FORM - 1A

1. Land Environment

S. No.	Information	Details with source of Information data
1.1	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 are 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.	The existing land use is industrial and the land use classification is altered to residential use as the project is the development of residential buildings. Copy of the land use conversion order / GO is enclosed as *Annexure – I*. The location plan (Master Plan) of the project site is given in **Annexure - V**. Topo map showing the surrounding features around the campus is given in **Annexure – VI**. The contour map of the campus is enclosed as **Annexure – VII**.
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.	Major projects requirements: Land area – 40,269 Sq. m. Built-up area – 53,092.8 Sq. m. Water Consumption – 983 KLD Power Requirement – 2160 KVA Connectivity, Community facilities and parking requirement are detailed in **Conceptual Plan**.
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 project is the construction of slum tenements. This is provided with open space, provision for parking and landscaping internally itself. An adequate mitigation measure has been adopted to reduce the negative impacts due to the project during the Construction.
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).	Soil investigation for the site has been carried out. The general soil profile consists of Red Gravel at top for thickness varying from 0.40 to 1.60m, followed by Soft Disintegrated Rock. Below the soft rock, the weathered rock is exists. Detailed

		soil investigation report is enclosed as *Annexure - II*. Vulnerability to subsidence and erosion is less. The site has adequate load bearing capacity. Rain is moderate during monsoon. Lawns and greenery provided within the site will reduce erosion. Roof rain water harvesting facilities has been provided. Storm Water Drains are also provided all along the compound wall. Surrounding area is not waterlogged and there is no instability. Soil is supportive for green belt development and also for building construction. The site falls under zone III of seismic zone classification. However the building is designed with earthquake resistant structure.
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)	There is no alteration in the natural drainage system due to the project development as the site is almost a flat terrain. The natural slopes are utilized for the collection & conveyance of the sewage. The storm water network has been provided inside the project. Rain water will be collected during monsoon period through storm water drain and will be drained into rain water sump and rain water harvesting trench / pits. There is no alteration of natural drainage system. Topographic Contour Survey Map showing the natural drainage at the project site is enclosed as *Annexure – VII*.
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.)	Excavated fertile topsoil during construction phase is stored for use in landscape development within the project site. The lower strata earth excavated from the foundation is used for filling the plinths, road substructure and leveling.

1.7	Give details regarding water supply, waste handling etc. during the construction period.	The quantity of water required during construction phase is not more than 110 KLD which is outsourced with water supply agency. The concrete debris is used for site grading and road filling.
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, there is no low lying area or wetlands within the Project Site.
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)	No, the waste does not contribute any health hazards. The construction debris, construction waste, food waste are segregated and disposed properly.

2. Water Environment

S. No.	Information	Details with source of Information data
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.	The total fresh water requirement of the project is about 983 KLD which is sourced from TWAD Board. The Water requirement details along with water balance chart are given in **Section – 3.5 & 3.6** of **Conceptual Plan.**
2.2	What is the capacity (dependable flow or yield) of the proposed source of water?	Water requirement is sourced from TWAD Board which is having capacity to supply adequate quantity of water.
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)	Water requirement is sourced from TWAD Board supply which is having capacity to supply adequate quantity of water.
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)	The source of the water is TWAD Board supply. The quality of water will confirms the as per IS 10500 drinking water standards.
2.5	Will there be diversion of water from other users? (Please assess the impacts of the project on	The recycled wastewater is used only for Gardening purposes.

	other existing uses and quantities of consumption)	
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)	No incremental pollution loads due to wastewater generation because it will be treated and then recycled. The quantity of recycled water used for gardening, landscaping is shown in water balance chart given in **Figure 3.1** of **Conceptual Plan.**
2.7	Give details of the water requirements met from water harvesting? Furnish details of the facilities created.	Details about the Rainwater Harvesting System to be provided are given in the **Section 3.8** of **Conceptual Plan**.
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?	Barren land is utilized for the construction of buildings. The storm water drains and the rain water harvesting structures provided to collect and utilize the rain water properly. So there will no flooding and water logging in the area.
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)	Ground water is not planned tap for this project as the water requirement will be met from TWAD Board supply. So there is no depletion of ground water. Even though it is provided adequate rain water harvesting and collection system to enhance the ground water table.
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)	During the construction phase the runoff from the construction site is get much polluted. So the run off is connected to external storm water drains after required filtration.
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 run off water from the terrace will be collected through the collection pipes and leads to rain water structures. The excess water and other surface run-off will be collected through the channel provided all along the internal roads and flows into the rain water harvesting trench and pits.
2.12	Will the deployment of construction laborers particularly	Most of the laborers has been deployed locally and the adequate sanitary facilities

	in the peak period lead to unsanitary conditions around the project site. Justify.	has been provided for workers residing there temporarily.
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)	About 852 KLD of sewage will be collected through a well designed sewer network and treated in the STP, and quality of the treated sewage will meet the standards prescribed by CPCB/TNPCB. The Details of waste water quantity, treatment system & technology are given in the **Section 3.5** of **Conceptual Plan.**
2.14	Give details of dual plumbing system if treated waste is used for flushing of toilets or any other use	Treated sewage will be used for Gardening.

3. Vegetation

S. No.	Information	Details with source of Information data
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)	The project site is a barren land with minor vegetation. It is observed that there is no ecologically important species of flora & fauna in the local ecosystem of the project site. Thus, there is no threat to the biodiversity.
3.2	Will the Construction involve extensive clearing or modification of vegetation? (provide a detailed account of the trees & vegetation affected by the project)	The project site is a barren land devoid of any vegetation. However, there was minor clearing activities which took place to clear the thorny shrubs and there no significant loss of trees. Green belt is being developed using native species around the site during operational phase which enhance the aesthetic nature.
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?)	Green belt / Landscaping is being developed inside and periphery of the project site. List of species for green Belt development are given in the **Table 4.3** of **Conceptual plan.**

4. Fauna

S. No.	Information	Details with source of Information data
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.	The project activity is neither displacing any terrestrial or aquatic fauna. The land is not coming in the migration route or does not intercept any corridor of fauna movement.
4.2	Any direct or indirect impacts on the avifauna of the area? Provide details.	No impact on avifauna is anticipated. There is positive impact due to development of green belt and landscaping.
4.3	Prescribe measures such as corridors, fish ladders etc to mitigate adverse impacts on fauna.	These measures are not applicable for this project.

5. Air Environment

S. No.	Information	Details with source of Information data
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)	There is no significant increase in atmospheric gases due to this project. The heat island effect is minimized by developing green belt and parks.
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.	The project involves the construction of slum tenements hence odorous fumes and hazardous gases generated. Dust generated from construction & road activities is suppressed by sprinkling of water in the activity zone and insignificant level of smoke arose from the construction equipment & vehicles which is mitigated by proper maintenance. During operational phase only fugitive emissions are expected. Parks have been developed within the compound and they will help in the sorption of gaseous pollutants.
5.3	Will the proposal create shortage of parking space for vehicles?	Open parking spaces has been provided within the compound.

	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.	
5.4	Provide details of the movement patterns with internal roads, bicycle tracks, pedestrian pathways, footpaths etc., with areas under each category.	All internal roads are well planned in such a way to reach all places with ease. Access path has been provided all the blocks. The roads are shown clearly in the Master Plan.
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 noise level inside the site is increased slightly due to the movement of vehicles and from the machines used in construction activities. The noise level are reduced by the slow movement of vehicles. Installation of speed humps are reducing the speed of the vehicles. Properly well maintained vehicles are used to reduce the noise.
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	The green belt development also help in reducing noise levels at the site.

6. Aesthetics

S. No.	Information	Details with source of Information data
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?	The project not affects obstruction of the view, scenic amenity or landscapes and importantly there are no such activities around the project site. In fact this project exhibit green belt development around the periphery of the project site which will enhance the aesthetic view.
6.2	Will there be any adverse impacts from new constructions on the existing structures? What are the considerations taken into account?	As the project is carried out within the confined area there are no adverse impacts from new constructions on the existing structures.
6.3	Whether there are any local considerations of urban form & urban design influencing the design criteria? They may be explicitly spelt out.	There exist no 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.	There are no anthropological, archaeological, artifact sites in the vicinity of the site.

7. Socio-Economic Aspects

S. No.	Information	Details with source of Information data
7.1	Will the proposal result in any changes to the demographic structure of local population? Provide the details.	As the project involves construction of 1440 tenements for people living in slums people living in slums / water bodies. There is no chance to increase in the local population in the project site as the population expected to occupy is about 7200 Nos.
7.2	Give details of the existing social infrastructure around the proposed project.	Most of the basic infrastructure facilities like schools, colleges, etc available in the study area.
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 is not causing any disturbance to the local communities. There are no sacred sites or cultural values nearby.

8. Building Material

S. No.	Information	Details with source of Information data
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)	Standard list of building materials are used and their use is inevitable. Some of them have high embodied energy like cement, steel, etc., however it seen that cement having ingredients of pozolonic ash, steel having some percent as scrap raw material recycled and use of glass is minimal. Selection of energy efficient material in the project wherever feasible has been considered. Efforts have been taken to minimize the use of virgin wood and Building materials with high embodied energy, to the possible extent materials with high recycle content are used in the project.

		Also the regionally available materials (Within 250 miles radius from the project site) are given priority.
8.2	Transport and handling of materials during construction may result in pollution, noise & public nuisance. What measures are taken to minimize the impacts?	• Use of well maintained vehicles for construction activities • Vehicles carrying construction materials should be properly covered. • Equipment like earplugs, safety shoes, googles, etc., has been used for hearing protection for workers. • Cover piles of building materials like cement, sand and other materials. • Limitation of vehicle speeds • Control dust through fine water sprays
8.3	Are recycled materials used in roads and structures? State the extent of savings achieved?	• Excavated top soil has been used for landscaping in the site. • Lower soil is used for leveling site, road and play areas. • Broken concrete is used for erosion control
8.4	Give details of the methods of collection, segregation & disposal of the garbage generated during the operation phases of the project.	The method of collection, segregation & disposal of the garbage generated during the operation phases is detailed in the **Section – 3.7** of **Conceptual Plan.**

9. Energy Conservation

S. No.	Information	Details with source of Information data
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?	Electricity connection is obtained from TANGEDCO. Total Electric load for the project is 2160 KVA. Energy conservation techniques: • Energy efficient fluorescent lamps are used for setting up street lights • Solar water heater provision are provided
9.2	What type of, and capacity of, power back-up you plan to provide?	There is no power backup system installed for the project.
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	Since the project is construction of slum tenements, glass is used only for windows.

	radiation	
9.4	What passive solar architectural features are being used in the building? Illustrate the applications made in the proposed project.	Each dwelling unit is designed in such that sufficient sunlight can be availed by the occupants during summer and winter seasons.
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 Apartments? Substantiate with details.	The site layout has been developed taking into consideration the need for utilizing renewable resources i.e. sunlight. The residential blocks are spaced such that sufficient sunlight reaches each dwelling unit. Each dwelling unit is designed such that sufficient sunlight can be availed by the occupants during summer and winter seasons.
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?	Green belt with native trees is being developed on the available spaces of the project. These will provide shade and aid in cooling the surrounding areas.
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.	It has been constructed building considering natural ventilation, reducing dependent on electrical energy. Proper landscaping and green belt development is enhancing aesthetics and reduce noise and vibration caused by traffic. Lighting is mostly on fluorescent and Compact Fluorescent lamps which are energy efficient.
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?	As the project is a residential building, the air pollutants released into the atmosphere is very less and that too is from vehicles. There are no major impacts on the micro-climates. Even though the trees and bushes planted around the building help in reducing ambient air temperature through evapo-transpiration. The area is dry and the warm air which is less dense rises up and helps in the dispersion of pollutants. Thus there will be no inversion effects.
9.9	What are the thermal characteristics of the building	The U value and the R value for roof, external walls and fenestration is designed

<table>
<tr><td></td><td>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.</td><td>as per the standards of Energy Building Code.
<table>
<tr><th>Parameter</th><th>Configuration</th><th>Resultant Value</th></tr>
<tr><td>U-Factor for roof</td><td>RC Slab finished in bituminous waterproofing, PCC Laid to slope, IPS and white china mosaic with glazed finishing</td><td>0.05 W/m2K</td></tr>
<tr><td>U-Factor for walls</td><td>200mm block work, clad in 25mm granite slabs</td><td>0.39 W/m2K</td></tr>
</table></td></tr>
<tr><td>9.10</td><td>What precautions & safety measures are proposed against fire hazards? Furnish details of emergency plans</td><td>All buildings are designed such that when an emergency situation arises evacuation can be done efficiently. Contact details for the nearest Fire Safety Department are displayed prominently within the site.</td></tr>
<tr><td>9.11</td><td>If you are using glass as wall material provides details and specifications including emissivity and thermal characteristics.</td><td>Glass is not used as a wall material in the project.</td></tr>
<tr><td>9.12</td><td>What is the rate of air infiltration into the building? Provide details of how you are mitigating the effects of infiltration.</td><td>This is a residential building with no significant pressure difference inside and outside of the building. Controlling infiltration is one of the measures to conserve energy. Infiltration is reduced by sealing cracks and gaps and by properly placed plants near the buildings.</td></tr>
<tr><td>9.13</td><td>To what extent the non-conventional energy technologies are utilized in the overall energy consumption? Provide details of the renewable energy technologies used.</td><td>The site layout has been developed taking into consideration the need for utilizing renewable resources i.e. sunlight and local air movement.

The blocks are constructed with space such that sufficient sunlight and natural ventilation reaches each dwelling unit reducing the dependency on electrical energy.</td></tr>
</table>

10. Environmental Management Plan

S. No.	Information	Details with source of Information data
10.1	Environmental Management Plan would consist of all mitigation measures pertaining to the anticipated impacts raised due to	The impacts on air quality during construction & operation phase is due to vehicular movement, which is controlled by spraying water on roads, use of dust

	the various activities related to the project during Construction and Operation phase. Along with that Environmental Monitoring Plan will be proposed in such a way to monitor the impacts during operation phase for the entire period	covers, etc. The Impacts on noise quality during construction & operation phase is due to the vehicular movement and this is controlled by adopting better traffic management. The impacts on water quality during the construction & operational phase are due to sewage generation which is treated in the STP and treated sewage is used for gardening & landscaping. The impact on soil is due to generation of construction and demolition waste. This was controlled by implementing appropriate waste management system in both the phases of the project. The detailed EMP is given in **Section 4.0 of Conceptual Plan.**

1.0 INTRODUCTION

1.1 Background of the project

Tamil Nadu Slum Clearance Board (TNSCB) was formed by Tamil Nadu Slum Areas (Improvement & Clearance) Act 1957 with the motto "God we shall see in the smile of the poor" for the construction of storied tenements with adequate basic amenities so that the slums might not be a source of danger to the health, safety or well being of the public. Initially, its activities were confined to the Chennai city. Subsequently, TNSCB was extended to other Municipalities and Town Panchayats in Tamil Nadu and are currently implementing various housing and Slum Improvement programmes.

1.2 Objectives of Tamil Nadu Slum Clearance Board

The main objectives of Tamil Nadu Slum Clearance Board are

- To clear all the slums in Chennai & other towns in Tamil Nadu to provide self contained hygienic tenements.
- To prevent the growth of slums & encroachments.
- To prevent the eviction of slum dwellers by private owners and to provide the slum families with security of tenure.
- To provide basic amenities like water supply, street lights, storm water drains, sewer line, etc to the slum areas

1.3 JNNURM Scheme

The Government of India has constituted the "Jawaharlal Nehru National Urban Renewal Mission" (JNNURM) to assist local bodies for urban development. JNNURM is a Government of India initiative aiming at encouraging reforms and fast track planned development of identified cities. The Mission addresses the following main concerns,

- Integrated development of infrastructure services
- Ensure adequate funds to fulfill deficiencies
- Planned development of cities

- Provision of services for the urban poor
- Secure effective linkages between asset creation and asset management

The Funding pattern for the projects under JNNURM (BSUP) is as follows:

GOI grant: 50% of project cost	Excludes certain components like Convenient shop, store shed, Ration shop, Burial ground, Price escalation, tender excess, contingencies and supervision charges etc.,
GTN share & Beneficiaries share: 50% of project cost	Beneficiaries share at 10% for SC/ST &12% for other weaker section to be collected as housing should not be provided free to the beneficiaries as per Mission's policy and the balance 40% is to be borne by the GoTN as its share.

Based on the above guidelines, the Government of Tamil Nadu, Tamil Nadu Slum Clearance Board (TNSCB) has constructed residential tenements for the Economically Weaker Section at Malumichampatti Nagar, Malumichampatti Village, Madukkarai Taluk, Coimbatore District.

Since the activity constitutes construction of buildings in an area greater than 20,000 Sq. m., it requires Environmental Clearance from State Environment Impact Assessment Authority (SEIAA) under sector 8(a) of EIA Notification 2006.As TNSCB have started the construction without obtaining prior EC, the file has been delisted by SEIAA and project is pending for want of Environmental Clearance. In order to obtain EC from MoEFCC we are applying to EAC, MoEFCC to get EC as per the procedure prescribed in Notification dated 12.03.2017.

The total plot area acquired for the project is about **40269 Sq. m.** and will have a total built up area of **53092.8 Sq. m.** As per screening of EIA in accordance with Ministry of Environment & Forest (MoEF) guidelines, Conceptual Plan is prepared in order to describe the Project Activity and Environmental Management Plan.

In this regard, **Tamil Nadu Slum Clearance Board (TNSCB)**has appointed **M/s.ABC Techno Labs India Private Limited,Chennai,** accredited by National Accreditation Board for Education and Training (NABET) – Quality Council of India (QCI), New Delhi to formulate Environmental Management Plan during Construction & Operational Phases to mitigate any adverse impacts to the Environment.

The Conceptual Plan describes all the details of the project and its specific activities that are considered for investigation of the significant adverse impacts. The report also provides specific measures that put to practice to minimize the impacts on the Environment.

2.0 Description of the Project Site

2.1. Location

The project site of construction of 1440 tenements site is located at S.F. No. 195/2, Malumichampatti Nagar, Malumichampatti village, Madukkarai Taluk of Coimbatore district which is located in Latitude 10°55'40.09"N and Longitude 77°00'25.00"E. The location of the project site is presented in **Figure - 2.1** and the Google Image of the project site is given in **Figure - 2.2.**

2.2. Environmental Sensitivity of the project site

The project site is selected to develop the residential tenements. The site is categorized as Industrial Use Zone by Local Planning Authority, Coimbatore. The land use classification has been altered as the project is the development of residential tenements. The copy of the land use conversion order / GO is enclosed as **Annexure - I.**

Topo map covering 500 m radius from periphery of the project site is enclosed as **Annexure - VI.** It indicates that the facilities adjacent to the project site are residential and agricultural Area. The project site is surrounded by residential area developed under government housing scheme, M/s. Cutting Systems Pvt Ltd, SNMV College and dry agricultural lands. Hence development and land use are consistent with the surroundings. Topo map of the project site covering 10 km radius is given in **Figure 2.3.** The environmental setting of the project site is given in **Table - 2.1.**

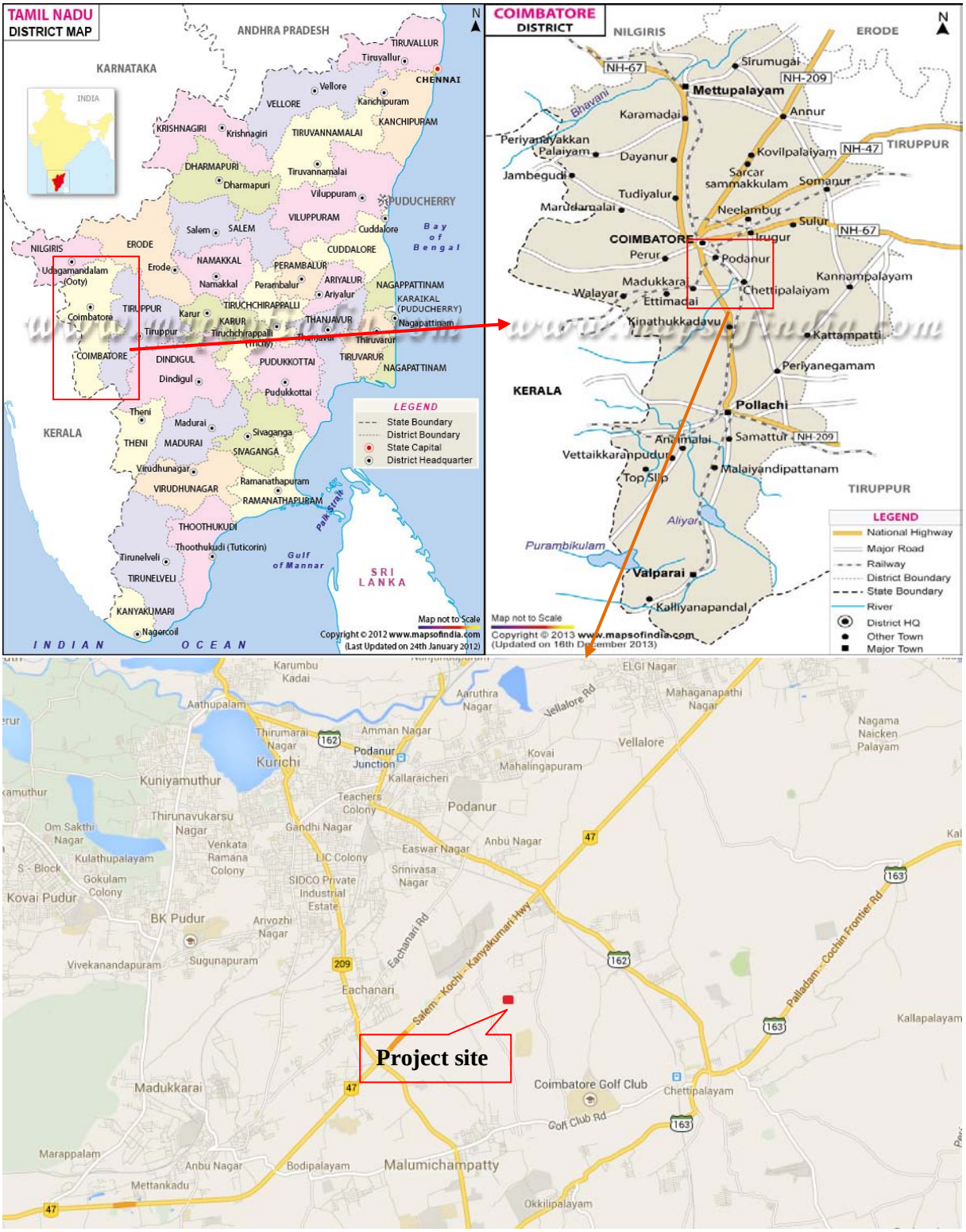

FIGURE - 2.1: MAP SHOWING THE LOCATION OF THE PROJECT SITE

FIGURE - 2.2: GOOGLE IMAGE OF THE PROJECT SITE

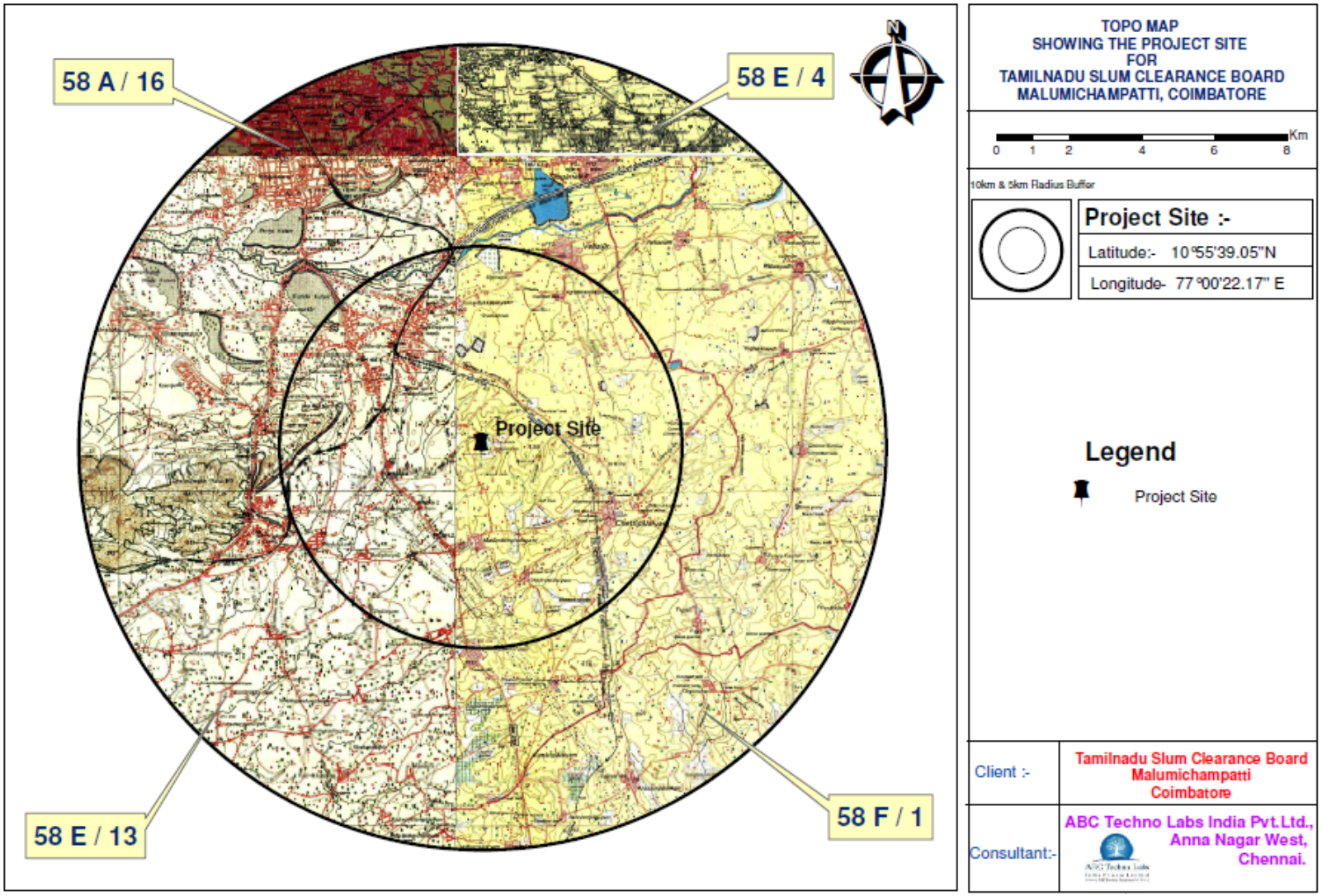

FIGURE - 2.3: TOPO MAP OF THE PROJECT SITE COVERING 10 KM RADIUS

TABLE - 2.1 : ENVIRONMENTAL SETTING OF THE PROJECT SITE

S. No.	Particulars	Details
1	Latitude	10°55'40.09"N
2	Longitude	77°00'25.00"E
3	Elevation above MSL	400 m
4	Topography	Plain
5	Land use classification	Industrial converted to Residential use
6	Nearest Roadway	NH - 47 (Salem - Kanyakumari Highway) – 0.8 km, NW
7	Nearest Railway Station	Podanur Railway Station – 4.5 km, SE Coimbatore Junction – 9.0 km, NNW
8	Nearest airport	Coimbatore Airport – 12 km, NNE
9	Nearest town/ city	Coimbatore – 10 km, NNW
10	Hills/ valleys	Dharmalingam Hills - 6.3 km, West Ayyasamy Hills - 9.4 km, West
11	National parks/ Wildlife Sanctuaries/Zoos	No such areas within 15 Km radius
12	Nearest Water body	Noyyal River – 5.3 km, North Kuruchi Kulam – 5.6 km, NW Periya Kulam – 7.5 km, NW
13	Reserved/ Protected Forests	Bolampatti Block 2 Reserved Forest - 6.3 km, West
14	Seismicity	Seismic Zone III as per IS : 1893 (Part-1): 2002
15	Defense Installations	No such areas within 15 Km radius
16	Nearest Sea Port	Cochin Port –133 km, SW

2.3. Site Connectivity

The project site is well connected by road, rail and air ways. The project site located at SNMV College Road which is a road the National Highway (NH 47) with Malumichampatti via SNMV College. The NH is located at 0.8 km from project site and is connecting Coimbatore city with Salem, Chennai, Bangalore and other parts of the country. The project site is just 4.5 km away from Podanur railway station and 9.0 km from Coimbatore Junction. The Coimbatore International Airport is also situated at a distance of 12.0 km from project site. The figure showing the local connectivity to the project site in the nearby region is given in the **Figure - 2.4.**

Figure 2.4 - MAP SHOWING THE SITE CONNECTIVITY OF THE PROJECT SITE

2.4. Topography & Drainage

Topographically, the project area is flat terrain with shrubs and pushes. The contour map is enclosed as **Annexure - VII**. The project site and the Drainage map of the project site covering 10Km radius are given in **Figures 2.5.**

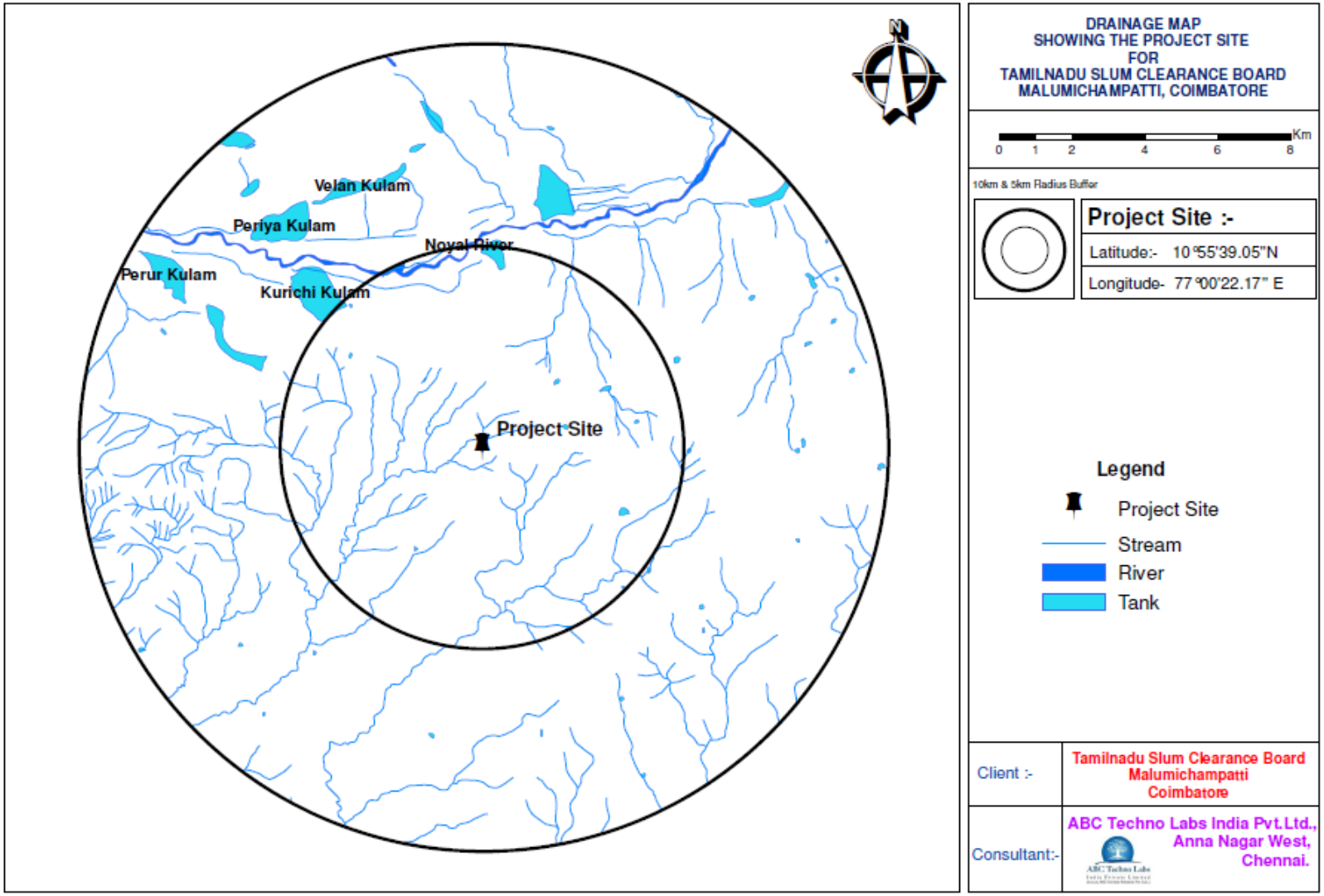

FIGURE - 2.5: DRAINAGE MAP OF THE PROJECT SITE COVERING 10KM RADIUS

3.0 PROJECT DESCRIPTION

3.1. Overview of the project

Tamil Nadu Slum Clearance board has constructed 1440 Tenements with 24 blocks having G+3 (4 Storied) at S.F. No. 195/2, Malumichampatti Nagar, Malumichampatti village, Madukkarai Taluk, Coimbatore district. The land transfer recommendation issued by District Collector, Coimbatore and possession certificate issued by Revenue Inspector of Madukkarai Firka is enclosed as **Annexure - III.** The total built up area of the project is **53092.8 Sq. m.** TNSCB got Planning Permission from DTCP of Tamilnadu & Kuruchi New Town Development Authority for this project and the copy of the approval is enclosed as **Annexure - VIII.**

The land use break-up area details of the project site and the summary of the built up area statement is given below in **Table - 3.1 & 3.2.** And the salient features of the project details are given in **Table - 3.3.** The Master plan of the project site is enclosed as **Annexure - V.**

TABLE - 3.1: BREAK-UP AREA DETAILS

Description	Area in Sq. m	Percentage (%)
Plot Coverage Area	13288.77	33.00
Park Area (OSR)	4041.04	10.04
Landscape Area	6109.38	15.17
Public Purpose Area	2055.16	5.10
Internal Roads Area	9759.00	24.23
Open Parking Area	2181.35	5.42
Remaining Open Area	2834.30	7.04
Total Plot Area	**40269.00**	**100.00**

TABLE - 3.2: SUMMARY OF BUILT UP AREA STATEMENT

Area Details	No of tenements	Total (in Sq. m)
Typical Block (1 – 3)		
Ground Floor	8	294.96
First Floor	8	294.96
Second Floor	8	294.96
Third Floor	8	294.96
Total per Block	**32**	**1179.84**
Total for 3 Blocks (x 3)	**96**	**3539.52**
Typical Block (4-24)		
Ground Floor	**16**	589.92
First Floor	**16**	589.92
Second Floor	**16**	589.92
Third Floor	**16**	589.92
Total per Block	**64**	**2359.68**
Total for 21 Blocks (x 21)	**1344**	**49553.28**
GRAND TOTAL	**1440**	**53092.8 ≈ 53093**

TABLE - 3.3: SALIENT FEATURES OF PROJECT

DESCRIPTION	DETAILS
Total Area of Extent	40269 Sq. m (9.95 Acres)
Total Built up area	53092.8 Sq. m
Plot Coverage	33.00 %
FSI Allowed & Achieved	1.32
Green Belt Area	10150.42 Sq. m
Total Parking Area Provided	2181.35 Sq. m
Source of water supply	Local body or TWAD Board
Water requirement	983 KLD
Quantity of wastewater generation	852 KLD
Treatment system for waste water	900 KLD
Power requirement & Source	2160 KVA - Tamil Nadu Generation & Distribution Corporation Limited (TANGEDCO)
Solid waste generation, treatment and	3600 kg/day

management	Bio-degradable Waste – Madukkarai Panchayat Union Inert Waste – Land Filling Non Biodegradable Waste – Recyclers

3.2 Population Details

The total manpower requirement during the construction phase and the expected population during the operational phase of the project are given below in **Table - 3.4** and **Table - 3.5** respectively.

TABLE - 3.4 : MANPOWER REQUIREMENT DURING CONSTRUCTION PHASE

S. No.	Description	
1	Approximately 700 persons	Inclusive of workmen, Laborers, Supervisors, Engineers, Architects and Managers

TABLE - 3.5: EXPECTED POPULATION DETAILS DURING OPERATIONAL PHASE

S. No.	Description	No of dwelling units	No. of Persons / Dwelling unit	Total Occupancy
1	Dwelling Units	1440	5	7200
2	Visitors @ 10%	---	---	720
	Total Population			**7920**

3.3 Project Cost

The cost of the slum tenement construction project is Rs. 79.18 Crores.

3.4 Construction Materials

Quantity of construction materials utilized for the construction is given below in **Table - 3.6.**

TABLE 3.6 - QUANTITY OF CONSTRUCTION MATERIALS REQUIRED

Material Description	Units of Measurement	Approx Qty
Cement	Tons	10,001
Sand	Cu ft	6,85,783
Aggregates	Cu ft	4,00,040
Steel	Tons	2,286
Bricks	Nos	1,02,86,750

3.5 Water Requirement

Water requirement during Construction Phase is about 110 KLD which is sourced from outside through tankers by civil contractors.

Total water requirement during Operation Phase of the project is about 983 KLD. The fresh water is being sourced from TWAD Board and the water supply commitment letter issued by TWAD Board is enclosed as **Annexure – IV**.

3.6 Wastewater Generation, Treatment & Disposal

During construction phase, domestic wastewater generation of 31 KLD is treated in the Septic tanks with dispersion trenches.

During operational phase, total wastewater generation of the project is about 852 KLD which will be treated through the Sewage Treatment Plant (STP) having capacity of 900 KLD. The treated wastewater of 809 KLD will be reused for gardening and landscaping (35 KLD) within the facility and the excess water will be disposed outside. Detail about the STP report is given in **Annexure - IX**.

TABLE 3.7 - WATER REQUIREMENT AND WASTEWATER GENERATION CALCULATIONS

S. No.	Description	No. of dwelling units	No. of Persons / Dwelling unit	Total Occupancy	Water requirement (LPCD)		Water requirement (LPD)		Wastewater Generation (LPD)	
					Domestic	Flushing	Domestic	Flushing	Domestic	Flushing
1	Dwelling Units	1440	5	7200	90	45	648,000	324,000	518,400	324,000
2	Visitors	-	-	720	10	5	7,200	3,600	5,760	3,600
Sub Total							**655,200**	**327,600**	**524,160**	**327,600**
Grand Total							**982,800 ≈ 983 KLD**		**851,760 ≈ 852 KLD**	

NOTE: LPCD – Litres per Capita per Day

LPD - Litres per Day

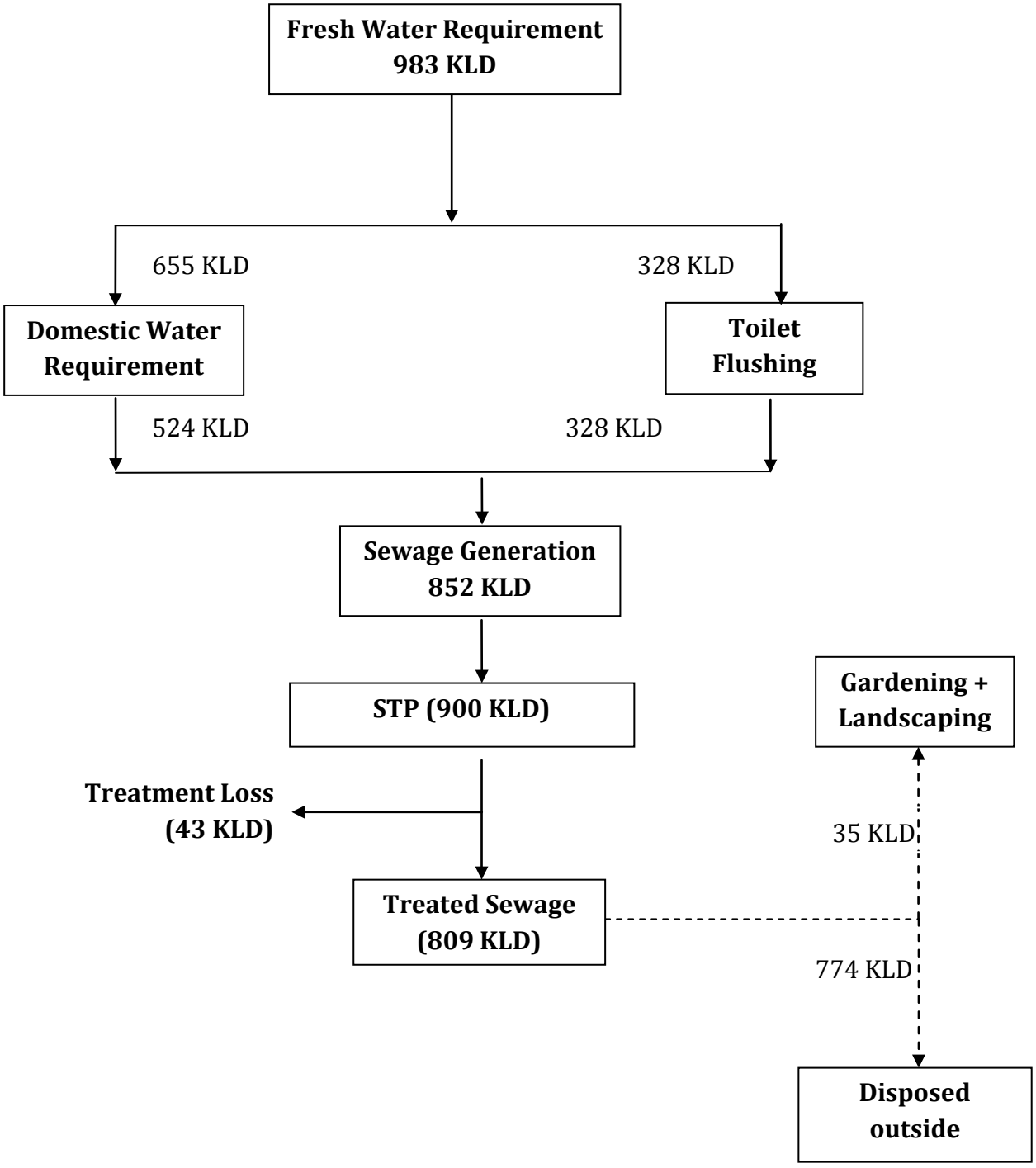

FIGURE - 3.1: WATER BALANCE

3.7 Solid Waste Generation, Collection, Transport and Disposal

The quantity of municipal solid waste generation and Solid waste management from the residential tenements is estimated and tabulated in **Table – 3.8 & Table – 3.9**.

TABLE - 3.8: SOLID WASTE GENERATION

S. No.	Source	No. of Persons	Generation rate	Quantity (kg/day)
1	Residential units	7200	0.5 kg/person/day	3600
2	STP Sludge			120
	Total			**3720**

TABLE 3.9: SOLID WASTE MANAGEMENT

S. No.	Description	Quantity (kg/day)	Method of Treatment / Disposal
1	Biodegradable Waste (30%)	1080	To be collected and handed over to Madukkarai Panchayat union for disposal
2	Non-biodegradable Waste (60%)	2160	Authorized Recyclers
3	Inert Waste (10%)	360	Land fill
4	STP Sludge	120	Used as manure in gardening

- Dust bin provision is provided for each Block.
- The garbage will be collected and stored in garbage collection room and segregated as Bio-degradable waste, Non-biodegradable waste and inert waste using different color coded bins.
- The organic waste/Biodegradable waste generated will be disposed to Madukkarai Panchayat Union for further treatment in its common composting facility and the commitment letter for solid waste disposal is enclosed as **Annexure X**.
- The non biodegradable consists of mostly recyclable materials which will be sold to local vendors for recycling.
- The inert materials will be used as filling material in land filling as it is not recyclable
- Dewatered STP sludge will be used as manure in landscaping within the site.
- The quantity of excavated earth material is 13435 Cu. m of Foundation earth works, which is used for construction filling / road lying / play area leveling.

- Quantity of construction debris during construction phase is 110 kg/day which is disposed to appropriate vendors.

3.8 Rainwater Harvesting & Storm Water Drain

A rainwater harvesting system comprises components of various stages – transporting rainwater through pipes or drains, filtration, and recharging the ground water through tanks. Percolation pits are constructed for ground water recharge. Runoff from the first spell of rain carries a relatively large amount of pollutants from the air and catchments surface so the system provided with a filtration pit consisting of layers of sand, gravel and pebbles of relevant sizes to remove impurities from the collected rainwater.

3.8.1 Need for rainwater harvesting

- Surface water is inadequate to meet the daily demand and we have to depend on ground water.
- Due to rapid urbanization, infiltration of rain water into the sub-soil has decreased drastically and recharging of ground water has diminished.
- Rainwater harvesting prevents the flooding of low-lying areas in the site.
- Salinity of ground water is reduced.

3.8.2 Rainwater Harvesting Network

Rain water harvesting trenches are constructed all around residential blocks tocollect rain water. Excess storm water will be allowed to drain into the external storm network. The depth of the trench will be 1.5m and the width will be 1m. The trench will be filled with rounded pebble 50 to 70mm size. The sectional detail of the rain water recharge pit is shown in **Figure 3.2.**

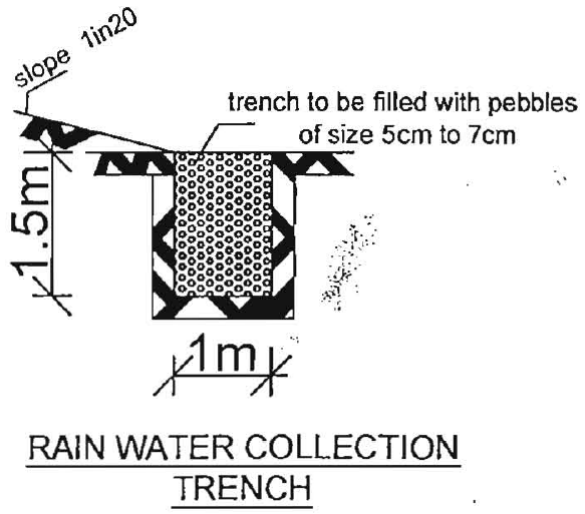

Figure 3.2 Section of RWH Trench

A total of 192 Rain water harvesting pits are constructed in the project site (two around each block) to collect and Harvest the rain water from roof tops. The path ways around the boundaries of the project site are graded to facilitate drainage into trenches. Surplus water from the recharge wells/pits shall be diverted to the external storm water drainage network. The quantity of run-off water potential for the said project is given below.

Table3.10 (A) RAIN WATER AVAILABLE FROM ROOF TOP AREAS

S.NO.	ITEM	AREA
1	Roof top Areas	13288.77 m^2
2	Rainfall minimum	0.87 m/Annum
3	Runoff co-efficient for Roof-top area	0.9
4	Net quantity of water available for harvesting	10405 m^3/ Annum

Table 3.10(B) RAINWATER FROM UNPAVED AREA

S.NO.	ITEM	AREA
1	Paved area	13995.51 m^2
2	Rainfall minimum	0.87 m/ Annum
3	Runoff co-efficient for paved surface area	0.7
4	Net quantity of water available for harvesting	8523 m^3/ Annum

Table 3.10 (C) RAIN WATERNAVAILABLE FROM PAVED AREAS

S.NO.	ITEM	AREA
1	Unpaved area	12984.72 m^2
2	Rainfall minimum	0.87 m/ Annum
3	Runoff co-efficient for paved surface area	0.3
4	Net quantity of water available for harvesting	3389 m^3/ Annum

Total Quantity of water available for Harvesting (A + B+ C) = 22317 m^3 / Annum

3.9 Power Details

Power is availed from Tamil Nadu Generation & Distribution Corporation Limited. Total Electric load for the project is 2160 KVA. No DG set is provided for this project.

3.10 Fire Fighting System

The fire extinguishers has been provided all over the building for immediate use. The type of hand appliances provided is such that the fire extinguishers can be directly taken and used for firefighting purpose at any location inside the building. NOC obtained from Fire & Rescues Services Department is enclosed as **Annexure - XI**.

The design of the Fire Fighting system for Residential Tenements is carried out as per the guidelines laid out in the IS 2190:1992.

3.11 Parking area details

The residential construction is carried out to accommodate approximately 1440 families belonging to the Economically Weaker Section. The built-up area of each dwelling unit is 36.87sq.m and as per DTCP guidelines no parking is required for the dwelling units having built-up area of 40 sq. m. Even though it is provided on-site parking facilities to the extent of **2181.35 Sq. m** to accommodate 1440 two wheelers and is designed in such a way that there is no restriction on accessibility to parking.

3.12 Project Schedule

Period of Completion of project with Bar chart & Schedule is enclosed as **Annexure – XII**.

4.0 ENVIRONMENTAL MANAGEMENT PLAN

A detailed environmental management plan to be followed during the construction and operation phase is presented in **Table - 4.1** and **Table - 4.2.**

TABLE - 4.1 : ENVIRONMENTAL MANAGEMENT PLAN – CONSTRUCTION PHASE

S. No	Environmental Impacts	Mitigation Measures
(i)	Air pollution due to emissions from construction machinery and movement of vehicles.	a) Vehicles transporting construction materials prone to fugitive dust emissions are covered. b) Trucks carrying sand is provided with tarpaulin sheets to cover the bed and sides of the trucks. c) Idling of delivery trucks or other equipment are not be permitted during loading and unloading. d) All construction vehicles are complying with air emission standards and be maintained properly. e) Development of alternative access routes to the site by passing the residential areas to avoid air pollution
(ii)	Air pollution, noise and safety hazard due to movement of construction vehicles through internal roads of residential areas.	a) Identification of alternate access roads to the site to facilitate one-way movement of traffic or reduction of traffic density on any particular road b) Improvement of road surface to standards adequate to withstand movement of heavy construction vehicles c) Installing appropriate signage and deploying flagmen during peak traffic period to regulate the movement of traffic
(iii)	Noise pollution due to operation of construction machinery at the site.	a) Construction contracts are specified that the construction equipment should meet the noise and air emission levels as per EPA Rules, 1986.

		b) Generator sets are provided with noise shields around them. c) Vehicles used for transportation of construction material are well maintained. d) The workers operating high noise machinery or operating near it are provided with ear plugs e) The high noise generating stationary machinery is located at central portion of the site
(iv)	Impact on community water resources (quality).	a) All wastewater discharges from construction site are received in septic tanks with adequate capacity. b) Oil handling and storage area is surfaced and provided with catch pit to intercept any accidental spillages.
(v)	Sanitation and healthcare at workers camp	a) The contractor has been installed adequate lavatories and baths at the construction camp to cater to the requirements of the workers. b) The contractor built septic tanks with adequate capacity at construction yard. c) All organic waste guaranteed at construction yard is properly disposed to local body. d) Regular health check-ups of construction workers are organized at construction camp.
(vi)	Improvement of Access Roads to the site	a) Improvement and widening of the existing access roads. b) Establishing road connection c) Relocation of the encroachments in temporary shelters if the approach road along the boundary of the project site connecting the road is used for transportation of construction materials to the site. d) Establishment of additional connecting roads to the project site to provide multiple accesses points.

(vii)	Impact on Micro Climate	a) On-site planting of trees to provide shade. b) Planting of numbers of trees, of species like *PoongamiaGlabra*, *Acacia arabica,Azadirachtaindica*, *Thespesiapopulnea*, *EnterolobiumSaman* etc., along the avenues and on the designated open spaces to ensure the improvement of micro-climatic condition of the project site.

Table – 4.2: Environmental Management Plan - Operation Phase

S. No.	Environmental Impact	Mitigation Measures
(i)	Increase in ambient air level and noise level due to vehicular movement inside the residential development.	a) Restricting the speed of the vehicles inside the campus. b) Internal roads will be maintained properly for free movement of vehicles. c) Roadside tree plantation to be restored and maintained. d) Besides additional planting of trees will be done wherever feasible. e) Proper maintenance of vehicles will reduce the impacts.
(ii)	Affect land and ground water if sewage generated is not properly disposed.	Sewage from the buildings will be conveyed to the Sewage Treatment Plant. The sewage treatment plant comprises of the aerobic treatment system and filters for effective treatment. The treated water from sewage treatment plant will be reused for green belt development. The surplus treated water will be properly disposed as per the norms.
(iii)	Affect land and ground water if solid waste is not properly disposed.	a) Proper segregation and collection of wastes will be practiced. b) Collection of wastes from Tenements and dry leaves which are biodegradable in nature will be segregated and properly treated. c) The non-biodegradable solid wastes are sold to vendors and while transporting the waste the vehicles are covered properly to avoid spillages.
(iv)	To avoid depletion of water resources	a) Rain water harvesting structures will be constructed to recharge the ground water. b) Percolation pits will be made at suitable points to collect the runoff generated from the paved areas and unpaved areas.

		Water Conservation Measures a) Selection & use of native species of vegetation to reduce landscape water requirement. b) Maximizing drainage from paved surfaces into recharge trenches to increase aquifer recharge. c) An effective storm water management plan will be implemented. Storm water drains will be constructed to collect the excess runoff within the compound. d) Sewage treatment plant will be setup within the compound to promote reuse of treated wastewater in watering green-belt and parks.

4.1 Disaster Management Plan

Disaster is an unexpected event due to sudden failure of the system, external threats, internal Disturbances, earthquakes, fire and accidents. Following subsection describes the measures to be undertaken by the project proponent to prevent / minimize risk of unexpected event.

Preventive Action

Once the likelihood of a disaster is suspected, action has to be initiated to prevent a failure. Engineers responsible for preventive action should identify sources of repair equipments, materials, labour and expertise for use during emergency.

Reporting Procedures

The level at which a situation will be termed a disaster shall be specified. This shall include the stage at which the surveillance requirements should be increased both in frequency and details. The project in-charge should notify the officer for the following information:

- Exit points for the public,
- Safety areas in the nearest medical facilities.

Communication System

An efficient communication system is absolutely essential for the success of any disaster management plan. This has to be worked out in consultation with local authorities. More often, the entire communication system gets disrupted when a disaster occurs. The damage areas need to be clearly identified and provided with temporary and full proof communication system.

Emergency Action Committee

To ensure coordinates action, an Emergency Action Committee should be constituted. Emergency Action Committee will prepare the evacuation plan and procedures for implementation based on local needs and facilities available. The plan should include:

- Demarcation of the areas to be evacuated with priorities,
- Safe area and shelters,
- Security of property left behind in the evacuated areas,
- Functions and responsibilities of various members, and
- Setting up of joint control action.

All personnel involved in the Emergency Action Plan should be thoroughly familiar with all the elements of the project area and their responsibilities. The staff at the site should be trained for problem detection, evaluation and emergency remedial measures. Individual responsibility to handle the segments in emergency plan must be allotted. Success of an emergency plan depends on public participation, their response to warning notifications and timely action. Public has to be educated on the hazards and key role in disaster mitigation by helping in the rescue operations. It is essential to communicate by whom and how a declared emergency will be terminated. There should be proper notification to the public on de-alert signals regarding termination of the emergency. The notification should be clear so that the evacuees know precisely what to do when re-entering or approaching the affected areas.

4.2 Energy Conservation Measures

- Building Envelope Design is designed in an energy efficient way
- Use of virgin wood and other building materials with high embodied energy is minimized
- Building materials with high recycle content is used
- The building materials is made available regionally within 250 miles radius from the project site
- Electrical appliances with energy star rating is installed
- Usage of solar water heaters

4.3 Green Belt Development

Green belt is plantation of trees for reducing the pollution as they absorb both gaseous and particulate pollutant, thus removing them from atmosphere. Green plants form a surface capable of absorbing air pollutants and forming sinks for pollutants. It balances the ecological environment, prevents soil erosion, improves the aesthetic value of local environment and provides possible habitats for birds and animals, thus creating hospitable nature in urban areas. Greenbelts in and around urban areas have probably not saved any lives, but they are important nonetheless to the ecological health of any given region. The various plants and trees in greenbelts serve as organic spongesforvarious forms of pollution, and as storehouses of carbon dioxide to help offset global warming.

- ***Horticulture***

While making choice of plant species for cultivation in green belts, weightage has to be given to the natural factor of bio-climate. It is also presumed that the selected plants will be grown as per normal horticultural practice.

A standard horticultural practice involves planting of saplings in proper dimensions for smaller trees and shrubs. The pits are then filled with earth, sand, silt and manure in pre-determined proportions. The growing plants are cared for the first three years under favorable conditions of climate and drainage. Hence it is safe to assume that trees and bushes grown as green belt components in areas under human control will have overcome the limitations imposed by soil characters to a great extent. Limitations imposed by climatic conditions on the other hand cannot be overcome and hence will have to be taken into account while selecting species for plantation in different bio-climatic conditions.

- ***Plantation along Roadsides***

Automobiles may be considered as ground level, mobile sources of pollution of both types- gaseous as well as particulate. Components of green belts on road sides hence should be both absorbers of gases as well as of dust particles, including even lead particulates. Choice of plants for roadside plantations may be for containment of

pollution and for formation of a screen between traffic and roadside residences. This choice of plants should include shrubs of height 1- 1.5 m and tree of 3-5 m height. The intermixing of trees and shrubs should be such that the foliage area density in vertical is almost uniform. Since safety of traffic is a major consideration, shrubs in roads will have to be short enough to be below the eye level of motorists.

- ***Recommended Plants***

All tolerant plants are not necessarily good for green belts e.g. Xerophytes with sunken stomata can withstand pollution by avoidance but are poor absorbers of pollutants due to low gaseous exchange capacity. Therefore selection of plants is very important in green belt development for effective removal of suspended particulate matter and for absorption of gases. The trees in **Table - 4.3** are suggested by Landscape consultant suitable for the soil type in the study area for green belt development. The landscape plant is enclosed as **Annexure -XIII**.

TABLE - 4.3: SUGGESTED PLANTS FOR GREEN BELT DEVELOPMENT

S. No.	Botanical name	Common Name
1	*Madhucalongifolia*	Illupai
2	*Ficusreligiosa*	Arasu
3	*Ficusglomerata*	Athi
4	*Emblicaofficinalis*	Nelli
5	*Citrus limon*	Elumichai
6	*Casuarinaequisetifolia*	Savukku
7	*Pterospermumacerifolium*	Karnikara tree
8	*Samaneasaman*	Rain Tree
9	*Saracaasoca*	Asogam
10	*Spathodeacampanulata*	African tulip tree
11	*Tabebuiarosea*	Pink trumpet tree
12	*Terminaliaarjuna*	Arjuna
13	*Terminaliacatappa*	Almond

4.4 Environmental Monitoring Plan

It is planned to monitor essential parameters for ambient air quality, ambient noise quality, ground water quality and waste water quality both during the operation phases of the project. The frequency of monitoring and method of monitoring will be conducted as per norms of CPCB. However the monitoring schedule is given in **Table - 4.4.**

TABLE - 4.4: ENVIRONMENTAL MONITORING SCHEDULE

S. No.	Particulars	Monitoring Frequency	Duration of Sampling	Important Monitoring Parameters
1	**Ambient Air Quality Monitoring**			
	Project site	Once in a Month	24 hr continuously	PM_{10}, $PM_{2.5}$,SO2, NO_x & CO
2	**Ambient Noise Level**			
	Near boundaries	Once in a Month	8 hr continuous with 1 hr interval	Noise level in dB(A)
3	**Sewage Sample Monitoring**			
	STP Inlet / Outlet	Once in a month	Grab sampling	pH, TSS & BOD
4	**Ground Water Quality Monitoring**			
	Ground Water – at project site	Once in 6 Months	Grab Sampling	Parameters specified under IS:10500, 2012
5	**Soil Quality**			
	At the project site area	Once in a year	Samples were collected from three different depths	Agricultural potential parameters

4.5 EMP Budget Provisions

The implementation of the pollution control and environmental monitoring and management program is the basis of mitigation of impacts. The environmental expenditures show commitment of the management on environmental front. The details of the expenditure on environmental measures are given in **Table - 4.5.**

TABLE - 4.5: BUDGET FOR ENVIRONMENTAL MANAGEMENT PLAN

S. No.	Description	Capital Cost (Lakhs)	Recurring Cost per Annum (Lakhs)
1	Sewage Water Treatment Plant & Water Conservation Measures	180.0	18
2	Energy Conservation Measures (Solar equipments)	10.0	0.5
3	Solid Waste Management	25.0	2.5
4	Green Belt Development	15.0	2.5
5	Environmental Monitoring	-	1.5
	Total	**275.0**	**25.0**

4.6 Environmental Management Cell

Environment Management Cell (EMC) will look after the environment related matters during the construction and operation phase of the project. EMC will perform the following assignments.

- Periodic monitoring of emissions and report any abnormalities for immediate corrective measures.
- Periodic monitoring of ambient air quality, ground and surface water quality.
- Periodic noise monitoring of the building zone and surrounding area.
- Regular monitoring of storm water drains.
- Green belt plantation, maintenance, development of other forms of greenery.
- Regular monitoring of solid wastes quantity and ascertaining avenues for utilization of solid wastes.
- Development & maintenance of schemes for water conservation.

The Environmental Management Cell (EMC) will take the overall responsibility for coordination of the actions required for environmental management and mitigation and for monitoring the progress of the management plans and actions to be taken.