Ministry of Housing & Urban Affairs (MoH&UA)

Light House Project (LHP) in Agartala
Under
Global Housing Technology Challenge-India (GHTC-India)

1.0 General

The construction of Light House Project (LHP) in Agartala under the Govt of Tripura has been proposed by MoHUA, vide letter of, No. N-11019/6/2019-HFA-V-UD/FTS-9059052 dt. 15/05/2019, to which the UDD has requested to provide certain documents/information to facilitate production of DPR for the project. The salient highlights of the same are delineated below.

2.0 Project Location/Site

Location of the project area is shown in **Annexure-1**. Current land uses of the proposed LHP site area: (a) Open Land., (b) A school building which is non-functional (c) an existing settlement, called "Harijan Basti" comprising of about 100 households, (d) two existing ponds.

Approximate area available for development of LHP is 26,802.35 sq. with following broad breakup:

Land Uses	Available Area (Sq.m)
Open Land + School Area	6335.49
Harijan Basti Land	11339.15
Land to be reclaimed by part filling up of ponds	9127.71
Total Area	**26802.35**

3.0 Total Station Survey (TSS) Drawings

Topographic survey of the project location is attached as **Annexure-2**

Proposed site for Light House Project is shown as **Annexure-3**

4.0 Soil Investigation and Hydrology Report

Borehole investigation was carried out at a site adjacent to the LHP site. Detailed report is attached as **Annexure-4**.

Available borehole information indicates soil condition is very poor up to a depth of 13.30 m from the ground level, beyond that depth and up to 22.90 m depth, soil condition is medium to poor and firm soil strata is observed beyond 22.90 m depth. It is expected that general soil condition of the LHP site will be similar to this. Due to this type of soil condition, it is expected that pile foundation will be resorted to. Further geotechnical investigations at the LHP site will be undertaken shortly.

5.0 Geo Climatic Information

Earthquake Zone	:	Zone V, as per IS:1893 Part -I
Wind Speed/ Cyclone	:	50 m/s, as per IS: 875 Part-III
Whether Flood Prone	:	Yes
Any other Hazard or Specifications, in case any protective measures required, Details may be specified	:	Existing 132 kV HT Electrical transmission line is passing through eastern side of the proposed site. All proposed development of LHP will be after maintaining a horizontal clearance of minimum 15 m from the alignment of the existing transmission lime

6.0 Specifications

Broad Specifications for all major items in the building	:	Civil Arch Electrical Plumbing Mechanical	Refer **Annexure-5**
Detail specifications for external services in the area to be developed	:	Water Supply Sewerage Drainage Power Supply	To be Prepared
	:	Road Fire Fighting- Yard Hydrant	Refer **Annexure-5**

7.0 Architectural Drawing

Masterplan	:	Refer **Annexure-6**
Dwelling Unit	:	

8.0 Service Drawings

Electric Substation	:	To be prepared
Mechanical	:	
Fire Fighting	:	
Electrical	:	
Plumbing	:	
Others, if any	:	

9.0 External Development drawings, Designs, Specifications and Cost

Water Supply	:	Gross demand for potable water supply is estimated at 0.75 mld. This demand will be met throug municipal water source. An water treatment plant (WTP) is under construction at a site adjacent to LHP site. Treated water from this WTP will be supplied to the EWS housing complex.

		Water will be received at a central underground tank having provision of captive water storage for firefighting storage also. From this central underground tank, water will be distributed through a piping network system to individual blocks. Each block will have two ground level reservoirs from which water will be pumped to overhead reservoir of the building. For Firefighting, external hydrants will be provided which will be connected to a captive water sump and pump house for fire fighting.
Storm Water Drainage System	:	A storm water drainage (SWD) network will be provided for entire complex for intercepting surface runoff generated in the housing complex. At present, two outfalls are planned to finally discharge the stormwater runoff. Estimated Runoff form the housing complex is 1.1 m^3/s for an rainfall intensity of 158 mm/hr for 20 minutes, corresponding to 5 years return period rainfall.
Sewerage System		A sewerage network connecting all building blocks of LHP will be developed. Estimated capacity of the sewerage system will be about 0.68 mld. A Sewage Treatment Plant (STP) of capacity 8 mild, is already proposed at an adjacent site located north of the LHP site. The STP will receive raw sewage from a pumping station located to the south of the LHP site, close to Akhaura Channel. The sewerage network of the LHP site will be connected to this proposed sewage pumping station.
Rain Water Harvesting	:	Ground water table is high at the proposed site. Several ponds surrounding the site are already serving as rainwater harvesting facility. These ponds are currently receiving runoff from the proposed site of LHP. The storm runoff that will be generated from the site after development of the EWS, will be diverted to these ponds and the Akhura channel.
External Electrification	:	External electrical lighting along pathways, common areas/amenities areas, etc will be provided
Electrical Services	:	Electrical power demand for the proposed development will be about 2300 kW. The power will be sourced from nearby Ramnagar Substation of capacity 33/11kV. Power will be received at site through a 5 mVA transformer and will be distributed through two feeders of 11 kV each. For Emergency/Back up power requirement, DG of capacity 100 kVA, 5 no's, will be provided.
Solid Waste Management	:	Gross generation of solid waste from 1000 households will be in the order of 1.6 Tons per day (considering 400 grams waste generation per person per day and average household size of 4). Out of the total waste,

		wet waste will be approximately 1.0 TPD and dry waste will be 0.6 TPD. Waste will be at source segregated through dry and waste bins at household level. Door to door collection from households will be done every day. At each building there will be a space at the ground level for storing collected waste. Dry waste will be recycled/to be taken away by recyclers/municipality and the organic/ wet waste will be converted to compost using organic waste converter (OWC) proposed within the housing complex. The compost so generated will be used within the green space of the complex. A space of 5m x 5m is provided for accommodating the waste converter, as well as the wheeled bins for transportation. Adequate provision for waste bins will also be provided along internal pathways at select locations, at common amenities areas etc. Any hazardous waste, e waste if generated will be stored separately and will be disposed as per statutory rules and guidelines.
Solar Light	:	Estimated generation potential of roof top solar electricity is about 630 kWp, considering availability of 6300 sq.m shadow free roof top area. This energy can be used for street lighting and other common services. Approximate cost of installation is about Rs.4.0 Cr. However, this cost is not considered in the present estimate.

10.0 **Area Statement**

Area Statement	:	Refer **Annexure-7A**
Tripura Building bye-laws	:	Refer **Annexure-7B**
Guidelines for Space for Disabled and Elderly Persons	:	Refer **Annexure-7C**

11.0 **Broad Cost Estimates**

Block Cost Estimates	:	Refer **Annexure-8**

12.0 **Additional Detail**

Provide special conditions and technical specifications, if any	:	-
	:	
Any other site-specific requirement for smooth implementation of project		(a) <u>Rehabilitation of Harijan Basti</u> Implementation of the project will call for rehabilitation and re-settlement of the people in

		the Harijan Basti. Approximately 100 households (approx. 500 people) are to be rehabilitated for which 100 dwelling units will be required. In view of this, the proposed development will be implemented in two phases. In the first phase, 1.5 building blocks (100 dwelling units) will be constructed and commissioned to accommodate the people from Harijan Basti. These 1.5 building blocks are located on open land where the construction work can commence immediately. Post construction of Phase-1, construction of the rest of the building blocks will be taken up. (b) <u>Flooding & Site Grading</u> Waterlogging during rainy season is observed in this area. The area partly gets drained through Akhaura channel on the south and partly through the ponds on eastern sides. While the High Flood level of Akhaura channel is 8.10 m and that of the ponds are about 8.0 m. General ground level of the existing EWS site at present is in the order of 7.35 m. Average finished ground level of the proposed development will be at 8.5 m elevation. Average depth of site filling will be about 1.15 m. Plinth level of the building blocks will be 450 mm above the average finished ground level.