Appendix I

(See paragraph-6)

Form 1

(a) For item (I) relating to the Basic Information, the following shall be substituted, namely:-

S.N.	Item	Details
1	Name of the project	Residential construction project " Madhuban" by Rohan Promoters & Developers
2	S. No in the scheduled	8 (a)
3	Proposed capacity / Area / length / tonnage to be handled / command area / lease area / No. of wells to be drilled	Total Plot Area : 47,200 sq. m FSI Area: Existing: 10,293.23 sq.m. Proposed : 30,816.46 sq. m Total BUA : 83,207.43 sq. m
4	New/Expansion /Modernization	Expansion
5	Existing Capacity/Area etc.	Not Applicable
6	Category of the project i.e. 'A' or 'B'	Project category B2; Activity under Item 8 (a) of the EIA Notification dated 14th September 2006 as amended on 1st December , 2009 does not require scoping and public consultation
7	Does it attract the general condition? If yes, please specify	Not Applicable
8	Does it attract the Specific conditions? If yes, please specify	Not Applicable
9	Location	
	Plot/Survey /Khasra No.	Plot No. 2, S. No. – 48 (2/1 – A/2) H. No. 2/B, S. No. – 48 (1-13) H. No. 1/B, S. No. – (1 – A) H. No. 1/A
	Village	Bavdhan
	Tehasil	Mulshi
	District	Pune
	State	Maharashtra
10	Nearest railway station /Airport along with distance in Kms	**RAILWAY:** Pune Railway station at 12 km **AIRWAY:** Lohagaon Airport at 17 km **ROADWAY:** National Highway 4 at 600 m
11	Nearest town/ city/ district / Headquarters with distance in Km	Pune
12	Village pachayats, zilla parishad, Municipal corporation, Local body	PMC

	(complete postal addresses with telephone no. to be given)	
13	Name of the Applicant	Rohan promoters & Developers
14	Registered address	1 Modibaug, Ganeshkhind Road, Near Agriculture College, Shivaji Nagar, Pune - 411016
15	Address for correspondence	As above
	Name	Mr. Milind Lunkad
	Designation (Owner/Partner/CEO)	Director
	Address	1 Modibaug, Ganeshkhind Road, Near Agriculture College, Shivaji Nagar, Pune
	Pin Code	411016
	E-mail	environ.pn@rohanbuilders.com
	Telephone no.	+91 20 7101 7101 Extn. 213
	Fax No.	--
16	Details of alternatives sites examined, if any. Location of these site should be shown on topo sheet	Village-District-State 1. 2. 3. } Not Applicable
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	--
21	Whether the proposal involves approval/clearance ; Under if yes details of the same and their status to be given 1. Forest (Conservation) Act, 1980? 2. Wildlife (Protection) Act, 1972? 3. C.R.Z. Notification, 1991?	No, since the proposal under reference is in developing part of the Pune City.
22	Whether there is any government order/policy relevant relating to the site	Not Applicable
23	Forest land involved (hectors)	No forest land involved
24	Whether there is any litigation pending against the project and/or land in which the project is proposed to be set	Not Applicable

	up? (a) Name of the court (b) Case no. (c) Orders/Directions of the 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**	Please refer **Annexure I: Location map/ Google Image** **Annexure II: Layout Plan** **Annexure III: Contour map**
1.2	Clearance of existing Land, vegetation and building?	**No**	No clearance of existing trees is required. No existing building or trees present on site. Land is completely unutilized and barren land.
1.3	Creation of new land uses?	**Yes**	As stated in Point 1.1
1.4	Pre-construction investigation e.g. borehole, soil testing?	**Yes**	Soil testing is being done on the project site.
1.5	Construction works	**Yes**	The proposal pertains to construction of residential complex. Please refer **Annexure IV: Building Configuration and Occupancy Details**
1.6	Demolition work	**Yes**	Kaccha Houses at site for storage of material
1.7	Temporary sites used for construction works or housing of construction workers?	**No**	Temporary shelters are provided for workers with all sanitation facility. (For Labour Camp)
1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations	**Yes**	Excavation for foundation is prominent activity. The debris and rubble removed would be used as filling material for leveling and for road construction. Top soil will be stored for landscaping.
1.9	Underground works including mining or tunneling?	**No**	Not Applicable as the proposal pertains to construction of residential complex.

Sr. No	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
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 processes?	**No**	Not Applicable as the proposal pertains to construction of residential complex.
1.14	Facilities for storage of goods or materials?	**No**	Temporary storage Godown will be provided for storage of construction material on site.
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	**Yes**	Please refer **Annexure V: Details of STP. Annexure VI: Details of Solid Waste Generation and Disposal**
1.16	Facilities for long term housing of operational workers?	**No**	Not Applicable. No Workers will involve during operation phase.
1.17	New road, rail or sea traffic during construction or operation?	**Yes**	There will be some increase in road traffic during construction & operation phase.
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc?	**Yes**	**RAILWAY:** Pune Railway station at 12 km **AIRWAY:** Lohagaon Airport at 17 km **ROADWAY:** National Highway 4 at 600 m
1.19	Closure or diversion of exiting transport routes or infrastructure leading to changes in traffic movements?	**No**	Not Applicable
1.20	New or diverted transmission lines or pipelines?	**No**	Not Applicable
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?	**No**	Not Applicable
1.22	Stream crossing?	**No**	Not Applicable
1.23	Abstraction or transfers of water from ground or surface waters?	**No**	Not Applicable
1.24	Changes in water bodies or the land surface affecting drainage or run-off?	**No**	Not Applicable
1.25	Transport of personnel or materials for construction, operation or decommissioning?	**Yes**	Transport of raw material to the site for construction by Truck / Dumper.

Sr. No	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
1.26	Long-term dismantling or decommissioning or restoration works?	**No**	Not Applicable since there is no dismantling involved in the project.
1.27	Ongoing activity during decommissioning which could have an impact on the environment.	**No**	Not Applicable since there is no decommissioning.
1.28	Influx of people to an area in either temporarily or permanently?	**Yes**	Proposed project will influx of population for residential purpose.
1.29	Introduction of alien species?	**No**	No, Project proponent has proposed all the indigenous species.
1.30	Loss of native species or genetic diversity?	**No**	Not Applicable.
1.31	Any other actions?	**No**	No other action with reference to construction

2. Use of Natural resources for construction or operation of the 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 especially undeveloped or agricultural land (ha)	**No**	The land is non agricultural land.
2.2	Water (expected source & competing users) unit: KLD	**Yes**	**Construction phase:** Water supply required during construction will be fulfilled by tankers. **Operation Phase:** source of water during operation will be from PMC. Please Refer **Annexure V:** Water demand & Water Balance
2.3	Minerals (MT)	**No**	Since this is a construction project there will be no use of major minerals for construction.
2.4	Construction material – stone, aggregates and / soil (expected source – MT)	**Yes**	Materials will be procured from authorized Dealer
2.5	Forests and timber (source – MT)	**No**	No wood or timber will be used at greater extent during construction phase by project proponent.
2.6	Energy including electricity and fuels	**Yes**	Please Refer **Annexure VII:** Details of

	(source, competing users) Unit: fuel (MT), energy (MW)		Energy requirement.
2.7	Any other natural resources (use appropriate standard units)	**No**	No use of other natural resources

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)	**No**	No use of hazardous substances.
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)	**No**	No such activity will be carried out which will change or affect vectors to born.
3.3	Affect the welfare of people e.g. by changing living conditions?	**No**	Project will not negatively affect welfare of people.
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.	**No**	People will not be affected by project, rather since project aimed to provide good infrastructure and amenities to the people in operation phase.
3.5	Any other causes	**No**	No use or storage of harmful or hazardous material within the project area during construction and operation phase.

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	**Yes**	Debris, excavated material for foundation will be used as filler material for low laying areas.
4.2	Municipal waste (domestic and or commercial wastes)	**Yes**	Please Refer **Annexure VI :**Details of Solid Waste Management
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)	**No**	No hazardous waste will be generated.

Sr. No.	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
4.4	Other industrial process wastes	**No**	Not Applicable. Since the project under reference is residential construction project.
4.5	Surplus product	**No**	Not Applicable.
4.6	Sewage sludge or other sludge from effluent treatment	**Yes**	Sewage Sludge will be used as manure for gardening after treatment.
4.7	Construction or demolition wastes	**Yes**	Construction waste will be used for roads and as fill material for leveling and road, pathway construction.
4.8	Redundant machinery or equipment	**No**	No redundant machinery or equipment at project site.
4.9	Contaminated soils or other materials	**No**	No contamination of soil because land is kept unutilized before this development. Soil Testing is done prior to construction activity.
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**	Vehicular movement and DG sets will be sources of air pollution.
5.2	Emissions from production processes	**No**	Not Applicable since the project under reference is residential construction project
5.3	Emissions from materials handling including storage or transport	**No**	Not Applicable since use of ready mix concrete containing fly ash will be done for construction.
5.4	Emissions from construction activities including plant and equipment	**Yes**	Dust emissions may occur during excavation and earthwork proper care will be taken to reduce dust emission. Please refer **EMP.**
5.5	Dust or odors from handling of materials including construction materials, sewage and waste	**Yes**	Dust will be generated during transport and handling of material.
5.6	Emissions from incineration of waste	**No**	No incineration of waste will be carried out at

Sr. No.	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities / rates, wherever possible) with source of information data
			site.
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)	**No**	No burning of waste will be carried out at site.
5.8	Emissions from any other sources	**No**	None as this project pertains to construction of residential project.

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**	**Construction phase:** The significant source of noise pollution will be the machinery used for construction and vehicular movement. **Operation phase:** During operation phase the only source of noise will be operation of mechanical equipment, vehicular traffic and DG sets however, these will be operated during emergency only.
6.2	From industrial or similar processes	**No**	Not Applicable
6.3	From construction or demolition	**Yes**	Due to construction machinery/vehicle movement. However, site is vacant and no demolition is involved.
6.4	From blasting or piling	**No**	No blasting will be carried out.
6.5	From construction or operational traffic	**Yes**	No significant disturbance due to traffic noise during construction and operation.
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**	No handling storage or use of hazardous waste is envisaged.
7.2	From discharge of sewage or other	**No**	The treated sewage from STP will be

	effluents to water or the land (expected mode and place of discharge)		utilized for gardening & flushing thus there will be no impact on the surface/ground water.
7.3	By deposition of pollutants emitted to air into the land or into water	**No**	No risk of contamination due to pollutants in air or water. **Refer EMP** for further details
7.4	From any other sources	**No**	Not Applicable
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?	**No**	Operation phase of project will be residential hence no question of long term building of pollutants. Construction phase will be only for few months.

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 approxim quantities/rates, wherever possible) v source of information data**
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous substances	**No**	Not Applicable as no hazardous substances are proposed to be used at site.
8.2	From any other causes	**No**	Not Applicable
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc)?	**No**	The area is not subject to flooding, earthquakes, landslides and cloudburst as per ULB Disaster Management Plan.

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. Facilities, 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.)	**No**	Not Applicable The site and nearby areas are developed with good supportive infrastructure like roads, transport facility, entertainment and hospitals.

	• Housing development • Extractive industries • Supply industries • Other		
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**	Not Applicable
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	**No**	Area is developed with residential constructions. Proposed project is on unutilized land and will not have major effects on environment.

(III) ENVIRONMENTAL SENSITIVITY

Sr. No.	Areas	Name/ Identity	Aerial distance (within 15 km.) Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	**None**	Not Applicable, The Site is located in the developing area of Pune.
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	**None**	Not Applicable. The project is located in the developing area.
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	**None**	Not Applicable
4	Inland, coastal, marine or underground waters	**No**	Not Applicable
5	State /National boundaries	**No**	Not Applicable
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	**Yes**	Project site is well connected by roads to various ways of Pune.
7	Defense installations	**No**	Not Applicable
8	Densely populated or built-up area	**Yes**	Project located in residential zone of Pune City

9	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	**None**	Not Applicable
10	Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)	**None**	Not Applicable
11	Areas already subjected to pollution or environmental damage. (Those where existing legal environmental standards are exceeded)	**None**	Not Applicable
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)	**None**	Not Applicable

Presented for Environmental Clearance under EIA Notification 2006 from SEIAA of Maharashtra

(IV) Proposed Terms of Reference for EIA Studies

The total construction built up area for the above referred project is below 1, 50, 000 sq. m. The project does not require scoping and public consultation.

I hereby give 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 may be rejected and clearance given, if any to the project will be revoked at our risk and cost.

Date:
Place: Pune

Signature of the Applicant
(With Name and full address)
Mr. Milind Lunkad
1 Modibaug, Ganeshkhind Road,
Near Agriculture College,
Shivaji Nagar, Pune - 411016

Appendix II

Form 1A

(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)

1.1 Will the existing land use get significantly altered from the project that is not consistent with the surroundings? (Proposed landuse must conform to the approved Master Plan / Development Plan of the area. Change of landuse if any and the statutory approval from the competent authority 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.

Name and address of the project	:	Residential Construction "Madhuban" by Rohan Promoters & Developers
Location of the project		
Name of the Place	:	Plot No. 2, S. No. – 48 (2/1 – A/2) H. No. 2/B, S. No. – 48 (1-13) H. No. 1/B, S. No. – (1 – A) H. No. 1/A
Tehsil District	:	***Bavdhan*** Pune
Latitude/Longitude Nearest	:	Latitude : 18º30'18.61" N Longitude : 73º46'15.84" E

The land use of the area is residential and commercial and the project would not alter the existing land use. As per Development Plan of Town Planning (sanctioned by State

Government), residential development on this plot is permissible; the plot under reference has been lying unutilized previously. The plot is leveled with no major undulations. Please refer

Annexure I: Location map/ Google Image

Annexure II: Layout Plan

Annexure III: Contour map

1.2. List out all the major project requirements in terms of the land area, built up area, water consumption, power requirement, connectivity, community facilities, parking needs etc.

A	**Area Break up**	**:**	Total Plot Area:47,200 sq.m. Total Build up area: 83,207.43 sq.m.
B	**Vehicular Parking Details**	**:**	Parking will be provided as per NBC/ DC Rules.
C	**Water Requirement & Sources**	**:**	Source of water will be through Grampanchayat/PMC/PCMC during operational phase. Please refer **Annexure V** for water demand and water balance.
D	**Power**	**:**	Power supply will be through MSEDCL during operation phase. For details of Energy requirement please refer **Annexure VII**
E	**Connectivity**	**:**	**RAILWAY:** Pune Railway station at 12 km **AIRWAY:** Lohagaon Airport at 17 km **ROADWAY:** National Highway 4 at 600 m
F	**Community Facilities**	**:**	Schools: Rainbow International School Colleges: AIMS institute of management studies Hospital: Varad Hospital Market and Hotels are in vicinity of the project

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 landuse, disturbance to the local ecology).

The site is located in a developing area of Pune City. The project proponent have proposed a design, which has minimum stilt area enabling more and more open spaces for recreation. There would be no impact on community facilities and land use as it is a Residential area. As regards to the disturbance to local ecology, it is note worthy that the project proponent have proposed for a green belt. This will offer green cover with concrete buildings land. In view of this, the project will not have any adverse impact rather the positive impact as far as greenery and ecology is concerned.

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 no significant land disturbance as the land is leveled. The land has been lying unutilized, thus there is no possibility of soil erosion/subsidence etc. The Pune city is in seismic zone III and entire construction will be done considering the above.

Seismic Environment & Precautions commitment

Pune lies in the seismically active zone of Koyna Region, which is about 100 km south of Pune. Pune has recently been upgraded to lie in the zone III, which is the second most dangerous seismic zone in India. Consequently, Pune has experienced some moderate-intensity and many low-intensity earthquakes. Although earthquakes were not known to have originated in Pune itself, an earthquake of a very slight intensity took place in Pune that had its epicenter in Dehu, about 13 km from the main city.

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)

The proposed development is planned in such a manner that it will not alter the existing drainage pattern of the area. Please refer Annexure III contour Map of project site.

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.)

No major earthwork is required to be carried out due to following reasons:

Land within the plot is more or less level with no major depression.

The filling will be done by using sub-stratum removed during construction of building foundations / basements & other wastes generated during construction.

Major earthwork involved during foundation.

1.7 Give details regarding water supply, waste handling etc during the construction period.

Total water supply will be from tankers only during construction phase.

Waste handling during construction period: Sub-stratum removed will be used for back filling the plinth/ foundation in order to bring level of plot above the road level to facilitate storm water drainage. Waste from use of construction raw materials / building materials will also be used for filling up the plot. Balance if any will be utilised as fill material in other construction site in vicinity by the proponents.

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 wetland or low laying areas are altered due to construction.

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)

Waste will also be generated during building construction due to use of various raw material. This waste-stream will largely comprise of primary materials such as cement metal and quarried natural aggregates which does not cause any health hazard.

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 met? State the sources & quantities and furnish a water balance statement.

Project comes under PMC. At time of operation, source of water will be from PMC. For details of Water demand & Water Balance of project please refer **Annexure V.** Requirement of flushing & gardening will be fulfilled by recycled water.

2.2. What is the capacity (dependable flow or yield) of the proposed source of water?

The source of water is PMC.

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)

In case the supply is not from the municipal source, the quality of water required will be as per Indian Standard specifications for drinking water (IS:10500).

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)

Upto 40 % of total requirement will be met through recycled water. Please refer **Annexure V.**

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)

Not Applicable; as there is not any diversion of water from other users.

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)

Quantity of sewage generation is 269 KL for the proposed project. Details are attached as per **Annexure V.**

2.7. Give details of the water requirements met from water harvesting? Furnish details of the facilities created.

Estimation of quantity of Storm water that could be available depends upon the following factors.

1.0 The catchment area

2.0 Intensity of Rainfall with duration

3.0 The surface characteristics (Run off Coefficient)

In this project rain water will be harvested to recharge dry bores in the project premises, recharge pits will be constructed in the storm water line of project Please refer **Annexure VIII:** Details of RWH and Storm Water Drainage Layout.

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?

The Disaster Management Plan indicates that there is no water logging on the road near the site. Proper storm water drainage line will be provided and overflow will be connected to Municipal or Grampanchayat storm water line hence there will be no impact on storm water runoff and no flooding problem will arise.

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)

There will be positive impact on ground water table of the area. Rain water harvesting will be done to recharge ground water of the area. Ground water will not be used in any case during construction and operation phase.

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 plot is located in developing area. The run-off during construction period will be diverted to storm water drainage system.

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)

The storm water drains in the area are closed type. The drains are laid along roads & carry the water to the storm drain as per gravity.

2.12. Will the deployment of construction labourers particularly in the peak period lead to unsanitary conditions around the project site (Justify with proper explanation)

There will be no unsanitary condition on site as mobile toilets will be provided for the workers.

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)

Sewage Treatment Plant will be provided. **Please Refer Annexure V:** Details of Sewage Treatment Plant (STP).

2.14. Give details of dual plumbing system if treated waste used is used for flushing of toilets or any other use.

Dual Plumbing System will be provided for the use of treated water for flushing & gardening.

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)

Since there is no flora existing at site, there is no threat to bio-diversity. Further, the project proponent proposes to provide adequate landscape area.

3.2 Will the construction involve extensive clearing or modification of vegetation? (Provide a detailed account of the trees and vegetation affected by the project)

Not Applicable

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)

Please refer **Annexure XI:** Landscape plan showing landscape area with tree details.

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.

Not applicable, as site is located in fully urbanized area that is in the developing area of Pune city.

4.2. Any direct or indirect impacts on the avifauna of the area? Provide details.

Not applicable

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)

During the construction phase due to demolition & excavation activity, dust emissions are expected. All other emission sources are intermittent and include emissions from materials transport, from heavy vehicles on site etc. During Operational phase minimal impacts on air quality due to vehicular emissions in the premises and emissions from DG sets while in operation are expected.

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.

Impacts of dust generation during construction will be felt to a certain extent by people living on adjacent plots. To reduce these impacts following measures are proposed:

- Temporary barriers to be erected to reduce dust impact to nearby areas.
- Water sprinkling during construction to reduce dust emissions.
- Trucks only to ply during day time
- Use of ready mix concrete carried in enclosed container
- Dust covers on trucks used for transportation of material

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 proposed project will not create shortage of parking space for vehicle as adequate parking space is proposed and parking will be provided as per NBC and DC Rules.

5.4. Provide details of the movement patterns with internal roads, bicycle tracks, pedestrian pathways, footpaths etc., with areas under each category.

Traffic Management will be as follows

- Internal roads
- Pathways
- Driving instructions along with parking and site map will be displayed at appropriate place for visitors as well as for residents

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.

Traffic noise and vibration will increase during construction/ operation phase.

Measures during construction phase:

- Machinery for construction activity will be used during day time only.
- Workers will be provided with personnel effective equipment.
- Trucks only to ply during day time

Measures during Operation phase:

- Plantation of trees to reduce effects of noise pollution.
- Speed limits will be observed within the premises.

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.

DG sets will be used only in emergencies during power failure. The proponents will ensure that DG Sets are supplied by standards suppliers. The DG Sets shall be provided with the acoustic enclosures and canopy to control the noise completely.

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?

As the site is located in residential area, there is no question of building being obstacle to view or scenic amenity or landscape.

6.2. Will there be any adverse impacts from new constructions on the existing structures? What are the considerations taken into account?

There will be no adverse impacts on the existing structures within vicinity.

6.3. Whether there are any local considerations of urban form & urban design influencing the design criteria? They may be explicitly spelt out.

Not Applicable

6.4. Are there any anthropological or archaeological sites or artifact nearby? State if any other significant features in the vicinity of the proposed site have been considered

There are no anthropological / archaeological sites or artifacts nearby proposed project within 1Km.

7. SOCIO-ECONOMIC ASPECTS

7.1 Will the proposal result in any changes to the demographic structure of local population? Provide the details.

The project is in the developing area/developed area of Pune city and hence no major changes to the demographic structure of the local population will be observed.

7.2 Give details of the existing social infrastructure around the proposed project.

The project is located in well developed area/ developing area. School / Hospitals / Residential buildings etc. exists nearby along with these good communication and transport facilities are available.

7.3. Will the project cause adverse effects on local communities, disturbance to sacred sites or other cultural values? What are the safeguards proposed?

Not Applicable

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)

No use of energy efficient processes or specialized building material for energy conservation.

8.2. Transport and handling of materials during construction may result in pollution, noise & public nuisance. What measures are taken to minimize the impacts?

Special care will be taken during transportation of construction material like cement, sand, aggregate etc would be transported from various authorized material suppliers. Since road transport is unavoidable, such movement will be carried out during non-Peak hours as far as possible.

8.3. Are recycled materials used in roads and structures? State the extent of savings achieved?

Waste generated during building construction due to use of various raw materials such as cement, metal and quarried natural aggregates will be used for construction of internal roads & back filling the plinth/ foundation in order to bring formation level of plot above the road level to facilitate storm water drainage.

8.4. Give details of the methods of collection, segregation & disposal of the garbage generated during the operation phases of the project.

The project proponent has proposed installation of Garbage room to collect solid waste. The garbage will be segregated and recyclable waste will be disposed through recyclers. The biodegradable waste will be composted using Organic Waste Converter and utilized as manure. Please refer **Annexure VI: Details of Solid Waste Generation & Disposal.**

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?

Please refer **Annexure VII: Details of Energy Requirement.**

9.2. What type of, and capacity of, power back-up do you plan to provide?

Please refer **Annexure VII: Details of Energy Requirement.**

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?

Increase natural source of light through glazed windows.

9.4. What passive solar architectural features are being used in the building? Illustrate the applications made in the proposed project.

Building orientation is in such a way so as to get daylight availability and adequate Ventilation.

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.

Yes. Solar hot water panel and solar street lightening will be provided to reduce energy usage in the operation phase.

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?

Building has been oriented to North –South. The walls on East and south will have minimum openings. Also roof will be provided with top deck insulation.

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

Not Applicable.

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?

Not Applicable as this is a relatively small development to result in climate change

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.

Thermal Characteristics of building are as per ECBC norms for roof and external wall.

9.10 What precautions & safety measures are proposed against fire hazards? Furnish details of emergency plans.

Fire fighting system will comprise of:

- Fire extinguishers and hydrants will be installed
- Provision of fire safety construction and protective and warning system
- Use of fire protection features such as sprinkler systems, hose boxes, hose reels systems, and other firefighting equipment
- Automatic fire alarm systems will be connected to the fire hydrant system
- Fire doors, Fire-Resistant materials for flooring and walls
- Safe Passage to a public way or safe dispersal area

- Fire Exits, Sealing of stairways, vertical shafts, and horizontal exits from smoke and heat
- Roof vents, Properly marked and lighted exits
- Fire hydrants on the ramp, street sides. Fire hydrant will be manually operated
- Fire exit plans will be conspicuously posted on each floor showing clearly the routes to appropriate exits
- Sufficient access / set back along all sides of building to facilitate movement of emergency vehicles
- Portable fire extinguishers of 9 liter water (gas pressure) type, CO_2, foam and dry chemical powder of suitable capacities suitably distributed in the towers in accordance to IS: 2190. Please refer **Annexure X: Fire Fighting Plan**

9.11. If you are using glass as wall material provides details and specifications including emissive and thermal characteristics.

Not Applicable

9.12. What is the rate of air infiltration into the building? Provide details of how you are mitigating the effects of infiltration.

Not Applicable

9.13. To what extent the non-conventional energy technologies are utilised in the overall energy consumption? Provide details of the renewable energy technologies used.

Solar hot water panels and street lightning will be provided to reduce energy usage in the operation phase.

10. Environment Management Plan

The Environment Management Plan would consist of all mitigation measures for each item wise 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.**Environment Management Plan is enclosed.**

Environment Management Plan

Environment friendly housing is an emerging concept in field of construction. Environmental Management can help this approach for protection of environment within and outside projects Premises. Though construction project does not involve pollution through industrial process, or industrial effluent but is a larger developmental activity due to major inflow of people, and construction activity. Environment management will provide an eco-friendly lifestyle to people staying within project area and fulfill statutory requirement as well.

Objectives of Environment Management Plan

1. Resource Minimization
2. Mitigation of Environmental impacts during construction as well as operational phase.
3. Improve and beautify biological aesthetic status of premises
4. Improvement of Air, water, land environment of project area.

It is emphasized that many of the protective and enhancement measures can be implemented by adopting suitable planning and design criteria during construction of the project. Further, it is necessary that the resources required for the mitigation/protection, enhancement measures and monitoring are provided for in the cost estimates of the project, to ensure proper implementation.

1.0 Air Environment:

1.1 Construction Phase

a) Mobile source emissions

i) Transportation of raw materials required for construction should be carried out during non-peak hours.

Idling of delivery trucks or other equipment should not be permitted on public road during unloading or when not in active use.

ii) To minimize dust emissions due to trucks carrying cement, gravel, sand to site, ready mix concrete carried in enclosed container should be used which is a better option as compared to on site batch mixing.

iii) Dust covers will be provided on trucks used for transportation of materials prone to fugitive dust emissions.

b) For stationary source emissions:

i) Most of the machinery related to construction should be located close to construction area for ease of handling. Machinery such as crushers, conveyers and mixers should be screened with sheets of suitable material to reduce generation of suspended particulate matter and noise.

ii) Areas prone to fugitive dust emissions due to activities such as excavation, grading sites and routes of delivery vehicles across patches of exposed

Earth, should be frequently water sprinkled to prevent re-entrainment of dust.

Apart from these, equipment/machines and vehicles should be always kept in good state of repair to minimize emissions. Low emission vehicles / equipment should be used wherever feasible. Construction areas should be enclosed, wherever possible.

1.2 Operation Phase:

- Plantation along the boundary wall helps to reduce effects of air pollution. Recommendations made for the Bio-aesthetic Management need to be strictly implemented.
- Regular maintenance and upkeep of the internal roads within project area will ensure smooth traffic flow and will help to reduce air pollution.

2.0 WATER ENVIRONMENT:

2.1 Construction Phase

The design & construction should be such that no accumulation of stagnant water will occur within the complex to prevent breeding of mosquitoes.

Prevent wastage of water at every stage of construction

2.2 Operation Phase

It is recommended that project proponent should install scientifically designed **Rain Water Harvesting System, Sewage treatment Plant.**

Rainwater harvesting system will have two-fold objective:

1. To utilize rain water available on the plot in direct way or indirect way to reduce the load on water supply system.
2. To minimize the storm water drainage load to avoid water logging locally as well as on larger scale.
3. Rain water harvesting potential of the project is enclosed with this report

The total water collected and utilized by rainwater harvesting on this plot of almost will be used for Ground water recharge which would increase ground water table of the area and reduce

storm water quantity Project proponent should implement properly designed storm water drains.

Objective of Sewage Treatment will be to treat sewage so that it can be re-used for toilet flushing, gardening. Balance water will be let out to Municipal Sewer line. Sewage treatment provided is highly sophisticated to treat sewage up to tertiary level. Low water consuming fixtures such as electronic activated taps should be used in the toilets to reduce water consumption.

3.0 LAND ENVIRONMENT

3.1 Resource Management:

The resources such as sand, metal etc should be taken from Govt. owned / approved agencies. One of the impacts on the land environment during construction phase is the requirement of construction materials as identified. It is proposed to use fly ash to partially offset use of cement in the construction. This will reduce sand requirement by about 20% & will also solve the problem of fly ash disposal.

The proposed project involves removal of sub-stratum during excavation for foundation. The impact of foundation excavation will be reduced due to use of material excavated / debris generated for filling purposes, road construction.

The solid waste generated due to packaging material should preferably be recycled and / or reused.

3.2 Solid Waste Management:

Solid waste during construction will be mostly construction and demolition waste and most of this waste will be utilized as filling material or for road construction.

During operation phase management of solid waste will be done through eco friendly method. Segregation of waste at the source in to biodegradable and Non-biodegradable waste is prime concern. Biodegradable waste will be treated through Organic waste Convertor system. Manure will be used in own landscape.

3.3 Traffic Management:

Another impact identified during studies is the minor increase in traffic volume in the area in construction phase (because of the movement of trucks carrying raw materials) & in operation phase (due to vehicles movement for ferrying building occupants)

Special care should be taken during transportation of construction material like cement, sand, aggregate etc as such material would be transported from various material suppliers. Since road transport is unavoidable, such movement should be carried out during non- peak hours as far as possible.

The entry / exit to the site should be with adequate curvature at kerbs so that vehicles coming out / entering the building do not impinge on road traffic directly. As far as possible, material carrying trucks should be parked inside the complex & should not be parked on public road.

4.0 GUIDELINES FOR BIO-AESTHETIC MANAGEMENT:

4.1 Greenbelt/Landscape Management

Greenbelt is important feature as far as landscape of the premises as well as biological environment is considered.

Purpose

1. Enhancement of aesthetic value of the area
2. Proposed project is Residential Complex so proper landscape management is necessary to beautify the area.
3. Help to reduce Air and Noise pollution.

Prior to plantation of trees Ecological value as well as aesthetic value of tree species should be consider

4.2 Plantation Specifications:

Trees should be planted in 1 cu.m pits. The tree pits should preferably be in a row that is not concretized, with exposed ground, to facilitate infiltration of more water into the ground and healthy growth of root system. Good anchorage would help minimize uprooting of trees during unfavorable weather conditions.

The pit should be filled with an even mixture of red earth, sand and farmyard manure. Saplings should be healthy 3-year old in age to ensure better survival. Trees should be watered on alternate days during dry season, for 4-5 years. Weekly watering is often required at later stage of growth.

During this growing period, care should be taken to ensure that the tree is growing vertically and is without horizontal branches. Any branch appearing within 8 feet from ground should be removed by sawing at the trunk level.

4.3 RECOMEMDED SPECIES FOR PLANTATION:

Butea momnosperma

Accacia catuchu
Aegel marmalos
Cassia fistula
Dalbergia sisoo
Emblica officinalis
Mangifera indica
Saraca ashoka
Pongamia piñata

Shrubs should be planted between trees, in the same way as the trees but in smaller pits (0.3 x 0.3 x 0.3 m).

5.0 SOCIOECONOMIC ENVIRONMENT:

The proposed construction project is specifically demarcated for commercial development & there is no population residing nearby. Thus, there would not be any adverse impact on local population due to the project. This is seen as a positive impact on socio-economic environment as it will create additional jobs & give thrust to development of services sector in the city.

5.1 Construction phase:

The health and safety of the workers for the construction project should be ensured by:

- Giving proper instructions about personal safety to all the labor working on the site by project manager before commencement of work,
- Guiding the labor about the measures to be taken during emergency and accident like fire, etc
- Providing safety equipment like gloves, helmet, ear muffs / plugs etc. to use for all labor on site,
- Providing proper sanitation and water supply facilities to the labor during construction phase.
- Insurance Cover should be provided to workers for personal accident.

5.2 Operation Phase:

For safety purpose during operational phase

- Fire fighting system comprising of smoke detectors and well designed hydrants should be provided in the building.

- Firewater tanks with storage capacity as recommended by Chief Fire Officer should be provided.
- Maintenance of the systems should be carried out regularly to ensure proper functioning during emergencies.
- Safe evacuation route for building residents should be clearly marked to ensure safety of residents during any emergency.

In addition, it is recommended to construct a compound wall of 1.5 M height and plant the trees within premises along compound wall, to attenuate the noise level.

Periodic inspection and maintenance of all water storage tanks should be carried out at regular intervals to prevent outbreak of waterborne diseases

6.0 Environment Management Responsibilities

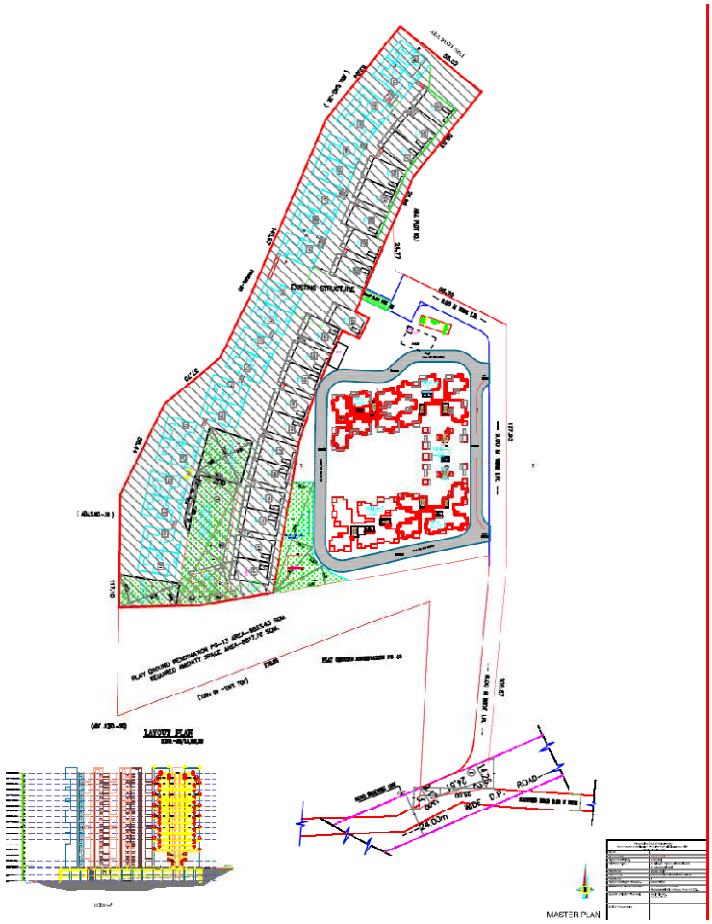
During construction phase, contractors as well as site-in-charge will be responsible for implementing all the mitigation measures recommended.

Planting of trees on open spaces and road-side should be initiated during construction phase itself. In operational phase, the work should be continued along with post-monitoring of planted area.

An officer should be appointed by the project proponents to ensure monitoring and inspection during construction period as explained above.

Annexure I : Google Image

Annexure II: Layout plan



Annexure III: Contour Plan

Annexure IV: Building configuration and Occupancy

Sr. No.	Building type	Ht.	Configuration	Tenements					Occupancy /flat	Total Population
				2 BHK	3 BHK	4 BHK	4 BHK duplex	Total		
A	**Existing- phase I**									
1.	Villa 1	9.1	G + 2	0	0	21	0	21	5	105
2.	Villa 2	9.1	P + 2	0	0	20	0	20	5	100
B	**Proposed – phase II**									
1.	A	49.98	LP + UP + G + 16	102	0	0	0	102	5	510
2.	B	49.98	LP + UP + G + 16	70	15	0	0	85	5	425

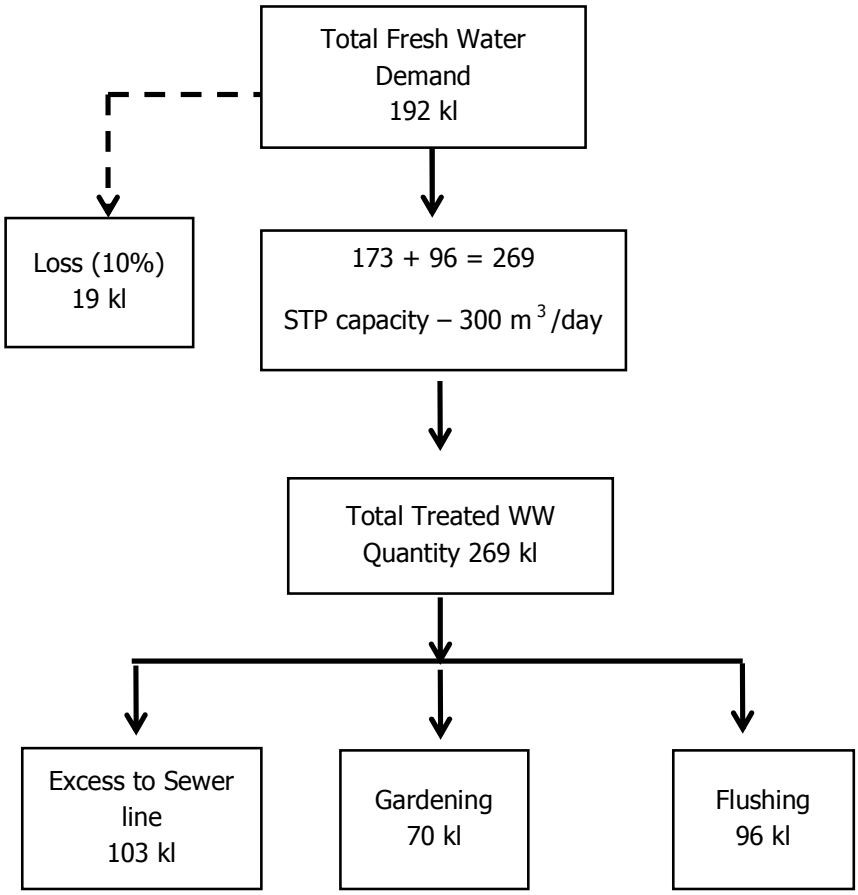
3.	C	49.98	LP + UP + G + 16	0	48	0	4	52	5	260
4.	D	49.98	LP + UP + G + 16	73	12	0	0	85	5	425
5.	E	49.98	LP + UP + G + 16	85	17	0	0	102	5	510
							Total	**426**		**2130**

Annexure V: Water demand and Water Budget and STP details

Water demand:

a.	**Total No. of Tenements**	**426**
b.	Population @ 5 per flat	2130
c.	Assumed Water Consumption [LPCD]	135
d.	Domestic Water Requirement [kl]	**287**
e.	Fresh Water Requirement [kl] (90 lit/day)	192
f.	Flushing Water Requirement [kl] (45 lit/day)	96
g.	For Landscape (11746.77 sq.m)	70
h.	**Total water requirement (Total Fresh Water + Total Flushing + Landscape)**	**358**

Water Budget:



STP details:

Design Parameters

Influent Sewage Characteristics

Estimated Average Daily Flow	-	300 CuM/day
Influent Sewage	-	Domestic
Min. Influent BOD	-	250 – 300 mg/lit
Min. Influent COD	-	300 – 350 mg/lit
Influent pH	-	6 - 8

Effluent Water Characteristics

Effluent BOD	-	<10 mg/lit
Effluent COD	-	<50 mg/lit

Effluent pH	-	7 - 8
Effluent Total Suspended solids	-	<10 ppm
Effluent Usage	-	All effluent water can be used for gardening.
Digested Sludge	-	Sludge Drying Beds

Process Description

Details of Proposed Effluent Treatment System

Process Description:

Raw effluent from the domestic sources shall be screened through Bar Screen to entrap suspended foreign matter. Influent shall be collected in an effluent collection cum holding tank for sufficient storage capacity. Raw effluent shall be feed to aeration system. Oxygen shall be provided through diffused aeration system. Treated effluent from the aeration tank shall be clarified in secondary settling tank. Clarified water shall be passed through pressure sand filter and activated carbon filer to remove traces of solid organic matter in the treated effluent. Activated carbon filter outlet shall be disposed of as a final disposal. Excess sludge shall be disposed of on sludge drying beds / mechanical sludge compactor.

PROCESS UNITS

Bar Screen:

Bar Screen shall be provided at the entrance point of the holding tank to separate floating material form the raw effluent. Screened effluent shall be collected in the holding tank.

Aeration Tank:

Extended aeration system is a specially designed aerobic treatment system. The extended aeration process operates in the endogenous respiration phase of bacterial growth curve, which necessitates a relatively low organic

loading and long aeration time. Thus it is generally applicable to low strength wastewater only. In order to ensure required population of bacteria in the unit, mixed liquor suspended solids (MLSS) concentration and food to microorganism ratio (F/M) is maintained by controlled drainage of excess sludge to drying beds.

Clarifier + Intermediate Tank :

The function of the activated sludge-settling tank (Clarifier) is to separate the activated sludge solids from the mixed liquor. This is the final step in the production of a well-clarified, stable

effluent low in BOD and suspended solids, and as such, represents a critical link in the operation of an activated sludge treatment process. The presence of the large volume of flocculent of solids in the mixed liquor requires special consideration during design of activated sludge settling tanks. Mixed liquor suspended solids are separated from the treated effluent and are recirculated back in the aeration tank to maintain desired quantity of active biological culture in the tank. The effluent will overflow to intermediate tank before passing through sand filters.

Sludge Drying Beds:

Sludge generated during the treatment process will be disposed off on sludge drying beds. Dried sludge shall be scrapped from the beds and disposed in farms / gardening area.

Pressure Sand Filter:

The device is provided to filter the neutralized effluent to remove the suspended solids impurity in the effluent. Clarified water from the settling tank passed through the system to remove traces of suspended particles.

Activated Carbon filter:

Activated carbon filter shall be provided to remove the traces of organic material present in the effluent. It adsorbs the traces of oils, detergents and solvents.

Annexure VI : *SWM Generation, Treatment and Disposal*

Details	**Residential**
Population of project	2130
Biodegradable Waste generation (Kg/day/capita)	0.285
Total Biodegradable waste (kg/day)	**607**
Non Biodegradable waste generation (Kg/day/capita)	0.175
Total Non biodegradable waste (kg/day)	**373**
Disposal: Biodegradable waste	**Organic Waste convertor**

Disposal : Non Biodegradable waste	**Through authorized**

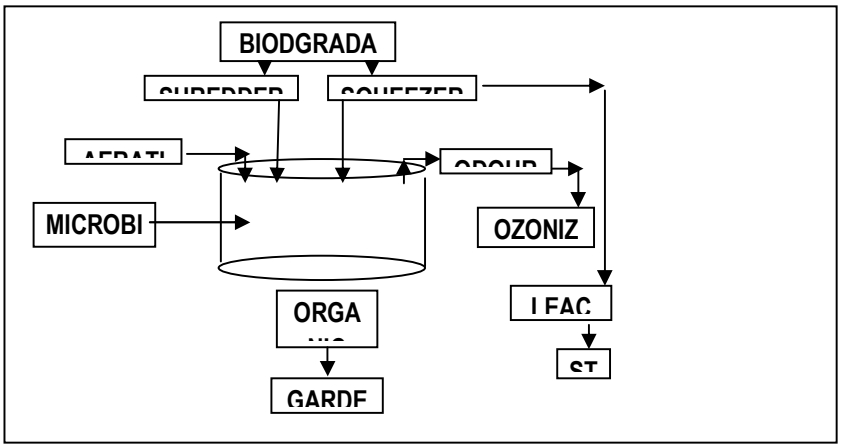
Solid Waste Disposal

- **Disposal of Non-Biodegradable waste:**

Non biodegradable waste will be collected separately from source of generation and further separation as paper, plastic and metal will be done as solid waste management facility and then disposed through authorized vendors

- **Disposal of Biodegradable waste:**
  - Bio-degradable waste collected & bring on processing plant site.
  - It is shredded & squeezed.
  - A Microbial Inoculants is added.
  - The Specific Vessel is filled.
  - The contents are Aerated & turned.
  - Residence time in vessel: 12 days.
  - On 13th day Enrichment Culture added & mixed.
  - The Vessel is emptied.
  - Enriched Organic compost is ready for use.
  - Leachate is collected from squeezer and all Vessels.
  - Leachate is then disposed off through STP.
  - Gasses from Vessels are ozonized.

Organic Waste Converter Flow Chart



Annexure VII : Details of Energy Requirement & Energy Conservation Measures

- **Energy Requirement:**
  - **a. During Construction Phase:**
    - Source of power supply MSEDCL.
    - Total demanded load will be 50 kW approx
    - D.G. Sets. (Approx.62.5 KVA as backup).
  - **b. During Operation Phase:**
    - Source of supply: MSEDCL.
    - Total Connected Load 2269 Kwh
    - Total Demanded load: 2269 Kwh
    - Transformers: 630 kVA X3 nos.
    - DG Sets: 160 kVA X 1 no.
    - Fuel Requirement (Diesel at @ full loading): 33 lit per hour

- **Energy Conservation Measures:**

1. Energy Saving Measures Proposed:-
   a. Use of LED & CFL in Parking area, lift-lobby and stair-case.
   b. Using Solar system in External Lighting (50%). & Landscape lights with LED lamps.
   c. Using V3F drive for all lifts.

2. As per MSEDCL requirements, we have planned to use low loss Transformer. Losses for Transformer shall, in principal, comply to ECBC norms.

3. We are planning to attain power factor of the installation near unity.

4. Following are the Energy efficient fixtures we plan to use in our project for energy conservation.
   3.1 Energy efficient fixtures with T5 lamp & Electronic Ballasts are proposed for parking areas.
   3.2 LED & CFL type of light source are proposed for common Lobby, lounge, Staircase area.

3.3 Automatic time based controls are proposed for all outside lighting to save power by avoiding manual switching ON & OFF the lights.

3.4 Motion Sensors are proposed in Car Parking Areas & Lift lobbies.

3.5 The estimated saving in common area lighting consumption is up to 20% due to adopting above measures

Annexure VIII : *Rain water Harvesting and Storm water Drain*

The rain water harvesting could be done by no of ways. Some of the alternatives are

- Collection of roof rain water from individual building and using it for specified purpose like drinking, garden etc.
- Collection of storm water and utilizing it for recharging of ground water table through existing and new wells.
- Collection of storm water in protected under ground storage tank / open water body and utilization of the same as per requirement.
- Trenching within the plots.

We recommend the following:

- The storm water collected in the storm water conveyance system will be used for recharging of ground water table through the bore wells.
- Wherever possible, the trenches would be provided for percolation.
- Percolation of the rain water depends upon the permeability of earth strata. By. Providing no. of recharge pits and recharge of bore well necessary efforts will be taken for maximum recharging of ground water.

A) Rainwater Harvesting by Ground Water Recharge:

Design Basis:-

- Size of the recharge pit = **4 m x 3 m x 2m Depth.**
- No of recharge pit proposed = **12 pits with bore.**

INCREMENTAL RUNOFF CALCULATIONS

Sr. No	Type of Area	Area in m²	Run of Coefficient	Rain water collection m³/hr
a	For Terrace (Roof) Area	12817	0.90	**10.57**
b	For Road Area	3244.14	0.90	**2.67**
c	For Green Area on ground	6172.37	0.30	**1.70**
d	For Green area on slab	1578.73	0.60	**0.86**
e	Paved area	13138.66	0.8	**9.63**
			Total	**25.43**

Annexure IX: <u>Landscape details</u>

Total Landscape area: 11746.77 sq.m.

Total No. of trees proposed:

- **<u>List of Trees for Existing Madhuban Landscape EC:</u>**

Sr.no.	Botanical Name	Common Name	Qty	Characteristics & Ecological Importance
1.	*Bauhinia acuminata*	White dwarf	10	Flowering shrub, Snowy orchid tree, attractive
2.	*Bahuniapurpurea*	GulabiKanchan	35	Every part of the plant have Medicinal value, Drought tolerant species
3.	*Dalbergia Latifolia*	Sitsal	11	The tree has grey bark that peels in long fiber, Compound leaves,flowering
4.	*Sapodila*	*Chikku*	18	Fruit bearing plant

5.	*Saracaindica*	Sitaashok	15	Medicinal value, Religious plant.
6.	*Ficusglomerata*	Umber	20	Medicinal value,Ediblefruits,bird attractive
7.	Plumeria Alba	Chapha	25	Most attractive, large & strongly perfumed white flowers.
9	*Phyllanthusemblica*	Awala	14	Medicinal value, To control soil erosion.
10.	*Syzygiumcumini*	Jamun	11	Medicinal value, Edible fruit.
11.	*Cordiadichotoma*	Bhokar	13	Medicinal value, Edible fruits,
12.	*Mangiferaindica*	Mango	20	Edible fruit, Bird attracting species
8.	*PlumeriaRubra*	Pink Chapha	18	Popular garden & park plant,fragrant flowers.
13.	*Plumabagocapensis*	Auriculata	25	Flowering plant, bird's attractive plant which gives royal blue flowers, growsbest in full sun to part shade.
14.	*Michelia champaca*	Sonchapha	20	Fragrantflowers, Timber used in wood working
15.	*Ziziphusmauritiana*	Ber	20	Fast growing, Hardy plant, Edible fruit.

- **List of Trees for Proposed Madhuban landscape**

Sr.no.	Botanical Name	Common Name	Qty	Characteristics & Ecological Importance
1.	*Bauhinia acuminata*	White dwarf	10	Flowering shrub, Snowy orchid tree, attractive
2.	*Bahuniapurpurea*	GulabiKanchan	21	Every part of the plant have Medicinal value, Drought tolerant species
3.	*Jack fruit*	Fanas	11	Popular food item, fruitedigible.
4.	*Erythrinaindica*	Pangri	12	Flowering & attractive
5.	*Mangiferaindica*	Mango	20	Edible fruit, Bird attracting species
6.	*Lagestroemiaspeciosa*	Pride of india	13	Medicinal value, wood used for furniture, birdsattractive, flowering
7.	*Plumeria alba*	Chapha	25	Most attractive, large & strongly perfumed white flowers.
8.	*PlumeriaRubra*	Pink Chapha	18	Popular garden & park plant,fragrant flowers
9.	*Phyllanthusemblica*	Awala	07	Medicinal value, To control soil erosion.
10.	*Ziziphusmauritiana*	Ber	11	Fast growing, Hardy plant, Edible fruit.
11.	*Teconagrandis*	*Teak*	10	Tropical hardwood species, Wood use for furniture.
12.	*Cordiadichotoma*	Bhokar	07	Medicinal value, Edible fruits.

13.	*Syzygiumcumini*	Jamun	10	Medicinal value, Edible fruit.

Annexure X : <u>Fire Tender Movement</u>