

3. FORM-1A

SECTION 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 Land use must conform to the approved Master Plan/ Development Plan of the area. Change of land use is 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.

The proposed residential apartment building is to be developed on a land measuring about 90,303Sq.m (22 Acres and 12.57 Guntas) including kharab Area and area under kharab is about 951 Sq.m (9.40 Guntas) located at Sy. No. 1, 2/1, 8/1 of Yelahanka Amanikere, Sy. No. 16 of Venkataala Village and Sy No. 31/1, 31/2, 31/3, 32/1, 32/2, 33/1, 33/2, 33/3, 34/1, 34/2, 34/3, 35, 36, 38, 39, 40, 41, 45/1, 45/2, 45/5, 45/6, 45/7, 45/10 of Yelahanka Village and Hobli, NH-7, Bangalore. The Latitude and Longitude of the proposed project site are 13° 6'22.67"N and 77°35'50.64"E respectively.

The objective of the proposed project is construction of residential apartment consisting of 1080 units in Block-1 with clubhouse facility The proposed project is characterized by 2B + 2S + 27 UF with building height of 87 mt. Car parking required/ provided is 1230No's.

The proposed project has its source of water supply from BWSSB and electricity supply from Bangalore Electricity /Supply Company (BESCOM) respectively. The buildings are skillfully planned to ensure abundant light and fresh air for entire building area.

The total construction period of the entire proposed project will be about 36 months. The total investment on the entire project is estimated to be about Rs.120Crores, which is inclusive of the cost of construction, cost of land and other developmental investment costs.

Permissible FAR is 3.25 and achieved FAR is 1.289. Permissible ground coverage is 50% proposed ground coverage is 7,500 Sq.m (9%). The total built up area for the project is 1,45,692 Sq. m. The landscape area of 41,290 Sq. m on the proposed project site would enhance the visual aesthetics of the area.

The site plan, survey/ contour plan & CDP are enclosed as Annexure-1, 2 & 3 respectively.



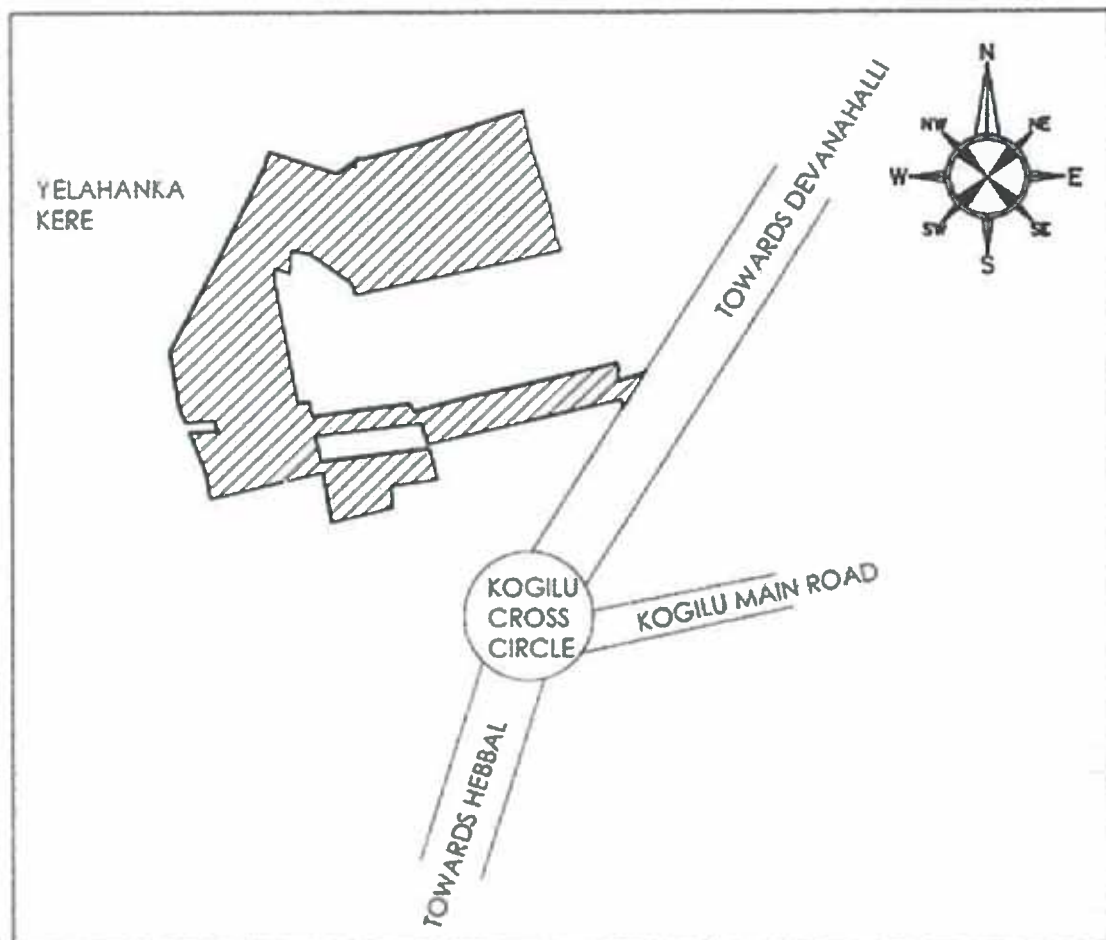


Figure 1.1: Location map of the Project Site



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Figure 1.2: Aerial view of the study area





Figure 1.3: Aerial view around 500 mt around the project site







Figure 1.5: Project Site Photographs



Figure 1.6: Site Surrounding Photos

Table 1.1: Salient Features of the Proposed Project

Name of the Project	Proposed Residential Apartment
Type of Project	Construction
Latitude	13° 6'22.67"N
Longitude	77°35'50.64"E
Plot Area	90,303Sq.m (22 Acres and 12.57 Guntas) including Kharab Area and area under kharab about 951 Sq.m (9.40 Guntas)
Permissible FAR	3.25
FAR Achieved	1.289
Permissible Coverage	50%
Total Coverage Achieved	9%
Total Built Up Area	1,45,692 Sq. m
Proposed location	Sy. No. 1, 2/1, 8/1 of Yelahanka Amanikere, Sy. No. 16 of Venkataala Village and Sy No. 31/1, 31/2, 31/3, 32/1, 32/2, 33/1, 33/2, 33/3, 34/1, 34/2, 34/3, 35, 36, 38, 39, 40, 41, 45/1, 45/2, 45/5, 45/6, 45/7, 45/10 of Yelahanka Village and Hobli, NH-7, Bangalore.

Table 1.2: Environmental Settings around the Proposed Project Site (within 10 km)

Nearest water body	<ul style="list-style-type: none"> • Yelahanka lake-0.03Km W • Allalasandra lake -1.49 Km SW • Jakkur Lake-1.50Km SE
Nearest Airport	Kempegowda International Airport located at a distance of 14.30Km in NE direction
Nearest Highway	NH 7 - located adjacent to the project site in E direction
Nearest Railway Station	Yelahanka Junction Railway station located at a distance of 0.52Km in W direction
Nearest Bus Stop	Kogilu Cross Bus Stop-0.17 Km, SE
Nearest Hospital	Yelahanka Govt Hospital -0.59Km,SW
Nearest educational institutions	Shree Sadguru English High School Yelahanka -0.22Km, SW

Table 1.3 Salient features around 5 Kms around the project site

Sl. No	Salient Features	Distance (km) / Direction
1	Yelahanka lake	0.03, W
2	Kogilu Cross Bus Stop	0.17, SE
3	Shree Sadguru English High School Yelahanka	0.22, SW
4	Allalasandra lake	1.49, SW
5	Jakkur Lake	1.50, SE
6	Yelahanka Govt Hospital	0.59,SW

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.



The major project requirements in terms of resource use and community infrastructure facilities are described below.

Area Statement

The proposed land use and area statement for the project are given in below table

Table 1.4: Area statement of the project

AREA STATEMENT	
Land use	Proposed Residential Apartment
Area of Plot	90,303 Sq. m
Permissible F.A.R area	3.25
Proposed F.A.R area	1.289
Permissible Ground Coverage	50%
Proposed Ground Coverage	9%
Built-up Area	1,45,692 Sq. m

Water requirements and supply

As per the initial estimation, average water requirement for the proposed labour colony will be 18.75 KLD (Say 20 KLD) during the construction phase for construction labors and 802 KLD during the operational phase. Water requirement during the construction phase will be met through private water tankers. During the operational phase, the water demand will be met from BWSSB.

Power Requirements and Supply

The total maximum demand load for the proposed project during operational phase is 3440.12 KVA. To meet the above power requirement, 1X 250KVA & 8 X500KVA Transformers will be installed during operational phase. The construction of electric substation and installation of transformers, LT and HT panels will be as per the provision specified by the concerned authorities. The location of D.G set and Transformer are shown in annexure-4. Electrical load details are attached as annexure-4.

Fuel Requirements:

HSD will be consumed for diesel generators in case of power failure. The Diesel will be stored on the site as a reserved stock, will be stored in a leak proof barrels / tin with proper identification mark / labels in identified area.

Internal Road Network and Vehicle Parking

The layout plan of the proposed site has developed an internal road network in such a manner that it integrates the whole proposed project in an interesting composition to built masses and open spaces with a pedestrian dominated movement pattern.

Main entry to the proposed residential apartment is planned from NH 7 (Bangalore-Hyderabad highway) located in E direction which connects to airport on one side and Bangalore city on another side. Total car parking provided in the project is 1230No's.

Sewage Treatment Plant (STP) Facility

Sewage generated from the proposed project will be collected through an internal network of drainage system and discharged into the sewage treatment plant of capacity 730KLD (Sequential Batch Reactor Technology)

Solid Waste Disposal Facility

1.46MT/day organic waste and 0.97MT/day inorganic waste generated from residential apartment. Total 2.43 MT/day of generated solid waste during operational phase will be segregated into organic and inorganic waste. Organic waste will be treated in organic waste converter and inorganic waste will be handover to authorized processors and will maintain within the CPCB standards. The sludge generated from the STP is estimated to about 37Kgs/day and will be used as on own land for gardening. Biomedical waste will be disposed as per CPCB norms.

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 facility, details of the existing land use, disturbance to the local ecology)

None of the project activities will result in an adverse impact on the existing facilities. The site is surrounded by commercial area, residential layouts and NH7 road. The land use distribution of the project area is classified into residential, commercial and industrial development. The Project area falls within the BBMP limits.

1.4 Will there be any significant land disturbance resulting in erosion, subsidence & instability? (Details of Soil type analysis, vulnerability to subsidence, seism city etc may be given)

The project requires extensive work on the excavation and removal of soil and hence will temporarily affect soil structure and stability, which will be localized. Apart from every localized constructional impact at the project site, no significant impact on the soil in the surrounding area is anticipated. Geotechnical Investigation Report is enclosed as annexure Topsoil and excavated soil will be reused within itself. This will avoid any use of soil from outside. Also ready mix construction method will be proposed for the construction, which will reduce stress on soil environment of the site. During the operation phase, carefully designed landscaped areas and plantation will be maintained. This will protect the topsoil within the project site.



Seismic Stability

The project area falls in Zone-II of Seismic Zoning Map of India, Southern part of Bangalore District and the seismic factors have been appropriately incorporated in the civil designs of the proposed project.

1.5 Will the proposal involve alteration of natural drainage system? (Give details on a contour map showing the natural drainage near the proposed project site)

The proposed project does not involve any alteration of natural drainage system. The Survey plan is enclosed as Annexure-2.

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.)

During the construction activity, it is expected that no fill materials will be transported from outside. The quantity of excavated earth material as estimated around 81,675 cum will be reused / recycled for back filling / sub base work for roads & pavements within the project site.

Table 1.5 Excavated earth works and its disposal

Sl. No.	Item	Quantity (Cum)
1	The total estimated earth work quantity	81,675.
2	Back filling to be done between foundations	12,251.25
3	Top Soil reused for Landscaping work	28,586.25
4	Roads & Walkways	20,418.75
5	For site formation	20,418.75

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

Water requirement for the proposed labour colony during the construction phase is 20 KLD for 250 construction labourers considering @ 75 lpcd and will be met through private water tankers. This water will be met through private water tankers. The sewage generated @ 80% (i.e 15 m³/day), will be treated in mobile STP to avoid impact on the ground water.

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)

An effective on-site drainage system will be incorporated, preventing soil erosion & site runoffs during heavy rains. Sediment traps will also be installed and periodically maintained throughout the construction phase of the project. Excavated top soil, construction debris & excavated earth will be reused to the maximum extent possible, in green belt development, as sub base for roads / pavements & for filling of low lying areas on the site and excess soil to be disposed as per the norms.

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)

Construction waste/debris is generally bulky and heavy and mostly unsuitable for disposal by incineration or composting. The total quantity of construction debris is estimated of about 291 cum. The same will be reused / recycled for back filling / sub base work for roads & pavements within the project site the solid waste generated from the labour camps as estimated of about 63 Kgs/day will be handed over to local municipal trucks. Also, The sewage generated @ 80% (i.e 15 m³/day), will be treated in mobile STP to avoid impact on the ground water.

SECTION 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.

As per the initial estimation, average water requirement for the proposed labour colony will be 20 KLD during the construction phase for construction labors and 802KLD during the operational phase. Water requirement during the construction phase will be met through private water tankers. During the operational phase, the water demand will be met from BWSSB

Water requirement calculation and water balance chart:

Particular	No. of units	No. of persons considered / Apartment	Total No. of persons considered	Total water requirement = 135 LPCD		Total water demand (135 lpcd)
				Domestic water demand (90 lpcd)	Flushing water demand (45 lpcd)	
Residential Apartment						
2BHK	1080	5	5400	486000	243,000	729,000
Total	1080		5400	486000	243,000	729,000
Club house and visitor (10% of total water)				48600	24300	72900
Total water demand				534600	267300	801900
Total water demand						Say 802KLD
Wastewater generation (90 % of water demand)						722KLD
STP capacity proposed						730KLD

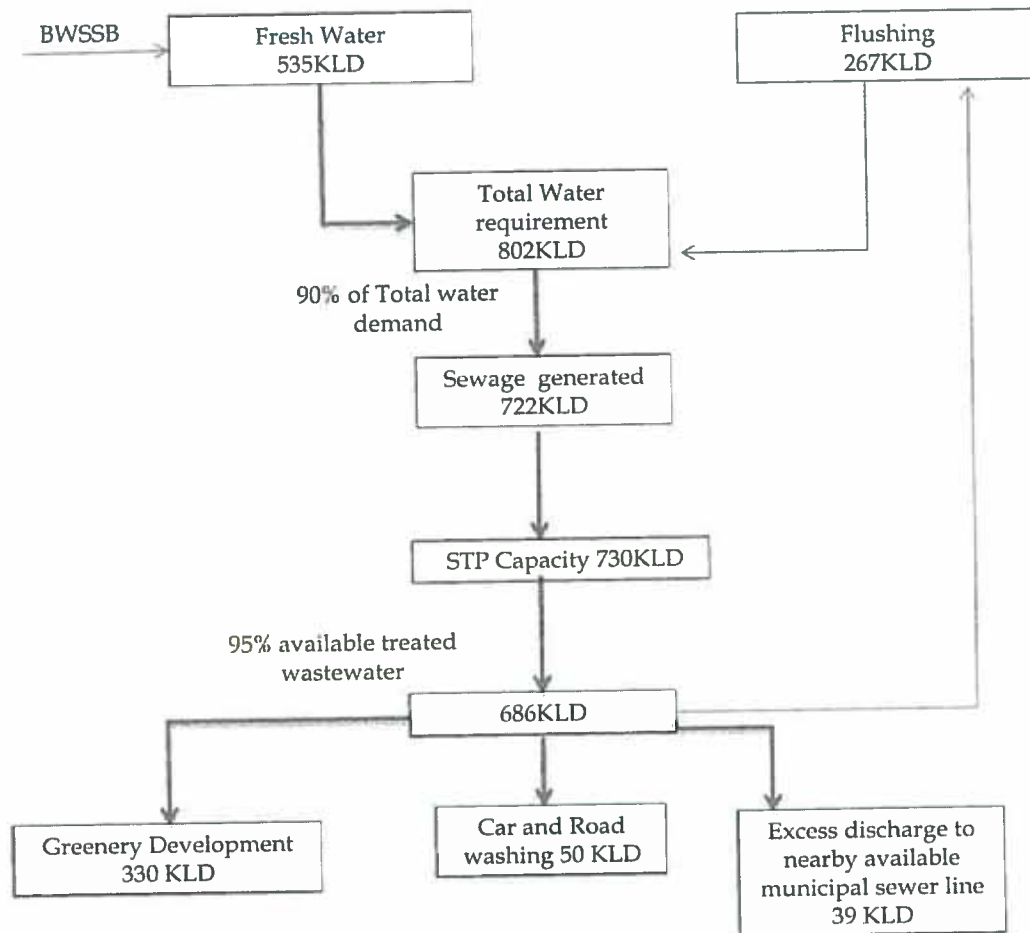


Figure 2.1: Water Balance chart

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

The source of water supply will be from BWSSB. The proposed project is dependent on meeting its water demand 802 KLD through BWSSB. The quality of water required will be as per IS ("Specification for Drinking 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)

The water supply for the proposed project is from BWSSB.

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)

Sewage generated from the proposed project will be 722KLD and will be treated in the sewage treatment plant of capacity 730 KLD. Total treated water available is 686KLD, Out of which, 267KLD is required for flushing purpose, 50KLD for car & road washing and road and 330KLD will be used for greenery development

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)

The total fresh water requirement for the proposed project will be 535 KLD and the same will be met from BWSSB

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)

It is estimated that about 90% of the total water demand i.e. about 722KLD will be the wastewater generation, which will be mainly domestic in nature. The project area will be well laid out with sewage drainage network. All the sewage from the proposed project will be collected through an internal network of drainage system and discharged it to the STP of 730 KLD. Design details of sewage treatment plant are enclosed as annexure-5

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

Total roof top rain water harvested is 168.75cu.m / hr liters. The Ground water will be recharged through 41Nos. of Percolation pits. The water collected in terrace rain water collection sumps of capacity 170 cum and will be used for domestic uses, gardening and car washing purposes after passing through the pressure sand and the activated carbon filter of diameter 1000-mm each. The location of recharge pits and design of rainwater recharge pits are shown in site plan Annexure-1.

2.8 What would be impact of the land use change 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?

Total roof top rain water harvested is 168.75cu.m / hr liters. The Ground water will be recharged through 41Nos. of Percolation pits. The water collected in terrace rain water collection sumps of capacity 68 cum and will be used for domestic uses, gardening and car washing purposes after passing through the pressure sand and the activated carbon filter of diameter 1000-mm each. The location of recharge pits and design of rainwater recharge pits are shown in site plan Annexure-1.

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)

The proposed project has its source of water supply from BWSSB. There will not be tapping of ground water. Total 41No's of recharge pits will be provided to collect storm water during the operation phase which intern helps in ground water recharge. Hence the proposed project may have positive impact on groundwater.

The proposed project does not have potential of impacting the ground water quality and quantity in a significant manner in the long term during the operation phase. With the project proposing to implement the rainwater harvesting and ground water recharging, the effect would be minimized.

The implementation of rainwater harvesting and conservation measures would have positive impact on the ground water quality and quantity. These measures would reduce the impact on the ground water.

2.10 What precaution/measures are taken to prevent the run- off from construction activities pollution land & aquifers? (Give details of quantities and the measures taken to avoid the adverse impacts)

During construction period in rainy season, the water quality is likely to be affected due to the construction work and loosening of topsoil. This is likely to increase the suspended solids in the run- off during heavy precipitation. In order to reduce the impact on water quality, temporary sedimentation tanks will be constructed for the settlement of the suspended matter.

However, it is envisaged that the monsoon period will be avoided for cutting and filling of earthwork. Additionally, Soil binding and fast growing vegetation and grass would be grown around the construction site before commencement of construction activity to reduce soil erosion.

During the construction period, the activities may also result in pondage of water in the dug - out areas of the site. This has the potential for creation of mosquitoes breeding and spreading of vector borne diseases. The most important construction aspects are the impediment of temporary drainage by blocked silt traps or the ponding of water within foundation works. Other mosquito breeding sites maybe created through the use of uncovered water tanks. The project will give careful attention to the design and the maintenance of earthworks and drainage system during construction to avoid the creation of significant habit areas for mosquito larvae. The use of larvicides may be required to prevent mosquito breeding in silt traps.

2.11 How is the storm water from within the site managed? (State the provision made to avoid flooding of the area, details of the drainage facilities provided along with a site layout indication contour levels)

The storm water collection system is designed to capture the bulk of water from roofs of houses or other buildings. And further the storm water from garden, parking area, roadways and lawns is used for recharging of groundwater through recharge pits. The runoff from the terrace will be treated and used for flushing purpose. The recharge pits are envisaged to be located along the path of storm water drains for ground water recharging

The Storm Water calculation enclosed as annexure 5 and management drawings are enclosed in site plan.

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

Water requirement during the peak construction stage is estimated of about 20KLD for 250 construction labourers considering @ 75 lpcd. This water will be met through private water supply tankers and will conform to IS 10500: 2012 drinking water quality standards. The sewage generated @ 80% (i.e 15 m³/day), will be treated in mobile STP to avoid impact on the ground water.

It is also proposed to adopt the techniques and equipments, which will further help in reduction of water demand during construction. Therefore, the impact on the water resources during the construction phase would be temporary.

Facilities created for workers during the construction phase include the following:

- About 250 construction workers will be employed.
- 10 Toilets, 5 Urinals and 10 Bathrooms will be provided for the labourers.
- First Aid facilities will be provided at the site.
- Local Doctor will be assigned for regular health check - up of the construction workers.
- Arrangement with local hospitals for any emergency measures will be made for all the laborers working at site
- Safety measures like PPE (Personal Protective Equipments) - Helmets, Safety shoes, Nose Mask, Goggles, Safety Belts etc. will be provided for the construction labourers during construction, depending on the nature of their work.
- About 20 m³/day of drinking water will be arranged through private tankers conforming to IS 10500: 2012 drinking water quality standards.
- The sewage generated the @ 80% (i.e 15 m³/day), will be treated in mobile STP

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)

The project will provide an internal network of drainage system within the proposed project site for the collection of sewage. This drainage network will treated in a STP capacity of 730 KLD in the project site area and treated wastewater will be reused for toilet flushing, car and road wash & landscaping/gardening purposes.

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

All the sewage from the proposed project will be collected through an internal network of drainage system and discharged into sewage treatment plant of capacity 730 KLD. And

treated wastewater will be reused for toilet flushing, greenery development purpose. The Design details and layout diagram for Sewage Treatment Plant are enclosed as Annexure-6

SECTION 3 -VEGETATION

3.1 Is there any threat of the project to the biodiversity? (Give a description of the local ecosystem with its unique features, if any)

There is no threat to the Bio-diversity due to the proposed project because there is no vegetation around the project its vacant land.

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

Loss of native species or genetic diversity if any will be offset by landscape development.

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?)

It is proposed to develop landscape/Green space of 41,290 Sq.m in the proposed project site would enhance the visual aesthetics of the area. The implementation for development greenbelt is of immense importance, as it not only acts as pollution sink but also enhances the visual appearance of the developed site. The species to be grown on the site will be fast growing native species having broad leaf base so that a permanent landscape is created in a short period. The effective plantation will also stabilize the soil and reduce any nuisance during windstorm. Besides this, the visual aesthetics of the proposed site will be enhanced by developing lawn with local ornamental plants in the open spaces.

SECTION 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

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

The project will not have any direct or indirect impacts on the avifauna of the area.

4.3 Prescribe measure such as corridors, fish ladders etc to mitigate adverse impacts on fauna

Not applicable

SECTION 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 result of the proposed constructions).



The proposed project is a construction of residential apartment. The major source of air pollution is only expected from D.G's and vehicular movement within the site during the operational phase. However, routine ambient air quality monitoring will be conducted to assess the impact of the air pollution sources (D.G's and vehicular traffic) on air environment. The proposed project also provides sufficient number of car parking so as to ease from increase in traffic generation and to avoid traffic congestion. Hence, the proposed project will not increase atmospheric concentration of gases & heat islands are not expected.

The site in Bangalore city enjoys an equable temperature regime. The hottest months in the year are March, April and May, with monthly mean maximum temperatures in the region of 32.4° - 32.7° C, followed by a perceptible drop of nearly 4° - 5° C in the month of June, signaling onset of the monsoon. The monthly mean maximum temperatures for these months are in the region of 26° - 27.5° C. The coolest month is December with mean maximum temperature in the region of 26° C, and mean minimum temperature between 16° C. In recent years, there has been a significant rise in both the mean maximum and mean minimum temperatures during the aforesaid months, possibly signifying rapid urbanization of these outlying suburbs of Bangalore city. Hence no heat island formation takes place due to the proposed project.



5.2 What are the impacts on generation of dust, smoke, odorous or other hazardous gases? Give details in relation to all the meteorological parameters.

The generation of dust is expected to be high during the construction stage due to the construction activities. Smoke will be emitted from vehicles plying to & fro from the site. However, an impact on generation of dust and smoke reduces gradually as the project progresses. No odour is expected both during the construction and operational stage. The treatment of the sewage during the operational phase will be done such that, the treated sewage will be odour less. Overall, these impacts are reversible, marginal, and temporary in nature. Hazardous gases are not expected and are considered insignificant.

Table 5.1: Meteorological data for 2015 Source: IMD, Bengaluru, Station - Bengaluru City, Year - 2015

Year	Month	Temperature (°C)		Av. wind speed for 24 hrs (kmph)	Rainfall for 24hrs (mm)	Hours of bright sunshine	Station level pressure(hPa)		Dew point Temperature (°C)		Relative Humidity (%)		Total Cloud coverage (octa)		Wind data	
		MAX	MIN													
							0.4	0.7	0.4	0.7	0.4	0.7	0.4	0.7	At 0830 hrs. IST	At 1730 hrs IST
2015	Jan	28.1	16.5	1.5	0.3	7.1	913.4	910.1	14.9	13.2	80.2	46.4	3.9	3.3	2.9	1.8
2015	Feb	31	16.8	1.9	0	8.9	913	909.2	11.3	8.9	59.6	30	2.3	2.7	2.7	1.5
2015	Mar	32.9	20.1	2.2	1.2	7.5	912.7	909	16.7	12.4	68.7	35.3	2.8	3.4	2.00	2.5
2015	April	33	21.5	2.5	7.6	6.5	911	906.8	19.5	16.6	74.7	48.5	4.3	5.5	2.6	1.3
2015	May	31.6	21.8	3.5	5.8	5	909	905.8	20.2	20.2	79.5	62.3	5	6.1	4.1	3.5
2015	June	29.5	20.7	6.5	2.8	3.6	907.3	905.2	19.9	20.4	84.5	68.5	6.5	6.5	6.7	7.5
2015	July	29.3	20.3	5.7	3	4	908.3	905.7	19.5	19.9	85.9	67.9	7	6.2	6.5	6.5
2015	Aug	29	20.5	4.1	3.5	4.1	908.9	905.9	19.5	19.8	86.2	67.4	6.7	6.3	4.9	4.9
2015	Sept	29.5	20.3	3.4	6.3	4.2	909.3	906.2	19.4	19.8	83.5	66.6	5.1	6.2	4.6	4.5
2015	Oct	30.2	20.4	1.8	1.5	5.9	911.7	908.5	18.9	17.2	77.6	56	4.2	5.2	2.9	2.5
2015	Nov	25.7	19	1.2	9.9	2.3	911.2	908.4	18.7	18.4	88.8	78.1	6.1	6.4	1.5	1.6
2015	Dec	27.8	18		0.2	5.3	912.2	910.4	16.6	15.3	80.6	57.1	4.5	4.1	1.9	1.8

5.3 Will proposal create shortage of parking space for vehicles? Furnish details of the present level of transport infrastructure and measures proposed for important including the traffic management at the entry & exit to the project site.

The layout plan of the proposed site has developed an internal road network in such a manner that it integrates the whole proposed project in an interesting composition to built masses and open spaces with a pedestrian dominated movement pattern.

Main entry to the proposed residential apartment is planned from NH 7 (Bangalore-Hyderabad highway) located in E direction which connects to Airport on one side and Bangalore City on another side. Total car parking provided in the project is 1230No's.

Transportation Infrastructure in and around the project site

The project area is well connected to the road network from all sides. Bus based public transport system is also the primary mode of transportation of the people in the project area. The continual improvement that is taking place in the area including the project area in traffic transportation will further bring beneficial impact to the population further.

5.4 Provide details of the movement patterns with internal roads, bicycle tracks, pedestrian pathways, footpaths etc, with areas under each category including the traffic management at the entry & exit to the project site.

The layout plan of the proposed site has developed an internal road network in such a manner that it integrates the whole proposed project in an interesting composition to built masses and open spaces with a pedestrian dominated movement pattern.

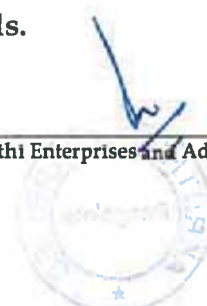
Main entry to the proposed residential apartment is planned from NH 7 (Bangalore-Hyderabad highway) located in E direction which connects to Airport on one side and Bangalore City on another side. Total car parking provided in the project is 1230No's.

5.5 Will there be significant increase in traffic noise & vibration? Give details of the sources and the measures proposed for mitigation of the above.

The proposed project will not result in significant generation of traffic noise and vibration due to the following:

- Due to well established car parking system.
- Adequate number of parking spaces (1230No's of cars).
- Adequate drive ways inside the premises for vehicular movement.
- Due to well plan traffic management measures as mentioned above.

5.6 What will be impact to DG sets & other equipment on noise levels & vibration & ambient air quality around the project site? Provide details.



Impacts of DG sets on Noise levels during operation phase

During the operational phase, noise will be generated from the DG sets, pump room, vehicles movement, and general noise from the residential apartment. The DG sets will be provided with proper acoustic arrangements to control the noise generated from the rooms where they are enclosed. The noise levels outside the room will be maintained within the stipulated norms both during the day and night time. However, the worst-case scenario for noise pollution would occur when all DG sets are running together.

With control measures, the total noise at 1 m distance from the DG set room will be about 75 dB (A). This will reduce further and at about 50-meter distance, the noise would be about 55 - 65 dB (A). So the location of the DG set room will be such a way that the noise level has minimum impact on the population of project. Thus, noise in the operation phase of the project would have minor or no negative impact on overall acoustic of the proposed residential apartment and immediately adjacent areas. Further by implementation of appropriate mitigation measures these effects are expected to become insignificant.

Impacts of DG sets on Ambient Air Quality during Operation phase

Air emission comprising PM₁₀, PM_{2.5}, NO₂ and SO₂ will be from the operation of DG set used as the standby power source. Besides from DG set, air emission will also be from the vehicles approaching and leaving the proposed residential apartment. Hence, expected air emission in the vicinity of the residential development will be PM₁₀, PM_{2.5}, NO₂, SO₂ and un-burnt HC. Impacts of construction traffic for loading and unloading, fabrication and handling of equipment and construction materials are likely to cause increase in the ambient noise levels. At the peak of the construction, marginal increase in noise levels is expected to occur locally at the construction site.

The peak noise levels from continuous construction activity may be about 85-90 dB (A). However, the walls of the adjoining buildings along with other factors like air absorption vegetal cover etc. would result in significant attenuation of at least 25-30 dB (A) at 100 m distance. The resultant noise levels on proposed project site at 100 m distance at peak level of construction are anticipated to be about 55-65 dB (A), which is well within the CPCB limits for residential area during the daytime. Hence, the noise levels are considered to have insignificant impact.

Further to minimize these potential impacts major construction activities would be scheduled during normal daylight working hours and would be implemented consistent with the applicable standards. The construction contractor will use equipments that are adapted to operate with appropriate noise muffling devices resulting in the least possible noise. Every effort would be taken to minimize the

noise levels including the mandatory use of construction equipment with operable mufflers. No work will be undertaken during night time. (10.00 PM – 6.00 AM)

Overall, the impact of noise generated on the environment is likely to be insignificant, reversible and localized in nature and mainly confined to the daytime

SECTION 6 - AESTHETIC

6.1 Will the proposed construction in any way result in the obstruction of a view, scenic amenity or landscape? Are these consideration taken into account by the proponents.

In no way the proposed construction will result in any obstruction of a view, scenic amenity or landscapes as the site is surrounded by Residential, Commercial Buildings, Hospitals and NH 7 etc.,

6.2 Will there be any adverse impacts from new construction on the existing structures, what the consideration is taken into account.

There is no adverse impact on the structures under construction within the proposed project site.

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

The project will strictly follow the 'Area Building Regulation' of the Bangalore Development Authority (BDA). All norms on ground coverage, FAR height setbacks, fire safety requirements, structural design, and other parameters will be strictly followed.

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 or archaeological sites or artifacts nearby to the proposed project site.

SECTION 7 - SOCIO ECONOMIC ASPECTS

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

About 5400 No of population is expected in the residential apartment

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

Social and physical infrastructure resource base in the project area is briefly described below:



Water Supply:

The water supply in the surrounding proposed project site area is from BWSSB. In summer season, the demand is met through water tankers.

Sewerage:

The sewage generated from the surrounding locality is disposed to existing municipal sewer line

Solid Waste:

The domestic solid waste generated from the surrounding area is handed over to BBMP Trucks. The continual improvement that is taking place in the area will further strengthen the concerned municipal authorities on MSW management.

Power Supply:

Power supply network infrastructure adequately exists in the project area. The demand in the area is met through BESCOM.

Education:

The project area is having adequate infrastructure facilities for education. Number of Educational institutions exists in the area. A number of pre-primary, high schools, Govt. Schools and College's viz., Aditya Bangalore Institute of Pharmacy Education and Research, Mallya Aditi International School & BMS Institute of Technology and Management -Engineering College etc.,

Health:

Different types of health facilities including hospitals, dispensaries, polyclinics, nursing homes etc. are available in closed vicinity of the project area. The project area is in advantageous position in terms of healthcare infrastructure because of its proximity to various hospitals like, Yelahanka Govt Hospital, Neha Prakash Hospital, Kushi child care & K K Hospital etc.,

Economic Aspects:

The project area is witnessing a fast growth in the economic activities. The surrounding areas to the project site comprise of various social, commercial, Industrial and educational infrastructures which have already come up in the area and many more are in the construction stage. This will enhance the economic status of the project area. Well-positioned infrastructure of the proposed project is one of the dictating factors for the promoters to set this project in the area.

Aesthetic Aspects:

The landscape concepts of the project surrounding area have evolved a system of open spaces, which have the potential to develop into a landscape with distinctive visual qualities fulfilling the required ecological and recreational functions. The

location and alignment of existing landscape features have been used to structure the development of the area.

Communication and Transportation:

The project area is well connected to the road network from all sides. Bus based public transport system is also the primary mode of transportation of the people in the project area. The continual improvement, taking place in the project area w.r.t traffic and transportation will further, bring beneficial impact to the floating population in the future.

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

The proposed project will not result in adverse effects on local communities, disturbance to sacred sites or the other cultural values.

SECTION 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).

Embodied energy is the energy consumed by all of the processes associated with the production of a building, from the acquisition of natural resources to product delivery. Also project is proposed for LEED USGBC Certification for energy conservation methods.

The building materials used will be of high-embodied energy as given below.

- Also, the materials used for construction of the building will be non-combustible in nature.
- Non-combustible material will only be used for the construction of false ceiling including all fixtures used for its suspension etc. and will be of low flame rating.

Table 8.1: Embodied energy content of the materials used

Primary energy requirement	Material	Primary energy requirement (Gj/tonne)
Very High Energy	Aluminum	200-250
	Stainless steel	50-100
	Plastic	100+
	Copper	100+
High Energy	Steel	30-60
	Lead	25+
	Glass	12-25
	Cement	5-8
	Plasterboard	8-10

	Lime	3-5
Medium	Clay bricks and tiles	2-7
	Gypsum plaster	1-4
	Concrete	
	In-situ	0.8-1.5
	Blocks	0.8-3.5
	Pre-cast	0.1-5
	Sand, aggregate	<0.5
Low	Fly-ash	<0.5
	Blast furnace slag	<0.5

(Source: UNCHS (1991))

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

Transportation & handling of materials during construction are likely to cause a temporary adverse impact on the ambient air quality. Heavy construction traffic for loading and unloading, fabrication and handling of equipment and construction materials are likely to cause an increase in the ambient noise levels. The areas affected are those close to the site. At the peak of the construction, marginal increase of pollutants in ambient air and noise levels is expected to occur locally at the construction site.

Appropriate measures will be taken to minimize these impacts. These are:

- Stockpiles of aggregate or spoil shall be covered and water applied.
- Vehicles delivering loose and fine materials like sand and fine aggregates shall be covered to reduce spills on roads.
- The height from which excavated materials are dropped shall be controlled to a minimum practical height to limit fugitive dust generation from unloading.
- All dusty materials shall be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet.

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

Any construction waste/debris generated on-site like topsoil, sand and gravel will be reused as fillers in internal roads & pavements/backfilling at the same site after completion of excavation work. Moreover, broken bricks will be reused as the filling material for the construction of pavements.

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

1.46MT/day organic waste and 0.97MT/day inorganic waste generated from residential apartment. Total 2.43 MT/day of generated solid waste during

operational phase will be segregated into organic and inorganic waste. Organic waste will be treated in organic waste converter and inorganic waste will be handover to authorized processors and will maintain within the CPCB standards. The sludge generated from the STP is estimated to about 37 Kgs/day and will be used as manure for gardening.

SECTION 9- ENERGY CONSERVATION

9.1 Give details of the power requirements, sources 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?

9.0 POWER REQUIREMENT DETAILS

The total connected load for the proposed project during operational phase is 3440.12 KVA. To meet the above power requirement, 1X 250KVA & 8 X500KVA Transformers will be installed during operational phase. The construction of electric substation and installation of transformers, LT and HT panels will be as per the provision specified by the concerned authorities. The location of D.G set and Transformer are shown in annexure-4. Electrical load details are attached as annexure-4.

9.1 BACK UP POWER SUPPLY SYSTEM

1 X 200 KVA & 3x500KVA capacity of DG sets for residential apartment are proposed for the operational phase as backup power supply. However, all essential services like external lighting and landscape lighting, ventilation, water supply and others will be fully linked with the D.G sets in the proposed project. The exhaust stacks of adequate height will be provided as per the norms specific to D.G sets. Each DG set will also be equipped with acoustic enclosures and AMF panel. The acoustic insulation will be designed to meet the mandatory Noise Pollution Standards issued by the Central Pollution Control Board and shall be based on a 25dB (A) insertion loss as per regulations.

Energy saving measures

The energy consumption analysis and data sheets are prepared as per the Energy Conservation Building Codes 2009 / Bureau of Energy Efficiency. Energy conservation measures are enclosed as Annexure-4

9.2 What type of and capacity of power back up you plan to provide?

1 X 200 KVA & 3x500KVA capacity of DG sets for residential apartment are proposed for the operational phase as backup power supply. However, all essential services like external lighting and landscape lighting, ventilation, water supply and others will be fully linked with the D.G sets in the proposed project. The exhaust stacks of adequate height will be provided as per the norms specific to D.G sets.

Each DG set will also be equipped with acoustic enclosures and AMF panel. The acoustic insulation will be designed to meet the mandatory Noise Pollution Standards issued by the Central Pollution Control Board and shall be based on a 25dB (A) insertion loss as per regulations.

9.3 What are the characteristics of the glass you plan to use? Provide specification of its characteristics related to both short wave and long wave radiation?

- Single glazing - tinted reflective 6mm thick glass.
- UV - 2
- Transmission - 23
- Reflectance - 14
- Absorption - 64
- Solar factor - 0.39
- Solar co-efficient - 0.45
- Relative heat gain - 336 W / Sq.m
- Value 5.7

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

The proposed project will provide 95 % cross Ventilation/Daylight factors in the building to permit maximum daylight to interiors to minimize overall energy consumption. These features will also minimize the impact of climate both in summer & in winter and as a result, the use of electricity is likely to be reduced. However solar energy will be utilized for hot water generation, signages and external landscape lighting.

9.5 Does the layout 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 building complex? Substantiate with details.

Solar energy applications have been proposed. Details enclosed as annexure-4

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 & the West & the roof? How much energy saving has been effected?

The overall design of layout buildings has adequately taken care of shading factor into consideration as per ECBC 2009 and will result in significant saving in energy consumption. 2-3 % of cooling load will be reduced by means of efficient envelope material [wall/glass/terrace].

9.7 Do the structure use energy-efficient space conditioning, lighting and mechanical systems? Provide technical details. Provide details of transformers and motor efficiencies, lighting intensity and air conditioning load assumptions? Are you using CFC & HCFC free chillers? Provide specifications.

Yes, majority of the structures follow the energy-efficient space conditioning in terms of lighting and mechanical systems and CFC free DX and VRF units are going to be used in this project. HVAC has been proposed. Energy Savings details enclosed as annexure-4

9.8 What are the likely effects of the building activity in altering the microclimates? Provide a self-assessment on the likely impacts of the proposed construction on creation of heat island & inversion effects?

The proposed project is not likely to result in altering the microclimates in and around the project site. Open spaces will result in easy circulation of ambient air and will not result in conditions leading to micro climatic zone. Even during winter, ground based temperature inversions will not restrict mixing heights to low levels.

9.9 What are the thermal characteristics of the building envelope? (a) Roof; (b) external walls and (c) fenestration? Give details of the materials used and the U-values or the R values of the individual components.

The proposed project will follow the following U and R factors related to the building envelopes:

Wall- ACP + AAC brick of U-value: 0.12 Btu/hr ft ² 0F Core wall 1: RCC shear wall (300/600mm) + Plaster + Paint - 0.3 Btu/hr ft ² 0F	Concrete Roof with 25mm PUF spray Insulation and high SRI paint of U Value 0.076 Btu/hr ft ² 0F and reflectivity of 0.45	Exposed surface: U Value: 0.27 Btu/hr ft ² 0F, SHGC: 0.19, VLT 21% Shaded surface: U Value: 0.27 Btu/hr ft ² 0F, SHGC: 0.27, VLT 48% Atrium: U value:0.31 Btu/hr ft ² 0F, SHGC:0.34, VLT: 48%
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9.10 What precautions & safety measures are proposed against fire hazards? Furnish details of emergency plans.

Following are the Firefighting requirements as per NBC of India will be provided and details enclosed as annexure-4

- Fire Extinguisher
- Hose reel
- Wet riser
- Yard Hydrant
- Automatic sprinkler system

- Manually operated Electric fire alarm systems
- Underground static water storage tank

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

The project will provide heat reflected, tinted glass-having properties, which will make it energy saving element in the building and shall provide safety and transparency of the desired level. Window to wall ratio will be restricted to 40 % as per the guideline Glass U values 0.27 Btu/hr ft²F, SHGC: 0.27, VLT 48%

The overall design of layout & buildings has adequately taken care of shading factors into consideration as per latest ECBC 2009 guidelines and will result in significant savings in energy consumption.

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

The proposed project will provide enough daylight factors in the building to permit maximum daylight to interiors to minimize overall energy consumption. These features will also minimize the impact of climate both in summer & in winter and as a result, the use of electricity is likely to be reduced. However solar energy will be utilized for hot water generation, signages and external landscape lighting.

SECTION-10: ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management Plan (EMP) 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.

The proposed project and related infrastructure development in the study area needs to be intertwined with judicious utilization of natural resources within the limits of permissible assimilative capacity of the region. The assimilative capacity of the study area is the maximum amount of pollution load that can be discharged in the environment without affecting the designated use and is governed by dilution, dispersion and removal due to natural Physico-chemical and biological processes. This section outlines the key Environmental Management and safeguards that will be initiated by the project proponent to manage the project's key Environmental concerns. Environmental Management Plan (EMP) is the mechanism to ensure that environmental considerations are integrated into the project survey and design, contract documents and project supervision and monitoring. These are tools for mitigating or offsetting the potential adverse environmental impacts resulting from various activities of the project. The Environmental Management Plan (EMP) mainly

consists of integrating potential impacts (positive or Negative), environmental mitigation measures, implementation schedule, and monitoring plans.

The potential environmental impacts and proposed management associated with each stage of the project development are described here. The primary objective of this proposed environmental management and monitoring program is to control environmental impacts to levels within acceptable standards, and to minimize possible impact on the community and the workforce of foreseeable risks during the construction and subsequent operation phases of the project.

10.1 Environmental Management during Construction

The impacts during the construction phase of the proposed residential apartment project on the environment are basically of transient nature and are expected to reduce gradually on completion of the construction activities.

10.1.1 Site preparation

Since the project site terrain is slightly sloped with slight undulations, some minimal leveling may require before construction. Water for construction purposes is from treated water tankers. Dust may be generated by activities like excavation and transportation. The dust will be suppressed using water sprinklings and may continue after completion of construction. The prospective contractors will make provisions for water sprinkling at the construction site to suppress the dust emission. And also adequate barricades will be provided along the site boundary to minimize fugitive dust emission to the surrounding locality.

Table 10.1: EMP for Construction Phase Impacts Site "Clearing"

Environmental Impacts	Mitigation	Remarks
Soil erosion	<ul style="list-style-type: none"> Extent of vegetation removal will be minimized to prevent extent of soil erosion. Vegetative cover will be reprojected / rehabilitated at the earliest practicable time to minimize duration & extent of soil erosion. 	Implementation Responsibility: <ul style="list-style-type: none"> Contractor Project Proponent
Noise generation	<ul style="list-style-type: none"> Selection of equipment with less noise generation to be used. The earth moving equipment will be periodically checked and maintained for noise levels. Since the site is more or less even use of these earth-moving equipments may not be necessary. 	Implementation Responsibility: <ul style="list-style-type: none"> Contractor Project Proponent

	<ul style="list-style-type: none"> The workers will be provided with adequate PPE such as earplugs to reduce impact of high noise levels. 	
Dust generation	<ul style="list-style-type: none"> The site cleared will be periodically watered to reduce emission of dust particles. The workers will be provided with PPE such as nose masks and goggles to reduce impact on health. 	Implementation Responsibility: <ul style="list-style-type: none"> Contractor Project Proponent

Table 10.2: EMP for Construction Phase Impacts "Transportation of Construction Materials"

Environmental Impacts	Mitigation	Remarks
Noise generation	<ul style="list-style-type: none"> Periodic maintenance of vehicles is required 	Implementation Responsibility: <ul style="list-style-type: none"> Contractor Project Proponent
Dust generation	<ul style="list-style-type: none"> Construction materials will be covered with tarpaulin sheets to prevent the material from being air borne. The vehicle speed will be regulated. The workers transporting materials will be provided with PPE such as nose masks to reduce impact of air borne dust on their health 	Implementation Responsibility: <ul style="list-style-type: none"> Contractor Project Proponent
Vehicular emissions	<ul style="list-style-type: none"> Periodic emission check for vehicles is required. Clean fuel will be used for vehicles. 	Implementation Responsibility: <ul style="list-style-type: none"> Contractor Project Proponent

Table 10.3: EMP for Construction Phase Impacts "Construction Activities"

Environmental Impacts	Mitigation	Remarks
Noise generation	<ul style="list-style-type: none"> Personnel Protective Equipment (PPE) such as ear plugs and helmets will be provided for construction workers. The working hours will be imposed on construction workers. 	Implementation Responsibility: <ul style="list-style-type: none"> Contractor Project Proponent

Dust generation	<ul style="list-style-type: none"> • PPE in the form of nose masks will be provided for construction workers. • Use of water sprays to prevent the dust Contractor from being air borne. 	Implementation Responsibility: <ul style="list-style-type: none"> • Contractor • Project Proponent
Air Emissions from construction machinery	<ul style="list-style-type: none"> • Periodic check and regular maintenance of construction machinery for emissions. • Clean fuel will be used in equipments. 	Implementation Responsibility: <ul style="list-style-type: none"> • Contractor • Project Proponent

10.2 Water Resources and Quality

Following mitigation measures will be adopted to avoid impact on water resources:

- Construction equipment requiring minimum water for cooling and operation for optimum effectiveness will be chosen.
- High-pressure hose will be used for cleaning and dust suppression purposes.

During Construction period in rainy season, the water quality is likely to be affected due to the construction work and loosening of topsoil. This is likely to increase the suspended soil in the run - off during heavy precipitation. In order to reduce the impact on water quality, temporary sedimentation tanks will be constructed for the settlement of the suspended matter. However, it is envisaged that the monsoon period will be avoided for cutting and filling of earthwork. Additionally, following measures will be taken:

- Soil binding and fast growing vegetation grass would be grown before commencement of construction activity to reduce soil erosion;
- Appropriate sanitation facilities will be provided for the construction workers to reduce impact on groundwater quality and also to maintain hygienic condition within the site premises.

10.3 Air Quality

During construction period, there is likely hood of generation of dust and NOx emission. This can be attributed to leveling activity and vehicular movement. The transport vehicles using petrol or diesel will be properly maintained to minimize smoke in the exhaust. Since, there is likelihood of fugitive dust from the construction activity, water sprinkling will be done. In addition to this following measures will be taken during the construction phase to reduce the impact on the air quality.

- Any vehicle not meeting the vehicular pollution standards will not be allowed within the Construction activity



- Water is being sprayed by high-pressure water hoses during dust generating construction activities e.g. excavation, crushing/ demolishing, concrete mixing, material handling etc. to suppress dust; and
- Vehicles delivering loose and fine materials like sand and fine aggregates will be covered to reduce spills on roads.
- The height from which excavated materials are dropped will be controlled to a minimum practical height to limit fugitive dust generation from unloading.
- The random ambient air quality monitoring will be done to ensure that the significant impacts are being mitigated adequately.

10.4 Noise Level

The noise impact on the surrounding population during the construction phase will be within the acceptable limits. High noise generation equipment, if used will be operated during the daytime only and completely restricted during night hours and this eliminates any possible discomfort to the nearby residents. Community noise levels are not likely to be affected because of the vegetation and likely attenuation due to the physical barriers.

The following recommendations will be implemented

- Provision of insulating caps and ads at the exit of noise source on the machinery;
- Construction equipment generating minimum noise and vibration be chosen;
- The use of damping materials such as thin rubber / lead sheet for wrapping the work places line compressors, generators sets.
- Shock absorbing techniques will be adopted to reduce impact;
- Inlet and outlet mufflers will be provided which are easy to design;
- Barricades will be provided all along the site boundary to avoid dust emissions in to the neighboring area, also to reduce the impact of noise levels from the construction activity on the surrounding dwellings and also to ensure that, the local inhabitants and the stray cattle are not exposed to the potentials hazards of construction activities.
- Barricades of size 10 m are used for the above purposes.
- Ear muffs are provided to the workers and it will be enforced to be used by the workers; and
- Greenbelt will be developed along the periphery of the proposed site.
- Ambient noise level monitoring conducted at suitable locations at periodic intervals during construction phase to conform to the stipulated standards (CPCB Standards) both during day and night time.

10.5 Solid/Hazardous Waste Disposal

Solid waste from labour camps during construction, estimated to be 63 kgs/ day, will be suitably handed over to BWS trucks. The hazardous materials used during the



construction may include petrol, diesel, Welding gas and paints. These materials will be stored and handled according to the KSPCB guidelines.

- Diesel and other fuels will be stored in separate enclosures;
- Wherever possible, hazardous raw materials to be substituted by non-hazardous materials, e.g. cleaning solvent can be replaced with film - free biodegradable cleaners. Usage of non chlorinated strippers instead of strippers containing methylene chloride and substitution of water based paint for oil based ones;
- Separate storage of waste paints, thinners, contaminated rags and brushes will be adopted.

10.6 Site security

Adequate security arrangement made to ensure that the local inhabitants are not exposed to the potentials hazards of construction activities.

10.7 Traffic Pattern

Heavy vehicular movement will be restricted to daytime only and adequate parking facility will be provided

10.8 Environmental Management during Operation

The EMP in the design stage endeavors to mitigate the problem related to health, safety and environment. The proposed project will be designed taking into account all applicable standards / norms both for regulatory and safety and purpose. The design basis will lay special emphasis on measures to minimize sewage generation and emission control at source. The specific control measures related to gaseous emissions, sewage discharge, noise generation, solid waste disposal etc. are described below

10.8.1 Air Quality Management

Major pollutants envisaged from the proposed project will be from the DG sets and vehicles movement. The major pollutants will be oxides of nitrogen, particulates and sulphur dioxide. The following methods of abatement will be employed for the air pollution control board source level.

- Use of High Speed Diesel with low Sulphur content will be used in the DG sets.
- Green belt development with specific species will reduce PM levels.
- Use of clean fuel by the vehicles will reduce the emission of pollutants
- The emission from the stacks of DG sets will be monitored for exit concentration of Oxides of nitrogen and sulphur dioxide.
- Sampling ports will be provided in the stacks according to CPCB guidelines.



Table 10.4: Management of Air Quality during Operational Phase

Environmental Impacts	Mitigation
DG set	<ul style="list-style-type: none"> Equipment selected will ensure the exhaust emission standard as prescribed as per the latest amendments from the Ministry of Environment & Forest, Government of India. DG will be used as stand-by unit. Periodic check and maintenance.
Ambient Air quality	<ul style="list-style-type: none"> Ambient Air Quality Monitoring as per the prescribed norms at regular interval.

10.8.2 Noise level Management

Some of the practices proposed for noise attenuation are as follows

- All Noise generating source in the complex will be equipped with appropriate noise control measures.
- Sound levels will be consistent with local government regulations.
- Ambient noise levels will be periodically monitored to determine compliance with the norms.
- Noise levels will also be monitored at point source for occupational noise exposure and ensuring health risk.
- Noise attenuating green belt will be developed for effective reduction in noise.

Table 10.5: Management of Noise Levels during Operational Phase

Environmental Impacts	Mitigation
Noise from DG set area	<ul style="list-style-type: none"> DG set will be installed in an area (utility section) where the access will be restricted The use of PPE (ear plugs) will be mandatory in this area Selection of equipment to ensure that the residential noise level of 65 dB (A) Noise levels will be checked periodically using a noise pressure level meter Acoustic enclosures for D.G Sets.

10.8.3 Solid Waste Management

1.46MT/day organic waste and 0.97MT/day inorganic waste generated from residential apartment. Total 2.43MT/day of generated solid waste during operational phase will be segregated into organic and inorganic waste. Organic waste will be treated in organic waste converter and inorganic waste will be

handover to authorized processors and will maintain within the CPCB standards. The sludge generated from the STP is estimated to about 37 Kgs/day and will be used as on own land for gardening. Biomedical waste will be disposed as per CPCB norms.

Table 10.6: Management of Solid Waste / Hazardous Waste during Operational Phase

Environmental Impacts	Mitigation
Domestic Solid Waste	<ul style="list-style-type: none"> No littering of solid waste will be ensured. 1.46MT/day organic waste and 0.97MT/day inorganic waste generated from residential apartment. Total 2.43 MT/day of generated solid waste during operational phase will be segregated into organic and inorganic waste. Organic waste will be treated in organic waste converter and inorganic waste will be handover to authorized processors and will maintain within the CPCB standards. Biomedical waste will be disposed as per CPCB norms.
Sludge from STP	<ul style="list-style-type: none"> 37 Kg per day of STP sludge will be used on own land for gardening
Used Oil from D.G Sets	<ul style="list-style-type: none"> It will be stored in leak proof sealed barrels and will be given to KSPCB authorized re-processors.

10.8.4 Water Management

The major water requirement for the proposed project will be met from the municipal water supply network. In order to conserve the water resources, following measures will be taken to minimize usage in the operational phase

- Rainwater harvesting for optimum utilization of rainwater and also to recharge the ground water level to be adopted.
- Well design storm water network to collect the rain water from the site area and diverted to the proposed rainwater harvesting/recharging pits for recharging the ground water and other non-potable purposes.
- All efforts to conserve water in the project to comply with the standards of water conservation practices.
- Use of low flow fixtures and appliances for reduced water consumption such as low flush closets and cisterns in toilets.



Table 10.7: Management of Water Quality during Operational Phase

Environmental Impacts	Mitigation
Sewage from Domestic use	<ul style="list-style-type: none"> Water conservation measures will be proposed. Rainwater harvesting and recharging techniques adopted. State-of-the-art Sewage Treatment Plant is proposed.

Infrastructure

- Run off from building areas during rains will be utilized for harvesting and recharge of ground water. Appropriate water conservation measures will be adopted in regular activities.
- Vegetative barriers along the site boundary will act as a noise barrier.

Traffic pattern

Vehicle movement will be regulated inside the site with adequate roads and parking lots 1230No's.

10.8.5 Human Health and Safety Management plan

The objective is to ensure that the health and safety of on-site personnel is proactively managed during the construction stage of the project. Below are given the proposed project related human health and safety environmental concerns and its management.

- The primary concern on potential health risks for the construction workers and other employees on site during construction are associated with drinking water quality. The project would ensure safe potable water supply to the workers on site.
- Construction site will be provided with a readily available First Aid Kit including an adequate supply of sterilized dressing materials and appliances. Suitable transport to take injured or sick person to the nearest hospital will be immediately provided.
- The project will ensure the safe working of all workers of all workers. Each Construction work. Workers will be provided with safety gadgets and made to wear during the construction work. This will include protective footwear, helmets, and gloves to all workers employed for the work on mixing, engaged in welding works; earplugs to workers exposed to loud noise; safety belt to the labors working at higher platforms; and masks to avoid dust.
- The project will strictly follow the statutory child labour act. Facemasks will be provided for use to the workers when paint is applied in the form of spray. Adequate safety measures will be ensured for workers during handling of materials at site. The project will comply with all regulation regarding safe scaffolding, ladders, working platforms, gangway, stairwells, excavations, and safe means of entry and exit.
- All machines to be used in the construction will conform to the relevant Indian Standard Codes, will be free from patent defect, will be kept in

good working order, will be regularly inspected and properly maintained as per IS provision.

- Work spots will be maintained clean, and provided with optimum lighting.

10.8.6 Fire Safety and Protection

Following are the Firefighting requirements as per NBC of India will be provided

- Fire Extinguisher
- Hose reel
- Wet riser
- Yard Hydrant
- Automatic sprinkler system
- Manually operated Electric fire alarm systems
- Underground static water storage tank

10.9 Greenbelt Development

The implementation for development of greenbelt of 41,290 Sq.m is of immense importance, as it not only acts as pollution sink but also enhances the visual appearance of the developed site. The species to be grown on the site will be fast growing native species having broad leaf base so that a permanent green belt is created in a short period. Besides this, the visual aesthetics of the proposed site will be enhanced by planting local ornamental plants in the open spaces.

10.10 Vehicle Parking and Management Plan

The layout plan of the proposed site has developed an internal road network in such a manner that it integrates the whole proposed project in an interesting composition to built masses and open spaces with a pedestrian dominated movement pattern.

Main entry to the proposed residential apartment is planned from NH 7 (Bangalore-Hyderabad highway) located in E direction which connects to Airport on one side and Bangalore City on another side. Total car parking provided in the project is 1230No's.

10.11. Energy Conservation Plan

Various energy conservation measures to be adopted in the proposed project are described below:

10.11.1 Solar Architectural Features:

The proposed project will provide enough daylight factors in the building to permit maximum daylight to interior to minimize overall energy consumption. These features will also minimize the impact of climate both in summer & in winter and as a result, the use of electricity will likely to be reduced. However solar equipments

will be proposed for Landscape and external lighting and also for solar water heating as part of energy savings.

10.11.2 Energy Saving Measures:

- ☐ Energy efficient appliances will be installed in the building.
- ☐ Constant monitoring of energy consumption and defining targets for energy conservation will be employed.
- ☐ Energy Efficient Lamps.
- ☐ Awareness on energy conservation will be raised among the users of the buildings in the residential apartment
- ☐ By using solar power we can utilized power for common area only.

Summary of energy savings enclosed as annexure-4

10.12 Environmental Monitoring Plan

Environmental monitoring of important and crucial parameters is of less importance to assess the status of environment during construction and operation phases of the project. With the knowledge of baseline conditions, the monitoring program can serve as an indicator for any deterioration in environmental conditions due to construction and operation of the proposed project and suitable mitigation steps could be taken in time to safeguard the environment. Monitoring is as important as that of control of pollution since the efficiency of control measures can only be determined by monitoring.

The objectives of monitoring are

- To verify the results of the impact assessment study in particular with regard to new development.
- To follow the trend of parameters which have been identified as critical
- To check or assess the efficiency of the pollution control measures
- To ensure that new parameters, other than those identified in the impact assessment study, do not become critical through the commissioning of new installations.
- To check assumption made with regard to the development and to detect deviations in order to initiate necessary measures and
- To establish a database for future impact assessment studies for new projects.

It is proposed to monitor essential parameters for ambient air quality, ambient noise quality, and ground water quality both during the construction and operation phases of the project.

10.12.1 Ambient Air Quality

Construction Phase

The ambient air quality monitoring will be carried out during the construction phase of the project. The frequency of monitoring will be once in every month in at least 4 locations within 2 km radius of the proposed site. The parameters to be monitored are Particulate Matter (PM₁₀ & PM_{2.5}), Sulphur Dioxide (SO₂) and Nitrogen di-oxide (NO₂).

Operation Phase

The ambient air quality monitoring overall will also be carried out during the operation phase of the project. The frequency of monitoring will be once in every month at least 5 locations within proposed project site. The parameters to be monitored are PM₁₀, PM_{2.5}, SO₂ and NO₂.

10.12.2 Ambient Noise Quality

Construction Phase

Noise emissions from vehicular movement, operation of various construction equipments will be monitored during construction phase. The frequency of monitoring will be once in every month at all important locations (5 No's) within 2 km radius of the proposed site for Leq Day dB (A) and Leq Night dB (A).

Operation Phase

Ambient noise level within the office building will also be monitored for Leq (day)dB (A) and Leq (night) dB (A) during the operation phase of the project at appropriate locations. The frequency of monitoring will be once in every month.

10.12.3 Ground water Quality

Construction Phase

Ground water will be analyzed for the desired parameters as per IS Drinking Water Quality Standards once in every month.

Operation Phase

It is also proposed to analyze ground water samples for the essential parameters once in every six months to ascertain any change in its quality.

Table 10.8: MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS

Sl. No.	Particulars	Monitoring Frequency	Duration of Monitoring	Important Parameters for Monitoring
I Air Quality				
1	Ambient Air quality	Once in a	24 hrly	PM ₁₀ , PM _{2.5} ,

	Monitoring within project premises	month	sample	SO ₂ , NO ₂ .
2	Stack Monitoring for DG sets.	Once in a month	Grab	SO ₂ , NO ₂ .
II Water and Wastewater Quality				
1	Water Quality			
i	Ground Water at two locations (up-gradient & down-gradient) of treated effluent discharge area /land	Once in a month	Grab	As per KSPCB requirements
2	Wastewater Quality			
i	Influent to STP	Once in a month	Grab	-
ii	Treated effluent prior to discharge	Once in a month	Grab	-
III Soil Quality				
1	Within project premises at 1 location on effluent discharging area land	Once in a month	Composite Sample	As per KSPCB requirements
IV Noise Level				
1	Noise Level	Once in a Month	24 Hrs Monitoring	Noise Levels in dB(A)

SECTION 11: RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN

11.1. On-Site Management Plan

The On-Site plan will be circulated to all concerned members of emergency teams. It is essential that all concerned familiarize themselves with the overall on-site emergency plan and their respective roles and responsibilities during emergency. They should also participate regularly in the mock drills that will be conducted so as to keep themselves and the emergency organization in a state of perpetual preparedness at all times to meet any emergency.

11.2. Objectives, scope and contents of On-site Emergency Plan

Objectives of Emergency Planning are to maximize the resource utilization and combined efforts towards emergency operations and would broadly cover the following.

1. To localize the emergency and if possible eliminate it.
2. To minimize the effects of accidents on people and property.
3. To take remedial measures in the quickest possible time to contain the incident and control it with minimum damage.

4. To mobilize the internal resources and utilize them in the most effective way.
5. To get help from the local community and government officials to supplement internal manpower and resources.
6. To minimize the damage in other sections.
7. To keep the required emergency equipment in stock at right places and ensure that they are in working condition.
8. To keep the concerned personnel fully trained in the use of emergency equipment.
9. To give immediate warning to the surrounding localities in case of an emergency situation arising.
10. To mobilize transport and medical treatment of the injured.
11. To educate the public in the surrounding villages regarding hazards.
12. To arrange for rescue and treatment of casualties.
13. To safe guard the people.
14. To identify the causalities and communicate to relatives.
15. To render necessary help to concerned.
16. To rehabilitate area affected.
17. To provide information to media & government agencies

11.3. Emergency

A major emergency in any situation is one, which has the potential to cause serious injury or loss of life, which may cause extensive damage to the structures in the vicinity and environment and could result in serious disruption to normal operation both inside and outside the layout premises. Depending on the magnitude of the emergency, services of the outside agencies may also be required for supplementing the internal effort to effectively handle the emergency and to contain the damage.

11.4. Emergency Medical Facilities

A range of medicines will be maintained in the Emergency Medical Center. Breathing apparatus and other emergency medical equipment will be provided and maintained.

A. Health And Safety Measures for the Labourers

- a. **Buildings and structures:** No walls, Galleries, Stairways, Floor, Platform, Staging or structure whether of a permanent or temporary character will be constructed in such manner as to cause risk or bodily injury.
- b. **Provision of crawling boards etc:** No person shall be required to stand to pass over or work on or near by any roof of ceiling cover with fragile material through which he is liable to fall, in case it breaks or gives away



the distance for more than 3 meters without use of sufficient number of suitable ladders, duck ladders or crawling boards which are securely support.

- c. **Service platforms:** Whenever practicable and demanded service platforms and gangways will be provided for overhead shafting, and where required by him these will be securely fence with guard rails and toe boards.
- d. **Belts, etc:** All belts will be regularly examined to insure that the joints are safe and the belts are proper tension.
- e. **Helmets:** Helmets will be provided to the workers for safe guarding themselves against any head injuries.
- f. **Machinery:** No machineries or equipments will be Situated, Operated or maintained in such a manner as to cause risk of bodily injury.
- g. **Methods of work:** No process of work will be carried out in such a manner as to cause risk of bodily injury.
- h. **Electricity:** No electricity installation will be provided during construction so as to be dangers to human life or safety.
- i. **Medical Check-up:** Medical examination for every laborer will be done by certified surgeon at least once in 3 months.

11.5. Emergency Action Plans:

11.5.1. Emergency Action Plan for Cylinder Fire:

- When filled container containing LPG is involved in fire, internal pressure if not relieved, will build up above 70 kg/sq cm and ultimately rupture the container. Rupture weak by direct flame impingement. Ruptured containers can be propelled at distance by jet action.
- If container's pressure is not raised upto 70 kg/sq cm leakage from screwed valve joint can occur due to different expansion of steel and brass.
- Ignition of the escaping gas would aggravate the fire but release of fire reduces the possibility of rupture.
- No attempt should be made to extinguish the burning gas but the container under fire and other containers in vicinity should be kept cool by water spray.
- If the gas leakage does not ignite, the container should be approached from up and removed to the place of safety away from, the source of ignition.

11.5.2. Emergency Action Plan for Electric Fire:



- Disconnect the electric supply of the affected areas.
- Attempt to extinguish fire with the help of CO₂, DCP
- If fire is not extinguished, extinguish by spraying water with fog nozzle after ensuring complete isolation of electric circuit.

11.5.3. Emergency Action Plan for Oil Fire:

- Attempt to extinguish small fire with the help of DCP
- If the fire is not controlled, use water foam to blanket the fire and further action is to be taken

11.5.4.. Emergency Action Plan for Medical Aid:

i. Emergency Action Plan for Electric Shock Casualties:

- Electric shock results in Irreversible damage to brain cell begins followed by deterioration of the organs.

Rescue and first aid:

- Do first aid quickly and without fuss and panic
- Switch off the supply if this can be done at once.
- If not possible use a dry stick, dry cloth or other non-conductor to separate the victim from electrical contact.
- The rescuer must avoid receiving shock himself by wearing gloves or using a jacket to pull the victim.
- Always keep in mind that delay in rescue and resuscitation may be fatal. Every second counts.

ii. Artificial Respiration:

- Give artificial respiration if breathing has stopped.

11.6. Natural Hazards:

11.6.1. Emergency Action Plan for earthquakes:

- When first tremors are sensed during an earthquake, all people should evacuate buildings and assemble at safe place away from structures, walls and falling objects.
- Emergency services should be contacted for assistance.

- After the status is restored, people should inspect all the facilities for rescue, first aid and damage control activities, damage assessment, cleanup, restoration and recovery.

11.6.2. Emergency Action Plan for Bomb Threat

When bomb threat call is received the following measures are to be taken.

- Inform the message to the highest local police authority and seek their assistance for patrolling and security need.
- Request the Local Fire Brigade to position at least one fire tender at the location immediately.
- Keep the concerned Department at the Regional level informed with the developments at regular intervals.
- Alert the Local Government/Private Hospitals and seek their help for providing Ambulances if necessary.

In the location premises:

- Keep the Fire Hydrant System/all Fire Fighting and personnel protective Equipment in readiness.
- Have thorough inspection of the location for any suspected dangerous object.
- Organize security cell for round the clock observation of the premises.

If The Suspected object is found:

- In case of finding of suspected article, do not disturb its position, but the area around it should be cordoned off to a distance of 100 meters and more depending upon the gravity of situation.
- Call the Police immediately, who on reaching the site will decide suitable action for defusing and disposal of the suspected object.
- Evolution of thick billowing smoke is an indication of impending explosion and in such a case, with draw or evacuates all people from the spot, which has been identified.
- As a general measure, regulate the movement of the strangers inside the premises and restrict their entry with permits.



4. STORM WATER POLLUTION PREVENTION PLAN

"I /We certify that under penalty of law that this document Form I, Form I A of EIA Notification 2006, Conceptual Plan, further information submitted to the queries raised by the SEIAA and all attachments, all pertaining to this project were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I/We am/are aware that if any part of the data /information submitted is found to be false or misleading at any stage the project is liable to be rejected and the clearance given, if any to the project is liable to be revoked at any/our risk and cost including the possibility of registering a criminal case against me/us under the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act 1986 and the Rules/Notifications there under".

Name and signature of the project proponent/project authorities

Date:

Project Name and Location information	"Proposed Residential Apartment " Sy. No. 1, 2/1, 8/1 of Yelahanka Amanikere, Sy. No. 16 of Venkata Village and Sy No. 31/1, 31/2, 31/3, 32/1, 32/2, 33/1, 33/2, 33/3, 34/1, 34/2, 34/3, 35, 36, 38, 39, 40, 41, 45/1, 45/2, 45/5, 45/6, 45/7, 45/10 of Yelahanka Village and Hobli, NH-7, Bangalore.
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A site map must be developed and must contain, at a minimum, the following information:

- 1) Drainage patterns.
- 2) Approximate slopes after major grading activities.
- 3) Areas of soil disturbance.
- 4) Outline all areas that are not to be disturbed.
- 5) Location of all major structural and non-structural controls.
- 6) The location of expected stabilization practices.
- 7) Wetlands and surface waters, and
- 8) Locations where storm water may discharge to a surface water/storm water drain.



Site Description:

Describe the nature of the construction activity:	The residential apartment of 1080 units is planned to have 2BHK with total built up area of 1,45,692 Sq. m. The building configuration of 2B + 2S + 27 UF with building height of 87 mt.
Describe the intended sequences of major soil disturbing activities:	Major soil disturbing activities include excavation work for foundation, basement, storm water drains, recharge pits, internal roads.
Total area of the site:	90,303 Sq.m
Total area of the site to be disturbed	9,030 Sq.m
Existing data describing the soil or quantity of any storm water discharge from the site	Soil testing and investigations are done
Estimate the drainage area size for each discharge point	Details enclosed as Annexure 5.
Latitude and longitude of each discharge point and identify the receiving water	Latitude: 13° 6'22.67"N Longitude: 77°35'50.64"E

Give a detailed description of all controls, Best Management Practices (BMP's) and measures that will be implemented at the construction site for each activity identified in the intended sequence of major soil disturbing activities section. Provide time frames in which the controls will be implemented.

Enclosed Below

Describe all temporary and permanent stabilization practices. Stabilization practices include temporary seeding, mulching, permanent seeding, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, vegetative preservations etc.

The implementation for development of green belt of 41,290 Sq. m is of immense importance, as it not only acts as pollution sink but also enhances the visual appearance of the developed site. The species to be grown on the site will be fast growing native species having broad leaf base so that a permanent green belt is created in a short period. The effective plantation will also stabilize the soil and reduce any nuisance during windstorm. Besides this, the visual aesthetics of the proposed site will be enhanced by developing parks/ lawn with local ornamental plants in the open spaces.

Describe all structural controls to be implemented to diverted storm water flow from exposed soils and structural practices to store flows, retain sediment on site or in any other way limit storm water run-off. These controls include silt fences, earth dikes, diversions, swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, reinforced soil retaining systems,

gabions, coagulating agents and temporary or permanent sediment basins.
Storm water management calculation and layout drawing are enclosed as Annexure 6 and layout drawing are shown in Site plan itself .
Describe all sediment basins to be implemented. The sediment basins (or an equivalent alternative) should be able to provide 3,600 cubic feet of storage for each acre drained.
Rainwater Collection Sump of 170 cum capacity for the proposed Residential Apartment (Total 41 No's of recharge pits will be provided) will be provided to collect the rainwater from the terrace during the operational phase.
Describe all permanent storm water management controls such as, but not limited to, detention or retention systems or vegetated swales that will be installed during the construction purposes.
Enclosed as Annexure

Waste disposal, this may include construction debris, chemicals, litter and sanitary wastes.	<ul style="list-style-type: none"> • Construction debris as estimated of about 291 Cum from the construction activity will be reused/recycled for back filling/sub base work for roads, pavements/drains etc., within the proposed project site premises. • The sewage generated by considering 90% is 722 KLD, will be treated in Sewage Treatment Plant of capacity 730KLD. • 1.46MT/day organic waste and 0.97MT/day inorganic waste generated from residential apartment. Total 2.43MT/day of generated solid waste during operational phase will be segregated into organic and inorganic waste. Organic waste will be treated in organic waste converter and inorganic waste will be handover to authorized processors and will maintain within the CPCB standards. • The sludge generated from the STP is estimated to about 37Kgs/day and will be used as on own land for gardening. Biomedical waste will be disposed as per CPCB norms.
Offsite vehicle tracking from construction entrances/exits.	Log sheets will be maintained in the security cabin for offsite vehicle tracking from construction entrances/exits.
The proper application rates of all fertilizers, herbicides and pesticides used at the construction site.	During the construction period, the activities may also result in pondage of water in the dug-out areas of the site. This has the potential for creation of mosquitoes breeding and spreading of vector borne diseases. The most important

	construction aspects are the impediment of temporary drainage by blocked silt traps or the ponding of water within foundation works. Other mosquito breeding sites maybe created through the use of uncovered water tanks. The project will give careful attention to the design and the maintenance of earthworks and drainage system during construction to avoid the creation of significant habit areas for mosquito larvae. The use of larvicides may be required to prevent mosquito breeding in silt traps.
The storage, application, generation and migration of all toxic substances.	Not Applicable
Other	Not Applicable
Provide a detailed description of the maintenance plan for all structural and non-structural controls to assure that they remain in good and effective operating condition.	
<ul style="list-style-type: none"> • The whole project area falls in Zone-II of Seismic Zoning Map of India. The seismic factors have been appropriately incorporated in the civil designs of the proposed expansion project. • Periodic cleaning of the storm water drains for removal of clogged materials. • Periodic maintenance of mechanical and electrical equipments related to the building. • Periodic maintenance of mechanical and electrical equipments related to the STP. • Annual maintenance of D.G sets, Rainwater Recharging Pits, Storm Water Drains, Solar equipments etc., • Effective operation and maintenance of STP. • Improvement of the Greenbelt. 	
Identify and describe all sources of non-storm water discharges. (Note: Flows from fire fighting activities do not have to be listed or described)	
<p>Sources of Non-storm water discharges may include:</p> <ul style="list-style-type: none"> • Flooding of excess water used for gardening. • Excess sprinkling of water. • Leakages from the plumbing connections etc., • Application of excess treated effluent for landscape/greenbelt development etc., 	

Best Management Practices

Following are the measures that will be implemented at the construction site:

Site preparation

- Minimal leveling is required prior to construction of the project.
- Vegetation on topsoil will be removed prior to commencement of bulk earthwork and later reused for landscaping purpose.

- As soon as construction is over, the surplus earth will be utilized to fill up low-lying areas, reused as fillers for internal roads/ drains/ pavements.

Management Practice w.r.t Disturbed surfaced areas:

- Application of water to at least 80 percent of all inactive accessible disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust.

Management Practice w.r.t Unpaved roads:

- Watering all roads used for vehicular traffic at least twice per day active operation: or
- Watering all roads used for any vehicular traffic once daily and restrict vehicle speed to 15mph.

EMP FOR CONSTRUCTION PHASE IMPACTS "SITE CLEARING"

Environmental Impacts	Mitigation	Remarks
Soil Erosion	<ul style="list-style-type: none"> • Extent of vegetation removal will be minimized to prevent extent of soil erosion. • Vegetative cover will be re projected /rehabilitated at the earliest practicable time to minimize duration & extent of soil erosion. 	<p>Implementation responsibility:</p> <ul style="list-style-type: none"> • Contractor • Project Proponent

- Implementation and monitoring of the control measures will be in parallel with the construction activity.

Name & Address: Mr. Nagendra M
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10/1,Ground Floor Lakshminarayana Complex, Palace
Road Bangalore - 560052,

Office Address: Same as above

Signature of the Applicant



Given under the seal of the
Organization by the
Authorized Signatory.

Date:

Place: Bangalore.