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6 mm nominal size)
- b) Pump room – with 1 mm thick MS sheet door with frame of 40x 40x 6mm angle iron and 3mm MS gusset plates at the junctions and corners, MS angles of 40x 40x 6mm for diagonal braces, all necessary fittings complete including applying a coat of approved steel primer after pre-treatment of the surface. Finishing surfaces with synthetic enamel paint (two or more coats) of approved brand and manufacture of required colour over an under coat of suitable shade with ordinary paint of approved brand and manufacture.



- c) Pump room – Factory made ISI marked steel glazed doors/ windows/ ventilators (weighing 15 kg./ sqm.), side/ top/ centre hung, with beading and all members such as F7D, F4B, K11B and K12B etc. complete of standard rolled steel sections, providing & fixing 4mm thick glass panes with putty and glazing clips, hinges, pivots etc., including providing and applying a coat of approved steel primer, all as per approved design including fixing of steel frames with 15x 3mm lugs and 10 cm long embedded in cement concrete block of 15x 10x 10 cm of PCC 1:3:6. Finishing surfaces with synthetic enamel paint (two or more coats) of approved brand and manufacture of required colour over an under coat of suitable shade with ordinary paint of approved brand and manufacture
- d) MS grills (weighing 15 kg./ sqm.) of required pattern in frames of windows etc. with MS flats, square or round bars etc. including priming coat with approved steel primer and finishing with synthetic enamel paint (two or more coats) of approved brand and manufacture of required colour over an under coat of suitable shade with ordinary paint of approved brand and manufacture
- e) Water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying a) after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. b) laying second layer of Fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10 cm. c) third layer of 1.5 mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken up to 30 cm on parapet wall and tucked into groove in parapet all around. d) fourth and final layer of brick tiling with cement mortar (which will be paid for separately).
- f) Pressed clay tiles (as per approved pattern 20 mm nominal thickness of approved size) on roofs jointed with cement mortar 1:4 mixed with 2% integral water proofing compound, laid over a bed of 20 mm thick cement mortar 1:4 and finished neat complete.
- g) Providing gola 75x75 mm in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 stone aggregate 10 mm and down gauge), including finishing with cement mortar 1:3, as per standard design
- h) Handrails over the Standing Platform by using 10 mm GI Pipe with 40mm x 6mm MS Flat and fixed with 12mm dia. Fastener Bolt 75mm long and as directed by Authority Engineer.
- i) Watertight Manhole frame and cover (Medium type) of size 0.60m x 0.60m in RCC 1:11/2:3 with suitable reinforcement and 50 x 50 x 6mm MS angle fixed along edges and as directed by the Authority Engineer.
- j) Providing 110mm PVC vent cowl arrangements mosquito proof nylon net and as directed by Authority Engineer.
- k) All internal concrete/ masonry surfaces plastered with CM and finished with lime rendering/ cement rendering. All external concrete/ masonry surfaces plastered with CM and sponge finished.
- l) All cement mortar used for plastering, should be mixed with waterproofing compound in proportion recommended by the manufacturers.
- m) All internal plastered surfaces finished with distempering in two or more coats with 1st quality acrylic distemper (ready mixed) having VOC content less than 50 gms/ litre, of approved

manufacture and of required shade & colour, over plaster of Paris putty of 2 mm thickness and one coat of water thinnable cement primer of approved brand and manufacture.

- n) All external plastered surfaces finished with Premium Acrylic Smooth exterior paint with Silicone additives of required shade (Two or more coats) including priming coat of exterior primer.

The contractor shall be required to design and execute every such items of work which are considered required or necessary for the satisfactory completion and functioning of the entire work even if such items of work are not specified in the bid document, but are essential to complete the project

#### **1.1.6. Administrative Block**

- i. The contractor will be responsible for the construction of Administrative block within the plot allocated as per the approved Master Plan.
- ii. The overall scope of work for the Administrative Block includes construction of administrative block, external development works within the plot including landscaping, underground sump, compound wall, water supply and sewerage related works, power supply related works, all interior works, HVAC, furniture and all other allied works including finishing of the entire Administrative Block as specified in Schedule 6 of Volume IV

##### **1.1.6.1. Standards and Specifications**

###### **1.1.6.1.1. ADMINISTRATIVE BUILDING – Under Ground Sump**

- a) To design & execute as per water storage requirement
- b) Earthwork excavation for UG sump, to required size and depth, in all types of soil/ soft rock/ hard rock including depositing excavated earth away from the excavation area with all lead & lift, trimming the bottom and sides, all as per standard practice and structural requirement.
- c) Plain cement concrete of grade M-10 for bed concrete with necessary form work.
- d) Filling to sides of footings/ foundations and inside plinth either with available earth or with borrowed earth as per requirement including consolidation.
- e) Centering and shuttering including strutting, propping etc. and removal of form for
  - Foundations, footings, bases of columns, etc. for mass concrete
  - Walls (any thickness) including attached pilasters, buttresses, plinth and string courses etc.
  - Suspended floors, roofs, landings, balconies and access platform
  - Lintels, Beams, Plinth beams, Girders, Bressumers and cantilevers
  - Columns, Pillars, Piers, Abutments, Posts and Struts
- f) Reinforcement to all RCC works as per structural design/ drawings/ details using thermo mechanically treated bars of grade FE-500D or more
- g) Water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound

- h) Watertight Manhole frame and cover (Medium type) of size 0.60m x 0.60m in RCC 1:11/2:3 with suitable reinforcement and 50 x 50 x 6mm MS angle fixed along edges
- i) All internal concrete/ masonry surfaces plastered with CM and finished with lime rendering/ cement rendering. All external concrete/ masonry surfaces plastered with CM and sponge finished.
- j) All cement mortar used for plastering, should be mixed with waterproofing compound in proportion recommended by the manufacturers.
- k) All external plastered surfaces finished with Premium Acrylic Smooth exterior paint with Silicone additives of required shade (Two or more coats) including priming coat of exterior primer.

#### **1.1.6.1.2. ADMINISTRATIVE BUILDING – Compound Wall**

- a) To design & execute as per typical cross section and elevation drawing enclosed
- b) Earthwork excavation for column/ wall footings and foundations, to required size and depth, in all types of soil/ soft rock/ hard rock including depositing excavated earth away from the excavation area with all lead & lift, trimming the bottom and sides, all as per standard practice and structural requirement.
- c) Plain cement concrete of grade M-10 for bed concrete with necessary form work.
- d) Wall foundation as per structural requirement to required width and depth using solid concrete blocks of 200mm width or as specified in CM 1:6.
- e) Filling to sides of footings/ foundations and inside plinth either with available earth or with borrowed earth as per requirement including consolidation.
- f) Solid concrete block masonry walls of 200mm thick up to 1.5m height above plinth.
- g) Plastering to masonry surfaces in CM and sponge finished including making putty/ grooves as per elevation etc.
- h) All external plastered surfaces finished with Premium Acrylic Smooth exterior paint with Silicone additives of required shade (Two or more coats) including priming coat of exterior primer.
- i) All steel surfaces finished with synthetic enamel paint (two or more coats) of approved brand and manufacture of required colour over an under coat of suitable shade with ordinary paint of approved brand and manufacture including priming coat with approved steel primer.

#### **1.1.6.1.3. ADMINISTRATIVE BUILDING – Civil Works**

- a) To design the administrative block with built-up area as 566 Sqm (Ground Floor) and 47 Sqm (Part in First Floor) and a site area of 2180 Sqm.
- b) To execute as per plan, cross section and elevation drawing enclosed and as per structural design/ drawings/ details, for Ground floor and part in First floor.
- c) Earthwork excavation for column/ wall footings and foundations, to required size and depth, in all types of soil/ soft rock/ hard rock including depositing excavated earth away from the excavation area with all lead & lift, trimming the bottom and sides, all as per standard practice and structural requirement.
- d) Pre-constructional anti-termite treatment for excavated areas, inside plinth and around plinth.

- e) Plain cement concrete of grade M-10 for bed concrete with necessary form work.
- f) Wall foundation as per structural requirement to required width and depth using solid concrete blocks of 200mm width or as specified in CM 1:6.
- g) Filling to sides of footings/ foundations and inside plinth either with available earth or with borrowed earth as per requirement including consolidation.
- h) Machine batched and machine mixed design mix M-25 grade cement concrete for RCC works, as per structural design/ drawings/ details, using cement content as per approved design mix, including pumping of concrete to site of laying
- i) Centering and shuttering including strutting, propping etc. and removal of form for
  - Foundations, footings, bases of columns, etc. for mass concrete
  - Walls (any thickness) including attached pilasters, buttresses, plinth and string courses etc.
  - Suspended floors, roofs, landings, balconies and access platform
  - Lintels, Beams, Plinth beams, Girders, Bressumers and cantilevers
  - Columns, Pillars, Piers, Abutments, Posts and Struts
  - Stairs (excluding landings) except spiral staircase
  - Weather shade, chajjas, corbels etc. including edges
- j) Reinforcement to all RCC works as per structural design/ drawings/ details using thermo mechanically treated bars of grade FE-500D or more
- k) Masonry work with solid concrete blocks of 200mm width or as specified, for walls, piers and architectural features, in CM 1:6 for super-structure using solid concrete blocks of approved quality, size and of grade D(3.5) blocks as per IS: 2185 (Part I) - 1979 including necessary scaffolding, raking of joints, finishing, curing etc., complete with all lead & lift for all materials & labour and as directed, at all heights & locations (with minimum compressive strength of blocks should be 35 kgs./ sqcm.).
- l) Flagging concrete around the building to a width of 600mm with PCC 1:3:6 concrete including finishing the top surface

#### **1.1.6.1.4. ADMINISTRATIVE BUILDING – Finishing Works**

- a) Flooring/ Skirting/ Dadoing – To be as per details provided in architectural drawings
  - 52 mm thick cement concrete flooring with concrete hardener topping, under layer 40 mm thick cement concrete 1:2:4 and top layer 12 mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6 mm nominal size) – Office area, UPS room
  - Polished granite stone flooring in required design and patterns, as per the architectural drawings for Waiting/ Reception/ Meeting rooms, Lobby, Staircase area, Staircase steps, Passage, Pantry, Surveillance Room, Store and Entrance steps & platform.
  - Flamed finish granite stone flooring in required design and patterns, as per the architectural drawings for Toilets
  - Ceramic glazed wall tiles, 1st quality, conforming to IS:15622 (thickness to be specified by the manufacturer), of approved make, in all colours, shades & of any size as approved by

Authority's Engineer, including pointing the joints with white cement and matching pigments etc. complete for Toilets dado (Height 2.25m)

- b) Doors/ Windows/ Ventilators - To be as per details provided in architectural drawings
- CRCA pressed steel box section 18 gauge or 1.25mm thick for door frames including providing holes and fixing wooden blocks for fixing furniture and fittings, with powder coated primer – Internal doors.
  - Solid core flush shutters with commercial ply on both sides with teakwood lipping around (35mm thick) – Internal doors
  - FRP door frames made out of FRP sheets of 3mm thick of overall size 65mmx 50mm with rebate, suitably reinforced using MS angle/ MS flats, cost of holdfasts and solid core FRP shutter panel of 5mm thick and hollow core frames of 3mm wall thickness for styles and rails etc. – Toilets
  - UPVC (Un-plasticized polyvinyl chloride) windows of casement type (open) from the profile the size of outer frame 60x 58mm and shutter profile are reinforcement with GI/ 1mm 125GSM and 100% corrosion free, the profiles are multi-chambered sections with wall thick of 2mm. The EPDM rubber (black color) covered with over all the edges of frame and shutter. The shutter will be provided with Espag multi power point locks and also it operates as handle. The corners and joints should be welded and cleaned. Radiations free pin headed plain or brown color glass 4mm thick should be provided to the shutter and it should not allow leakage of water even at most ranging storms and should have key lockable action, security protective hinges, strong locking systems and as per size for arresting noise and energy loss. The connecting mechanism between sash and outer frame that enables opening of the window. The window should be fixed to the wall with 100% packing with screws and silicon packing all-round the frames.
  - Supplying and fixing UPVC (Un-plasticized polyvinyl chloride) louvered ventilators of from the profile the size of outer frame 60x 58mm and shutter profile size of 60x 78mm, both profiles are reinforced with GI/ 1mm 125GSM and 100% corrosion free, the profiles are multi-chambered sections with wall thick of 2mm. The EPDM rubber (black color) covered with over all the edges of frame and shutter. The corners and joints should be welded and cleaned. Radiations free pin headed plain or brown color glass 4mm thick should be provided in the louvers. The window should be fixed to the wall with 100% packing with screws and silicon packing all-round the frames.
  - MS grills (weighing 15 kg./ sqm.) of required pattern in frames of windows etc. with MS flats, square or round bars etc.
  - Double shutter glass door of 12mm thick frosted toughened glass of approved make. The door is fixed by using any approved make hardware fitting like patch fitting, pivot, floor machine, locking arrangements and suitable SS door rails with floral glass etching for 1/3 portion of the door area etc. complete – Main Entry doors.
  - Pull and push type rolling shutter with ISI make of approved size and section using 18-gauge GI sheet.

- Stainless steel handrails for staircase using 50mm dia. 304L grade stainless steel pipe of 1.60mm thick at required locations to a height of 900mm from finished floor level, welded to 38mm dia. stainless steel pipe post of 1.00mm thick as vertical at 900mm center with 2 nos. of 25mm dia. intermediate horizontal stainless steel pipe of 1.60mm thick in between. The vertical pipe has to be welded to the 100x 100x 6mm MS base plate encased in the base concrete. The rate is inclusive of the charges for cutting, bending, welding, grinding, polishing, conveyance, electrical charges etc. complete.
- c) Integral cement-based water proofing treatment with average thickness of 120 mm and minimum thickness at khurra as 65 mm including preparation of surface as required for treatment of roofs, balconies, terraces etc.

#### **1.1.6.1.5. ADMINISTRATIVE BUILDING – Interior Works**

- a) Scope shall include development of the space planning, interior design, material selection, design coordination, design documentation, execution including installation of furniture and fittings to permit ready usage of the Administrative building office.
- b) Provide preliminary design concepts of layout plans/dimensions of the floor including 2D and 3D presentations, working drawings of flooring, false ceiling, partitioning for cabins / cubicles etc., work areas, corridors, special areas such as reception, pantry, meeting rooms etc. This will include suggestions and recommendations on types and quality of materials, colour palettes, and finishing
- c) Design concepts of external areas associated with the Administrative block including entrance, lobbies etc. will be suggested
- d) Provide fully coordinated service plans denoting all AC, Electrical, Lighting, Plumbing, Fire, IT and Telephone points. The plans are to be fully dimensioned on plan and elevation.
- e) Execute works for flooring, false ceiling, electrical fittings & wiring, wall painting, carpeting, networking (WAN & LAN), telephone cabling, plumbing, HVAC, fittings & fixtures including office furniture and other allied works
- f) Supply of office furniture including chairs, tables, sofas, EPBAX system etc.
- g) Supply and Installation of Air-conditioning VRV/VRF cassette type indoor system with capsule AC units (4-way)
- h) Cleaning of site and handing over of the works
- i) Rectification of works in completed works during Defects Liability Period

#### **1.1.7. Miscellaneous Civil Works (Arch Gates, Security Rooms etc.)**

The contractor will be responsible for the construction of below mentioned works and their allied constructions as detailed in Schedule 7 of Volume IV.

- i. **Entrance arch with security room**

- The contractor shall be responsible for the construction of entrance arch.
- The entrance gate provided at the 24 m road will have combined design of entrance gate with security room.
- ii. **Security room (standalone)**
  - The contractor shall be responsible for the construction of standalone security room

#### 1.1.8. Civil & Finishing Works - List of Approved Makes of Materials

Civil		
S.No	Item	Vendor
1	Fine sand & Coarse Sand	1st quality
2	Cement (43/ 53 Grade)	ACC, Birla Super, Ultra-tech Ramco, Bharti, Coromandel
3	Stone aggregate	1st quality
4	White cement	Birla, JK
5	Tor Steel	Tata, TISCO, JSW
6	M.S. Section	Tata, SAIL, Jindal
7	Reinforcement Steel	TISCO, IISCO, SAIL, JSW
8	Structural Steel	TISCO, IISCO, SAIL, JSW
9	Ready Mix Concrete	ACC, Ultratech, RMC
10	AAC Block	JK Lakshmi, Builtech
11	Brick	1st class
12	Plaster of Paris	Gypsum India, Supreme, Sakarni
13	Gyp Plaster	Gypsum India, Buildon
14	Anti-termite Treatment	Hicare, PCI
15	Water Proofing Compound	Dr. Fixit, FOSROC, Ardex, BASF, Laticrete
16	Admixtures and Epoxy Flooring	Dr. Fixit, FOSROC, Ardex, BASF, Laticrete
17	Concrete blocks	Approved Sample having minimum compressive strength 35 Kg./ Sqcm
18	Putty	Shall be Goldsize Putty by Shalimar Paints Ltd.or Equivalent
19	Expansion Bolts for fixing	Hilti, Fischer, IRW
20	Anchor Fastener	Hilti, Canon, Fischer, IRW
21	Welding Electrodes	Advani or approved equivalent make



**Adhesives**

S.No	Item	Make
1	For carpentry works	Pidilite
2	For rubber-based applications	Pidilite SR-998 grade
3	For stone, metal etc. applications	Ardex Endura, Araldite, Kerakol, Pidilite, Laticrete
4	Epoxy Grout	Ardex Endura, Laticrete, Kerakol, Pidilite
5	Sealing Component	Dow Corning, GE Bayer Silicone Ltd., Pidilite
6	Rubber Insulation	Armaflex, Videoflex
7	Silicone sealants	Wacker, Dow Corning, GE, Laticrete

**Paints**

S.No	Item	Make
1	Anti - termite paint	Nosil Mudguard (Castor) Nithol
2	Matt melamine	Asian, Berger, Goodlass Nerolac, Shalimar
3	Auto coat paint	Asian, Berger, Shalimar, ICI Dulux
4	Plastic Acrylic emulsion paint	Asian, Berger, Shalimar
5	Velvet touch Plastic Emulsion paint	Asian, Berger, Shalimar, ICI Dulux
6	Decorative Plastic paint	Asian, Berger, Shalimar, ICI Dulux
7	Distemper	Berger, Asian, Shalimar
8	Putty white cement based	Birla White, JK White
9	Putty acrylic based	Asian, Berger, RJ London
10	Primer	Asian, Berger, Shalimar, ICI Dulux
11	Textured paint	Spectrum, Heritage, SKK, Renovo, Asian, Berger, Pidilite
12	Fire Retardant Paint	Viper
13	White washing lime	Nerolac, Asian
14	Concrete micro topping	Convow, Ardex, BASF, Pidilite
15	Autocoat Paint	AkzoNobel (Dulux), Asian
16	PU Paint	Dulux
17	Epoxy Paint	Ardex Endura, Laticrete
18	Stencilling marking	Ardex Endura
19	Damp Proofing Membrane	Ardex
20	Texture internal application	Armour coat, Cameleo, Novafine
21	Powder coating	MRF, Berger, Akzonbel



**Paints**

S.No	Item	Make
22	Dry Distemper	Asian, Berger, Shalimar, ICI Dulux

**Partition / Wood**

S.No	Item	Make
1.	Commercial blockboard	Merino Tuffply & Tuffboard (BWR grade Phenol Bonded), Greenply, Duro, Archid
2.	Fibre Cement Board and Heavy-Duty Board	Everest, V-Next, Ramco
3.	Aluminum Sections	Jindal, Hindalco, Bhoruka
4.	Imported Anodized Aluminum Sections	Alloy, Jeb, Dorma, Kubik
5.	SS Railing/Grill	Kich, Lynx, Ozone
6.	Commercial plywood	Merino, Greenply, Somani, Duro, Archid
7.	Vinyl Curtain	Rola Shade
8.	Roller Blinds	Mac, Vista, D-Décor
9.	Transition Profile & Corner Guard	Optimus, Bottomline, ORE Enterprise
10.	Slotted Angle Racks	Harmony, Godrej,
11.	Sink	Nirali, Hindware, Cera
12.	Fabric	Response, Colorays, Atmosphere, Maspar, Muslin,
13.		Season's, Jagdish Store, Yamini, Cocoon
14.	Leatherlite	Response, D-Décor
15.	Turf Flooring	Unitex, Tarkett
16.	Cushion Form	Dunlop, Kurlon
17.	GRG Ceiling Tile	Universal Building Product or Equivalent
18.	Acoustic Panels	Decosonic (Universal Building product), Navair
19.	Trap Door	Knauf, Novapan, Rehau
20.	Acrylic Solid Surfaces	LG, Hanex, Dupont, Tranquil, Dunes
21.	Glass	Modi Float, Saint Gobain, Asahi
22.	G.I Sections	USG Boral, Saint Gobain, Knauf
23.	Anodised Aluminium modular partitions	Alloy, Dorma, Kubik
24.	Glasswool	Rockwool, U.P Twiga
25.	Teak board ply	Greenply, Merino, Archid, Action Tessa
26.	Indian/ Imported veneer	Archid, Greenply, Century

**Partition / Wood**

S.No	Item	Make
27.	Gypsum Partition	Gypsum (India) Limited, USG Boral, Knauf
28.	Flush door shutter	Merino, Greenply, Duro, Action Tessa, Somani
29.	Hard wood	Teak, Mirindi, Saal, Oak or Equivalent (all First Class Seasoned)
30.	Golden maple	(First class seasoned) free from knots, termite & glue
31.	Laminates	Merino, Green, Archid, Century, Sonear, Woodstock, Rotolam
32.	Acoustical Panel	Ecophon, Armstrong, Nittobo, Universal Building Product, Anutone, Tranquil, Hilpoint
33.	Laminate particle board	Novopan, Archid, Merino, Action Tessa
34.	Exterior & Interior Grade MDF/HDF board	GreenPanelmax, Action Tessa, Merino
35.	Soft board	Sitatex, Jolly, Cellotex
36.	Extruded aluminum section	Hindalco, Indal (Indian Aluminium Co. Ltd.)
37.	Fire Retardant/Pest Control	Viper
38.	Anchor Fasteners	Hilti, Canon
39.	Fire-proof shutters (Steel)	Shakti Met, Adhunik, Signum, Global, MPP
40.	Fire-proof shutters (Wooden)	Pacific, Navair, Promat, Global
41.	Whiteboards	Elcon, Whitemark
42.	Toilet Cubical	Besco Merino, Greenply
43.	Clear Glass	Saint Gobain, Asahi, Gold plus
44.	Sandblasted & Decorative Glass	Art & Glass, Design & Art

**False Ceiling**

S.No	Item	Make
1	Gypsum board	Gypsum India, USG Boral
2	Ceiling tile	Armstrong, Saint Gobain, OWA
3	Metal Perforated/Metal Baffle Ceiling Aluminum Baffle	LD, Ceiflo, Chanakya Technologies

**Flooring**

S.No	Item	Make
1	Ceramic tile	NITCO, Johnson, Somany, Kajaria, RAK
2	Vitrified Tiles	NITCO, Johnson, Somany, Kajaria, RAK

Flooring		
S.No	Item	Make
3	Anti-static Vinyl Tiles	Armstrong, Ego, Tarkett
4	Porcelain Tile	Kajaria, Nitco, Somany, RAK, Johnson
5	Sport Vinyl Flooring	Tarkett, Forbo, Gesflor
6	Tile adhesive	Adrex Endura. Fosroc, Pidilite, Laticrete
7	False Floor	Unitile, Metal Matrix, Unifloor
8	Laminated wooden flooring	Green Floormax, SquareFoot, Prego, Ego, Action Tessa
9	Hardwood Flooring	SquareFoot, Prego, Ego, Floor Tex
10	Brick Tile	Pioneer, Sarada
11	Italian marble	As per approved sample
12	Granite	As per approved sample
13	Waterproofing compound	Cico No 1, STP, Fosroc, Ardex Endura, Dr. Fixit, Pidilite, TapeCrete

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Hardware		
S.No	Item	Make
1	Galvanized steel door frame	Size 125 x 60mm and Approved Sample
2	Flush Door Shutters	Both sides commercial ply veneered and 35mm thick and Approved Sample
3	UPVC Windows/ Ventilators	Powder Coated finish and Approved Sample
4	Hardware fixtures for Doors (Administrative Building)	Stainless Steel finish and Approved Sample
5	Hardware fixtures for Doors (Security/ Pump room)	MS oxidized finish and Approved Sample
6	Stainless Steel hinges	Ozone, GEZE, Hafele, Hettich, Dorma
7	Multi-purpose locks / nitch latch	Hettich, Geze, Dorma
8	Key board tray / CPU	Hettich, Hafele
9	Mortice lock handles	Ozone, GEZE
10	SS Handles/ Drawer	Hettich, Kich, Hafele
11	Storage fittings	
12	Mortice lock six lever	Ozone, GEZE
13	Stainless Steel patch fittings / handles	Ozone, GEZE
14	Sliding folding mechanism for door	Ozone, GEZE, Hettich, Hafele

**Hardware**

S.No	Item	Make
15	Anchor Dash fastener	Hilti, Fischer
16	Door stopper	Ozone, GEZE
17	Screws	GKW, Nettlefold (Oxidized & IS1365)
18	Fabric Curtain and Tracks	D-Décor
19	Blinds	D-Décor, Vista, Phfier
20	PVC Spacers & Corner Guards	Arpithe exports, Catex Specialities Building
21	Aluminium Corner Guards	Bottom line, Gradus

**Furnishers**

S.No	Item	Make
1	Upholstery	Vimal, Jagdish, Maspac, Muslin, Response, D-Décor
2	Carpet	Mohawk, Belgotex, Interface, Miliken
3	Modular Furniture	Godrej, Talin, Morarch, Feugo, Feather lite
4	Chairs	Godrej, Featherlite, Monarch, Eurotech, Klug Furniture
5	Loose Furniture	Multiseats, Godrej, Featherlite, MMA, Monarch
6	Floor Mat	3M, Gradus
7	Compactor	Godrej, Pan, Svil Automation

**Electricals**

S.No	Item	Make
1	PVC Conduit	BEC, AKG
2	Flexible Conduit	Hensel, Legran, Trinity Touch, Lapp
3	Backelite Sheet	Hylam, Formica, Green Lam
4	PVC Insulated Copper Wire (ISI marked)	Finolex, Havells
5	Telephone Cable	Finolex, Havells
6	Modular Type Switches And Socket	Havells, Schindler, North west
7	MCB Isolator, Rccb, Elcb (of All Ratings)	L&T Hanger, Legrand (MDS), Siemens, GE, ABB, Anchor
8	Light Fixtures / Fittings and Lamps	Phiips, Polycab, Wipro, Havells
9	TV Coaxial Cable	Finolex, Havells
10	MCB Distribution Board	L&T Hanger, Legrand (MDS), Siemens, SSK

**Sanitary Fittings**

S.No	Item	Make
1	Sanitary fixtures and CP fittings	Jaquar, Kohler, Hindware, Parryware
2	WC Connector	Astral, Supreme
3	Low flow cistern	Geberit, Schell, Viega
4	Hand Drier	Euronics, Utech System, Kopal
5	Paper towel dispenser	Euronics, Utech System, Kopal
6	Soap Dispenser	Euronics, Utech System, Kopal
7	Pressmatic tap and Urinal Sensors	Euronics, Utech System, Kopal
8	UPVC pipes and fittings	Astral, Supreme
9	GI Pipes and Accessories	Tata, Jindal
10	Lead free valve, Ball valve, Butterfly valve, Non return valve, Pressure reducing vent, Auto air vent	L&T, ZOLOTO, AIP
11	Motorized valve	Honeywell, Danfoss, AIP
12	RO Membrane	Oasis, Eureka Forbes, Ion Exchange
13	SS Pipes	J Steel, VS Metal
14	PVC pipes and fittings	Astral, Supreme, Polypack, Finolex, Prakash

**HVAC**

S.No	Item	Make
1	VRV/VRF system with capsule AC units	Daikin, Toshiba, Mitsubishi, Voltas, Hitachi
2	Copper Pipe	Metube, Manvdev, Rajco, Maxflow, Indigo metal alloy
3	Insulation Tubes	Aflex, Armacell, Supreme, Kflex
4	Cable/Wire	Polycab, Finolex, Havells, KEI
5	PVC Pipe	Supreme, Polypack, Finolex, Prakash
6	MCB	ABB, Legrand, L&T, Havells
7	PVC Conduit	AKG, Kalinga, BEC, Precision, Shivam, Anchor
8	Duct Dampers	Carryair, Ravistar, Ravaiircon, Nangia
9	PIBC Control Valve with Actuator, Motor & Thermostat	Danfoss, Siemens, Oventrop

**Miscellaneous**

S.No	Item	Make
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HVAC		
S.No	Item	Make
1	Stainless Steel 304/316 Grade	Salem steel, Stellora
2	Glass Signage/film	3M, Avery
3	Glass upto 12 mm thickness	Modi float, Saint Gobain, Asahi
4	Mirror	Modi float, Saint Gobain, Asahi
5	Partition Insulation	Rockwool
6	Sun control film	3M, Garware Polyster ltd.
7	Annealed Glass, Reflective glass	Saint Gobain, AIS
8	Glass Toughening Manufacturer	Fuso, Forms, Citiglass

## 1.2. Design, Approvals and Construction

The Contractor shall ensure the following:

### 1.2.1. Detailed Design

- a. The detail design and drawings shall be prepared by the Contractor and shall be proof checked/ vetted by Anna University/IIT Madras, Department of Civil Engineering / Transportation Engineering or any other Authority identified by HML. The cost related to design and drawings and the cost for vetting has to be borne by the contractor. The vetted design and drawings shall be provided to HML for approval before commencement of the work at the Project site.
- b. Details of control arrangement including drawings required for the execution of the work shall be submitted to HML for approval.
- c. Prepare and implement plans, designs, drawings, estimates and specifications for infrastructure, equipment and materials;
- d. Define project phases and sub-activities as the part of the 'Programme' as specified in Volume II and assign personnel to phases and sub-activities;
- e. Interpretation of the drawings in the detailed Master Plan during construction.
- f. Responsible for ensuring all Drawings and Technical Specifications (to be validated prior to start of project) are correct and feasible
- g. Monitor the progress of works and ensure compliance with general requirements of engineering standards/practices including the environmental issues as applicable for the work.
- h. Determine and implement work schedule as per Detailed Master Plan and specifications, calculating time requirements and sequencing project elements;
- i. Prepare work status and trend analysis reports and recommend actions.
- j. Maintain work schedule by monitoring work progress, coordinating activities and resolving problems.
- k. All the **Works** shall be carried out as per the detailed description of the civil works

### 1.2.2. Statutory Approvals

Contractor must obtain all necessary approvals required for the

construction from the Statutory Authorities.

### **1.2.3. Construction, Trial and Testing**

- a. Undertake construction as per the approved design
- b. Undertake additional designs and modifications, as needed, during construction
- c. Preparation of as-built drawings (as specified in Clause 1.2.5 of this Volume) for all Works.
- d. Arrangement of all temporary sheds, office, etc. required for storage of materials, equipment and for Contractor's supervisory personnel at Project Site.
- e. Supply of all civil, mechanical, electrical, piping related items, etc. at the Site and in compliance with various design and specifications mentioned for Works under Appendix - II
- f. To supply all equipment, to meet in all respect, the requirements of HML in regard performance, operations, durability and satisfactory operation. All equipment supplied shall conform to the relevant Indian Standards. The sizes and numbers of the units prescribed for are based on HML's preliminary design and may vary to suit conditions and requirements.
- g. Preparation of fortnightly reports on the progress of the work for the information of HML
- h. Carry out all relevant tests, trial runs (Pumping stations, Transmission lines, WTP and STP) and submit all test reports to HML. Contractor shall arrange for required water/sewage for testing, trial run and commissioning at their own cost.
- i. Submit as Built Drawings of the Works
- j. During work, the Contractor shall support and provide all necessary information, in all means, to the Authority's Engineer appointed by HML. Not limiting to the scope of work and the technical specifications defined above, the Contractor has to ensure that he considers time required for approvals as well as all the items that are required for the Construction of infrastructure works in Medipark to ensure the desired output characteristics and a trouble free operation within the quoted price and timeframe.
- k. Safety Codes to be appropriately followed during construction and operations of the Project.



**1.2.4. Accountability of Design Error**

- a. The accountability for providing accurate designs for all Works including correction of errors, if any, found either during approval stage or during execution shall rest with the Contractor. The Contractor shall also indemnify HML and its representatives for any loss / damage resulting from errors in designs.
- b. The Contractor shall, at its own cost, rectify all such errors to ensure that all the Works including O&M, as applicable, are functional as per the Standards and Specifications mentioned in Volume IV. It shall be the responsibility of the Contractor to suitably assume any designs / operation standards / specifications in case not mentioned in Volume IV. Such Standards / Specifications shall be in accordance with Good Industry Practices and shall be brought to the notice of the Authority's Engineer specifying the course of action proposed to be followed.

**1.2.5. As-built drawings**

The Contractor shall prepare, and keep up to date, a complete set of as built drawings and records of the execution of the Works, showing the exact as built locations, sizes and details of the Works as executed with cross references to all relevant specifications and data sheets. These records shall be kept on the Project Site and shall be used exclusively for the purpose of this Sub-Clause. The Contractor shall provide 2 (two) copies of as built drawings and records to the Authority prior to the commencement of the Tests on Completion of the works.

**1.2.6. Communication Flows**

The Authority and the Contractor shall follow structured communication as far as possible for the Works and their sub- activities. The Contractor shall communicate the details of Contractor's Representative and the other team members to be deployed on the Project to interface with the Authority's Engineer.

1. The Contractor shall prepare and communicate the Programme Plan to the Authority's Engineer
2. The Contractor shall officially submit the designs, progress of works at a regular periodicity as defined in this RFP.

3. The Authority via the Authority's Engineer shall share review comments on designs, progress and performance and shall highlight the issues concerned.

### **1.3. Quality Assurance, Monitoring and Supervision**

#### **1.3.1. Quality of Materials and workmanship**

The Contractor shall ensure that the Construction, Materials and workmanship are in accordance with the requirements specified in this Agreement, Specifications and Standards and Good Industry Practice.

#### **1.3.2. Quality control system**

- i. The Contractor shall establish a quality control mechanism to ensure compliance with the provisions of this Agreement (the **"Quality Assurance Plan"** or **"QAP"**).
- ii. The Contractor shall, within 30 (thirty) days of the LoA Date, submit to the Authority's Engineer its Quality Assurance Plan which shall include the following:
  - a. organisation, duties and responsibilities, procedures, inspections and documentation;
  - b. quality control mechanism including sampling and testing of Materials, test frequencies, standards, acceptance criteria, testing facilities, reporting, recording and interpretation of test results, approvals, check list for site activities, and proforma for testing and calibration in accordance with the 5<sup>th</sup> Revision of Specifications for Road and Bridge Works issued by MORTH, relevant IRC specifications and Good Industry Practice; and
  - c. internal quality audit system
- iii. The Authority's Engineer shall convey its approval to the Contractor within a period of 21 (twenty-one) days of receipt of the QAP stating the modifications, if any, required, and the Contractor shall incorporate those in the QAP to the extent required for conforming.
- iv. The Contractor shall procure all documents, apparatus and instruments, fuel, consumables, water, electricity, labour, Materials, samples, and qualified personnel as are necessary for examining and testing the Project Assets and workmanship in accordance with the Quality Assurance Plan.
- v. The cost of testing of Construction, Equipment, Materials and workmanship

shall be borne by the Contractor.

#### **1.3.3. Methodology**

The Contractor shall, at least 15 (fifteen) days prior to the commencement of the construction, submit to the Authority's Engineer for review and consent the methodology proposed to be adopted for executing the Works, giving details of equipment to be deployed, traffic management and measures for ensuring safety. The Authority's Engineer shall complete the review and convey its consent to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed methodology from the Contractor.

#### **1.3.4. Inspection and technical audit by the Authority**

The Authority or any representative authorised by the Authority in this behalf may inspect and review the progress and quality of the construction of Project roads and issue appropriate directions to the Authority's Engineer and the Contractor for taking remedial action in the event the Works are not in accordance with the provisions of this Agreement.

#### **1.3.5. External technical audit**

- (i) At any time during construction, the Authority may appoint an external technical auditor to conduct an audit of the quality of the Works. The Auditor in the presence of the representatives of the Contractor and the Authority's Engineer shall carry out the tests and/ or collect samples for testing in the laboratory. The timing, the testing equipment and the sample size of this audit shall be as decided by the Authority. The findings of the audit, to the extent accepted by the Authority, shall be notified to the Contractor and the Authority's Engineer for taking remedial action in accordance with this Agreement.
- (ii) After completion of the remedial measures by the Contractor, the Auditor shall undertake a closure audit and this process will continue till the remedial measures have brought the works into compliance with the Specifications and Standards. The Contractor shall provide all assistance as may be required by the auditor in the conduct of its audit hereunder. Notwithstanding anything contained in this Clause, the external technical audit shall not affect any obligations of the Contractor or the Authority's

Engineer under this Agreement.

**1.3.6. Inspection of construction records**

The Authority shall have the right to inspect the records of the Contractor relating to the Works.

**1.3.7. Monthly progress reports**

During the Construction Period, the Contractor shall, no later than 10 (ten) days after the close of each month, furnish to the Authority and the Authority's Engineer a monthly report on progress of the Works and shall promptly give such other relevant information as may be required by the Authority's Engineer.

The Contractor agrees that reporting under this Clause shall continue until the date of the completion of the Works. Each report shall include:

- a. an executive summary;
- b. charts showing the status of Contractor's documents, construction and manufacturing and environmental works;
- c. details of work subcontracted and the performance of Sub-contractors;
- d. for the construction of each main part of the Works, the extent of progress (both quantity and percentage of the whole), the actual or expected dates of commencement, anticipated completion date of the activity, Contractor's inspections and tests;
- e. records of manpower and Contractor's equipment on the Project Site;
- f. copies for that month of quality assurance documents, test results and certificates;
- g. safety statistics, accident data collection including details of any hazardous incidents and activities relating to environmental aspects and public relations;
- h. comparisons of actual and planned progress, with details of any aspects which may jeopardize the completion in accordance with the Agreement, and the measures being (or to be) adopted to overcome such aspects;

- i. details of any unresolved disputes or claims, in relation to the Project;
- j. details of any revision to the cash flow estimate, together with a copy of the revised cash flow estimate;
- k. status of various Applicable Permits and compliance of conditions therein;
- l. details of various royalty payment and insurances required to be taken by the Contractor; and
- m. such other reports as may be required by the Authority for enabling the Authority to comply with its obligations under the other Project contracts.
- n. details of defects identified by the Authority;
- o. change in emission/discharge of any sewage or effluent of any nature whatsoever, whether qualitatively or quantitatively;
- p. any Material Adverse Effect;
- q. declaration towards compliance with Applicable Laws including but not limited to environmental and labour legislations;
- r. declaration specifying compliance with all Manuals provided to the Contractor; and
- s. any change in the flow of traffic in the existing Project roads.

#### **1.3.8. Inspection**

- (i) The Authority's Engineer and its authorised representative shall at all reasonable times:
  - (a) have full access to all parts of the Site and to all places from which natural Materials are being obtained for use in the Works; and
  - (b) during production and construction at the Site and at the place of production, be entitled to examine, inspect, measure and test the Materials and workmanship,
- (ii) The Contractor shall give the Authority's Engineer and its authorised agents access, facilities and safety equipment for carrying out their obligations under this Agreement.
- (iii) The Authority's Engineer shall submit Bi-monthly inspection report (the

**“Inspection Report”**) to the Authority and the Contractor bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. For the avoidance of doubt, such inspection or submission of Inspection Report by the Authority’s Engineer shall not relieve or absolve the Contractor of its obligations and liabilities under this Agreement in any manner whatsoever.

#### **1.3.9. Samples**

The Contractor shall submit the following samples of Materials and relevant information to the Authority’s Engineer for pre-construction review:

- a. manufacturer's test reports and standard samples of manufactured Materials; and
- b. samples of such other Materials as the Authority’s Engineer may require.

#### **1.3.10. Tests**

- (i) For determining that the Works conform to the Specifications and Standards, the Authority’s Engineer shall require the Contractor to carry out or cause to be carried out tests, at such time and frequency and in such manner as specified in this Agreement, and in accordance with Good Industry Practice for quality assurance. The test checks by the Authority’s Engineer shall comprise at least 50% (fifty percent) of the quantity or number of tests prescribed for each category or type of test for quality control by the Contractor.
- (ii) In the event that results of any tests conducted under this Clause establish any Defects or deficiencies in the Works, the Contractor shall carry out remedial measures and furnish a report to the Authority’s Engineer in this behalf. The Authority’s Engineer shall require the Contractor to carry out or cause to be carried out tests to determine that such remedial measures have brought the Works into compliance with the Specifications and Standards, and the procedure shall be repeated until such Works conform to the Specifications and Standards. For the avoidance of doubt, the cost of such tests and remedial measures in pursuance thereof shall be solely borne by the Contractor.

- (iii) The Contractor, at its own cost, shall also engage Third Party Institutions like Anna University / IIT Madras / National Testing Laboratory, etc. to arrange for testing of Steel, Cement, Cubes, Design Mix, Bricks / Solid Blocks, Electrical Wires / Cables, pipes, any other item as per the directions of Authority's Engineer. The test to be conducted, shall be as per the Industry Standard Protocol followed by these Third-Party Agencies. The third-party testing shall need to be arranged apart from the manufacturer's testing/quality certificate.
- (iv) Testing will have to be arranged by Contractor for every batch of material (such as cement, steel, electricals wires/cables, pipes etc.) that is brought to the site, and approved by the Authority Engineer before the material can be used. The indicative list of tests to be conducted is provided in respective Schedules 2-7 of this RFP.

#### **1.3.11. Examination of work before covering up**

In respect of the work which the Authority's Engineer is entitled to examine, inspect, measure and/or test before it is covered up or put out of view or any part of the work is placed thereon, the Contractor shall give notice to the Authority's Engineer whenever any such work is ready and before it is covered up. The Authority's Engineer shall then either carry out the examination, inspection or testing without unreasonable delay, or promptly give notice to the Contractor that the Authority's Engineer does not require to do so. Provided, however, that if any work is of a continuous nature where it is not possible or prudent to keep it uncovered or incomplete, the Contractor shall notify the schedule of carrying out such work to give sufficient opportunity, not being less than 3 (three) business days' notice, to the Authority's Engineer to conduct its inspection, measurement or test while the work is continuing. Provided further that in the event the Contractor receives no response from the Authority's Engineer within a period of 3 (three) business days from the date on which the Contractor's notice hereunder is delivered to the Authority's Engineer, the Contractor shall be entitled to assume that the Authority's Engineer would not undertake the said inspection.

#### **1.3.12. Rejection**

If, as a result of an examination, inspection, measurement or testing, any

Plant, Materials, design or workmanship is found to be defective or otherwise not in accordance with the provisions of this Agreement, the Authority's Engineer shall reject the Plant, Materials, design or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the Defect and ensure that the rejected item complies with the requirements of this Agreement.

If the Authority's Engineer requires the Plant, Materials, design or workmanship to be retested, the tests shall be repeated under the same terms and conditions, as applicable in each case. If the rejection and retesting cause the Authority to incur any additional costs, such cost shall be recoverable by the Authority from the Contractor; and may be deducted by the Authority from any monies due to be paid to the Contractor.

#### **1.3.13. Remedial work**

- (i) Notwithstanding any previous test or certification, the Authority's Engineer may instruct the Contractor to:
  - (a) remove from the Project Site and replace any Plant or Materials which are not in accordance with the provisions of this Agreement;
  - (b) remove and re-execute any work which is not in accordance with the provisions of this Agreement and the Specification and Standards; and
  - (c) execute any work which is urgently required for the safety of the Project roads, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work required on account of a Force Majeure Event, the provisions of Clause 18 of the Volume II for the same shall apply.
- (ii) If the Contractor fails to comply with the instructions issued by the Authority's Engineer (i), within the time specified in the Authority's Engineer's notice or as mutually agreed, the Authority's Engineer may advise the Authority to have the work executed by another agency. The cost so incurred by the Authority for undertaking such work shall, without prejudice to the rights of the Authority to recover Damages in accordance with the provisions of this Agreement, be recoverable from the Contractor and may be deducted by the Authority from any monies due to be paid to the Contractor.



**1.3.14. Delays during construction**

In the event the Contractor does not achieve any of the Project Milestones or the Authority's Engineer shall have reasonably determined that the rate of progress of Works is such that Completion of the Project is not likely to be achieved by the end of the Scheduled Completion Date, it shall notify the same to the Contractor, and the Contractor shall, within 15 (fifteen) days of such notice, by a communication inform the Authority's Engineer in reasonable detail about the steps it proposes to take to expedite progress and the period within which it shall achieve the Scheduled Completion Date.

**1.3.15. Quality control records and Documents**

The Contractor shall hand over a copy of all its quality control records and documents to the Authority's Engineer before the Completion Certificate is issued. The Contractor shall submit Road Signage Plans to the Authority Engineer for approval at least 6 (six) months prior to expected completion date of Project.

**1.3.16. Video recording**

During the Construction Period, the Contractor shall provide to the Authority for every calendar quarter, a video recording, which will be compiled into a 3 (three)- hour compact disc or digital video disc, as the case may be, covering the status and progress of Works in that quarter. The video recording shall be provided to the Authority no later than 15 (fifteen) days after the close of each quarter after receiving the LOA.

**1.3.17. Suspension of unsafe Construction Works**

- (i) Upon recommendation of the Authority's Engineer to this effect, the Authority may by notice require the Contractor to suspend forthwith the whole or any part of the Works if, in the reasonable opinion of the Authority's Engineer, such work threatens the safety of the Users and pedestrians.
- (ii) The Contractor shall, suspend the Works or any part thereof for such time and in such manner as may be specified by the Authority and thereupon carry out remedial measures to secure the safety of suspended works, the

Users and pedestrians. The Contractor may by notice require the Authority's Engineer to inspect such remedial measures forthwith and make a report to the Authority recommending whether or not the suspension hereunder may be revoked. Upon receiving the recommendations of the Authority's Engineer, the Authority shall either revoke such suspension or instruct the Contractor to carry out such other and further remedial measures as may be necessary in the reasonable opinion of the Authority, and the procedure set forth in this Clause shall be repeated until the suspension hereunder is revoked.

- (iii) All reasonable costs incurred for maintaining and protecting the Works or part thereof during the period of suspension (the "**Preservation Costs**"), shall be borne by the Contractor; provided that if the suspension has occurred as a result of any breach of this Agreement by the Authority, the Preservation Costs shall be borne by the Authority.
- (iv) If suspension of Works is for reasons not attributable to the Contractor, the Authority's Engineer shall determine any Time Extension to which the Contractor is reasonably entitled.

#### **1.3.18. Staff and Labour**

- (i) Engagement of Staff and Labour
  - (a) The Contractor shall make its own arrangements for the engagement of all personnel and labour, local or otherwise, and for their payment, housing, feeding and transport.
  - (b) The Contractor has verified/ shall verify the identity and address of all its employees and officials related to the Works by collecting necessary documentary proof.
  - (c) The Contractor shall conduct pre-employment police verification of the employees and other staffs and shall furnish the police verification report of all such staff/ employees, if requested by the Employer who shall be performing the Works or any part thereof;
  - (d) The Contractor hereby confirms that the Contractor shall not engage any person with a criminal record / conviction and shall bar any such person from participating directly or indirectly in performing the Works.

- (e) The employees and personnel of the Contractor shall work under the supervision, control and direction of the Contractor and the Contractor shall be solely responsible for all negotiations with our employees and personnel relating to their salaries and benefits and shall be responsible for assessments and monitoring of performance and for all disciplinary matters. All employees / personnel, executives engaged by the Contractor shall be in sole employment of the Contractor and the Contractor shall be solely responsible for their salaries, wages, statutory payments, etc. and under no circumstances the personnel shall be deemed to be the employees of the Authority. Under no circumstances the Authority shall be liable for any payment or claim or compensation of any nature to the employees and personnel of the Contractor.
- (ii) Returns of Labour
  - (a) The Contractor shall deliver to the Authority a detailed return in such form and at such intervals as the Authority may prescribe, showing the details including names, payment details and terms of appointment of the several classes of labour employed by the Contractor from time to time for the Works. The Contractor shall, in its returns certify that all dues of the workers or labour have been fully paid.
  - (b) The Authority is entitled to witness labour payments made or to be made by the Contractor. If the Contractor defaults in its obligations for making any payments under the labour laws, the Authority may make the relevant payments. Any sum equal to any amount paid by the Authority shall be immediately due as a debt from the Contractor to the Authority and until payment/ set off shall carry interest at 18% per annum. For this purpose, it is agreed between the parties that debt due aforesaid shall be set off immediately out of the running account bills of the Contractor under this Agreement.
- (iii) Persons in the Service of Others

The Contractor shall not recruit or attempt to recruit from amongst persons in the service of the Authority.
- (iv) Labour Laws

- (a) The Contractor shall obtain all relevant labour registrations and comply with all relevant labour laws applying to its employees and shall duly pay them and afford to them all their legal rights.
- (b) The Contractor shall make all deductions of tax at source and all contributions to the Payment of Gratuity, Provident Fund (including Employees' contribution) and Employees' State Insurance Scheme as may be required by Applicable Laws and deposit the aforesaid contributed amount with the appropriate authority/(ies).
- (c) The Contractor shall require all personnel engaged in the Works to obey all Applicable Laws and regulations. The Contractor shall permit Authority to witness labour payments for the Contractors direct labour, or the Subcontractors labour. The Contractor shall ensure that all its Subcontractors strictly comply with all labour laws.
- (d) Documentary evidence confirming compliance, as may be required from time to time, shall be provided to the Contractor's Representative.
- (e) The Authority shall not be liable for any delay/default of the Contractor in compliance of the labour laws.
  
- (v) Facilities for Staff and Labour: The Contractor shall provide and maintain all necessary accommodation and welfare facilities for personnel engaged for the Works. The Contractor shall not permit any personnel engaged for the Works to maintain any temporary or permanent living quarters within the structures forming part of the Works.
  
- (vi) Health and Safety

All necessary precautions shall be taken by the Contractor to ensure the health and safety of staff and labour engaged for the Works. The Contractor shall, in collaboration with and to the requirements of the local health authorities, ensure that para-medical staff, first aid facilities, ambulance service are available on the Site at all times, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. The Contractor shall appoint a safety officer to be responsible for the safety of personnel on the Site. This safety officer shall be qualified for his work and shall have the authority to issue instructions

concerning safety and take protective measures to prevent accidents. The Contractor shall maintain records and make reports concerning health, safety and welfare of personnel, and damage to property, in such manner as the Authority may reasonably require.

(vii) Contractor's Personnel

The Contractor shall employ only personnel who are appropriately qualified, skilled and experienced in their respective trades or occupations. The Authority may require the Contractor to remove any personnel engaged for the Works, who in the opinion of the Authority:

- (a) has engaged in any misconduct;
- (b) is incompetent or negligent in the performance of his duties;
- (c) fails to conform with any provisions of the Contract;
- (d) engages in any conduct which is prejudicial to safety, health, or the protection of the environment; or
- (e) makes errors in the discharge of his functions.

If appropriate and required by the Authority, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.

(viii) Disorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst its personnel, and to preserve peace and protection of people and property in the neighbourhood of the Works.

#### **1.4. Conditions for Environmental Compliance**

##### **A. Conditions applicable during construction**

- i. The construction of STP, DG sets, etc., should be made in the earmarked area only. In any case, the location of these utilities should not be changed later on.
- ii. All other statutory clearances such as the approvals for storage of diesel from Chief

Controller of Explosives, Fire and Rescue Services Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wild Life (Protection) Act, 1972, State / Central Ground Water Authority, Coastal Regulatory Zone Authority, other statutory and other authorities as applicable to the project shall be obtained from the concerned competent authorities

- iii. The Contractor shall maintain proper record showing compliance of all the conditions of Environmental Clearance are maintained
- iv. The HML. may alter/modify the above conditions or stipulate any further condition in the interest of environment protection, even during the subsequent period
- v. The Contractor shall also obtain other statutory and administrative clearances from other statutory and administrative authorities as applicable.
- vi. The Contractor shall ensure the Plastic wastes are segregated and disposed as per the provisions of Plastic Waste (Management & Handling) Rules 2016
- vii. The Contractor shall obtain necessary approvals from the institutions/ agencies (like Anna University / IIT Madras etc. ) to ensure structural safety of the buildings and other measures as per National Building Code before commencement of the work.
- viii. The Contractor shall, at its own cost, provide all required sanitary and hygienic measures for the workers before starting construction activities and shall maintain throughout the construction phase.
- ix. The Contractor shall comply and ensure that
  - a. Design of buildings should be in conformity with the Seismic Zone Classifications.
  - b. Construction of the structures are as per the plans approved by the concerned local authorities/local administration.
  - c. The height and coverage of the constructions shall be in accordance with the existing FSI/FAR norms as per Coastal Regulation Zone Notification, 2011.
  - d. There shall not be any threat to the biodiversity due to the proposed development
  - e. During the construction and operation phase, there should be no disturbance to the aquatic eco-system within and outside the area
  - f. No part of hillock areas (100 acres) should be disturbed except for Eco restoration and biodiversity conservation.
- x. The Contractor shall, at its own cost, provide First Aid Room during the entire construction of the project
- xi. The Contractor, at its own cost, prepare and submit completion plans showing Separate pipelines marked with different colors with the following details
  - a. Location of STP, compost system, underground sewer line
  - b. Pipeline conveying the treated effluent for green belt development

- c. Pipeline conveying the treated effluent for toilet flushing
- d. Water supply pipeline
- e. Telephone cable
- f. Power cable
- g. Storm water drains, and
- h. Rainwater harvesting system

**1. Labour Welfare:**

- i. All the labourers to be engaged for construction should be screened for health and adequately treated before and during their employment on the work at the project site.
- ii. Personnel working in industry areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects. Occupational health surveillance program of the workers should be undertaken periodically to observe any contradictions due to exposure to dust and take corrective measures, if needed-.
- iii. Periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly. The workers shall be provided with personnel protective measures such as masks, gloves, boots etc.

**2. Water Supply:**

- i. Provision shall be made for the housing labour within the site with all necessary infrastructures and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- ii. Adequate drinking water and sanitary facilities should be provided for construction workers at the site. The treatment and disposal of wastewater shall be through dispersion trench after treatment through septic tank. The MSW generated shall be disposed through Local Body and the identified dumpsite only.
- iii. Water demand during construction should be reduced by use of pre- mixed concrete, curing agents and other best practices prevalent.
- iv. Fixtures for showers, toilet flushing and drinking water should be of low flow type by adopting the use of aerators / pressure controlling devices / sensor-based control.

**3. Solid Waste Management:**

- i. The solid waste in the form of excavated earth excluding the topsoil generated from the project activity shall be scientifically utilized for construction of approach roads and peripheral roads, as reported.

**4. Topsoil Management:**

- i. All the topsoil excavated during construction activities should be stored for use in horticulture /landscape development within the project site.

**5. Construction Debris disposal:**

- i. Disposal of construction debris during construction phase should not create any adverse effect on the neighboring communities and be disposed off only in approved sites, with the approval of Competent Authority with necessary precautions for general safety and health aspects of the people. The construction and demolition waste shall be managed as per Construction & Demolition Waste Management Rules, 2016 notified by the Ministry of Environment, Forest and Climate Change (MoEF&CC), GoI.
- ii. Construction spoils, including bituminous materials and other hazardous materials, must not be allowed to contaminate watercourses. The dump sites for such materials must be secured so that they should not leach into the adjacent land/ lake/ stream/water body etc.
- iii. Demolition waste shall be utilized only for site levelling and filling the driveways.

**6. Diesel Generator sets:**

- i. Low Sulphur Diesel shall be used for operating diesel generator sets used during construction phase. The air and noise emission shall conform to the standards prescribed in the Rules under the Environment (Protection) Act, 1986, and the Rules framed thereon.
- ii. The diesel required for operating stand by DG sets shall be stored in underground tanks fulfilling the safety norms and if required, clearance from the respective office of the Chief Controller of Explosives, Petroleum and Explosives Safety Organisation (PESO) functioning under the Department for Promotion of Industry and Internal Trade in the Ministry of Commerce & Industries, GoI shall be taken.
- iii. The acoustic enclosures shall be installed at all noise generating equipment such as DG sets, air conditioning systems, cooling water tower etc.



**7. Air & Noise Pollution Control:**

- i. Vehicles hired for bringing construction materials to the site should be in good condition and should conform to air and noise emission standards, prescribed by TNPCB/CPCB. The vehicles should be operated only during non-peak hours.
- ii. Ambient air and noise levels should conform to residential standards prescribed by the TNPCB, both during day and night. Incremental pollution loads on the ambient air and noise quality should be closely monitored during the construction phase. The pollution abatement measures shall be strictly implemented.
- iii. Traffic congestion near the entry and exit points from the roads adjoining the project site shall be avoided. Parking shall be fully internalized, and no public space should be utilized. Parking plan to be as per the norms.

**8. Building material:**

- i. Fly-ash blocks should be used as building material in the construction as per the provision of Fly ash Notification of September 1999 and amended as on 27th August 2003 and Notification No. S.O. 2807 (E) dated: 03.11.2009.
- ii. Ready-mix concrete shall alone be used in building construction and necessary cube-tests should be conducted to ascertain their quality.
- iii. Construction and Operation (O&M for WTP and STP) in no way should impact natural resources.

**9. Fire Safety:**

- i. Adequate fire protection equipment and rescue arrangements should be made as per the prescribed standards.
- ii. Proper and free approach road for fire-fighting vehicles for rescue operations in the event of emergency shall be made.

**B. Control Measures****1. Air**

The Medipark shall be established with the below mentioned emission / noise sources along with the control measures and / or stack. The Contractor shall, in accordance, engage in construction of Works.

- 1. The Contractor shall provide adequate water sprinklers for the control of dust

emission during the loading and unloading of construction material so as to minimize the dust emission.

2. The Contractor shall provide water sprinklers along the temporary roads inside the premises to avoid fugitive dust emission during the vehicle movements.

**APPENDIX- II: DESIGN AND SPECIFICATIONS**

Details of all the Designs and Specifications, along with details on intent drawings, components, standards to be followed, approved makes, testing of materials etc. are provided in Volume IV of this RFP under Schedules listed below:

Reference in Volume IV	Particulars
<b>Schedule 1.</b>	Master Plan
<b>Schedule 2.</b>	Site Development, Roads Network, and Storm Water Drainage
<b>Schedule 3.</b>	Electrical Distribution System
<b>Schedule 4.</b>	Water Supply System with Water Treatment Plant
<b>Schedule 5.</b>	Wastewater System with Sewerage Treatment Plant
<b>Schedule 6.</b>	Administrative Block
<b>Schedule 7.</b>	Miscellaneous Civil Works (Arch Gates, Security Rooms etc.)
<b>Schedule 8.</b>	Copies of all Drawings

**APPENDIX-III: PAYMENT SCHEDULE**

<b>Milestone</b>	<b>Components</b>	<b>Period from Effective Date (T)</b>	<b>% (Activities) of Contracted Amount<sup>#</sup></b>
<b>1</b>	<b>Design and Drawings*</b>	<b>T+1 month</b>	<b>2%</b>
1.a	On completion and approval of contractor survey and soil investigation		0.20%
1.b	On approval of site grading, road network and storm water drainage along with design and drawings		0.50%
1.c	On approval of design of water supply distribution network including WTP, GLSR and ELSR		0.30%
1.d	On approval of structural design and drawings vetted by Anna University/ IIT Madras		0.10%
1.e	On approval of design of sewerage network along with other appurtenances		0.20%
1.f	On approval of STP design and drawing from Anna University/ IIT Madras		0.20%
1.g	On approval of design and drawing of electrical distribution system from TNEB		0.25%
1.h	On approval of structural design/ drawings for Administrative block, Entrance gate from Anna University/ IIT Madras		0.15%
1.i	On approval of other all balance design and drawings		0.10%
<b>2</b>	<b>Road Network</b>	<b>T+ 6 months</b>	<b>15%</b>
2.a	Site Clearance and grading		1%
2.b	Completion of GSB Works		6%
2.c	Completion of Bituminous Concrete and Pavement Works		6%
2.d	Roads Furniture (painting etc.)		2%
<b>3</b>	<b>Storm Water Drainage Network</b>		<b>23%</b>
3.a	25% completion of Storm water drain		4%
3.b	50% completion of Storm water drain		4%
3.c	75% completion of Storm water drain		5%
3.d	95% completion of Storm water drain		5%
3.e	100% completion of storm water drain and handing over		5%
<b>4</b>	<b>Electrical Distribution Network</b>	<b>T + 9 months</b>	<b>18%</b>
4.a	HT, 11Kv, Electrical Works - Supply & Installation		6%
4.b	LT 1.1Kv, Electrical Works - Supply & Installation		4%
4.c	External LED Light Fixtures and Street Light Poles		4%
4.d	DG Works & Civil Works		4%
<b>5</b>	<b>Water Supply System</b>	<b>T+ 9 month</b>	<b>16%</b>

5.a	Laying of distribution mains and pipes		3%
5.b	WTP - Supply, Construction & Installations		3.5%
5.c	OHT, Sump - Supply, Construction & Installations		7.5%
5.d	Testing and Commissioning of all Water Supply Related Works		2%
6	Wastewater Network including Sewerage Treatment Plant	T + 10 month	8%
6.a	Laying of Pipes and construction of manholes		3%
6.b	Testing and Commissioning of Wastewater Network		2%
6.c	Construction of STP (200 KLD)		2%
6.d	Testing and Commissioning of STP of 200 KLD		1%
7	Administrative Block	T + 11 month	12%
7.a	Completion of RCC works at foundation and upto plinth		1.5%
7.b	Completion of RCC work – ground floor including elements of 1 <sup>st</sup> floor		1.5%
7.c	Completion of brick work and internal plastering		1.5%
7.d	Completion of flooring works and fixing of doors and windows		1.5%
7.e	Completion of all interior works including supply and installation of cabins, furniture (chairs, sofas), cubicles, electrical and plumbing		2%
7.f	Completion of external finishing including terrace, elevation elements, compound wall for administrative block, water proofing etc.		1%
7.g	Completion of all electrical work in ground floor		1%
7.h	Completion of HVAC units supply and installation works		1%
7.i	Completion of water supply network		0.5%
7.j	Construction of all external development works & landscaping works		0.5%
8	Miscellaneous (Civil structures)	T + 11 month	2%
8.a	1 Entrance Arch with security room		2%
8.b	1 Security Room		
9	Finishing for all Works to the Satisfaction of Authority (Including Submission of As-built Drawings) and Handover to Authority  [to be provided on Pro-rata basis for each component]	T + 12 month	4%

\* This amount shall be paid after approval of designs and drawings by concerned authorities such as Anna University/IIT Madras and other authorities for specific components as indicated in the RFP

#Includes Completion to be jointly certified by all project stakeholders (HML) and certification issued by the Authority's Engineer

**Note:**

*Retention Money*

*\*A retention amount equivalent to 5% of the running bill value shall be made from the RA bills from all bills submitted. The Retention money shall be released as per the Clause 6.7.3 of the RFP*

- a. The payment shall be released in proportion to the Work executed on pro-rate basis and certified by Authority's Engineer
- b. The Contractor shall perform all the above listed works (including sub-works) as per the terms of Volume I, Volume II, Volume III and as detailed in Volume IV of this RFP
- c. A detailed schedule of works shall be submitted by the contractor within seven (7) days from the **Effective Date** for approval of the Authority
- d. For each work, the Contractor shall submit Quality Reports, Work Measurement Reports including necessary compliance adhered etc. along with the invoices for further verification by the Authority

**APPENDIX-IV: KEY PERSONNEL AND QUALIFICATION**

SN	Designation	No. of Manpower	Minimum Qualification	Minimum Experience
1	Project Head	1	Graduate Engineer (Civil)	20 Years and having experience of one similar nature of work
2	Road/ Highways Engineer	1	Graduate Engineer (Civil)	15 Years and having experience of one similar nature of work
3	Electrical Engineer	1	Graduate Engineer (Electrical)	10 Years
4	Water supply/ sewerage (including WTP & STP) Engineer	1	Graduate Engineer (Civil)	10 Years
5	Project/ Site Engineers	4	Graduate Engineer or Diploma Engineer	7 Years or 12 Years
6	Quantity Surveyor	1	Graduate Engineer	10 Years
7	Senior Architect	1	Graduate Engineer (ARCH) & Associate membership in council of Architect	15 Years and having experience of one similar nature of work
8	Structural Engineer	1	Post graduate Engineer (Civil structural design)	10 Years
9	Mechanical/HVAC Engineer	1	Graduate Engineer (Mechanical)	10 Years
10	Safety Engineer	1	Graduate Engineer	8 Years
11	Project Planning Engineer	1	Graduate Engineer	8 Years

**Note:** Key Personnel mentioned from SN 1-6 shall be deployed full time on site whereas Key Personnel mentioned from SN 7-11 shall be available for meeting, as and when required, as per project requirement.