Delta-2 at Plot No. -2, Sector- 8, Ulwe, Navi Mumbai, District: Raigad, Maharashtra By M/s. Midtown Holding Leasing and Properties Pvt. Ltd.

September 6th , 2016

Building elevation image

Delta-2 at Ulwe, Mumbai,
By **M/s. Midtown Holding Leasing and Properties Pvt. Ltd.**
Category B2Project

Form-1 & 1A

Submitted to

State Level Expert Appraisal Committee (SEAC-II), Maharashtra

Sr.No.16, 50th Meeting, 6th September, 2016

Environmental Consultant

Building Environment (India) Pvt. Ltd
Office No. 603 Sai Sangam, Plot No. 85
Sector- 15, C.B.D. Belapur – 400 614
Telefax: 022 4123 7073/2757 8554
Web: www.beipl.co.in

Submitted by

Midtown Holding Leasing and Properties Pvt. Ltd.

3, Orintal Building, 1st Floor, 65, M.G. Road, Fort Mumbai- 400023.

1	Name of the Project	The Residential and commercial development "Delta-2" at Plot No. -2, Sector- 8, Ulwe, Navi Mumbai, District: Raigad, Maharashtra.
2	S. No. in the Schedule	The project falls under category B2 of project activity number 8(a) as per MOEF EIA notification dated 14th September, 2006.
3	Proposed capacity/area /length/tonnage to be handled/command area/lease area/ number of wells to be drilled	The subject project will be developed in the, • **Total Plot area:** 9599.48 Sq.m. • **Deduction:**Nil • **Net plot area:** 9599.48 Sq.m.
4	New/Expansion/Modernization	This is a revised plans project.
5	Existing Capacity/Area etc.	Open Land
6	Category of Project i.e. 'A' or 'B'	'B'
7	Does it attract the general condition? If Yes, Please specify	No
8	Does it attract the specific condition? It yes, Please specify	No
9	Location	The project site is located at Plot No. 2, Sector 8, Ulwe, Navi Mumbai. • **Latitude: 18°58'14.8"N** • **Longitude: 73°00'48.4"E** Location map is provided in **Annexure I.**
	Plot/Survey/ Khasra No.	Plot No-2, Sector 8, Ulwe
	Village	--
	Taluka	Panvel
	District	Raigad
	State	Maharashtra
10	Nearest railway station/airport along with distance in kms.	Baman Dongri Railway Station is the nearest railway station from the site at a distance of approx. 2.9 kms. Chhatrapati Shivaji International airport is situated at a distance of approx. 38.0 Kms & Proposed Navi Mumbai Airport is approx. 6.90 kms from the project site
11	Nearest Town, City, District Headquarters along with distance in kms.	The nearest town from the project site is Ulwe.
12	Village Panchayats, Zilla Parishad, Municipal Corporation, Local body (complete postal addresses with telephone nos. to be given)	The project site comes under NMCC.
13	Name of the applicant	**M/s. Midtown Holding Leasing and Properties Pvt. Ltd.**
14	Registered Address	**M/s. Midtown Holding Leasing and Properties Pvt. Ltd.** 3, Orintal Building, 1st Floor, 65, M.G. Road,

		Fort Mumbai- 400023
15	Address for correspondence:	**M/s. Midtown Holding Leasing and Properties Pvt. Ltd.** 3, Orintal Building, 1st Floor, 65, M.G. Road, Fort Mumbai- 400023
	Name	Mr. Nitin Gajparia
	Designation(Owner/Partner/CEO)	Director
	Address	**M/s. Midtown Holding Leasing and Properties Pvt. Ltd.** 3, Orintal Building, 1st Floor, 65, M.G. Road, Fort Mumbai.
	Pin Code	400023
	E-mail	srinivasan@kesariprojects.com
	Telephone No.	022 27813317
	Fax No.	---
16	Details of Alternative Sites examined, If any. Location of these sites should be shown on a top of sheet	No
17	Interlinked Projects	Not Applicable
18	Whether separate application of interlinked project has been submitted?	Not Applicable
19	If yes, date of submission	Not Applicable
20	If no, reason	Not Applicable
21	Whether the proposal involves approval/clearance under: if yes, details of the same and their status to be given. (a) The Forest (Conservation) Act, 1980? (b) The Wildlife (Protection) Act, 1972? (c) The C.R.Z. Notification, 1991?	No
22	Whether there is any Government Order/Policy relevant/relating to the site?	NA
23	Forest land involved (hectares)	No
24	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up? (a) Name of the Court (b) Case No. (c) Orders/directions of the	No

	Court, if any and its Relevance with the proposed project.	

(II) Activity

1. Construction, operation or decommissioning of the Project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
1.1	Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)	Yes	As the project involves development of residential buildings, it will not change the existing land use pattern of the site.
1.2	Clearance of existing land, vegetation and building?	No	There are some existing structures on the site which are going to be retained. No clearance of vegetation involved as there are no existing trees on site The excavated top soil will be used for plantation.
1.3	Creation of new land uses:	No	No creation of new land uses due to the project is envisaged. The existing land use of the site was residential & remains same. Thus the existing land use of the site is not changed.
1.4	Pre-construction investigations e.g. bore houses, soil testing?	Yes	Soil and Water Testing has been carried out.
1.5	Construction Works?	Yes	The project involves construction activity. Building configuration are as follows: Residential (1 Bldg) + 5 wings + 2 Podium + 12 upper Floors Commercial: Ground floor - 33 shops
1.6	Demolition Works?	No	--
1.7	Temporary sites used for construction works or housing of construction workers?	Yes	Temporary labour sheds and adequate sanitation facilities will be provided to the construction laborers at the site during the construction work.
1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations.	Yes	The project involves construction activity. Building configuration are as follows: Residential (1 Bldg) + 5 wings + 2 Podium + 12 upper Floors Commercial: Ground floor - 33 shops

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
1.9	Underground works including mining or tunneling?	Yes	Building footling construction
1.10	Reclamation works?	No	Not Applicable
1.11	Dredging?	No	Not Applicable
1.12	Offshore structures?	No	Not Applicable
1.13	Production and manufacturing Process?	No	Not Applicable
1.14	Facilities for storage of goods or materials?	Yes	Temporary sheds will be constructed for the storage of construction materials during construction phase as per the material requirement.
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	Yes	**Construction Phase** During the construction phase, soak pits and septic tanks will be provided for disposal of waste water. Temporary sanitary toilets will also be provided during peak labor force. **Operation Phase** Solid waste generated from the project will be segregated at source. The total quantities of solid waste that will be generated in the project will be 584.64 Kg/day. Out of which 175.40 Kg/day will be non-biodegradable and 409.24 Kg/day will be biodegradable. Biodegradable waste will be treated in OWC. Non Bio-degradable waste will be handed over to authorized local vendor for recycling. Sludge generated from the project will be 4.00 Kg/day will be used as manure. Total 151.0 KLD of wastewater will be generated from the project site will be treated in Sewage Treatment Plant (STP). After recycling treated sewage will be used for flushing (57 KLD), Landscaping (15.0 KLD), Car Washing (4.0 KLD). Sewage generated from Existing Structures is disposed to existing nearby sewer line.
1.16	Facilities for long term housing of	No	No long-term housing facilities

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
	operational workers?		proposed as most of the skilled/unskilled manpower required for the construction /operational activities hired locally.
1.17	New road, rail or sea traffic during construction of operation?	No	The existing road near the site is been utilized.
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc.?	No	No new Rail/road is required. The entire essential infrastructure is already available.
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No	There will be no diversion or closure of the existing transport routes and infrastructure.
1.20	New or diverted transmission lines or pipelines?	No	Not Envisaged
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	No	Not Envisaged, as infrastructure is already in place.
1.22	Stream crossings?	No	There is no stream passing through the site.
1.23	Abstraction or transfers of water from ground or surface waters?	No	Total water requirement 202.00 KLD will be met through supply from local authority / tanker /recycled water from STP/RWH tank.
1.24	Changes in water bodies or the land surface affecting drainage or run-off	No	--
1.25	Transport of personnel or materials for construction, operation or decommissioning?	Yes	The existing road network which is in good condition near the site is been utilized for the transportation of material and personal.
1.26	Long-term dismantling or decommissioning or restoration works?	No	NA
1.27	Ongoing activity during decommissioning which could have an impact on the environment?	Yes	Noise pollution of short duration due to machineries and marginal air pollution because of dust may occur.
1.28	Influx of people to an area in either temporarily or permanently?	Yes	**Construction Phase** During the construction phase about 50-75 persons were deployed on the site from nearby places. Influx of these people was temporary in nature.

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
			Operation Phase On completion of the project, residents will occupy their property. Total population is expected to be 1309.
1.29	Introduction of alien species?	No	Not envisaged
1.30	Loss of native species or genetic diversity?	No	Not envisaged, as site was already encroached with some structures.
1.31	Any other actions?	No	-

2. Use of Natural resources for construction or operation of project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply).

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
2.1	Land specially undeveloped or agricultural land (ha)	No	--
2.2	Water (expected source & competing users) unit KLD	Yes	**Construction Phase** Total water requirement was 100 KLD. The water demand met by local authority and water tankers. **Operation Phase** Total water requirement of 202.00 KLD will be met through local authority supply/tanker/ recycled water from STP/RWH tank.
2.3	Minerals (MT)	No	Not Applicable

<table>
<tr><td>2.4</td><td>Construction material – stone, aggregates, and/soil (expected source-MT)</td><td>Yes</td><td>The construction materials, which are
<table>
<tr><th>Sr. No.</th><th>Description</th><th>Unit</th><th>Quantity</th></tr>
<tr><td>1</td><td>Cement</td><td>Bags</td><td>25705</td></tr>
<tr><td>2</td><td>Sand</td><td>cu.m</td><td>2147</td></tr>
<tr><td>3</td><td>Aggregates</td><td>cu.m</td><td>3192</td></tr>
<tr><td>4</td><td>Steel</td><td>MT</td><td>315</td></tr>
<tr><td>5</td><td>Formwork</td><td>sq.m</td><td>35138</td></tr>
<tr><td>6</td><td>Concrete</td><td>cu.m</td><td>3572</td></tr>
<tr><td>7</td><td>Fly Ash (RMC) (% of fly ash in RMC 18-20 %)</td><td>MT</td><td>357</td></tr>
<tr><td>8</td><td>Form work (Shuttering material servicable upto 8 times)</td><td>sq.m</td><td>4392</td></tr>
</table>
being used in the project, are bought from authorized local dealers.</td></tr>
<tr><td>2.5</td><td>Forests and timber (source-MT)</td><td>Yes</td><td>Mostly timbers were used for construction of door frames. Timber was purchased from authorized vendors who provide timber for construction work. Around 50 MT of timber would be needed for the project.</td></tr>
<tr><td>2.6</td><td>Energy including electricity and fuels (source, competing users) Unit: fuel (MT), energy (MW)</td><td>Yes</td><td>Electricity Source:
MSEDCL
Power requirement (KW/h) for:
Construction phase – 100 KW</td></tr>
<tr><td>2.7</td><td>Any other natural resources (use appropriate standard units)</td><td>No</td><td>Not envisaged</td></tr>
</table>

3. Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)	Yes	The Hazardous substances used during different phases of project would be paints, solvents, varnishes and waste oil, paints, cleaners, batteries and pesticides and petroleum products, Glass, Plastics, steel are used. The quantities of waste generated will be very low. By considering maintenance once in a year, the waste oil generated will be stored in sealed containers and will finally be sold to authorized recycling agency. Other hazardous waste will be handled as per Hazardous Waste Handling (2003) rules
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)	No	Not envisaged
3.3	Affect the welfare of people e.g. by changing living conditions?	Yes	Positive impact will be created due to enhanced and hygienic living conditions. Aesthetic value of area will be improved. It generated employment opportunities to the local people in terms of skilled and unskilled labor during construction and service personnel during operational phase.
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.,	No	Noise and Air Pollution control measures were implemented so as to cause no harm to nearby residents, during construction phase.
3.5	Any other causes	No	No other causes identified.

4. Production of solid wastes during construction or operation or decommissioning (MT/month)

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
4.1	Spoil, overburden or mine wastes	No	Not Applicable
4.2	Municipal waste (domestic and or commercial wastes)	Yes	**Construction Phase** During the construction phase, soak pits and septic tanks were provided for disposal of waste water. Temporary sanitary toilets were also provided during peak labor force. **Operation Phase** Solid waste generated from the project will be segregated at source. The total quantities of solid waste that will be generated in the project will be 584.64 Kg/day. Out of which 175.40 Kg/day will be non-biodegradable and 409.24 Kg/day will be biodegradable. Biodegradable waste will be treated in OWC. Non Bio-degradable waste will be handed over to authorized local vendor for recycling. Sludge generated from the project will be 4.00 Kg/day will be used as manure. Total 151.00 KLD of wastewater will be generated from the project site will be treated in Sewage Treatment Plant (STP). After recycling treated sewage will be used for flushing (57.00 KLD), & Landscaping (15.00 KLD) and Car Washing (4). Excess treated Sewage generated will be disposed to municipal sewer line.

4.3	Hazardous wastes (as per hazardous waste management rules)	Yes	The hazardous substances used during construction phase would be mainly varnishes, solvents and paints from finishing works and Oil and Diesel from construction machinery. During operation period hazardous waste would be DG Set maintenance oil. The quantity of hazardous waste is considered to be negligible. By considering maintenance once in a year, the waste oil generated would be Negligible. Also the waste oil from DG set will be stored in sealed containers and will finally be sold to authorize recycling agency. Other hazardous waste will be handled as per Hazardous Waste (Management & Handling) Rules.
4.4	Other industrial process wastes	No	Not Applicable
4.5	Surplus product	No	Not Applicable
4.6	Sewage sludge or other sludge from effluent treatment	Yes	Dewatered / dried sludge from STP will be used as manure in horticulture.
4.7	Construction or demolition wastes	Yes	All construction waste were collected and segregated properly. Most of it will reuse, including wood. Balance waste was disposed on approved dumping sites.
4.8	Redundant machinery or equipment	No	Not Applicable
4.9	Contaminated soils or other materials	No	Not Applicable
4.10	Agricultural wastes	No	Not Applicable
4.11	Other solid wastes	No	Not applicable

5. Release of pollutants or any hazardous, toxic or noxious substances to air (kg/hr)

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources	Yes	Emissions form DG set only in case of emergency. The operation of proposed project does not envisage any major source of air pollution.
5.2	Emission from production processes	No	There is no production as the

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
			proposed project comprises of residential buildings.
5.3	Emissions from materials handling including storage or transport	Yes	Fugitive emissions generated, while handling and transportation of materials to site, this will be marginal and temporary in nature.
5.4	Emissions from construction activities including plant and equipment	Yes	During the Operation Phase, DG sets will be operated only as a backup power at project site. Adequate measures will be taken to mitigate any problem due to pollution.
5.5	Dust or odours from handling of materials including construction materials, sewage and waste	Yes	**Construction Phase** Fugitive dust emissions will be generated due to movement of vehicles and material handling, which will be temporary and marginal. **Operation Phase** During Operation Phase, emissions will be generated only from operation of DG sets, on rare occasions, since power is supplied by Local Authority. Minimal emissions will be generated from movement of vehicles as fugitive dust as the roads will be paved roads. Odour can be from STP. However, the STP will be working on appropriate technology, so as to minimize odour problems; it will be strategically located so that no adverse impact is caused.
5.6	Emissions from incineration of waste	No	Not Applicable
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)	No	Not Applicable
5.8	Emissions from any other sources	No	Not Applicable.

6. Generation of Noise and vibration, and emissions of Light and heat

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
6.1	From operation of equipment e.g. engines, ventilation plant, crushers	Yes	Noise generation from construction equipments used for drilling, cutting operations. During Operation Phase, Noise will be generated due to operation of DG sets. This will be about 90-105 dB (A). All DG sets will be per rules and will confirm to noise standards
6.2	From industrial or similar processes	No	Not Applicable
6.3	From construction or demolition	Yes	The construction noise localized, intermittent in nature. This has subsided with the completion of the foundation work. The resultant ambient air noise levels will be within the tolerable levels. The operation will be restricted to day time. Adequate measures taken to keep noise and vibrations under control. No heat or light emission.
6.4	From blasting or piling	No	Not Applicable.
6.5	From construction or operational traffic	Yes	Workers were provided with protective equipment such as earmuffs etc. The noise levels will be < 70 dB (A).
6.6	From lighting or cooling systems	No	Not Applicable
6.7	From any other sources	No	Not Applicable.

7. Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, groundwater, coastal waters or the sea

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
7.1	From handling, storage, use or spillage of hazardous materials	No	Not Applicable.
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)	No	Total water requirement 202 KLD will be met through supply from local authority / recycled eater from STP/RWH tank. Treatment Plant (STP).

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
7.3	By deposition of pollutants emitted to air into the land or into water	No	The DG sets will be provided with stacks of sufficient height to disperse the pollutants effectively so that the flue gas emissions will be strictly within the norms stipulated by CPCB. There will not be any deposition of pollutants emitted to air into the land or into water.
7.4	From any other sources	No	Not Envisaged
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?	No	D.G sets will be used as a backup source only.

8. Risk of accidents during construction or operation of the project, which could affect human health or the environment

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous substances	No	Only 'HSD' from DG set is involved but still Fire Fighting System will be provided.
8.2	From any other causes	No	Not Envisaged
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, could burst etc)?	No	Project site located in Seismic Zone IV as per the Seismic Zoning Map of India. This is a 'High damage Risk Zone' and has the potential to give effects of MSK VIII scale. Heavy rains and high tide coincident dates can give rise to flood like situations in and surrounding the project site. It is not landslide prone area.

9. Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality

Sr. No.	Information/Checklist Confirmation	Yes/No	Details thereof (with approximate quantities/ rates, wherever possible) with source of information data
9.1	Lead to development of supporting, lities, ancillary development or development stimulated by the project which could have impact on the environment e.g.: Supporting infrastructure (roads, power supply, waste or waste water treatment, etc) Housing development Extractive industries Supply industries Other	Yes Yes Yes No No	Supporting and ancillary development will take place. The project provides a well designed residential housing Internal Roads, Rainwater Harvesting, STP etc will be provided The proposed redevelopment residential project.
9.2	Lead to after use of the site, which could have an impact on the environment	No	Not Applicable.
9.3	Set a precedent for later developments	No	Already many such projects are on the way
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	No	Not Applicable.

(iii) Environmental Sensitivity

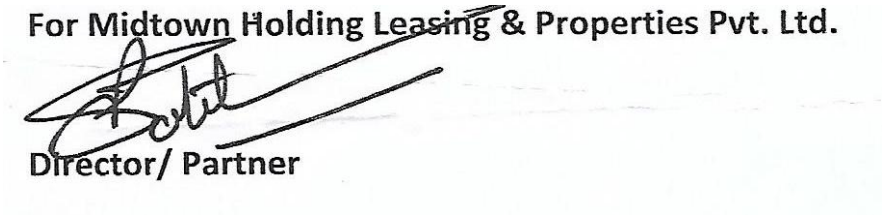
S.No.	Areas	Name/ Identity	Aerial distance (within 15 km.) from Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	NA	
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Panvel Creek	8.4 Km.
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	NA	
4	Inland, coastal, marine or underground waters	NA	
5	State, National boundaries	No	Not Applicable
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	No	Not Applicable
7	Defense installations	No	Not Applicable
8	Densely populated or built-up area	The site is located in the densely populated Mumbai city. The nearest towns from the project site are, • Ulwe	
9	Areas occupied by sensitive man-made land uses *(hospitals, schools, places of worship, community facilities)*	Navi Mumbai Special Economic Zone Zilla Parishad School Hanuman Mandir Chhatrapati Shivaji High School	1.2 Km 550 M 130 M 130 M

10	Areas containing important, high quality or scarce resources *(ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)*	No	Not Applicable
11	Areas already subjected to pollution or environmental damage. *(those where existing legal environmental standards are exceeded)*	No	Not Applicable
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (*earthquakes, subsidence, landslides, erosion, floodingor extreme or adverse climatic conditions*)	Yes	The project site lies in Seismic Zone IV as per the seismic zone map of India and is susceptible to earthquake.

(IV) Proposed Terms of Reference for EIA studies

Not applicable since it is a construction sector project.

"I hereby given undertaking that the data and information given in the application and enclosures are true to the best of my knowledge and belief and I am aware that if any part of the data and information submitted is found to be false or misleading at any stage, the project will be rejected and clearance given, if any to the project will be revoked at our risk and cost."



APPENDIX II
(See paragraph 6)
FORM-1 A
(Only for construction projects listed under item 8 of the Schedule)

CHECK LIST OF ENVIRONMENTAL IMPACTS

[Project proponents are required to provide full information and wherever necessary attach explanatory notes with the Form and submit along with proposed environmental management plan & monitoring programme]

1 LAND ENVIRONMENT [Attach panoramic view of the project site and the vicinity]

Will the existing land use get significantly altered from the project that is not consistent with the surroundings? (Proposed land use must conform to the approved Master Plan / Development Plan of the area. Change of land use if any and the statutory approval from the competent authority to be submitted). Attach Maps of (i) site location, (ii) surrounding features of the proposed site (within 500 meters) and (iii) The site (indicating levels & contours) to appropriate scales. If not available attach only conceptual plans.

Land Use Pattern:

The Residential and Commercial development "Delta-2" at Plot No. -2, Sector- 8, Ulwe, Navi Mumbai, District: Raigad, Maharashtra.

Existing land use of the site is Residential and Commercial purpose. As the project involves development of residential and commercial buildings, it will not change the existing land use pattern of the site.

The surrounding features of the proposed site are as follows:

No.	Amenities	Name	Road Distance (in Km)
1.	Airport	Mumbai Airport	38.0
		Proposed Navi Mumbai Airport	6.90
2.	Nearest Railway Station	Baman Dongri Railway Station	2.90
3.	Highway	Sion Panvel Express Highway	13.9
4.	Post office	Post Office Ulwe, Dapoli	9.4
5.	Fire Station	Nerul Fire Station	9.6 Km.
6.	Police Station	NRI Police Station	8.3 Km.
7.	Hospital	Apollo Hospital	9.1 Km.
		Seawoods Hospital	10.1 Km.
8.	Nearest Metro Railway Station	Kharghar Metro Station	18.1 Km.

Agriculture / Livestock:

There is no agricultural activity in the vicinity of the proposed area.

I. PROJECT DETAILS :

A. Name & Location The Residential and Commercial development at Plot No. -2, Sector- 8, Ulwe, Navi Mumbai, District: Raigad, Maharashtra

B. Proposed Building Details:
Table No.1: Building details

Configuration	Height
Residential (1 Bldg.) + 5 wings + 2 Podium + 12 upper Floors; Commercial : Ground floor - 33 shops	44.60 mtrs

C. Area Statement:
Table No.2: Area Statement

Sr. No.	Description		Total (Area in Sq.mt)
1.	Plot area		9599.48
2.	Deduction		--
3.	Net plot Area		9599.48
4.	Permissible FSI		1.50
5.	FSI Consumed		14,389.050
6.	Non FSI area		23,482.219
7.	Total Built up Area		37,871.269
8.	RG area	On Ground	1188.605
		On Podium	2607.16
9.	Ground Coverage		6529.895
10.	Roof Area		1900 Sq.m.
11.	No. of basement, Basement area		Nil
12.	No. of podium, Podium area		2 Podium (First Floor- 5982.564; Second Floor- 2607.162)
13.	Total no. of units		Residential Building- 242, Shops- 33
14.	Building Configuration		Residential (1 Bldg) + 5 wings + 2 Podium + 12 upper Floors Commercial : Ground Floor - 33 Shops

D. Parking Statement:
Table No.3: Parking Statement

Sr. No.	Description	Total
1.	Parking Required	285

2.	Parking Proposed	292
3.	Two Wheeler Parking	114
4.	Parking Area	9149.555

E. Occupancy load:

Table No.4: Occupancy Load

Facilities Provided	Population Criteria	No of Units	Total
Residential	5 Person /flat	242	1210
Commercial	3 Person/shop	33	99
Total			**1309**

F. Water requirement for the project:

1. During Construction Phase:

- From LOCAL AUTHORITY: 12 KLD.(For workers)
- From Water Tankers: 10 – 20 KLD. (Depending on construction activity)

2. During Operational Phase:

➢ **Water Consumption: (Domestic and flushing requirement)**

Table No.5: Water requirement (Domestic and flushing requirement)

Description	Occupancy	Domestic & flushing Requirement (KLD)	
		Domestic	Flushing
Residential & Commercial	**1309**	**110**	**57**

Reference: National Building Code (NBC) -2005 – Part 9, Page 19, Water Requirement

The amount of water demand is calculated based on the occupancy of the building and the per capita consumption as given in MoEF Manual on norms and standards for EC of large construction projects i.e. Total quantity of water used (LPCD) = Occupancy x Quantity (LPCD)

Then Total quantity of water used for Domestic and Flushing in KLD is calculated.

➢ **Total water requirement for the project and source:**

Table No.6: Total water requirement for the project and source

Sr. No.	Description	Quantity of water required KLD	Source of water supply
1.	**Construction phase**		
a.	For Workers	12	Local Authority
b.	For Construction	10 - 20 (Depending upon the construction activity)	Water Tankers
2.	**Operation phase**		
		Total	**Source of water supply**
a.	Domestic	110.00	Local Authority/RWH
b.	Flushing	57.00	Treated sewage from STP

c.	Landscaping	15.00	Treated sewage from STP
d.	Car Washing	4.00	Treated sewage from STP
e.	Swimming Pool	16.00	Tanker
	Total	**202**	

*Water requirement for gardening purpose is considered as total quantity of water used (LPCD) =Gardening Area (Sq. Mt.) x Quantity (Lit /Sq. Mt.)
Then total quantity of water for gardening in KLD is calculated.

G. Sewage Generation

Table No.7: Sewage Generation

Sr. No	Description	Quantity of Sewage generated(KLD)	Treatment/ Disposal
1.	**Construction phase**	**11**	Septic Tank
2.	**Operation Phase**	**151**	Generated sewage will be treated in STP & treated sewage will be reused in Flushing (57.00 KLD), Landscaping (15.00 KLD) and Car Washing (4.00 KLD). Excess treated sewage will be discharged into existing sewer line

Reference: Manual on norms and standards for EC of large construction projects MoEF

H. Solid Wastes:

During Construction Phase:

Table No.8: Solid Wastes During Construction Phase

No. of workers	Criteria for Solid Waste Generation			Solid Waste Generation Kg /day		
	Total (Kg/Person/day)	Non-bio degradable	Bio degradable	Non-bio degradable	Bio degradable	Total
150	0.25	30%	70%	11	26	37

The solid waste generation due to workers dwelling on the site will be segregated and will be disposed suitably.

During Operation Phase:

Table No.9: Solid Wastes During Operation Phase

Type of Waste	Total Waste Generated (Kg per day)
Biodegradable	
Wet Municipal Waste	393.85
Garden Waste	11.39
STP Sludge	4.00

Total Bio Degradable	**409.24**
Non-biodegradable	**175.40**
Total Waste Generated (Kg per day)	**584.64**

Solid waste generated will be segregated at source. The total quantities of solid waste that will be generated in the project will be 584.64 Kg/day. Out of which 175.40 Kg/day will be non-biodegradable and 409.24 Kg/day will be biodegradable.

Biodegradable waste will be treated in OWC.

Non Bio-degradable waste will be handed over to authorized local vendor for recycling.

Dried sludge from STP will be used as manure within the premises for plants.

D **Power requirement:**

During Construction Phase : Local Authority

D.G. Sets: as per requirement

During Operational Phase :

Source: Local authority

Table No.10: Power Requirement

Phase	Total (KW)
Connected load	1894 KW
D.G	200 KVA

1.3	**What are the likely impacts of the proposed activity on the existing facilities adjacent to the proposed site? (Such as open spaces, community facilities, details of the existing land use, disturbance to the local ecology).**
	The Delta-2 is a residential project. This area will be now converted into well organized complex which will have better living conditions. Also green features such as STP, Rain water harvesting, additional tree plantation, etc shall be practiced. Hence this project will have overall positive impact socio economy.
1.4	**Will there be any significant land disturbance resulting in erosion, subsidence & instability? (Details of soil type, slope analysis, vulnerability to subsidence, seismicity etc. may be given).**
	No, there will not be any significant land disturbance in erosion, subsidence & instability.
1.5	**Will the proposal involve alteration of natural drainage systems? (Give details on a contour map showing the natural drainage near the proposed project site)**
	No, the proposal will not involve alteration of natural drainage systems.
1.6	**What are the quantities of earthwork involved in the construction activity-cutting, filling, reclamation etc. (Give details of the quantities of earthwork involved, transport of fill materials from outside the site etc)**
	Debris, demolition waste and excavated material generated partly disposed. Excess soil shall be disposed to authorized site with permission from local authority.
1.7	**Give details regarding water supply, waste handling etc during the construction period.**
	Water Requirement during Construction Phase: From water tankers (For Construction): 10- 20 KLD. (Depending upon the construction activity). From local authority. (For Workers): 12 KLD. The sewage generated approximately 11 KLD.
1.8	**Will the low lying areas & wetlands get altered? (Provide details of how low lying and wetlands are getting modified from the proposed activity)**
	No.
1.9	**Whether construction debris & waste during construction cause health hazard? (Give quantities of**

various types of wastes generated during construction including the construction labour and the means of disposal)

Solid Waste Generation during Construction Phase:

Debris, demolition waste and excavated material generated partly disposed. Excess soil shall be disposed to authorized site with permission from local authority

Biodegradable garbage = 26kg/day

Non-biodegradable garbage =11 kg/day

Total = 37 kg/day

This waste shall be segregated and handed over to local authority.

2 WATER ENVIRONMENT

2.1 **Give the total quantity of water requirement for the proposed project with the breakup of requirements for various uses. How will the water requirement be met? State the sources & quantities and furnish a water balance statement.**

Water Requirement & Source:

<u>During Construction Phase –</u>

For Workers : M.C.G.M : 12 KLD

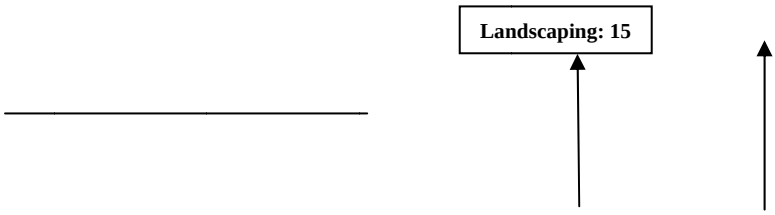
For Construction : From Water Tankers : 10 – 20 KLD

<u>During Operational Phase</u>

Table No.11: Total Water Requirement & Source

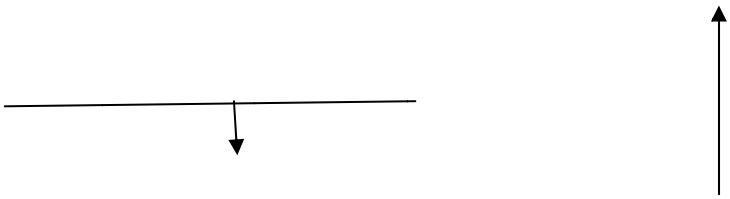
Sr. No.	Description	Quantity of water required KLD	Source of water supply
1.	**Construction phase**		
a.	For Workers	12	Local Authority
b.	For Construction	10 – 20 (Depending upon the construction activity)	Water Tankers
2.	**Operation phase**		
		Total	**Source of water supply**
a.	Domestic	110.00	Local Authority/RWH
b.	Flushing	57.00	Treated sewage from STP
c.	Landscaping	15.00	Treated sewage from STP
d.	Car washing	4.00	Treated sewage from STP
e.	Swimming pool	16.00	Tanker
	Total	**202**	

<u>WATER BALANCE PER DAY BASIS – NON MONSOON SEASON</u>



* Please Note:
We have considered 10 % less availability of sewage for recycling considering losses of sewage in evaporation and sludge formation.
Total water requirement = 202.00
Treated sewage available for recycling= 136
[Treated sewage only from proposed STP]
After recycling treated sewage will be used for flushing (57.00), Landscaping (15) & Car Washing (4)
Net water requirement: 202.00 [Source: From local authority (CIDCO) = 110 (domestic) & From STP = 76] **Reduction in Net water Demand = 37.62%**

WATER BALANCE PER DAY BASIS –MONSOON SEASON



* Please Note:
We have considered 10 % less availability of sewage for recycling considering losses of sewage in evaporation and sludge formation.
Total water requirement = 187.00
Treated sewage available for recycling= 136
[Treated sewage only from proposed STP]

	After recycling treated sewage will be used for flushing (57) & Car Washing (4). **Net water requirement : 187 [Source: From local authority (CIDCO) = 58.7 (domestic) & From RWH (51.3)] RWH= 51.3 for Domestic Use** **Reduction in Net water Demand = 60%**
2.2	**What is the capacity (dependable flow or yield) of the proposed source of Water?**
	Domestic Water Supply from local authority
2.3	**What is the quality of water required, in case, the supply is not from a municipal source? (Provide physical, chemical, biological characteristics with class of water quality)**
	Drinking water quality of Class A as per Indian Standard: 10500, 2004 from local authority
2.4	**How much of the water requirement can be met from the recycling of treated wastewater? (Give the details of quantities, sources and usage)**
	After recycling treated sewage will be used for flushing (57 KLD), Landscaping (15.00 KLD) & Car washing (4 KLD). Excess treated sewage will be disposed to municipal sewer line. The dried sludge will be used as manure.
2.5	**Will there be diversion of water from other users? (Please assess the impacts of the project on other existing uses and quantities of consumption)**
	Local Authority has common water supply.
2.6	**What is the incremental pollution load from wastewater generated from the proposed activity? (Give details of the quantities and composition of wastewater generated from the proposed activity)**

After recycling treated sewage will be used for flushing (57.00 KLD), Landscaping (15.00 KLD) and Car Washing (4.0).

Excess treated sewage will be disposed to municipal sewer line. The dried sludge will be used as manure

UNTREATED AND TREATED SEWAGE QUALITY:

Table No.12: Untreated & Treated Sewage Quality

Sr. No	Parameters	Units	Inlet	Outlet
1.	pH	-	6-8	6.5 to 8.5
2.	BOD	mg/L	350 mg/l. - 400 mg/l.	Less than 10 mg/l.
3.	COD	mg/L	500 mg/l. - 600 mg/l.	Less than 30 mg/l.
4.	TSS	mg/L	300 mg/l. - 350 mg/l.	Less than 20 mg/l.
5.	Oil & Grease	mg/L	20-25 mg/l.	Less than 10 mg/l.
6.	Total Nitrogen	mg/L as N	40-50 mg/l.	Less than 10 mg/l.
7.	Ammoniacal Nitrogen	mg/L	6-8 mg/l.	Less than 1 mg/l.
8.	Phosphate	mg/L	5-7 mg/l.	Less than 2 mg/l.
9.	Faecal Coliform	MPN/100ml	10^6/100	N.D.

2.7	**Give details of the water requirements met from water harvesting? Furnish details of the facilities created.**
	It is proposed to provide open collecting well. This being residential project proponents shall be responsible for the operation and maintenance till he does the convergence of property to the members. All further maintenance will be done by the Society.
2.8	**What would be the impact of the land use changes occurring due to the proposed project on the runoff characteristics (quantitative as well as qualitative) of the area in the post construction phase on a long term basis? Would it aggravate the problems of flooding or water logging in any way?**
	Management plan for Flood is as follows : • Storm water drain shall be cleaned at regular interval. • Mapping the areas within or leading in or out of the building that will be water logged, flooded or isolated due to the flood. The areas will be marked after completion of the project (as final ground levels etc. will be available after completion).
2.9	**What are the impacts of the proposal on the ground water? (Will there be tapping of ground water; give the details of ground water table, recharging capacity, and approvals obtained from competent authority, if any)**
	It is proposed to provide open collecting well. This being residential project proponents shall be responsible for the operation and maintenance till he does the convergence of property to the members. All further maintenance will be done by the Society.
2.10	**What precautions/measures are taken to prevent the run-off from construction activities polluting land & aquifers? (Give details of quantities and the measures taken to avoid the adverse impacts).**
	The runoff from the site during construction phase would be very negligible. This will be prevented as under : Use of wet jute cloth covering the walls and soaking the same with minimum quantity of water to avoid dripping. This will also help in conserving water. By collecting the running water in an impervious pit and using the same again for curing purpose.
2.11	**How is the storm water from within the site managed?(State the provisions made to avoid flooding of the area, details of the drainage facilities provided along with a site layout indication contour levels)**.
	Internal storm water drains will be constructed strictly in accordance to the governing authority regulations. The storm water collected through the storm water drains.
2.12	**Will the deployment of construction laborers particularly in the peak period lead to unsanitary conditions around the project site (Justify with proper explanation)**
	• During construction phase, temporary mobile toilets shall be used. Hence there will not be unsanitary conditions around the project site. • Regular segregation and disposal of solid waste generated by these workers shall be as per local practices. • First aid and medical facilities will be provided to all the concerned people working on the site. • Proper housekeeping will be maintained throughout the premises.
2.13	**What on-site facilities are provided for the collection, treatment & safe disposal of sewage? (Give details of the quantities of wastewater generation, treatment capacities with technology & facilities for recycling and disposal).**
	After recycling treated sewage will be used for flushing (57 KLD), Landscaping (15.00 KLD) & Car washing (4 KLD). Excess treated sewage will be disposed to municipal sewer line. The dried sludge will be used as manure **Table No.13: Untreated & Treated Sewage Quality**

Sr. No	Parameters	Units	Inlet	Outlet
1.	pH	-	6-8	6.5 to 8.5
2.	BOD	mg/L	350 mg/l. - 400 mg/l.	Less than 10 mg/l.
3.	COD	mg/L	500 mg/l. - 600 mg/l.	Less than 30 mg/l.
4.	TSS	mg/L	300 mg/l. - 350 mg/l.	Less than 20 mg/l.
5.	Oil & Grease	mg/L	20-25 mg/l.	Less than 10 mg/l.
6.	Total Nitrogen	mg/L as N	40-50 mg/l.	Less than 10 mg/l.
7.	Ammoniacal Nitrogen	mg/L	6-8 mg/l.	Less than 1 mg/l.
8.	Phosphate	mg/L	5-7 mg/l.	Less than 2 mg/l.
9.	Faecal Coliform	MPN/100ml	10^6/100	N.D.

2.14	**Give details of dual plumbing system if treated waste used is used for flushing of toilets or any other use.**
	Recycling of treated sewage for flushing, gardening and car washing. Color coding for dual plumbing system shall be done as per standard practices.
3	**VEGETATION**
3.1	**Is there any threat of the project to the biodiversity? (Give a description of the local ecosystem with its unique features, if any)**
	There is no threat to the biodiversity due to the project under reference.
3.2	**Will the construction involve extensive clearing or modification of vegetation? (Provide a detailed account of the trees & vegetation affected by the project).**
	There are no trees existing on site. Project proponents have proposed tree plantation on ground & on R.G area. The proponent has proposed to plant 95 nos. of new tree species on the RG as well as open area.
3.3	**What are the measures proposed to be taken to minimize the likely impacts on important site features (Give details of proposal for tree plantation, landscaping, creation of water bodies etc along with a layout plan to an appropriate scale)**
	There are no trees existing on site. Project proponents have proposed tree plantation on ground & on R.G area The proponent has proposed to plant 95 nos. of new tree species on the RG as well as open area.
4	**FAUNA**
4.1	**Is there likely to be any displacement of fauna- both terrestrial and aquatic or creation of barriers for their movement? Provide the details.**
	No
4.2	**Any direct or indirect impacts on the avifauna of the area? Provide details.**
	No
4.3	**Prescribe measures such as corridors, fish ladders etc to mitigate adverse impacts on fauna.**
	Not applicable.
5	**AIR ENVIRONMENT**

5.1	**Will the project increase atmospheric concentration of gases & result in heat islands? (Give details of background air quality levels with predicted values based on dispersion models taking into account the increased traffic generation as a result of the proposed constructions)**
	The project will result in negligible increase in the atmospheric concentrations of gases like PM, SO2, NOX & CO due to D.G. sets operation (backup power only) and the increased traffic activity. The proposed activity will not result in the formation of any heat island, as the building will be covered with high solar reflective index materials. Though three and four wheelers movement is expected during operation phase, its impact would be negligible. Construction and demolition activities generate the emission of toxic substances like magnesium, limestone and dust. Although the increase is not much high, general trend at Bharat IV & V vehicles and use of community transport will help to lower the values of CO, posing less of an impact on-site and at receptor locations.
5.2	**What are the impacts on generation of dust, smoke, odorous fumes or other hazardous gases? Give details in relation to all the meteorological parameters.**
	During construction phase, Dust, Particulate Matter is the main pollutant, which may be generated during construction activities. Other emission sources are intermittent and include emissions of SO_2 NOx and CO from materials transport of heavy vehicles on site etc. Proper upkeep and maintenance of vehicles, sprinkling of water on roads and construction site are some of the measures that would reduce the impact during construction phase. **Sources of Air pollution During Operational phase :** The gaseous emissions from vehicles. Emissions from DG set while in operation only during power failure. **Mitigation Measures**: ➢ The traffic congestion will be avoided by proper parking arrangement and maintaining smooth traffic flow. ➢ Regular PUC checkup for vehicles. ➢ CPCB approved DG sets only will be used. ➢ Proper maintenance of DG sets shall be done and Low sulphur fuel shall be used. **The proposed project will not have any direct impact on air environment after completion.**
5.3	**Will the proposal create shortage of parking space for vehicles? Furnish details of the present level of transport infrastructure and measures proposed for improvement including the traffic management at the entry & exit to the project site.**
	The project proponents have proposed to provide well organized parking arrangement. **Table No.14: Parking Statement**

Sr. No.	Description	Total
1.	Parking Required	285
2.	Parking Proposed	292
3.	2 Wheeler Proposed	114
4.	Parking Area	9149.555

5.4	**Provide details of the movement patterns with internal roads, bicycle tracks, pedestrian pathways, footpaths etc., with areas under each category.**
	There will be sufficient wide entries & exits points and separate service road for service vehicles and fire tenders proposed in the project with sufficiently wide internal roads and pedestrian pathways.
5.5	**Will there be significant increase in traffic noise & vibrations? Give details of the sources and the**

	measures proposed for mitigation of the above.
	The project being residential & commercial project, the source of noise is mainly vehicular noise. The project proponents have proposed to provide well organized parking arrangement and maintaining smooth traffic flow which would help in reducing traffic congestion and noise levels. Trees would act as noise barrier and will reduce the noise level. During power failure to mitigate the noise due to D.G. sets while in operation D.G. sets will be enclosed in acoustic enclosures.
5.6	**What will be the impact of DG sets & other equipment on noise levels & vibration in & ambient air quality around the project site? Provide details.**
	D.G. Sets will be operated only in case of power failures during operational phase. The Pollutants like RSPM, SO_2 that may arise from emissions from D.G. Sets will be discharged through vent of proper height. D.G. sets are with inbuilt acoustic enclosures to reduce the noise of D.G. sets while in operation. Plantation of trees would act as noise barrier and will reduce the noise level.
6	**AESTHETICS**
6.1	**Will the proposed constructions in any way result in the obstruction of a view, scenic amenity or landscapes? Are these considerations taken into account by the proponents?**
	No.
6.2	**Will there be any adverse impacts from new constructions on the existing structures? What are the considerations taken into account?**
	All precautions will be taken to mitigate the impact due to water, air and noise pollution during construction and operation phase. Environmental Management Plan is prepared and shall be implemented along with Environmental Monitoring Programme.
6.3	**Whether there are any local considerations of urban form & urban design influencing the design criteria? They may be explicitly spelt out.**
	No, there are no such local considerations.
6.4	**Are there any anthropological or archaeological sites or artifacts nearby? State if any other significant features in the vicinity of the proposed site have been considered.**
	No.
7	**SOCIO-ECONOMIC ASPECTS:**
7.1	**Will the proposal result in any changes to the demographic structure of local population? Provide the details.**
	There will be influx of about ~ **1309** person
7.2	**Give details of the existing social infrastructure around the proposed project.**
	The proposed project site and its surrounding area lie at Ghansoli. The area is well served by electricity, telephone, and water and transportation infrastructure. The locality is equipped with government schools, colleges within the locality.
7.3	**Will the project cause adverse effects on local communities, disturbance to sacred sites or other cultural values? What are the safeguards proposed?**
	No, the project will not cause any adverse effects on local communities, disturbance to sacred sites or other cultural value.
8	**BUILDING MATERIALS**
8.1	**May involve the use of building materials with high-embodied energy. Are the construction materials produced with energy efficient processes? (Give details of energy conservation measures in the selection of building materials and their energy efficiency)**

	Cement, Bricks and steel are the main components of construction. For the purpose of paving, sun dried pavers will be used instead of baked pavers as they are manufactured from energy efficient processes. Instead of regular clay bricks, fly ash-cement bricks and laterite rock blocks available locally will be used. Also, ready mix concrete with 20% fly ash, PPC cement and recyclable aluminum in door and windows will be used to reduce environmental pollution at site.
8.2	**Transport and handling of materials during construction may result in pollution, noise & public nuisance. What measures are taken to minimize the impacts?**
	Transportation and handling of materials during construction phase results mainly in pollution of air &noise. The various steps proposed to mitigate the anticipated impacts are as under: • **To Control dust–** - Use of barricading the periphery - Dust mask will be provided to workers. • **To Control Gaseous emissions –** - Vehicle carrying materials to be transported must have PUC certificate. - Heavy vehicle movement will be allowed only during night time. - Construction equipments with idling control technologies will be used. - Regular maintenance of the equipments will be carried out. • **To control Noise generation –** - Barricade the site periphery by corrugated tin sheet so as to confine noise within site. - Ear muff/ ear plug will be provided to workers. - The construction activities will be carried out during the daytime only.
8.3	**Are recycled materials used in roads and structures? State the extent of savings achieved?**
	Yes, recycled materials will be used in roads and structures. Construction debris such as waste concrete and waste plaster can be used as sub base of drives way and footing. The excavated soil will be used for leveling the site and top soil will be conserved for landscaping.
8.4	**Give details of the methods of collection, segregation & disposal of the garbage generated during the operation phases of the project.**
	➢ Segregation of two types of garbage i.e. biodegradable and non-biodegradable shall be done by means of provision of two garbage bins with different color. ➢ This would ensure that waste segregation is done at source itself. ➢ The non-biodegradable garbage shall be put into separate bins and shall be handed over to local authority ➢ Biodegradable garbage shall be treated in Organic Waste Converter and shall be used as manure.
9	**ENERGY CONSERVATION**
9.1	**Give details of the power requirements, source of supply, backup source etc. What is the energy consumption assumed per square foot of built-up area? How have you tried to minimize energy consumption?**
	Power requirement: **During Construction Phase:** Local Authority D.G. Sets: as per requirement **During Operational Phase :** Local authority **Table No.18: Power Requirement**

Phase	Total (KW)

	Connected load	1894 KW
	D.G	200 KVA capacity
	Following Energy conservation measures are proposed for Energy Saving : ➢ Monitoring of daily electricity consumption & recording of maximum demand will be done. ➢ Power factor correction. – will be provided for common loads only. ➢ Using less lights in common areas in non peak hours. ➢ Common area lighting with LED Lamps ➢ Multiple circuits for lighting. ➢ Solar energy use for water heater & lighting the part of the garden area & part of road.	
9.2	**What type of, and capacity of, power back-up to you plan to provide?**	
	Adequate nos. of DG shall be provided.	
9.3	**What are the characteristics of the glass you plan to use? Provide specifications of its characteristics related to both short wave and long wave radiation?**	
	Glass shall be used in residential.	
9.4	**What passive solar architectural features are being used in the building? Illustrate the applications made in the proposed project.**	
	➢ Maximize the use of natural lighting though design. ➢ The roof shall be insulated so that there will not be direct heat gain due to sunlight.	
9.5	**Does the layout of streets & buildings maximize the potential for solar energy devices? Have you considered the use of street lighting, emergency lighting and solar hot water systems for use in the building complex? Substantiate with details.**	
	Solar energy will be used.	
9.6	**Is shading effectively used to reduce cooling/heating loads? What principles have been used to maximize the shading of Walls on the East and the West and the Roof? How much energy saving has been effected?**	
	It is proposed to insulate the roofs of these buildings to minimize the heat gain and intern saving the electricity.	
9.7	**Do the structures use energy-efficient space conditioning, lighting and mechanical systems? Provide technical details. Provide details of the transformers and motor efficiencies, lighting intensity and air-conditioning load assumptions? Are you using CFC and HCFC free chillers? Provide specifications.**	
	Following Energy conservation measures are proposed for Energy Saving: ➢ Monitoring of daily electricity consumption & recording of maximum demand will be done. ➢ Power factor correction. – will be provided for common loads only. ➢ Using less lights in common areas in non peak hours. ➢ Common area lighting with LED Lamps ➢ Multiple circuits for lighting. ➢ Solar energy use for water heater & lighting the part of the garden area & part of road.	
9.8	**What are the likely effects of the building activity in altering the micro-climates? Provide a self assessment on the likely impacts of the proposed construction on creation of heat island & inversion effects?**	
	It will not alter the microclimate. The construction will not cause inversion.	
9.9	**What are the thermal characteristics of the building envelope? (a) roof; (b) external walls; and (c) fenestration? Give details of the material used and the U-values or the R values of the individual components.**	

	The project is not centrally air conditioned thus the ECBC guidelines will not be applicable to this project. To reduce heat intake use of insulation or other materials will be decided by the occupants of the building.
9.10	**What precautions & safety measures are proposed against fire hazards? Furnish details of emergency plans.**
	FIRE FIGHTING: ➢ As per the regulations of CFO NOC ➢ Provision of Fire Protection System. ➢ Provision of Fire Alarm System as per I.S code. ➢ Provision of Fire detection system. ➢ Provision of Fire hydrants, Fire pumps, booster pumps, sprinkler pumps: Electric, supply independent circuit & fire hydrant line. ➢ Provision of portable fire extinguishers of IS specification. ➢ Adequate underground and overhead separate water storage tanks. Complete Disaster Management Plan (DMP) is made by considering all the factors responsible for management of any minor or major disaster.
9.11	**If you are using glass as wall material provides details and specifications including emissivity and thermal characteristics.**
	Glass shall be used in residential only for windows.
9.12	**What is the rate of air infiltration into the building? Provide details of how you are mitigating the effects of infiltration.**
	It has not been studied.
9.13	**To what extent the non-conventional energy technologies are utilized in the overall energy consumption? Provide details of the renewable energy technologies used.**
	Will be provided.
10	**Environment Management Plan**

The Environment Management Plan would consist of all mitigation measures for each activity to be undertaken during the construction, operation and the entire life cycle to minimize adverse environmental impacts as a result of the activities of the project. It would also delineate the environmental monitoring plan for compliance of various environmental regulations. It will state the steps to be taken in case of emergency such as accidents at the site including fire.

ENVIRONMENTAL IMPACT AND MANAGEMENT PLAN FOR THE PROJECT

EMP for Construction Phase

Sr. no.	Environmental Component	Activity	Impacts	Precautionary measures
1	Ambient Air Quality & Noise level	• Site Clearance • Excavation • Construction of Structures • Heavy vehicle traffic • Use of DG Set • Open burning of waste	• Increased level of dust & other air pollutants • Increased noise level.	**For controlling air pollution :** • Water Sprinkling • Cover on trucks • Use of RMC instead of preparing concrete at site • Vehicles with valid PUC • **DG sets:** CPCB approved low sulphur fuel.

					For controlling noise pollution : • Barricades along the periphery of the site. • Ear Plugs for Labourers • D.G. sets CPCB approved • No noisy work in night shifts. • Using electrically operated construction equipment.
	2	Water	• Use of fresh • water for Construction activity / labors • Wastewater • generation • Disposal of site • Run off into SWD • Water logging	• Stress on the water supply in the vicinity • Sedimentation, • Pollution of nearby water courses. • Unhygienic condition for surrounding residents.	• Use of tanker water for construction. No burden on municipal supply • Provision of temporary toilets for labors. • Precaution to avoid water logging during construction
	3	Soil	• Preconstruction and excavation debris • Storage of construction material / chemicals • Transportation of hazardous material • Residual paints Solvents/bituminous material etc. operation / maintenance Generation of garbage by labor	• Loss of good fertile soil • Soil erosion, Soil contamination due to mixing of construction material/ accidental spillage of chemicals /oils	• Proper and Separate storage of construction material • Storage of all petroleum products on impervious layers viz. concrete. • Transportation, storage and handling, disposal of HW as per their guidelines and handing it over to authorized agencies. • Use of electrically operated machinery. • Segregation of waste at Source
		Even after taking precautions if soil is found to be contaminated, it shall be removed and disposed off to authorized site.			
	4	Ecology	• Site clearance,	• Disturbing natural	• Plantation of local

		Construction of structures, cutting of trees	flora and fauna • Loss of vegetation from chemical spills from vehicles	tree species on the Periphery of site • Plantation of trees will start in middle of construction phase. • Regulation of vehicular trips and speed and proper maintenance of machinery.
5	Safety & Hygienic Measures	Construction work Labor	• Positive impact : Employment generation • Safety and hygiene at site may be affected during construction	• Adequate drinking water, toilet and bathing facilities. • Regular analysis of drinking water. • Personal protective and safety equipment will be provided. • First aid facility. • Regular health check up • Regular pest control at site. • Educational and awareness programme for safety measures.

EMP for Operation Phase

Sr. no.	Environmental Component	Activity	Impacts	Precautionary measures
1	Ambient Air Quality& Noise level	Increased vehicular trips, Use of DG sets	• Traffic • congestion • Air pollution • Increase in • noise level	• Adequate parking provision; well organized traffic management plan for Smooth flow of vehicles. • Regular PUC check-up for

				vehicles. • DG sets: As per CPCB norms, Proper Maintenance, Use of Low sulphur fuel. • Acoustic Enclosures for DG sets • Plantation of tress will reduce air pollution and also act as noise buffer.
2	Water	• Increased Demand of natural water, • Generation of waste water • Increased paved structure	• Stress on existing water supply, • Pollution of water bodies • Increased run off from site.	• Use of water saving practices • Adoption of dual flush system • Rain water harvesting • Plantation of less water consuming trees. • STP is planned and treated sewage will be used for secondary requirements like flushing and gardening.
3	Land	• Solid waste generation, • Transportation of hazardous material • Increased paved structure	• Improper disposal of waste, • accidental spillage of hazardous chemicals leads to soil contamination • Increased run off from site.	• Waste minimization recovery and reuse • Segregation at source for all solid waste streams • Recycling of non biodegradable garbage • Treatment of biodegradable garbage by Organic waste converter and its use as manure • Use of dried STP sludge as manure • Transportation,

				storage and handling, disposal of HW as per their guidelines and handling it over to authorized agencies. • Strom water drainage of adequate capacity.
	Even after taking precautions if soil is found to be contaminated, it shall be removed and disposed off to authorized site			
4	Ecology	Introduction of new tree species	• Disturbing natural flora and fauna • Increased exposure to anthropogenic activities.	• Plantation of local tree species.
5	Safety & Hygienic Measures	Influx of people	• Stress on all utilities, risk and danger due to natural and manmade disaster • Positive impact: Employment generation	• Emergency preparedness plan and Disaster management plan will be Prepared and explained with the help of local NGO's and surrounding people and authority.

Note: Environmental monitoring plan will be prepared based on Environmental management Plan. All environmental parameters will be studied as and when required and based on analysis result mitigation measures will be implemented.

Hazardous Waste Management Plan:

Construction Phase:

Environmental Management Plan for Hazardous Waste Generation

Sr. No.	Source of Hazardous Waste Generation	Mitigation Measures
1	Leakages and spillage oil or fuel	* Contaminated soil if any shall be disposed off to Authorized Disposal Site. * Bituminous materials /any other chemicals shall not be allowed to leach into the soil.
2	Residual Paints/Solvents	--do--

Other hazardous wastes, if any, shall also be handled in the similar way through authorized dealers only.

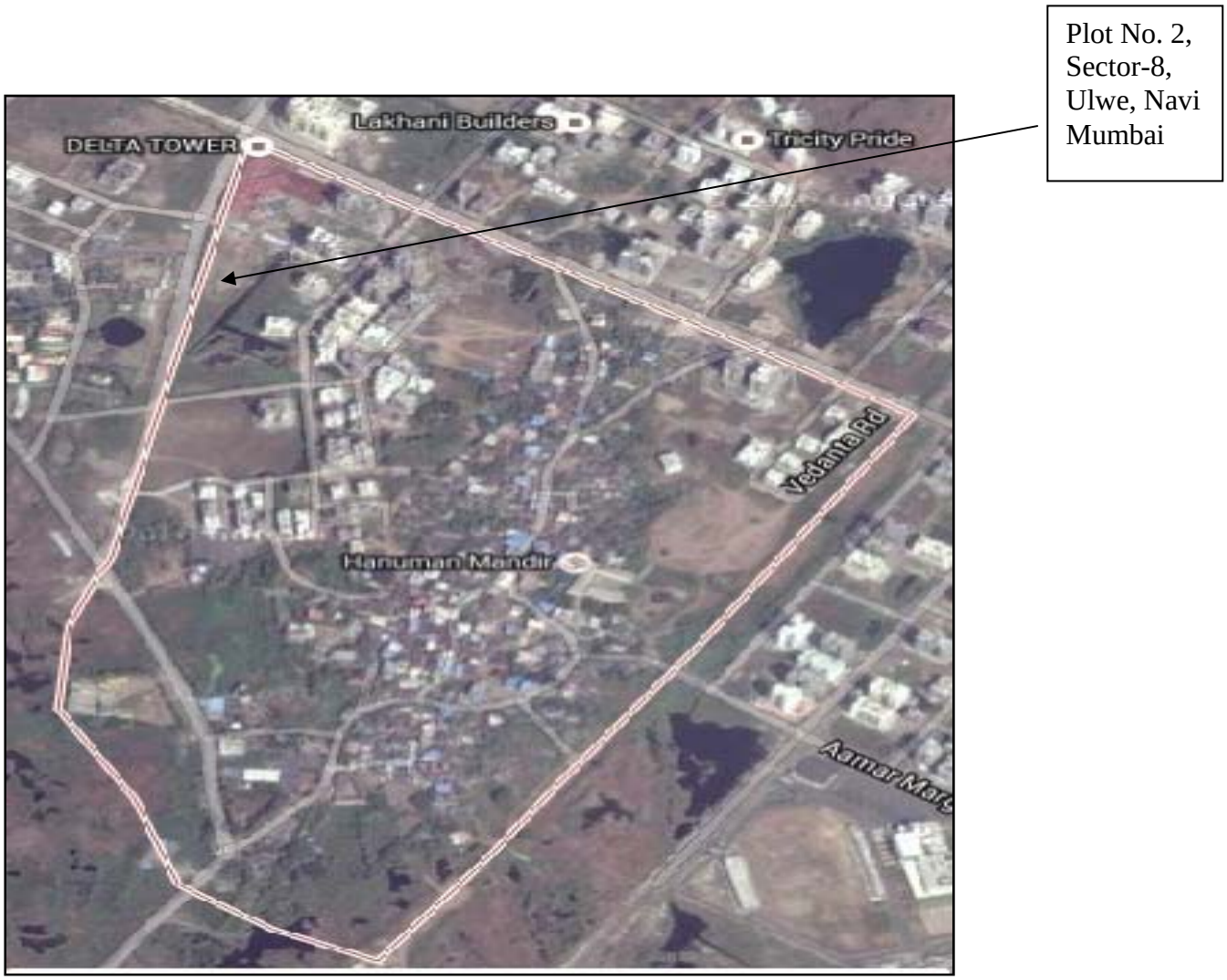
Operational Phase

Sr.	Source of Hazardous Waste Generation	Mitigation	Disposal

No.		Measures	
1.	Waste Oil from D.G Sets	--	Waste oil will be handed over to authorized recyclers.

ANNEXURE

ANNEXURE I: GOOGLE IMAGE



ANNEXURE II: MASTER LAYOUT

Access Road: 30.00 mt Wide
Internal Roads / Secondary Roads: 6.00 mt
Turning Radius: 9mt