Executive Summary Report

Residential Building
(Redevelopment Project)
Under Reg. No. 33 (7).
of D.C.R 1991 for Mumbai City.

Of

Property bearing F.P NO 675 TPS - III, Mahim Div. Building No.15A and 76M, Bearing CESS No. GN/ 4984 and GN/ 4985, situated at Wanje Wadi Lane, Mahim, Mumbai 400 016.

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For,
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1) OBJECTIVE:

- To establish the base line Environmental Conditions on the project site based on available data.

- To identify the Significant Environmental Impact & any Special Issues associated with the proposed project, using the Simple Check List Method of Impact Assessment.

- To provide brief Environmental Management Plan to mitigate the adverse impact due to proposed development.

* *Simple Checklists Method of Impact Assessment And Anticipated Consequences has been employed in the below summary.*

In this method experts prepare comprehensive lists of environmental effects as envisaged from the information available about the project activity. This kind of list provides clues for further detailed analysis and induces thoughts about anticipated effects. This list has to be perfect otherwise some factors may be missed out. However maximum care has been taken in preparing this Environment Report to avoid such lacunae.

There should be no reason to doubt the completeness of this list because huge reference material is already available in the literature for this purpose, besides if some points are missed out then they may be incorporated at a later stage.

The environment impact prediction is done based on;

a) Magnitude of Impact
b) Extent of Impact
c) Duration of Impact.

Using the above information an Evaluation of the Environmental Impact is made.

In order to mitigate the results of this evaluation an Environmental Management Plan has then been proposed.

2) THE PROJECT:

2.1. INTRODUCTION:

M/s Mama and Sons Developers is proposing redevelopment of old dilapidated structure "15A" and "76M"situated on Plot bearing F.P NO 675 TPS - III, Mahim Div Bearing CESS No. GN/ 4984 and GN/ 4985,situated at Wanjewadi Lane, Mahim, Mumbai 400016 namely "Hanifabai".

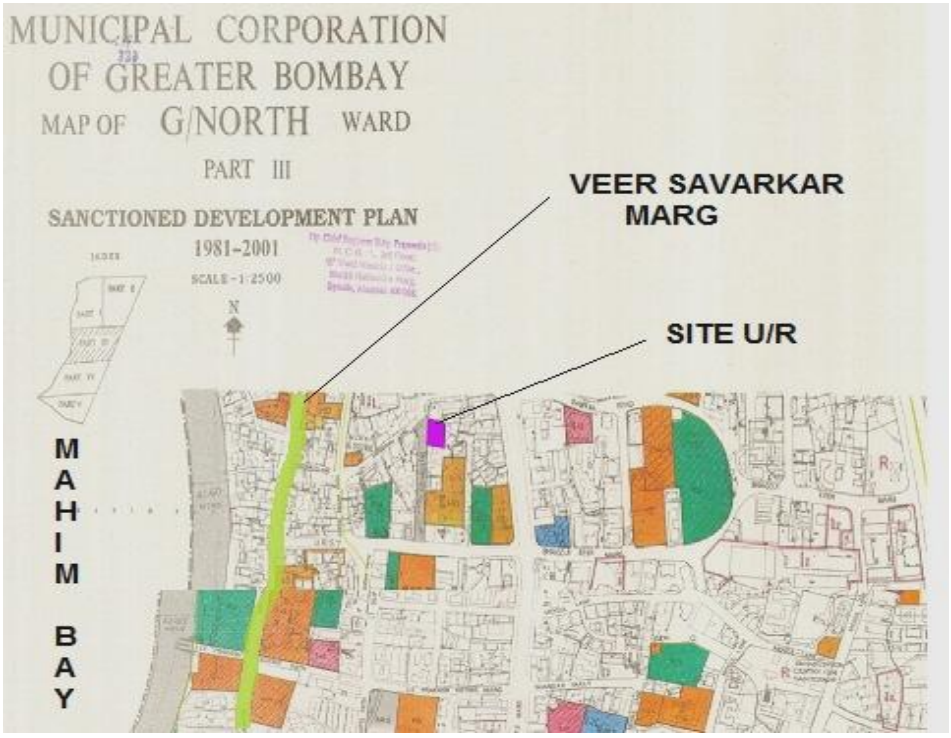
The site falls in CRZ - II area as per approved Coastal Zone Management Plan for Mumbai and also on the landward side of existing 90 Ft road i.e. Cadell Road.

2.2. LOCATION:

The plot is located in F.P.No.675, TPS - III, Mahim Div Bearing CESS No. GN/ 4984 and GN/ 4985, situated at Wanje Wadi Lane, Mahim.

The plot is 0.5 km away from Mahim Station (Western Line). Landmarks are Paradise Cinema, Sitala Devi Temple.

Location Map of Site Under Reference –



2.3. TOPOGRAPHY:

The proposed project is redevelopment of existing dilapidated building which is residential in nature and proposed one is also residential hence there will not be any change in Land use during excavation for building foundation up to building footprint only. Remaining land area will not be disturbed. Natural Topography will be retained. Top soil will be preserved during construction and reused in landscaping work.

2.4. BASELINE DATA:

2.4.1. METEOROLOGICAL DATA –

The project area has the following values of various parameters as mentioned in the table below: –

Parameter Values

Parameter	**Values**	
Temperature	Minimum 18 °C	Maximum 40 °C
Relative Humidity	Minimum 27%	Maximum 70%
Rainfall	722 mm	

Out of total rainfall, 80% rainfall is experienced during July to September.

2.4.2. LAND ENVIRONMENT –

The region is situated on plan terrain. The soil and sub surface is non-rocky. Topographically the region is flat terrain and there is no major level difference at the site.

2.4.3. AIR ENVIRONMENT –

The general air environment is good; due to sea-breeze, since the site is located close to the Arabian Sea, the major pollutants caused due to Vehicular Emissions are swept away.

To establish the baseline scenario of ambient air quality in the region a study was conducted.

The results of ambient air quality show the levels at different locations in the study area and are presented below;

Parameters / Locations	Months & Year	S.P.M (µg / m^3)	R.S.P.M (µg / m^3)	SOx (µg / m^3)	NOx (µg / m^3)	CO (µg / m^3)	Pb (µg / m^3)
Near Dadar Railway Station, Dadar (W)	06 / 2012	27.12	58.10	27.69	26.67	0.40	0.03
Near Mahim Station, Mahim (E)	06 / 2012	41.12	69.20	24.57	28.89	<0.40	0.04
Near Bandra Station, Bandra (W)	06 / 2012	35.02	58.10	25.65	23.11	0.40	0.01
Near Sion Station, Sion (E)	06 / 2012	37.15	62.20	21.34	25.00	<0.40	0.02
Permissible Limits		**60.00**	**100.00**	**80.00**	**80.00**	**2.00**	**1.00**

2.4.4. WATER ENVIRONMENT –

Hydro geologically this region is sound. The main source of water is Municipal Corporation of Greater Mumbai.

a) Surface Water

The study area is a region of high rainfall. The nearest major surface water body is the Arabian Sea.

b) Ground Water

Various ground water sources in the study region consist of Bore Wells, Open wells and Tube wells. Moreover, Rain Water Harvesting has been planned to recharge the ground water after completion of construction via Percolation Pits to be provided in the plot area.

The water quality analysis is shown below;

Parameters (Chemical)	Result	Limits	Units
pH	7.15	6.6 to 8.5	-----
Dissolved Solids	429	<500	mg/L
Total Hardness	247	<300	mg/L as $CaCO_3$
Salinity	0.53	Not Specified	ppt (‰)
Sulphates	85	<200	mg/L as SO_4
Phosphates	<0.5	Not Specified	mg/L as PO_4
Nitrates	10.16	<45	mg/kg as NO_2

COD	<5	Not Specified	mg/L as O_2
Total Suspended Solids	18	Not Specified	mg/L
Parameter (Microbiological)			
Most Probable Number (MPN)	>09	<10	Org/100ml
Escherichia Coli	absent	absent	1-2No./ml

2.4.5. NOISE ENVIRONMENT –

Noise of Vehicular traffic is the main source of noise at the project site.

Noise quality was monitored at 5 different locations and the noise levels vary depending upon time i.e. Day or Night.

Below is the Noise Quality Data in the study area.

Parameters		**Day Time**		**Night Time**	
Locations	**Month & Year**	**Max (dB)**	**Min (dB)**	**Max (dB)**	**Min (dB)**
Near Dadar Station, Dadar (W)	06 / 2012	62.00	42.00	48.00	40.00
Near Mahim Station, Mahim (E)	06 / 2012	72.00	49.00	58.00	44.00
Near Bandra Station, Bandra (W)	06 / 2012	66.00	46.00	50.00	42.00
Near Sion Station, Sion (E)	06 / 2012	65.00	45.00	50.00	44.00
Permissible Limits		**<75**		**<70**	

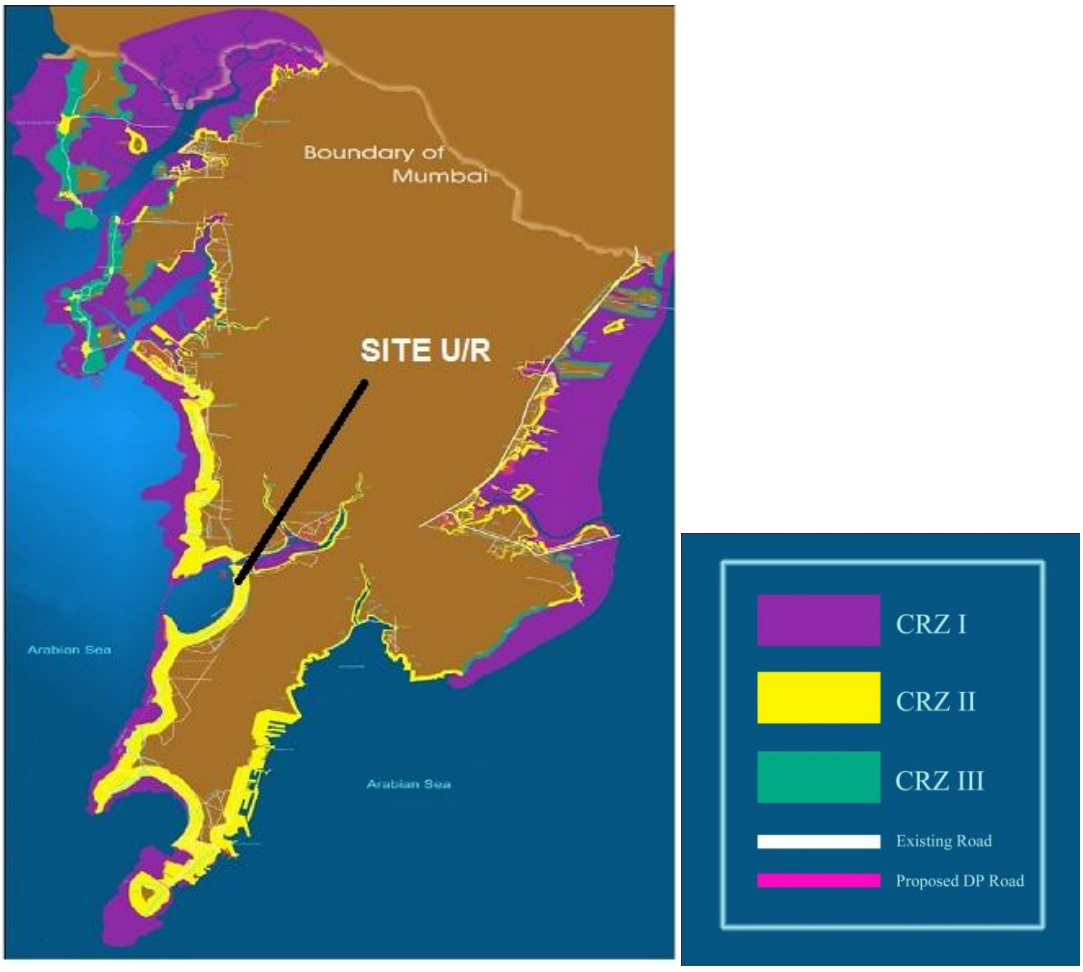
2.4.6. LAND USE & SOIL –

The study area is pre-dominantly a well developed urban agglomeration and hence the land use is essentially Residential in nature. The soil quality analyzed indicates that mainly it is plain terrain. The surface soil type is non-rocky; it is a mixture of gravel, small boulders and Grayish to Yellowish Clayey Soil. The land is situated in mixed zone.

2.5. COASTAL ZONE MANAGEMENT PLAN:

As per the CZMP for Mumbai the concerned project falls in CRZ II, which as per CRZ Notification of 1991 is defined as being within the municipal limits of a major Urban area. This means that it is part of a infrastructure wise fully developed area and has the necessary drainage lines, sewerage lines etc. All waste solid or liquid generated during occupation of the proposed building will be managed by concerned MCGM departments and the Coastal Ecology will not be affected in any way. Moreover, the existing conditions at the sea-coast level are pleasant compared to other locations as the solid waste is not being dumped along the coastal-line.

<u>Coastal Zone Management Plan (1:4000)</u> -



2.6. ECOLOGY:

Assessment of existing environmental status; flora, fauna, demographic, Socio - Economic factors and land use pattern within an area of 7 Kms radius from the proposed site was done. The Flora and Fauna in and around the subject plot consists of various types of trees, shrubs and herbs, climber, common birds such as crows, pigeons, sparrows etc and animals.

There are no endangered species near the sea-coastal area.

Though the plot itself has no trees, as per DC Regulations necessary amount of trees i.e. 2 Trees such as Foxtail Palm etc. per 100 Square Meters of plot area will be planted.

2.7. GEOLOGY:

Mumbai is classified under the Seismic Zone III of the Bureau of Indian Standards (BIS) 2000. Construction of the entire building will be Earthquake Resistant. It shall comply with the required IS Specifications for Construction in Seismic Zone III. Geotechnical investigations are done and stratum has safe bearing capacity more than 20 T/Sq Mtrs. at 1.5 Mtrs. depth.

2.8. TRAFFIC PATTERN:

The traffic survey to ascertain the traffic density in the study area was conducted for one day at the L. J. Road near the project site. The traffic survey was carried out covering both opposing directions. The number of vehicles is presented in the following table;

Date	Cars/ Jeeps	Buses / Tempos/ LCV	Two Wheelers
06/06/2012	9013	1541	2900
06/06/2012	9001	1562	2011
Average	9016	1552	2456

It is observed that the access road is 15 Mtrs. wide. The road is used to connect Cadell Road and L. J. Road. During peak hours maximum traffic on Kapad Bazaar road is moderate.

2.9. PROPOSED ACTIVITIES:

The proposed area of the plot redevelopment of residential building is admeasuring about 440.64 Sq. Mt. The details of which are as follows;

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Area Statement -

Sr. No.	Description	Area (Sq. Mt.)
1.	Plot Area	440.64 m²
2	Deductions (for Road Set Back, D.P. Road, etc .)	NIL
3.	Net Plot Area (1-2)	440.64 m²
4.	R.G.	N.A
5.	F.S.I Permissible	2.5
6.	Permissible Built Up Area	1101.6 m²
7	Total Built Up Area Proposed	1100.35 m²
8.	Total Construction Area Proposed	2056.725 m²

2.9.1. PROJECT DEVELOPMENT DETAILS -

Proposed Development		
01	Residential Building { 1 Stilt + 1 Podium Floor + 8 Upper Floors (Sale – A wing ,Tenant – B wing) + 2 Shops (Re-Accommodation) }	01 Building (2 wings attached)
02	Tenements: Residential + Commercial (Nos.)	27 + 2
03	Height of Building from Ground Level (Mtrs.)	30.3
04	Parking Required As Per MCGM (Nos.)	8
05	Parking Provided (Nos.)	10
06	Area required for Electrical Sub Station (m²)	N.A.
07	Salient Features of the Project • Earthquake Resistant Building Structure • Eco-Friendly Measures, Use of Fly Ash • Optimum Use of Timber • Rainwater Harvesting	

2.10. LOCATION ADVANTAGES -

The plot is located in a high density residential area. The plot is about 0.5 Km away from Mahim Railway Station. The area is well developed from Residential point of view.

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Google Location Map –

3) CONSTRUCTIONAL PHASE:

The type of Construction Material and Equipment used during the construction phase and skilled persons involved in various construction activities on the field affect the status of environment to a great extent. The impact of construction activities on various components of environment in the project site and surrounding area is predicted in this section.

3.1. UTILITIES:

The Utilities required during the construction phase are Water, Power, Fuel and Labour.

3.1.1. WATER: (Expected Consumption – Total 3 KLD (Kilo Liter / Day) For Construction.

1) Source:- Water will be made available by Municipal Corporation of Greater Mumbai, Water Department and from Water Tankers carrying water procured from outside of CRZ.
2) Storage:- Water for construction will be available from Water Tanker and Drinking Water for persons working on the field will be obtained from MCGM and it will be stored in tanks made up of High Density Poly Ethylene (HDPE).

3.1.2. POWER: (Expected Consumption – about (40 kW))

1) An Electricity supply of 40 kW will be available from BEST. It is mainly required for some construction equipments, material lift, hoist, general lighting etc.
2) All appropriate Fire & Safety measures will be taken and will be supervised by an Expert in the concerned field.

3.1.3. FUEL:

Diesel (about 31 Litres / Day) will be required during excavation stage. Post excavation requirement of the same will be 10 Litres / Day.

All the equipments are electrically driven except JCB, Poclain and Concrete Mixers.

3.1.4. MANPOWER**,** (Expected Manpower – 21):

Approximately 21 persons will be working during the peak time of construction phase. These persons will be on the project site in 0800 hrs day shift, except Security Personnel, who will be on the field round the clock for twenty four hours in 0012 hours shift.

3.1.5. LIST OF MATERIALS:

The Construction material required for the proposed redevelopment is given below.

Sr. No.	Item	Unit	Quantity	Source	Process
01.	Grey Cement	MT	700	Silica, CaSio2	Heating, Grinding
02.	Reinforcement Steel	MT	168	Ingots / iron Ores	Casting / TMT
03.	Sand & Aggregate	MT	155	River Bed / Silpoz	Crushing
04.	Standard Bricks	MT	1200	Red Soil	Heating, Moulding
05.	Timber	CFT	115	Forest	Cutting & Trimming

Note.

a] Source: - The material required for construction activities shall be procured from authorized / approved vendors only. The vendor's performance will be monitored periodically. In case of urgency or non-availability of materials from authorized / approved vendors, it will be procured from the open market to maintain the pace of the work. The mode of transport for above materials will be by trucks and / or by tempos.

b] Storage: - All the construction material shall be stored in Temporary Bins and / or *Godowns* constructed on site. Material will be segregated and kept / stored at identified area with proper safety / security precautions.

c] Safety: - All the safety and security majors shall be observed at construction site.

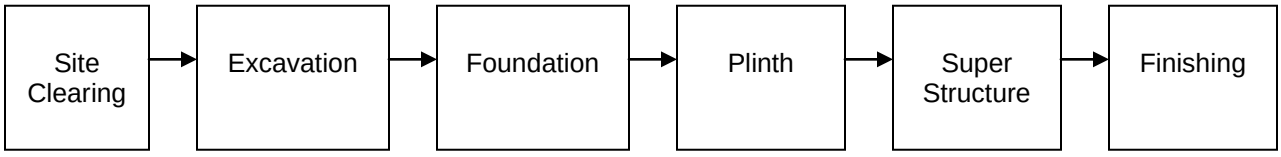
3.1.6 LIST OF EQUIPMENTS:

The construction Equipments required for the Residential building is given below;

Sr. No.	Equipments	Nos	Operation	Duration
01.	JCB, Poclain	1	Diesel	Short
02.	Dumpers	2	Diesel	Short
03.	Goods lifts / Personnel	1	Electric	Total
04.	Vibrators	4	Electric	Total
05.	Dewatering Pumps	1	Electric	Total
06.	Concrete Mixers	1	Electric	Total
07.	Wood Cutting Machine	1	Electric	Total
08.	Drill Machine	1	Electric	Total

3.2. CONSTRUCTION PROCEDURES:

The outline of the construction procedure is described below schematically.



Note:-

1] The project is expected to be completed within three years (Maximum) period. Construction Parameters and Quality will be strictly adhered to as per National Building Code and as per the Structural Design provided by the RCC Consultants, under his Supervision and Control. All the regulations of government authorities will be followed.

2] All the safety precaution will be observed as per the guidelines during the construction phase. Personal Protective Equipment (PPE) will be provided to all the personnel involved in the construction activities.

3] Site barricading by Corrugated Tin Sheets up to height of 5.0 Mtr will be done to protect the surrounding area of the project site from nuisance of dust.

4] All electrical connections & cables will be checked by authorized persons / electricians to ensure the safety of workers on field.

5] Water sprinkling will be done, wherever required to reduce dust in atmosphere. Plot boundary of Corrugated Tin Sheets of 5.0 Mtr height shall be provided to minimize noise level from construction activities.

6] The safety and security officers shall supervise the site periodically.

7] Safety helmets will be mandatory to all the persons present on the site during the construction activities.

8] Hand Gloves, Dust Masks and Welding Goggles will be provided to persons handling construction materials during the operation.

9] Safety belts will be provided to the persons working at height during the operation.

10] Safety nets will be arranged at a height of about 5.0 Mtr when the structure gets raised above the required height from the ground.

11] Scaffolding will be erected in all directions around the entire building at distance of 1 Mtr from the building and it will be covered with Hessian Cloth, to protect from dust / noise and any loose articles from falling outside.

12] Warning Boards will be displayed at prominent places.

13] First Aid Box will be kept at site.

14] All personnel will be covered under Insurance Policy.

15] Sufficient fire extinguishers will be kept on site.

3.3. ENVIRONMENT:

The impact of construction, on various Environmental Components is predicted below.

3.3.1. WATER POLLUTION -

3.3.1.1. Expected Effluent Generation:

The Proposed Water Balance is presented below;

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WATER BALANCE (DURING CONSTRUCTION PHASE)				
Sr. No.	**Consumption**	**Input KLD**	**Loss KLD**	**Effluent KLD**
01.	Construction Activity	3	2.97	0.03
02.	Domestic (21 Site Workers)	0.25	0.20	0.05
	Total	3.25	3.17	0.08

1) **Use: -** The MCGM water will be used for domestic purpose i.e. drinking water for staff and labourers working on the field whereas Water Tanker water will be used for various construction activities like Concreting, Plastering, Flooring & Finishing etc.

2) **Effluent: -** There will be negligible amount of effluent generated from construction activities as the water used for Concreting, Plastering, Flooring and Finishing etc. will get evaporated / absorbed during drying / curing time. All the construction activities are physical in nature. The Domestic Effluent will be generated due to the persons working on the site who would require water for Drinking, Cleaning, Bathing etc.

3.3.1.2. Treatment & Disposal: -

The Domestic Effluent generated in construction phase will be disposed off in existing MCGM Sewer, who levies extra Sewerage Tax during construction period for this purpose with the Land Under Construction (LUC) Tax.

3.3.2. AIR POLLUTION **-**

3.3.2.1. Emission:-

Source Emission:- The source of Air Emissions is usually from the use of some equipment like Concrete Pumps, Mixers etc. which consume Diesel as fuel during their operation and emit Carbon Monoxide, Hydrocarbons, Oxides of Nitrogen and Particulate Matter etc., however mostly

Electrically Operated Equipments will be used. Fugitive Emissions i.e. Emissions from Construction Activities will be mainly of Dust. Movement of Heavy & Light vehicles, for loading and unloading of construction material, etc. will also add to the list of emissions.

Source / Factor	Range	CPCB Limits	Average Range Before Activity	Average Range During Activity
SPM (µg / m^3)	60 - 150	60	30 - 50	100 - 150
RSPM (µg / m^3)	50 -100	100	50 - 60	90-100
SO2 (µg / m^3)	20-40	80	10-15	10-15
NOx (µg / m^3)	20-40	80	5-10	5-10

3.3.2.2. Mitigation :-

Sr. No.	SOURCE		MITIGATION
01.	Vehicle	I]	All the vehicles coming to the site will be ensured to be in good condition having PUC.
		II]	Public awareness to use Green Fuel will be done.
		III]	Vehicles will be checked for compliance for Bharat Stage II engines.
02.	Construction Activities	I]	Noise / Dust nuisance preventions by barricading site up to 5.0 Meter height by G.I. Sheets.
		II]	Water sprinkling on dry site, sand.
		III]	Maximum use of electrical driven construction equipment with Regular Maintenance.
		IV]	Covering entire building by Hessian Cloth will reduce dust pollution.

1] Source: - It is evident from the nature of operation (i.e. Construction) that the Concentration of Suspended Particulate Matter due to Dust would be higher than the other two parameters.

2] Control of Emission: - Proper precaution will be taken to reduce the Particulate Matter by water sprinkling on the dry site area, barricading the periphery by Corrugated Tin Sheets of 5.0 Mtrs height and erecting scaffolding around the building and covering with Hessian Cloth to protect the surrounding area from dust.

The pollution generated will be controlled by, allowing vehicles that will comply with Mass Emission Standard (Bharat Stage – II) stipulated by Central Pollution Control Board – Ministry of Environment & Forest, New Delhi. Also it will be ensured that the vehicles will carry PUC certificate. To minimize Air Pollution, efforts shall be made by use of equipment, which are electric power driven.

3.3.3 NOISE POLLUTION -

3.3.3.1 Level: -

LOCATION	**RANGE dB (A)**
At 1 meter distance from source (Equipment)	80 to 90
At plot boundary	60 to 70
Traffic at site	70 to 90
National Ambient Noise Quality Standards (for Residential Zone)	**<75**

3.3.3.2 Mitigation: -

Sr. No.	**SOURCE**	**MITIGATION**	
01.	Construction Equipment	I]	All the equipment will be run during daytime only.
		II]	Lubrication will be applied to all the equipment at proper intervals, for smooth functioning and reduction in noise due to friction.
02.	Construction Activities	I]	Work will be carried out during daytime only i.e. 7 AM to 7 PM.
		II]	Site Barricading with Corrugated Tin Sheets will be done to protect the surrounding area from emanating noise.

03.	Construction Vehicles	I]	All the vehicles coming to the site will be ensured to be in good condition and well oiled to reduce noise due to friction.
		II]	Smooth Roads will be maintained in the project site.

3.3.4. SOLID WASTE -

1] Normal debris, waste concrete, soil, broken bricks, waste plasters etc. will be collected properly and will be reused for land filling in the premises. Remaining debris will be dumped on the locations identified by the MCGM, after obtaining their permission and payment of requisite fees.

2] Food waste and other Biodegradable Waste (Quantity about 54 Kg per day) will be segregated properly and stored in a separate bin and will be disposed off as per MCGM rules.

3] Metallic Waste and Paper Waste will be collected separately and will be salvaged or recycled or sold to authorized recyclers.

3.3.5. HAZARDOUS WASTE -

Hazardous Waste as Waste Machine Oil (quantity about 10 Kg per Month) will be collected in a drum with proper identification and will be reused as shuttering oil during construction.

3.3.6. TRAFFIC MANAGEMENT -

- Storage and *Godown* area will be properly identified.
- There will be about 5.8 Mtr. wide space for movement of vehicles and parking.
- The area for loading and unloading will be located at proper demarcated location in the premises.
- Thus the traffic management on the project site will be easily and smoothly monitored without any hindrance to the regular flow of traffic on the main road.

3.3.7. SAFETY AND FIRE PROTECTION -

- First Aid and Medical facilities will be provided to all concerned people working on the site. Personal Protective Equipment (PPE) like Helmets, Hand Gloves, Safety Shoes, Dust Masks, Ear Plugs, Welding Goggles etc. will be provided to all persons working on the field as per the requirement.
- Proper precautions will be taken for handling electrical installation, cables and electrical connections to avoid short circuit and electrical shocks.
- Fire protection equipment like Sand Buckets and Fire Extinguishers will be installed wherever required.
- All the workers are covered under Insurance Policy.
- Periodic Medical Check Up of Workers for Lungs / Eyes / Ears.

4) OPERATIONAL PHASE:

After completion of construction phase of the project, the necessary permissions, NOCs from concerned Government Authorities will be obtained and the project will be ready for residential use. The residential building will have average population of 171 persons (Including Building Maintenance Staff, Security Personnel, Domestic Help etc.).

4.1. UTILITIES:

The Utilities required during the Operational Phase are as under.

4.1.1. WATER (Expected Consumption – total 11.56 m^3 per day (Excl .FF reserve as directed by CFO) -

1] Source: - Water will be available from Municipal Corporation of Greater Mumbai (MCGM).Water conservation plan will be implemented as per MCGM norms to save the resources.

2] Storage: - Water for building will be stored in a closed under ground Tank of appropriate capacity constructed at the site. It will be then distributed to the overhead tanks, constructed on the terrace of the buildings through the network.

3] Rain water harvesting system will be provided. It has been planned to recharge the Ground Water after completion of construction via Percolation Pits.

	Previous	Proposed
Description	Total Plot Area	Terrace Area
Area (Square. Meters.)	440.64	171.26
Co-efficient	0.6	0.85
Total Annual Rainfall (Meters)	2.3	2.3
Volume (m^3)	**608.08**	**334.81**

4] About 11.56 m^3 / Day water will be consumed of which 7.22 m^3 will be for domestic purpose, 4.34 m^3 for flushing.

5] Fire Fighting reserve as directed by Chief Fire Officer.

4.1.2. POWER (Expected Consumption – about. 120 kW / Month) -

1] Electrical supply of 120 kW / Month will be available from BEST.

2] D.G. Set of 82.5 KVA capacity will be provided as a standby source of Electric Supply as per CFO requirement.

3] All Fire & Safety measures will be taken as directed by the concerned Authority.

Energy Saving Measures:

- Energy Efficient Fluorescent bulb lights which give approximately 30% more light output for the same Wattage and therefore require less number of fixtures and corresponding lower point wiring costs will be used for common areas.
- CFLs and / or LED fixtures will be incorporated in corridors, toilets and all circulation areas.
- Use of Solar Water heating systems will be promoted.
- Checking all sealing / closing of doors in A/C areas.
- Monitoring of daily consumption and recording of maximum demand will be done.

4.1.3. FUEL -

Diesel will be required to run D.G. set in case of power switch off; hence quantity of diesel consumed will vary depending upon the usage of DG set.

1] Storage: - Diesel and oil will be stored in drums / tins with proper identification mark / labels, in identified area only.

2] Fire and Safety measures will be taken as per the guidelines from concerned authority.

3] All safety and fire precautions will be followed.

4.1.4. POPULATION (Expected Population – 171) -

1] There will be about 135 persons in the Residential Building. Persons for Security Services, Domestic Help, Building Maintenance Staff will be extra.

2] Also the commercial establishments which are re-accommodation will have a population of total 4 persons.

4.2. Environment:

The impacts of day to day activities on various Environmental Components are predicted below;

4.2.1. WATER POLLUTION (Expected Effluent Generation 11.20 m^3/ day)

The Proposed Water Balance is presented below.

Sr. No.	Application	Consumption Load (Persons)	Rate of Supply (lpcd)	Supply CMD	Loss CMD	Sewage CMD
1.	Residential Population (@ 5 Person / Tenement)	5 X 27 = 135	60 (Domestic)	6.75	0.34	6.41
			30 (Flushing)	4.05	Nil	4.05
2.	Security & Service Personnel, Servants, Building Maintenance Staff	32	13 (Domestic)	0.42	0.021	0.40
			7 (Flushing)	0.26	Nil	0.26
3	Commercial Population (@ 2 Persons / Shop)	2X 2 = 4	13 (Domestic)	0.052	0.003	0.049
			7 (Flushing)	0.028	Nil	0.028
TOTAL (1+2+3)				**11.56**	**0.364**	**11.20**

- Assumption 95 % sewage generation and 5 % loss from domestic use.
- 100% sewerage generation from flushing use.

IF INSISTED BY C.F.O

SR. NO	Application	Consumption for	----------	Quantity
01.	Fire Fighting	One Time	As per CFO	70 CUM

Note: - 70 m^3 or as may be insisted by the CFO water will be reserved for fire fighting purposes. Fire fighting equipment will be ensured functioning properly ones in a month to keep the entire system operational in any eventuality.

Effluent: - The Domestic Effluent of about 11.20 m^3 per day will be generated from the building. It will be brought down by cast iron pipes. It will be treated in grey water treatment plant and the treated water will be used for non-domestic use. The excess treated water will be disposed off in existing MCGM Sewer Line.

4.2.2. AIR POLLUTION -

1] Source Emission: - The D.G Set and automobiles will be source of air pollution. About 10 Cars are expected to be accommodated in the premises. The impact of these on ambient air quality is predicted in below table.

2] Mitigation: – D.G Set will be used only in case of Power Failure and car owners will be encouraged to use CNG/LPG as fuel

3] Low V.O.C Paints will be applied on exterior and interior walls of proposed building.

Ambient Air Quality (Expected Pollutants Level)

PARAMETERS	**RANGE**	**NATIONAL AMBIENT AIR QUALITY STANDARDS (RESIDENTIAL ZONE)**
Respirable Particulate Matter (µg / m^3)	30 to 50	100
Sulphur dioxide (µg / m^3)	10 to 30	80
Nox (µg / m^3)	10 to 30	80

4.2.3. NOISE POLLUTION **-** (Expected Pollutants level)

1] Source: - The source of noise will be from the operation of various equipment like Water Pumps, Air Conditioning etc.

2] Noise Level: - The predicted Noise level at the site would be about 50 to 65 dB (A), at one meter distance from the source.

3] Control of Noise Pollution: - All the source equipment will be housed in specially built closed cells or rooms.

4] Water pumps will be used when required.

4.2.4. SOLID WASTE **-** (Expected Waste Generation Estimated 65 Kg / day)

- The Biodegradable solid waste will be in the tune of about 40 Kg / Day.

- The Non – Biodegradable waste of about 25 Kg / day like Plastic, Waste Bottles, Glass, Rubber, Drums, Metal, Paper Packing, Paper Cuttings, Scrubbings etc. will also be collected separately and disposed off as per MCGM rules.
- All waste will be collected in colour coded bins and will be placed at a designated area in the building premises.
- The practice of Reduce/Reuse/Recycle will be instilled in the inhabitants of the proposed building.

4.2.5 HAZARDOUS WASTE- (Expected Waste Generation Estimated 15 Kg / Month)

Domestic Hazardous Waste such as Aerosol Cans, Car Batteries, Household Cleaning & Draining Agents, Styrofoam, Thermometers etc. will be collected in Special Non-Corrosive Sealed Bins and safely disposed as per MCGM standards.

4.3. TRAFFIC MANAGEMENT:

- About 10 Cars per day are expected to be accommodated in the premises. The parking space will be provided under stilt / open parking area. There will be smooth movement of cars.
- There will be 13.4 Mtr wide approach road to the building via proposed D.P road, which is under development.
- Traffic Management Plan System will be approved by concerned MCGM Authority.
- Thus the Traffic Management Plan system will be easily and smoothly monitored without any hindrance to the regular flow of traffic on the main road.

4.4. DISASTER MANAGEMENT PLAN:

- This provision is applicable in the present case only to Safety and Fire Hazard as it is a small Residential Project.
- The only hazards envisaged here are from Fire either due to Short Circuit or Gas Cylinder in the kitchen of individual houses. There are no manmade

disasters expected. We have not considered here the natural disasters such as Flooding, Earthquake etc.

- However flooding will not affect the existing Tenements as the building will be on stilts at the ground floor level and the structure as mentioned earlier is an Earthquake Resistant Building.

4.5. SAFETY:

- Construction of the entire complex will be Earthquake Resistant. It shall comply with the required Indian Standards Specifications for Construction in Seismic Zone III.
- First Aid and Medical Facilities will be provided to all the concerned personnel working in the complex premises in case of accidents.
- Proper precautions will be taken at all electrical installations, cables and electrical connections to avoid short circuit and electrical shocks. All cabling will be Fire Retardant Low Smoke (FRLS) types and wires will be run in metal conduits in the building.
- Lightning Protection will be provided to the building Structures, based on National Building Code of India ’2005.
- All other Safety Measures as required by Concerned Government Authorities shall be complied with.
- Exhaust fans will be provided in Kitchens and Toilets of all Tenements.

4.6. FIRE PROTECTION:

- Fire Hydrant System will be provided based on NBC.
- Fire fighting equipments like sand buckets and extinguishers, will be provided wherever required in the Residential Complex.
- The Fire Fighting equipments / system will be installed and approved as per Chief Fire Officer of MCGM.
- Fire alarms will be provided on each floor.

- Manual Call Boxes will be strategically installed at stairwell and elevator exit location.
- Intercom System between floors at the helpdesk stations will be provided for all floors.
- Smoke Detectors will be provided in Kitchen area and Car Parking area.

4.7. SOCIO – ECONOMIC:

- The surrounding area will also be developed from residential point of view.
- This will create opportunity for employment, which is need of the hour.
- The proposed Redevelopment envisages demolition of about 60 years old dilapidated building having water losses due to old adornments, damaged underground water pipe line.
- A new building, with proper light and ventilation, new water pipe- lines and above all old tenants are made owners of their premises.

5) CONCLUSION:

Considering the Impact Identification, Impact Prediction, Impact Duration and consequent Evaluation of the Impact as stated above, it is clear that the project is of a very small size, it is in the legally permitted Land Use Zone, the surrounding area is Fully Developed Urban Area with the Best Infrastructure Facilities such as Water Supply, Sewage Lines, Electricity Supply, Solid Waste Collection etc. Therefore the proposed project will have no meaningful adverse impact on the environment and the surrounding area of the project site.

All necessary pollution control measures are planned for the management of waste water, solid waste, noise and air pollution generation due to proposed building.

Under the circumstances the project may be cleared for the construction and establishment of the new Residential Building as per prevailing Development Control Rules of Municipal Corporation of Greater Mumbai.