CONCEPTUAL PLAN

1. INTRODUCTION

1.1 Introduction

The purpose of Development projects is to plan, design and construct buildings and ancillary facilities as well as parks in a manner that is consistent with City policiesand is meant to give economic benefits to the society like increase in GDP, employment generation, foreign exchange earning etc., which mostly aimed at, are tangible ones. Simultaneously, development of projects also causes some social and environmental losses and gains. A sustainable project should have environmental compatibility in addition with techno-economic feasibility. Ministry of Environment and Forest notification dated Sept 14, 2006 vide S.No. 1533, that project should be designed under the Environmental Impact Assessment Notification and requires prior Environmental Clearance (EC) from the MoEF/SEIAA.

1.2 About the City – Bhopal

Bhopal, also known as the city of lakes is the capital of Indian state of Madhya Pradesh. Geographical location of Bhopal is 23° 15′ 0″ North Latitude and 77° 25′ 0″ East Longitude. With an elevation of approx. 500 m Bhopal is located in the central part of Indiaand is just north of the upper limit of Vindhya mountain range. Bhopal is a fascinating amalgam of scenic beauty, old historic city and modern urban planning. Bhopal is the 16th largest city in India and 231st largest city in the world. It is basically divided into two parts - old Bhopal and new Bhopal.The old city with its marketplaces and fine old mosques and palaces still bears the aristocratic imprint of its former rulers, among them the succession of powerful Begums who ruled Bhopal from 1819 to 1926. Equally impressive is the new city with its verdant, exquisitely laid out parks and gardens, broad avenues and streamlined modern edifices. It is greener and cleaner than most cities in the country.

Bhopal houses various institutions and installations of national importance, including ISRO'sMaster Control Facility and BHEL. Bhopal is home to the most number of Institutes of National Importance in India, making it one of the greatest education hubs in the country.

1.3The Company

SatyaPrakash Builders Ltd. and N.I.C. Construction (India) Ltd have joined hands and both the companies have come together as Satya Prakash Colonizers Pvt. Ltd. This venture is backed by combined 30 years of rich experience of both the parent companies. They have

achieved many milestones in the construction field by constructing many homes and many high rise buildings of world class quality and standards. They have touched new heights in the field of construction with the help of highly qualified experts and professionals. Satya Prakash Colonizers Pvt. Ltd. strives to maintain quality in construction, timely delivery and customer satisfaction.

1.4The Project

M/s Satya Prakash Colonizers, Pvt. Ltdare coming up with a Multiunit Residential Development project named "Nice Space" on khasra no. 243/244/1/1/KH/3, 243/244/1/1/KA/2, 243/244/1/1/KH/2, 243/244/1/1/GHA/2, 243/244/1/1/GA/2, 243/244/1/1/DA/2, 243/244/1/1/CHA/2, 243/244/1/2/2, 243/244/1/CHHA/2, 243/244/1/1/KA/3 at Village- Badwai, Tehsil- Huzur, District- Bhopal, Madhya Pradesh, India.The total land area of **17,440 m^2 (1.74 Ha or 4.309 Acre)** and the land use of the project is residential as per Bhopal Master Plan, 2005. Proposed site is situated in a lush green part and surrounded by many other institutional and residential colonies of the city with Parks and other facilities for the residents to spend their leisure time and relax, yet well connected to the outer citythrough networks of roads.

1.5 Connectivity

Bhopal city as well as the proposed project site has a perfect central connectivity to India's all metro cities and other important markets. The proposed site is located 6.0 km from the Bhopal city and 3.75 km from NH-12 (Bhopal Bypass Road) and 600 m from Ayodhya Bypass Road (NH-86). The nearest railway station is Bhopal Junction Railway Station and Habibganj Railway Station which are at an aerial distance of 5.5 km (SE) and 11 km (SE) from the project site respectively. The nearest airport is the Raja Bhoj International Airport, which is about Raja Bhoj International Airport: 5.5 km (NW) from the proposed site. Apart from this, State Road Transport bus services provide regular and frequent connectivity to the people to and from Bhopal.

1.6Necessity and Benefits of Project

Known as the Lake City of India, Bhopal has beautiful landscape that is dotted with many natural lakes. Bhopal is divided into 6 major areas and around 75 suburbs. The major areas in Bhopal include New City and Old City.

A vast population is coming to Bhopal from all around the area for employment, education, and business increasing the population of the city. To redistribute the population of the congested old city, we need new housing projects outside the city. The population of the city is also growing on account of high birth rates. In order to provide this burgeoning population

with a good quality of life so that they can contribute to the further development of the region and the country, it is imperative that they are provided with good housing facilities which offer the uninterrupted water and power supply, sewage disposal and solid waste management and so on.

M/S SatyaPrakash Colonizers, Pvt. Ltd will fulfill the needs of people by constructing state-of-the art apartments for growing urban population in an absolute manner hence has proposed this residential complex project.

The development rate in Bhopal is taking place with a rapid speed and as a result the direct impact on the environment is envisaged. Keeping in mind all these factors and impacts, the proposed project will be developed on the concept of green homes with proper landscapes, open areas, tree plantation. The project activities must co-exist in harmony with its surrounding environment, so as to reduce the environmental impact, which is likely to arise during various project activities.

1.7 Objectives of the study

The objectives of the study are as follows:

i) To describe the proposed project and associated works together with the requirements for carrying out proposed development.

ii) To identify and describe the elements of the community and environment likely to be affected by the proposed developments.

iii) To establish the baseline environmental and social scenario of the project site and its surroundings based on the secondary data available from different sources.

iv) To identify and quantify emission sources and determine the significance of impacts on sensitive receptors.

v) To identify, predict and evaluate environmental and social impacts expected to raise during the construction and usage of the project in relation to the sensitive receptors;

vi) To develop an Environmental Management Plan that identifies the negative impacts and develops mitigation measures so as to minimize pollution, environmental disturbance and nuisance during construction and operations of the development.

vii) To design and specify the monitoring and audit requirements necessary to ensure the implementation and the effectiveness of the mitigation measures adopted.

1.8 Scoping/ Report Methodology

The approach followed by ENV DAS India Pvt. Ltd. in conducting the report study is according to the applicable regulatory framework. The main stages followed are described below:

Stage -I

- Review of design and operational information of the proposed Project through Project Report/data/site visit/site assessment.

Stage -II

- An initial review of the proposed project site and status of the physical environment around the project vicinity;
- Understanding project design and operation as well as macro environmental aspects. The major issues needed to be addressed with due care were identified;
- Environmental assessment was conducted within the study area of 10 km radius around the proposed project site;
- Collection of secondary data viz. Micro-Meteorological Condition, Ambient Air Quality, Water (Surface and Ground water) use and its Quality, Soil Quality, Noise Level, Traffic Volume etc. from various government and semi-government authorized agencies.
- Survey study was carried out in the study area to assess the status of flora & fauna and socio-economic profile of the study area; and
- Information was also collected through Primary and Secondary sources like Department of Census, Local and City offices, National Institutions (Survey of India, National Information Centre etc.), District Head Quarters and other Government Offices etc. as well as relevant Published Literatures.

Stage –III

- Compilation of the data of the Study Area.

Stage –IV

- Assessment of Environmental Impacts by predicting the scale and extent of changes associated with the project and their subsequent effects on the

environment against the environmental baseline conditions, and evaluating the significance of such impacts against accepted criteria.

Stage –V

- Identification and preparation of measures to mitigate significant impacts (evaluated from the impact prediction process) by proposing applicable alternatives and control measures; and
- Finally, development of appropriate Environmental Management and Monitoring Plan to audit and ensure that the proposed mitigation measures are in place and effective.

This report is based on scientific principles and professional judgment with resultant subjective interpretation. Professional judgments expressed herein are based on the available data/comments/feedback/modifications and reports provided by the functional area experts and finally compiled by EIA coordinator.

1.9 Need for Environmental Clearance

To safeguard the environment from adverse effects of developmental activities,MoEF has issued some mandatory regulations. As per the notification S.O. 1533 dated 14th September, 2006, Environmental Impact Study (EIA) is mandatory for any construction projects with built-up area of more than 1,50,000m^2. Since the built-up area of the present project is **21800 m^2** (As per MPVPR) and **31226.64 m^2** including Non-FAR (MoEF), it does not require detailed EIA study, only clearance has been called for from concerned authorities (SEAC) through the EIA Proposal consisting of Form 1, Form 1A and Conceptual Plan. The study would facilitateM/s SatyaPrakash Colonizers, Pvt. Ltd, Bhopal to obtain Environmental Clearance (EC) from the State Expert Appraisal Committee (SEAC), M.P. as per the above mentioned notification.

Table 1: Summary of Acts and Environmental Legislationsreferred.

Legislation	Year	Objective	Responsible Institution
Environment (Protection) Act.	1986	To protect and improve the overall environment	MoEF, CPCB
Wildlife Protection Act	1972	To protect wild animals and birds through the creation of National Parks and Sanctuaries	MoEF
Forest (Conservation) Act	1980	To protect and manage forests	MoEF
Water (Prevention and Control of Pollution) Act	1974	To provide for the prevention and control of water pollution	CPCB

Legislation	Year	Objective	Responsible Institution
(and subsequent amendments)		and the maintaining or restoring of wholesomeness of water.	
Water Cess Act	1977	Paying Water Cess to Local Body for sourcing of domestic water	CPCB
Air (Prevention and Control of Pollution) Act (and subsequent amendments)	1981	To provide for the prevention, control and abatement of air pollution, and for the establishment of Boards to carry out these purposes.	CPCB and Transport Department
Noise Pollution (Regulation and Control) Rules	2000	Compliance with Ambient Noise Standards in accordance to landuse of the area	CPCB
The Land Acquisition Act	1894 1984	Set out procedures for acquisition of land by government	Land and Land Revenue Department
Central Motor Vehicle Act Central Motor Vehicle Rules	1988 1989	To control vehicular air and noise pollution. To regulate development of the transport sector, check and control vehicular air and noise pollution.	Motor Vehicle Department
Petroleum Act with Rules	2000	Comply with guidance and safety measures for storage, and transportation of petroleum substances within premises	Ministry of Petroleum and Natural Gas
National Resettlement and Rehabilitation Policy	2007	Addressing impacts on affected persons due to all development projects	MoRD and respective state institutions undertaking the development projects
MP State Resettlement and Rehabilitation Policy	2002	This policy covers all the social parameters which are important for the total rehabilitation of the displaced groups.	All state institutions undertaking development projects
Ancient Monuments and Archaeological sites and Remains Act	1958	Conservation of Cultural and historical remains found in India.	Archaeological Dept. GOI, Indian Heritage Society and Indian National Trust for Art and Culture Heritage (INTACH).
Madhya Pradesh Land	1959	Designed for tribal people such	Local

Legislation	Year	Objective	Responsible Institution
Revenue Code		as state-specific laws to prevent the alienation of tribal land to non-tribal	Government Administration, DC
Municipal Solid Waste Rules, 2000	2000	Management (Collection, Handling, Intermediate Storage) of domestic waste from residences	Municipal Corporation
Hazardous Waste (Management, Handling and Transboundary Movement Rules, 2013 (as amended)	2013	Management (Collection, Reception, Treatment, Transport, Storage, Disposal) of Hazardous waste	MoEF
Notification on E.I.A. of Development projects (and amendments) (referred to as the Notification on Environmental Clearance)	2006/2009	To provide environmental clearance to new development activities following environmental impact assessment.	MoEF
E-waste (Management & Handling) Rule, 2011	May, 2011	Management & Handling of Electrical and Electronic Waste	MoEF
Fly ash Notification, 2007	2007	Use of fly ash (wholly or partly) in building construction wherever it costs same or less than the clay, limestone, sand etc and is not technically infeasible, compliance of which shall be the duty of the person/ agencies undertaking construction	
Corporate Social Responsibility		Each business entity should formulate a CSR policy to guide its strategic planning and provide a roadmap for its CSR initiatives 2% of total project cost shall be allocated for CSR activities.	
Building & other Construction Workers Rule 1998	1998	To ensure the provisions under BOCW Act.	
The Indian Electricity Rules, 1956	1956	To ensure the provisions under The Indian Electricity Act, 1910.	

CHAPTER 2
PROJECT DESCRIPTION

2.1 Background Information

2.1.1 About the Project

M/s SatyaPrakash Colonizers, Pvt. Ltdare coming up with a Multiunit Residential Development project named "Nice Space" on khasra no. 243/244/1/1/KH/3, 243/244/1/1/KA/2, 243/244/1/1/KH/2, 243/244/1/1/GHA/2, 243/244/1/1/GA/2, 243/244/1/1/DA/2, 243/244/1/1/CHA/2, 243/244/1/2/2, 243/244/1/CHHA/2, 243/244/1/1/KA/3 at Village- Badwai, Tehsil-Huzur, District- Bhopal, Madhya Pradesh, India.The total land area of **17440 m^2 (1.74 Ha or 4.309 Acre)** and the land use of the project is residential as per Bhopal Master Plan, 2005.This project willsoffer432 residential apartments, 26 LIG and 39 EWS units for lower income groups(as per MP States bylaws). The proposed project has sufficient area allotted for development of parks and other landscapes for the residents to spend their leisure time. The site layout plan of the residential complex, common facilities and location of open spaces including parks within the proposed project are indicated in **Annexure-Ib**.

This is Construction of a new residential complex on vacant plot of land. The land use of the project is residential as per Bhopal Master Plan, 2005. Therefore, proposed project do not anticipate any permanent or temporary change in land use, land cover or topography of the area. It is anticipated that the construction activities of the proposed project would not have an adverse effect on the land use. The development of the green belt and other landscape would enhance the visual aesthetics of the area.

2.1.2 Site Location and Surroundings

Proposed project site for development of Multiunit Residential Development named "Nice Space" having an area of **17440 m^2 (1.74 Ha or 4.309 Acre)**atkhasra no. 243/244/1/1/KH/3, 243/244/1/1/KA/2, 243/244/1/1/KH/2, 243/244/1/1/GHA/2, 243/244/1/1/GA/2, 243/244/1/1/DA/2, 243/244/1/1/CHA/2, 243/244/1/2/2, 243/244/1/CHHA/2, 243/244/1/1/KA/3 at Village- Badwai, Tehsil-Huzur, District- Bhopal, M.P.

Site and Surroundingsof the proposed project within 10 km radius is as follows:

North: Village Badwai, BishanKheda and ParvaliyaSani are at a distance of 500 m, 2.4 Km and 2 km the site. Bhopal Bypass Road (NH-12) is 3.75 km from the site.

West: Gokuldham colony, Abbas Nagar and Rajiv Gandhi Technical University are about 700 m, 1.5 Km and 2.0 km from the site. Raja Bhoj International Airport is about 5.5 km in North West direction and Central Jail colony about 1.0 km in South west direction from the site.

South: Dwarkadham colony and Hahnemann Homeopathic Medical College are 400 m and 500 m from the site. Sanjeev Nagar, Kamal Nagar and Nariyalkheda are situated at a distance of 1.2 Km, 1.7 Km and 2.5 km from the site. Ayodhya Bypass Road (NH-86) is 600 m from the site

East: Truba Institute of Engineering & IT, Krishak Nagar and Central Institute of Agricultural Engineering is 20 m, 1.5 Km and 2.0 Km from the site. Peoples Campus, village PipliyaBajkhan and Malikhedi are 4.0 Km, 4.5 Km and 6.0 Km from the site.

Fig 1: Satellite image showing site and coordinate of the project

Figure 2: Satellite showing site and surrounding 500 m radius of the project.

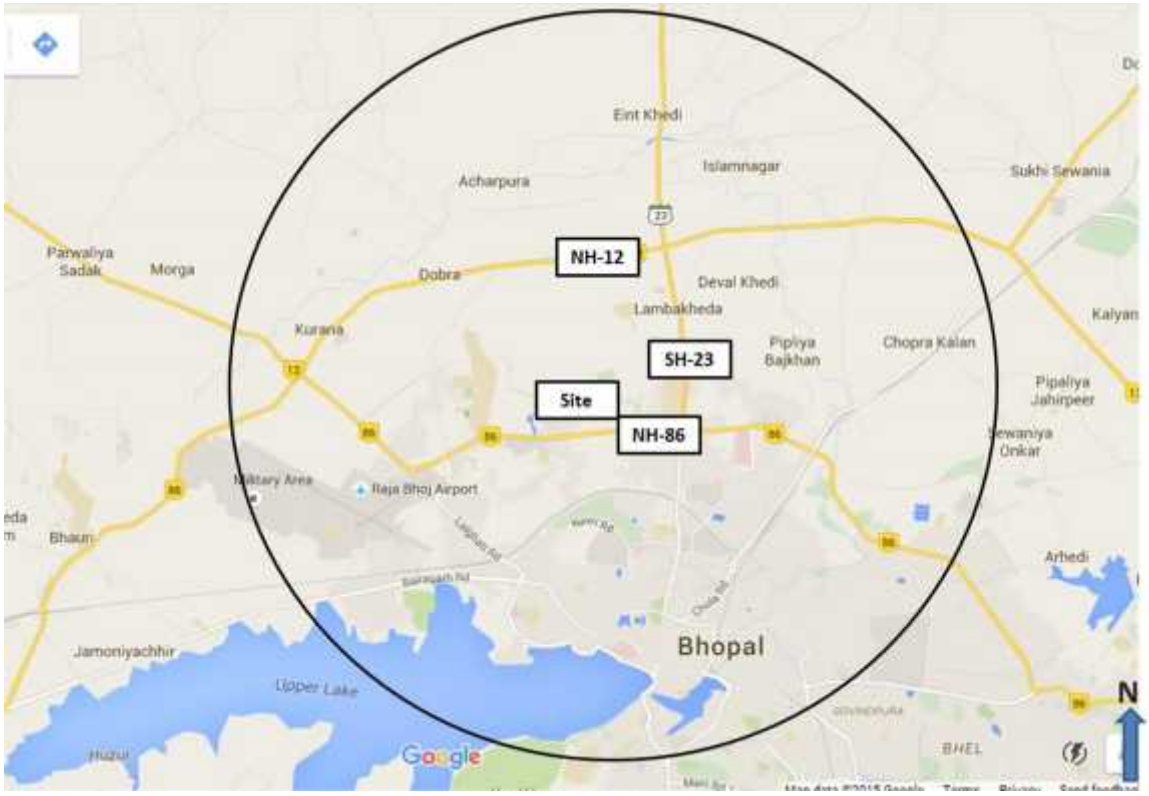


Figure 3: Map showing site and surrounding 10 km area.

Table 2: Site Specific Details

Particulars	**Details**
Location	Khasra no. 243/244/1/1/KH/3, 243/244/1/1/KA/2, 243/244/1/1/KH/2, 243/244/1/1/GHA/2, 243/244/1/1/GA/2, 243/244/1/1/DA/2, 243/244/1/1/CHA/2, 243/244/1/2/2, 243/244/1/CHHA/2, 243/244/1/1/KA/3 at Village- Badwai, Tehsil-Huzur, District- Bhopal, Madhya Pradesh, India..
Type of Project	Building and large construction project
Category	B, Type- 8(a)
Elevation (m)	502 m above mean sea level
Latitude and Longitude	(mentioned in Fig 4)
Current status of land	Residential as per Bhopal Master Plan, 2005
Type of facilities	Housing with basic amenities
Nearest Highway	Ayodhya Bypass Road (NH-86) : 600 M (S) Bhopal Bypass Road (NH-12) : 3.75 km (N) Guna Bhopal Road (SH-23) : 2.5 Km (E)
Nearest railway station	Bhopal Junction Railway Station: 5.5 km (SE) Habibganj Railway Station : 11 Km (SE)
Nearest airport	Raja Bhoj International Airport: 5.5 km (NW)
Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	Van Vihar National Park:10 km (S)
Rivers/Lakes	Upper Lake: 09 KM (SW) Kaliasot Dam : 12.0 Km (S) Shahpura Lake: 12.0 km (SE) Hatayekheda Lake: 11.0 km (SE)
Seismic zone	Seismic Zone-II as per BIS 2002 map.
Defense installations	Cantt Area (Bairagarh): 6.0 km (NW)

Figure4: Co-ordinates Location of Project site

2.1.2 Salient Features of the project

- Entrance gate with smooth bell mouth entry/ exit & security.
- Proposed 7.5 m wide arterial road
- Children's play ground
- Sound infrastructures
- Disabled Friendly design
- EWS/LIG
- Club house

The land use of the projectis residential purpose as per Bhopal Master Plan, 2005. The terrain of the project site and its surrounding area is almost flat. The proposed project is being planned and designed as per the regulations and procedures laid down by the local authority.

Table 3: Area Statement

S. No	Items	Details
1.	**Type of Building**	Residential
2.	**Total plot area**	17440 m^2
3.	**Ground Coverage Details**	Permissible (30%) = 5232 m^2 Proposed = 5232 m^2 (30%)
4.	**Open and paved area**	12208 m^2
5.	**Permissible FAR**	Permissible FAR @1.25 = 21800 sqm **Proposed FAR** = 21800 sqm
6.	**Non- FAR details (EWS, LIG, Convenient Shopping, Club House, Services and Stilt parking, Basement and Amenities)**	9426.64 sqm
7.	**Total Built-up area**	**21800 m^2** (As per MPVPR) **31226.64 m^2** including Non-FAR (MoEF)
8.	**Green Area (including services)**	**2860.87 m^2**(16.40 % of plot area)
9.	**Informal Sector** **Commercial Area**	**1092.0 m^2 (6.26%)** **353.8 m^2 (2.03%)**
10.	**Road & Internal circulation**	**7902.2 m^2 (45.3%)**
11.	**No. of Trees**	Total no. of trees required: 1 Tree/ 100 m^2 of Open Area = (Total Planning Area-Ground Coverage)/100 = 12208/100=122 Trees **Proposed:125 Trees**
12.	**No of units to be developed**	No. of multi units : 432 LIG : 26 EWS : 39
13.	**No of Towers**	Residential - 06 towers EWS - 01 tower LIG - 01 tower Commercial - 01 Recreational - 01
14.	**Height of Building**	28 m
15.	**Estimated Population (fixed + floating)**	Multiunit: 2160 (@ 5 person per unit) LIG : 130 (@ 5 person per unit) EWS : 195 (@ 5 person per unit) Floating: 249 (10% of total population)

		Staff: 124 (5% of total population)
16.	Parking facilities	**Required** – 218 Vehicle spaces Visitors Parking @10% = 22 Vehicle spaces **Total = 240 Vehicle spaces** **Provided:** **Stilt Parking =** 5232 sqm/30 =174 Vehicle Space **Basement Parking =** 1540/35 = 44 Vehicle Space **Open Parking =** 22 Vehicle Space **Total Provided Parking =** **240 Vehicle Space**
17.	Power requirement &source	1620 KW (2025 kVA) Source : MPMKVVCL, Bhopal
18.	Power Backup	1 DG sets of 25 kVA for common services
19.	**Water Requirement and Source**	**Fresh water: 229 KLD** **Recycled treated water: 135 KLD** **Total water: 364 KLD** **Source: Municipal water supply**
20.	**Sewage Treatment and Disposal**	**Amount of waste water generated : 310 KLD** **STP Capacity: 375 KLD (~20% higher capacity)** **Technology: MBBR**
21.	**Solid Waste Generated**	**Domestic waste : 1730 kg/day** **Horticultural waste : 11 kg/day** **E- waste : 1.02 kg/day**
22.	**Connectivity**	Bhopal city as well as the proposed project site has a perfect central connectivity to India's all metro cities and other important markets. The proposed site is located 6.0 km from the Bhopal city and 3.75 km from NH-12 (Bhopal Bypass Road) and 600 m from Ayodhya Bypass Road (NH-86). The nearest railway station is Bhopal Junction Railway Station and Habibganj Railway Station which are at an aerial distance of 5.5 km

		(SE) and 11 km (SE) from the project site respectively. The nearest airport is the Raja Bhoj International Airport, which is about Raja Bhoj International Airport: 5.5 km (NW) from the proposed site. Apart from this, State Road Transport bus services provide regular and frequent connectivity to the people to and from Bhopal.

Table 4: Details of Population

Particulars	**Population**
Residential Population	2160
LIG	130
EWS	195
Staff	124
Visitors	249

2.2 Present Status of the Project - Presently no construction is going on at the project site.

Construction Details

S. No	**Units details**	**%age construction**	**Remarks**
1	Residential units	40%	-
2	Sewage Treatment Plant	-----	---
3	Landscape/Plantation	20%	---
4	Road and internal circulation	50% Completed	.
5	Rain water Harvesting Pits	----	

Occupancy details

S. No		**No of Units**	**Constructed**	**Under construction**	**Possession given**	**Occupancy**
1	Flats	**432 No .**		**100**	**In 2 years**	
2	Duplexes	**26 No**	**5 No.**	**0**	**-**	
3.	EWS/ LIGs	**39 No.**	**-**	**-**	**-**	

2.3 Water Requirement, Source and Water Balance

A provision of 86 lpcd (liters per capita per day) for domestic water requirements shall be made. This in accordance with the Manual of Water Supply, Central Public Health and Environmental Engineering Organization (CPHEEO), Ministry of Housing, Government of India (GOI).

The water consumption comes out to be 86 lpcd for domestic and 45lpcd for commercial using the following water saving practices;

- Using low flushing systems- using efficient water saving toilets with dual flush systems, thus saving about 50 percent of water.
- Low flow faucets along with other water saving devices resulting in 25 to 50 percent water.
- Low flow shower with flow rates at 7.5Lpm @ 80 psi
- Other pressure reducing devices to reduce from 80 psi to 65 and 50 psi thus reducing water consumption by 10 – 25%.

Source: manual on norms and standards for environmental clearance, MoEF, GOI.

The details of total water requirement for the project and its breakup, source of water and water balance in both construction and operation phase are given below:

Table 5: Water Balance in Construction Phase

S. No.	Particulars	Water Requirement		Wastewater Generation	
		Total Population	Quantity (KLD)	Quantity (KLD)	Remarks
1.	Domestic Water for labour	80 workers	@ 45 lpcd 3.6 Will be met by contractor	3.06	@ 85% Wastewater will be disposed into Septic Tank
2.	Dust Suppression		3.5	-	Losses
3.	Washing of Construction Equipment		3	2.4	20% loss on washing; rest will be collected and reused for curing after necessary treatment
4.	Curing		2 KLD Reused	-	Losses
	Total		12	5.46	

Table 6: Water Requirement during Operational Phase

S. No.	Description	unit/Area ($in\ m^2$)	Total Occupancy	Rate of water demand (lpcd)	Total Fresh Water (KLD)	Total Flushing/Recycled water (KLD)	Total Water Requirement (KLD)
1	**Residential**	432 Units	2160	*Fresh Water @ 90 LPCD* *Flushing Water @ 45 LPCD*	194.4	97.2	291.6
2	**EWS**	39 Units	195	*Fresh Water @ 90 LPCD* *Flushing Water @ 45 LPCD*	17.6	8.8	26.3
3	**LIG**	26 Units	130	*Fresh Water @ 90 LPCD* *Flushing Water @ 45 LPCD*	11.7	5.9	17.6
4	**Staff**	5% of total population	124	*Fresh Water @ 30 LPCD* *Flushing Water @ 15 LPCD*	3.7	1.9	5.6
5	**Visitors**	10% of total population	249	*Fresh Water @ 5 LPCD* *Flushing Water @ 10 LPCD*	1.2	2.5	3.7
Total Domestic water					**229**	**116**	**345**
6	**Horticulture and Landscape**	2860 sqm		5 l/sqm	--	14	14
7	**Vehicle, Road washing, D.G. set and other low end**				--	5	5
Total Water Requirement					**229**	**135**	**364**
				Grand Total = 364 KLD			

Source of Water Supply

1. Construction Phase: Private Tankers
2. Operation Phase: municipal supply

Total water demand for residential township is estimated to be 364 KLD, out of which fresh water requirement is 229 KLD to meet the domestic needs. 135 KLD of recycled water will be used for flushing, Irrigation and D.G. sets cooling. During operations phase 135 KLD of recycled water will be used for flushing, Irrigation and other low end uses. During operations phase 310 KLD waste water will be generated which will be treated into 375 KLD State of Art design STP and utilized within site for flushing, horticultural and other low end purposes. Spare treated water, around 144 KLD (in non-monsoon) and 158 KLD (in monsoon) will be discharged into municipal sewer line.

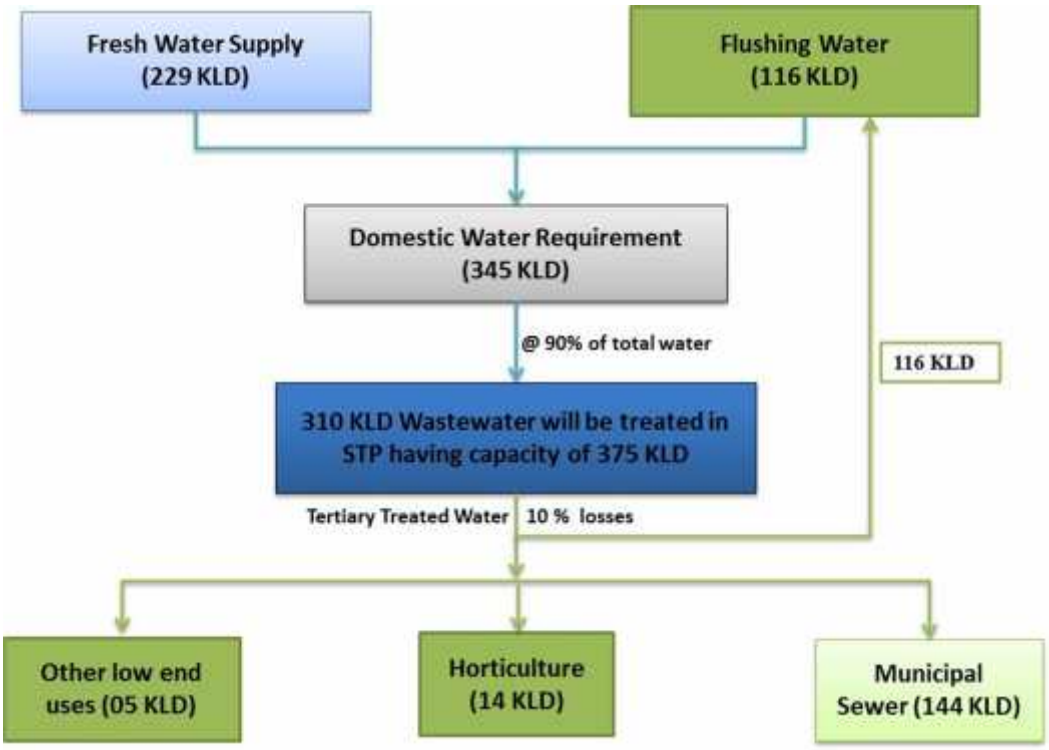


Figure 6: Water Balance chart

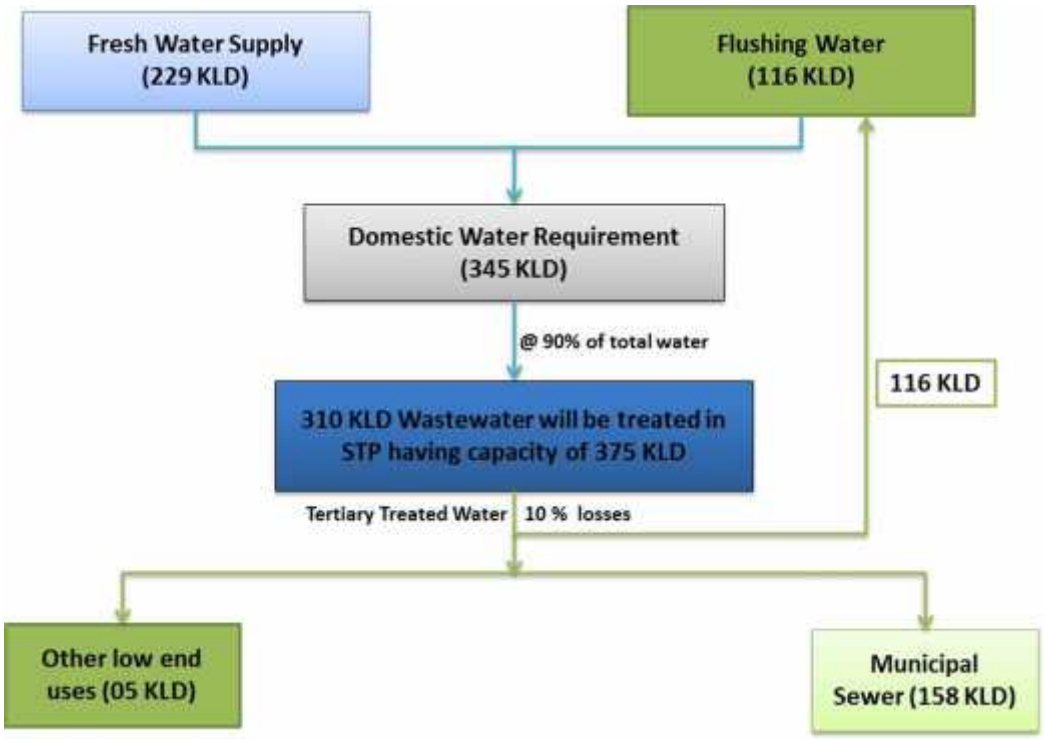


Figure 7: Water Balance chart during monsoon

Bhopal Water Supply:

Bhopal, the capital of Madhya Pradesh, is situated between 23.14 to 23.31 N latitude and 77.29 to 77.52 E longitude with an average elevation of 523 m (1715 ft) above sea level. The weather in Bhopal is temperate with hot summers (April-June) and cool winters (November-February). It experiences southwestern monsoon rains in July-September with an annual average rainfall of around 1260 mm. The landscape of Bhopal is dominated by two huge artificial lakes, which also act as a source supply to the city.

The majority of Bhopal's drinking water supply is met by two surface water sources: the Upper Lake and the Kolar reservoir. Besides, there are tubewells, handpumps and a few large diameter dugwells. Bhopal also has an unaccounted number of privately owned dugwells and borewells. Out of its total supply, the city gets about 155 MLD from Kolar, 96 MLD from the Upper Lake and 22.5 MLD from groundwater. Surface water accounts for 88 per cent of the total supply and rest 12% from ground water.

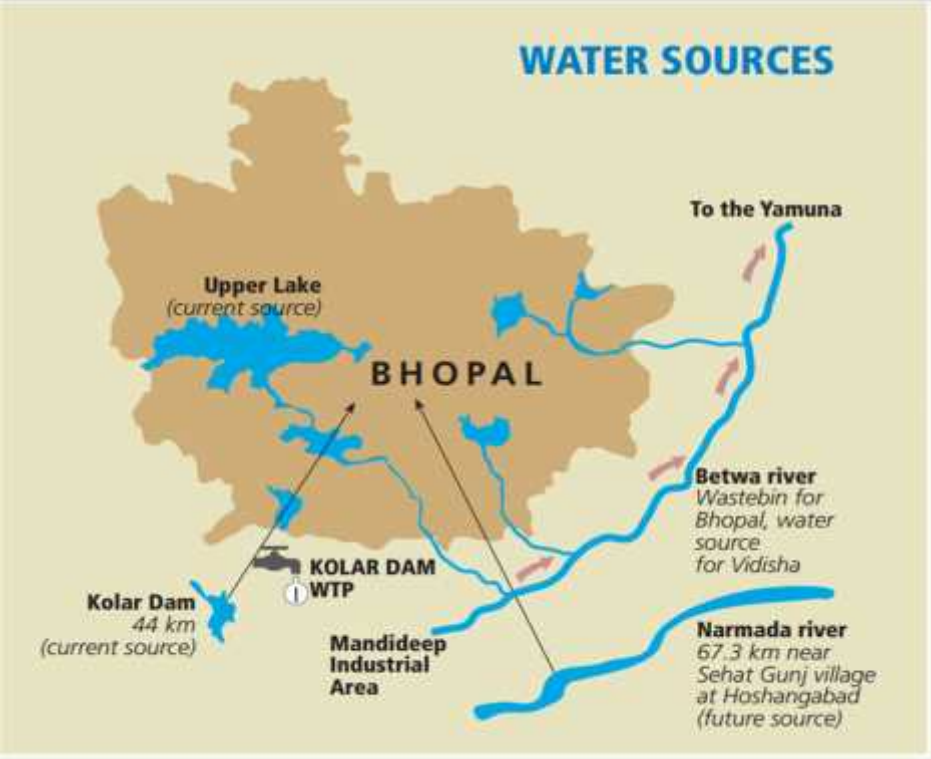


Figure 8: Surface water supply sources of Bhopal

Kolar water supply

As per an agreement with the Water Resources Department 56,600 ML is reserved for drinking water supplies, irrespective of the amount of water available in the dam or the seasonal variation in demand. However no infrastructure exists to actually establish the amount of water available from the dam for drinking water supplies.

The WTP in the Kolar scheme has an installed capacity of 160MLD and treats water through conventional treatment process (clariflocculation followed by filtration and chlorination) except for adding Potassium permanganate along with Alum to remove manganese.

Water from Kolar is supplied to the city through two main feeder lines. Feeder Main-I takes off from the Gravity mains near Kolar Triangle and supplies to following areas: 1100 quarters, Hosangabad, board office, Modi mill, Pulpukhta, Bharat Talkies triangle, bus stand, and Sindhi colony, Shahjahanabad, PGBT tanks, Nupur Kunj and Saket Nagar.

Upper Lake

Raw water is extracted from the lake at seven different points from where it is treated and pumped to the distributionnetwork. Apart from supply to the distribution network direct supply is also provided to bulk consumers like BHEL(Bharat Heavy Electrical Limited), MES (Military Engineering Services), Central Railways and Straw products.

The total installed capacity of all the treatment units on the Upper lake is approximately 88 MLD.

Groundwater supplies

In addition to the surface water sources, Bhopal Municipal Corporation also supplies water from 541 borewells supplyfor drinking purposes. The total amount of groundwater supplies is reported by BMC to be around 22.5 MLD.Groundwater supplies include both handpumps as well as piped networks connected though borewells.

Water Tankers

In addition to the piped water supply systems Bhopal Municipal Corporation has also made provision for water tankers to serve area not covered by the distribution network. On an average 35 tankers of 6000L capacity each make 10 trips in a day. However, this figure fluctuates highly with seasonal variation in demand.

Quality Standards

The objective of Water Works Management is to ensure that the water supplied is free from pathogenic organisms, clear, palatable and free from undesirable taste and odour, of reasonable temperature, neither corrosive nor scale forming and free from minerals which could produce undesirable physiological effects. The establishment of minimum standards of quality for public water supply is of fundamental importance in achieving this objective. The physical and chemical quality of drinking water shall be in accordance with the recommended guidelines. Parameters for analysis of water quality were selected based on the utility of the particular source of water as per MoEF guidance. Hence quality of ground water was compared with IS:

10500 for drinking purposes and surface water quality were compared with CPCB Water Quality Criteria against A, B,C, D& E class of water.

Water Supply at Project Site:

During the construction stage, water will be sourced primarily through tankers arranged by the contractor.

During the operational stage, water supply will be through municipal supply.Total water demand for the project is estimated to be 364 KLD, out of which fresh water requirement is 229 KLD to meet the domestic needs. Fresh water will be drawn from the municipal supply lineslaid down in the region by BMC.

Underground tanks shall be provided in the proposed project for domestic and firefighting purposes. The water shall be distributed through gravity system from the respective overhead tanks. Network of distribution system is planned on the basis of closed loops, so that a specific pocket gets water from minimum two points. In case one point is under repair, the entire distribution system will not be affected

The water will be boosted from central underground storage tank to overhead tanks over building roofs by hydro-pneumatic pumps. By using hydro-pneumatic pump set of variable drive, the same set of pumps will be used for a group of buildings by single supply feeder.

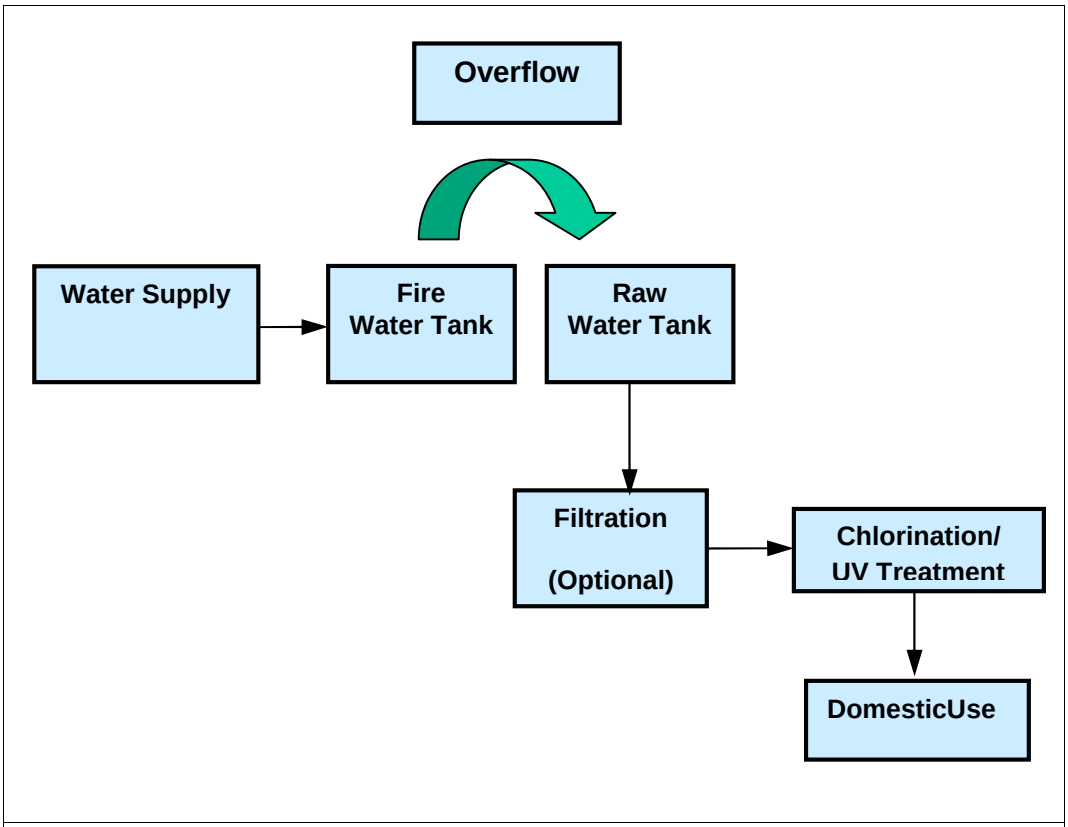


Figure 9:Water Treatment Schematic Flow Diagram of WTP

2.4 Salient Features of Sewerage System

2.4.1 Sewerage System

The internal sewer lines will belaid down at the time of development of the area. The trunk sewer required for the development area is to be completed. The sewerage treatment plant having capacity of 375 KLD will be installed at site.

Underground drains have been planned in most of the areas and are being constructed along with the development of sectors.

Sanitary sewage is mostly the spent water of the community draining into the sewer system with some ground water and a fraction of storm run-off from the area, draining into it. The sewers should be capable of receiving the maximum discharge expected at the end of design period. Since it is both difficult and uneconomical to augment the capacity of the system at a later date, sewers are usually designed for the maximum expected discharge to meet the requirement of the ultimate development of the area. A design period of 30 years for all types of sewers is usually considered.

2.4.2 Sewage Collection and Treatment

The soil & waste from Toilets & Kitchen will be collected in Gully Traps & Manholes in single network of S.W. / R.C.C. pipes laid underground having Manholes / Inspection chambers at appropriate intervals and shall be discharged intoSewage Treatment Plant for Treatment and further reuse after Treatment.

2.4.3 Waste Water Recycling

To reduce the total water requirement, to reduce the dependability on sources, to follow the guidelines of MoEF and to protect the environment, it is recommended to adopt recycling of treated effluent from sewage treatment plant (STP) for the purpose of flushing, horticulture, DG Set cooling and any other low end uses. Treated effluent from STP shall be further treated by filtration and chlorination / UV treatment and stored in underground storage tank for this purposes. For the purpose of recycling, the booster pumps will take this water from Under Ground Tank and supply to an independent water supply network for flushing, DG set cooling, irrigation and horticulture use of the Residential Complex.

Although the entire spent water of a community should contribute to the total flow in a sanitary sewer, it has been observed that a small portion is lost in evaporation, seepage in ground, leakage etc. In some arid areas, the fraction reaching the sewer may be as low as 40 %, while for an intensely developed area, it may be as high as 90%. In this scheme, 90 % has been taken as interception factor.

310 KLD wastewaterwill be generated, which will be treated in the STP of375KLD up to tertiary treatment and recycled for various uses including Flushing, Horticulture and other low end use. Spare treated water will be disposed into Municipal Sewers.

Table 7: Estimated Characteristics of Raw and Treated Sewage

Parameter	**Raw Sewage (Influent)**	**Treated Sewage (After Secondary Treatment)**	**Treated Sewage (After Tertiary Treatment)**
pH	7.5 – 8.5	6.5- 8.5	6- 8
BOD_3 at 27^0C (mg/l)	250 - 350	< 30	< 5
COD (mg/l)	400 - 500	< 100	< 10
Suspended solids (mg/l)	250 - 450	< 100	< 5
Oil and Grease (mg/l)	30	< 10	< 1

STP Capacity: 375 KLD

Process: MBBR Technology (Detailed process mention below in secondary treatment process)

Location: Open

Sewage Treatment Units

Modular STP based on Moving Bed Bioreactor (MBBR) technology with capacity of 375 KLD will be installed for waste water treatment. Physico chemical characteristics of influent and effluent are given as:

The STP will include the following unit operations:

- Primary treatment : Bar Screen, Oil & Grease Separator, Homogenization Tank
- Secondary treatment :Aeration Tank (MBBR), Settling tank, Chlorine Dosing.
- Tertiary treatment : Multigrade Filter (Dual Media Filter), Activated Carbon Filter, Softener (if required)

- Sludge conditioning : Aerobic Digester, Sludge Thickener / Filter Press

õ **Primary Treatment**

Raw sewage will flow through an Oil & Grease Separator and then through a bar screen chamber to an equalization Tank/Homogenization tank. The bar screen shall be so designed that it can be cleaned manually from outside the tank. Two submersible solid handling pumps shall be provided in the Equalization Tank to pump the collected Raw Sewage to the Aeration Tank. An Automatic controller shall be provided in the Equalization Tank to turn the pump off at the low water level in the tank and to start the pump automatically when water level is high. Air will be introduced in the Equalization Tank through submerged air diffusers, to prevent the sewage from becoming septic during long retention or low load conditions.

- **Secondary Treatment**

The Raw Sewage that comes into the Aeration Tank shall be aerated by using Fine Bubble Diffusers mounted in a grid at the bottom of the tank. Facility will be made to pull up the diffusers for cleaning if necessary. Air will be supplied to the diffusers by twin lobe rotary air blowers located in the plant room. The Aeration system shall be designed in a way so as to achieve complete mixing of the sludge organisms with raw sewage in order to achieve a MLSS of between 3000-4000 mg/l in the Aeration Tank.

From the Aeration Tank this mixed liquor passes into a clarifier. The liquid in the clarifier tank is maintained in quiescent condition allowing the solids to settle at the bottom of the clarifier for collection. The accumulated solids (activated Sludge) shall be constantly pumped back into the aeration tank by sludge recycle pumps. This return sludge undergoes further digestion in the aeration tank and also provides the active organism needed to digest the incoming raw sewage. The clarifier shall be provided with an overflow weir to collect the treated effluent and a scum baffle shall keep any floating matter from passing out in the final treated water. Treated water from clarifier shall overflow into Treated Effluent Tank.

MBBR systems are based on reactors that are filled with plastic carriers to provide a surface that is colonized by bacteria that grow into a biofilm. The reactors can be operated under aerobic conditions for BOD removal and nitrification or under anoxic conditions for denitrification. During operation, the carriers are kept in constant circulation. In an aerobic reactor, circulation is induced through the action of air bubbles injected into the tank by a coarse bubble diffuser system. In an anoxic reactor, a submerged mixer is typically supplied. The carriers can occupy up to 70% of the reactor volume on a bulk volume basis.

- **Tertiary Treatment**

Treated water shall flow through a disinfected water will be passed through a Multi-grade Filter, an Activated Carbon Filter and a softener and stored in a Treated Sewage Water Tank. Water from this tank will be used for flushing, cooling towers of the DG sets and for horticulture within the site. Spare treated water shall be utilized for agricultural uses.

- **Sludge Conditioning**

Excess sludge from the bottom of the clarifier shall be digested into an adjoining aerobic digester cum thickener tank. In this tank sludge shall be aerated. The air shall be shut off periodically and supernatant water will be led back into the Equalization Tank. This way the sludge shall be thickened and its volume shall be reduced. The thickened sludge will be further solidified using a centrifuge or a filter press and the solid cakes will be disposed along with MSW for bio composting.

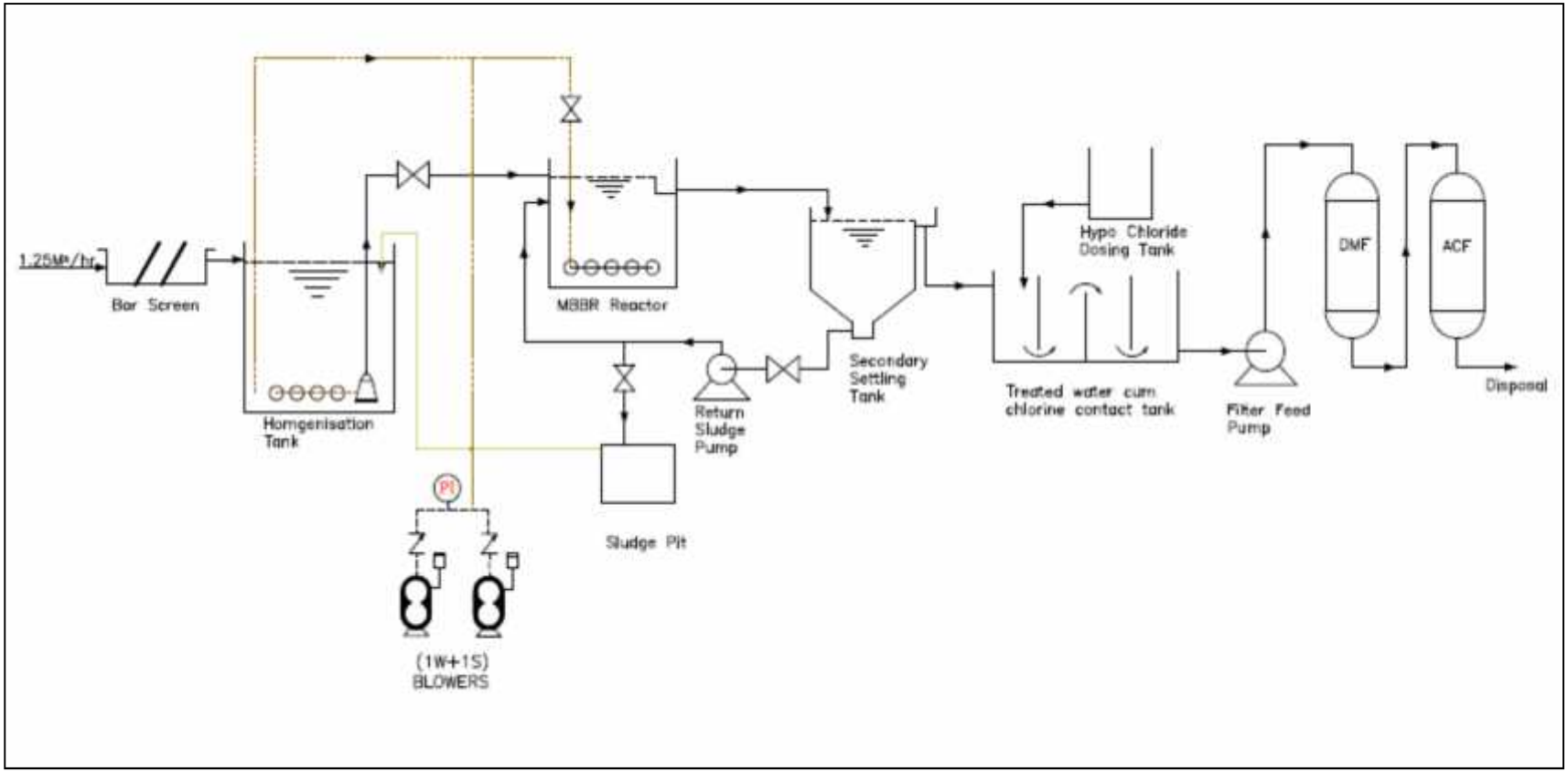


Figure 10:PROCESS FLOW DIAGRAM FOR SEWAGE TREATMENT PLANT (STP)

2.5 Power Requirement, Source and Backup

The details of power requirement & Source are given below:

Power requirement: 1620 KW (2025 kVA)

Source of Power: MPMKVVCL, Bhopal

Back up DG sets: 1X 25 kVA

Table 8: Energy Conservation Measures Adopted

Sl.	Energy Efficient Features
1.	Maximum utilization of natural light
2.	CFL/LED in the common areas
3.	Use of solar lights in open areas and landscaped area with 20% dual lighting system.
4.	All openings are shaded to reduce heat loss
6.	U-values of roof, external wall and fenestration will meet requirements as specified in the Energy Conservation Building Code (ECBC)
7.	The water supply pumping system will be provided with variable speed drive to conserve energy at part load.
8.	Compliance for Window glazing U-values if window to wall ratio is more than 30%
9.	Use of BEE 4-star rated or equivalent appliances will be promoted
10.	Minimum glazing factor in regularly occupied spaces
Permissible U-values (W/m^2 °C) as per ECBC: Roof: 0.409, External wall: 0.44, Fenestration: 3.3	

2.6Storm Water Drainage System

The rainwater will be collected through piped drains and conveyed into rainwater harvesting system. All storm water drains have been designed for adequate size and slope such that there shall not be any flooding in the site. It shall be ensured that no wastewater shall enter into storm water drainage system.

Water harvesting pits have been proposed for augmentation of ground water. The rainwater collected from the rooftop, green & paved areas will be conveyed into the rainwater harvesting system consisting of Desilting-cum-filter chamber and bore wells for recharge into the groundwater. RWH will be initially done only from the roof top. Runoff from green and other open areas will be discharged into RWH pits only after permission from CGWB. No demand will be met from the process.

Analysis of the observed data on intensity, duration of rainfall of past records over a period of years in the area is necessary to arrive at a fair estimate of intensity-duration for given

frequencies. The older the record available, the more dependable is the forecast. In Indian conditions, intensity of rainfall adopted in design is usually in the range of 15 mm/hr to 40 mm/hr. The intensity of precipitation for design of drainage scheme has been taken 40 mm/hr.

Table 9: Storm Water Runoff

Peak Run off				
Max, Rainfall Intensity 40 mm/hr				
Location	**Runoff Coefficient**	**Area m^2**	**Rainfall intensity (in m)**	**Peak Run off in m^3/hr**
Roof Area	0.8	5232	0.04	167.4
Paved area	0.6	9347.1	0.04	224.3
Green Area	0.2	2860.9	0.04	22.9
Total Runoff m^3/hr				**414.6**

Total Runoff = 414.6 m3/hr

Taking 15 minutes Retention Time, Total volume of storm water = 414.6/4= 103.6 m^3

Taking the effective diameter and depth of a Recharge pit 2 m and 2 m respectively

Size of a single Recharge pit = π x (2)2 x 2= 25.12 m^3

Hence No. of pits required =103.6/25.12 = 4.12

Provided: 4 Pits

For Rooftop runoff –

Taking 15 minutes Retention Time, Total volume of storm water = 167.4/4= 41.85 m^3

Taking the effective radius and depth of a Recharge pit as 2.0 m and 2.0 m respectively:

Size of a single Recharge pit = π x (2)2 x 2= 25.12 m^3

Hence No. of pits required = 41.85 / 25.12 = 1.67

Provided: 02 Pits

Initially rooftop runoff water will be harvested through rainwater harvesting pits to recharge the ground water aquifers, however the runoff water from paved and green areas shall be harvested only with CGWB permission.

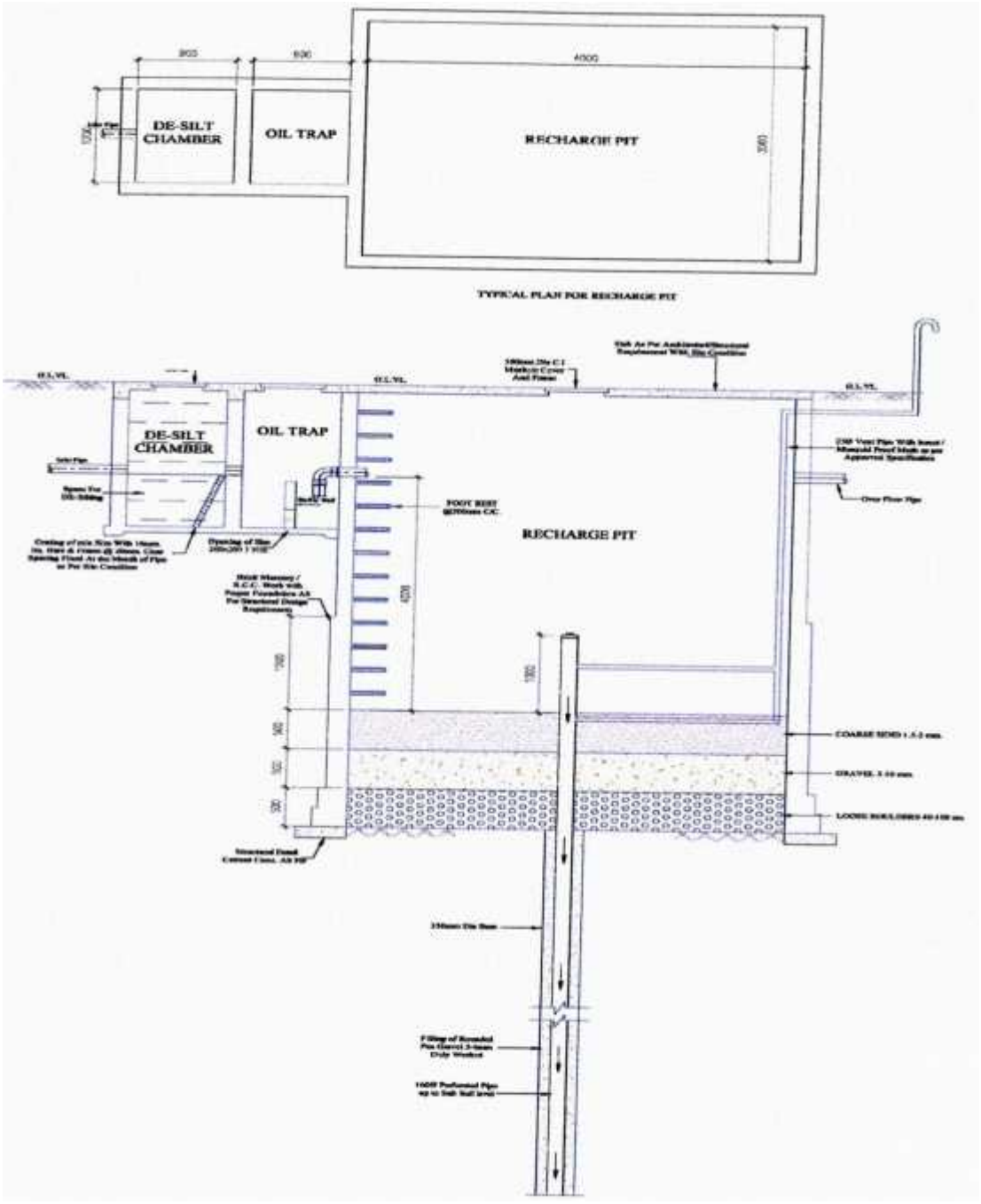


Figure 11: Typical section of Recharge Pit

2.7 Solid Waste Collection / Disposal Plan

The solid waste generated from the project after full occupancy will be mainly domestic waste. The solid waste so generated shall be first segregated as plastic, glass, paper and other waste separately. The recyclable inorganic waste will be sold to registered buyers. The bio-degradable wastes will be transferred into a designated collection point for disposal by municipal authority/hired agency.

Table 10: Solid Waste Generation

Facilities Provided	Waste generation norms per unit	Basis of Assumption	Unit	Total Waste Generated (Kg/day)
Residential	0.30-0.6 kg/cap/day (i.e. 0.50 kg/cap/day taken)	Source: Manual for municipal solid waste management	2160 persons	1080
EWS	0.30-0.6 kg/cap/day (i.e. 0.50 kg/cap/day taken)	Source: Manual for municipal solid waste management	195 persons	97.5
LIG	0.30-0.6 kg/cap/day (i.e. 0.50 kg/cap/day taken)	Source: Manual for municipal solid waste management	130 persons	65.0
Visitors	0.15 kg/cap/day	Source: Manual for municipal solid waste management	246 persons	37.4
Staff	0.15 kg/cap/day	Source: Manual for municipal solid waste management	124 Persons	18.6
Garden & open space	15 kg/Acre/day or 0.0037 kg/sq m/day	Discussion with Horticulturists	2860 sqm	10.6
Street Sweepings	0.05 to 0.2 kg/cap/day* Assume 0.15 kg/cap/day	Source: Manual for municipal solid waste management	2485 persons	372.8
Sludge	400 kg per MLD	Tifac	0.31	124.0
Waste Oil		Assuming one maintenance per year		Negligible
Total Waste Generated (Kg/day)				**1741**

Following arrangement will be made at the site for management of solid waste in accordance to MSW Rules, 2000.

Composition of Municipal Solid Waste

Description	Percent by weight
Kitchen Waste	40.15
Grass	3.80
Paper	0.81
Plastic	0.62
Grass Ceramics	0.44
Metal	0.64
Stones/ Ashes	41.81
Miscellaneous	11.73

Source: Management of MSW, CPCB, MoEF.

2.7.1 Collection and Segregation of waste

- Adequate number of colored bins using twin bin systems (green and Blue – separate for Bio-degradable and Non Bio-degradable) are proposed to be provided
- A Door to Door and floor to floor system shall be provided for collection of solid waste generated.
- Collection period from household is 1 day and the storage of 48 hour for solid waste will be provided.
- Hazardous waste (Spent Oil) & e-waste will be stored at separate place and handover to authorized dealers of CPCB for disposal.
- Litter bin will also be provided in open areas like commercial spaces, parks & play grounds etc.
- Waste will be collected on daily basis by hired/ contracted vendor.

2.7.2 Treatment of waste

Municipal Solid Waste predominantly includes household waste (domestic waste) and sometimes with the addition of commercial wastes collected by a municipality within a given area. Rapid increase in volume and types of solid and hazardous waste as a result of continuous economic growth, urbanization and industrialization, is becoming a burgeoning problem for national and local governments to ensure effective and sustainable management of waste.

The proper disposal of urban waste is not only absolutely necessary for the preservation and improvement of public health but it has an immense potential for resource recovery.

Generated Solid waste shall be segregated at site, (a storage area for MSW will provide at site for maximum 48 hours) and transported to the nearest disposal/landfill site by the authorized waste management agency.

- Horticultural Waste along with STP sludge isalso handed over to authorized vendor for final disposal.
- Recyclable wastes like Paper, plastics, metals will be sold to the authorized recycler of the area. Recyclable waste will be sold to authorized agencies.
- Inert wastes may be utilized for making paving blocks or will be disposed off at landfill site.

2.7.3 Disposal

Biodegradable waste shall be handed over to authorized vendor for final disposal. Inert waste shall be utilized for preparation of brick and paving blocks and rest will be

disposed at landfill site. However, the MSW management approach will be towards zero landfill by reducing the amount of inert waste.

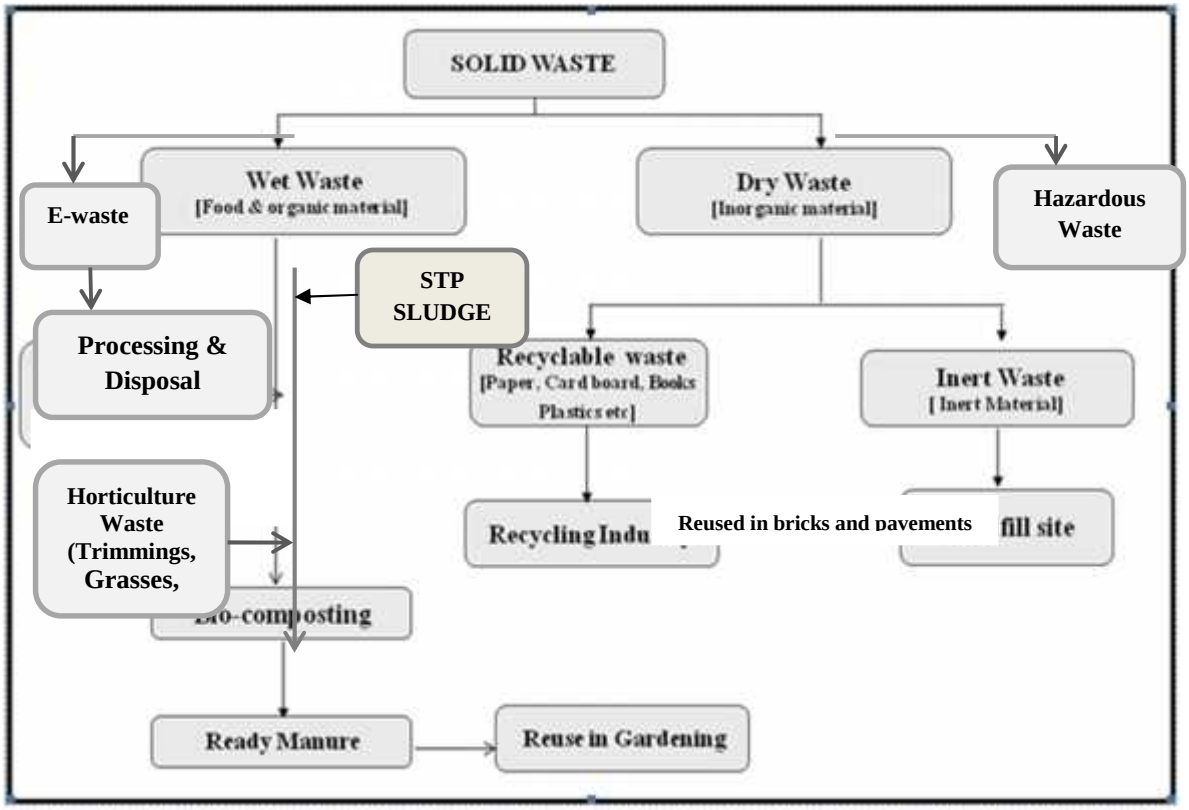


Figure12: Municipal Waste Management Flow Diagram

2.7.4 Hazardous Waste

Hazardous waste is waste that poses substantial or potential threats to public health or the environment.

Characteristic hazardous wastes are materials that are known or tested to exhibit one or more of the following four hazardous traits:

- ignitability (i.e., flammable)
- reactivity
- corrosivity
- toxicity

The Project is a Building Construction Project in which no storage of hazardous chemicals (as per MSIHC rules) will be done, except HSD (low sulphur variety) required to run standby DG sets. Also, the quantity to be stored will be below the threshold limit specified in the MSIHC rules.

During construction paints, solvents, thinner, oil and lubricants will be stored for use which is hazardous to health.

2.7.5 E-Waste Collection and Storage

E-Waste (Management & Handling Rule, 2011,12th May) Electronic waste, popularly known as 'e-waste' can be defined as waste electrical and electronic equipments whole or in part or reject (such as CDs, floppies, keyboards, monitors, power plug, batteries, etc.) which have become obsolete due to:

- Advancement in technology
- Changes in fashion, style and status
- Nearing the end of their useful life.

Responsibility of Consumer or Bulk Consumer

According to E-Waste (Management & Handling Rule, 2011) responsibility of Consumer or Bulk Consumer is given below:

- Consumer or Bulk Consumer of electrical and electronic equipment shall ensure that e-waste generated by them is channelized to authorized collection centers or registered dismantlers or recyclers or is return back to the pick-up or take back services provided by the producers.
- Bulk consumers shall maintain records of e-waste generated by them in Form-2 and make records available to MPPCB.

The e-waste generated from the proposed project would be suitably managed through hired authorized recycler.

The mantra of "5Rs" applies here also.

- **Reduce** generation of e-waste through smart procurement and good maintenance.
- **Reuse** still functioning electronic equipment by donating or selling it to someone who can still use it.
- **Recycle** those components that cannot be repaired. To identify organizations who reuse or recycle electronics.
- **Refuse** to purchase of environmentally burdensome materials whenever possible.
- **Reform:** Reuse materials in a different form.

Various types of electrical and electronic wastes generated in the building, which includes PC in homes, batteries, electric gadgets, should be collected separately for transportation to the authorized recyclers approved by the state/Central pollution control boards. There should also be provision for storage of these wastes in the building before transportation.

Processing of e-waste

The e-waste collected shall be processed in authorized recycling unit by authorized vendors. The processing steps include

1. Dismantling to isolate the various components containing reusable materials and metals
2. Extraction of metals from individual component through efficient and environment friendly technologies
3. Disposal of waste generated during the processing as per the regulations

2.7.6 Construction Waste

Construction waste means any substance, matter or thing which is generated as a result of construction work and abandoned whether or not it has been processed or stockpiled before being abandoned. It is a mixture of surplus materials arising from site clearance, excavation, construction, refurbishment, renovation.

Table 11: Details of construction waste material

Construction waste material	soil, sand & Gravel	bricks & Masonry	concrete	metal	bitumen	wood	other
Total construction waste generated @ 40 Kg/sq.m of Built Up area (MT)	0.35	0.3	0.25	0.05	0.0204	0.0204	0.01
1,250	437.2	374.7	312.3	62.5	25.5	25.5	12.5

Over 90% of construction waste are inert and are known as public fill. Public fill includes debris, rubble, earth and concrete which is suitable for land reclamation and site formation.

2.8 Traffic Management Plan and Parking Facilities

The project complex will have traffic entry and exit from 18 m wide road on North. For internal circulation, roads having width of 7.5 m will be provided for smooth circulation of traffic. The entry/exit points have been marked on the layout plan. The project site is well connected to network of roads leading from various parts of the city.

A total parking space for 240 ECS will be provided for multi-dwelling apartment. The details of parking facilities required as per norms and as proposed within the complex are given below:

Table 12: parking details

REQUIRED PARKING	
1 ECS/100 m^2 BUA (BUA- 21800 m^2)	218 Vehicle spaces
Visitors parking @10%	22 Vehicle spaces
Total Parking Required	**240 Vehicle spaces**
PROPOSED PARKING	
Stilt Parking (5232 m^2/30)	174 Vehicle Space
Basement Parking (1540 m^2/35)	44 Vehicle Space
Open Parking	22 Vehicle Space
Total Parking Provided	**240 ECS**

2.9Fire Fighting System

The project site falls under residential occupancies according to National Building Code 2005. Following provisions are required to be made according to National Building Code 2005. The fire-fighting system has been designed considering the following codes, manual and guidelines;

- National Building Code of India (part 4, fire and life safety 2005)
- As per requirement of fire officer/local fire approving authorities; and
- As per Indian Standard Code for Fire Protection (IS Codes)

Following items are envisaged for firefighting:

- Fire-Water Connections; Firewater inlet and outlet connections shall be provided to the water storage tanks
- All flow switches, test valves, drain pipes etc. shall be provided as per NFPA guidelines on the sprinkler system;
- All pump installation and arrangements shall be in accordance with IRI guidelines
- All pumps and accessories and electrical controllers shall be tested, approved and certified;
- By-pass arrangements shall to be provided (150 mm diameter nominal bore) with NRV and gate valve and bulk flow meter on the discharge header of each pump to check the duties of pumps.
- Portable fire extinguishers shall be provided at all floors of the block, at strategic location as per IS: 2190.

System Description

An elaborate firefighting arrangement shall be designed as per the requirement of National Building Code Part-IV. Internal fire hydrants at suitable and convenient locations shall be provided on fire water supply mains.

Internal hydrant shall be additionally provided, in case the distance served by any hydrant exceeds 45 meters. The internal hydrants shall be placed at 30 meters interval. One hydrant shall be provided for 1000 sqm. Floor area and one at every fire escape. The Main Building shall be provided with Internal Hydrants and First Aid Hose reels.

Portable Fire Extinguishers

Portable fire extinguishers of ABC type 5 liters. Capacity, Carbon-di-oxide of 4.5 kg capacity shall be provided as first aid fire extinguishing appliances. These extinguishers shall be suitably distributed in the entire public as well as service areas.

The appliances shall be so distributed over the entire floor area so that a person has to travel not more than 15 m to reach the nearest appliance. These shall be placed or hanged on wall in a group on several suitable places. The number of extinguishers shall be calculated as per NBC. It is assumed that Fire Alarm system shall form part of electrical installation.

Water Storage Tanks

A satisfactory supply of water for the purpose of fire-fighting shall always be available in the form of underground/terrace level static storage tank with capacity specified with arrangements for replenishment by means of alternative source of supply at the rate of 1000 litres per minute for underground static tank.

Wet riser: Wet riser shall be installed as per IS- 3844 and NBC -2005.

Ventilation: Ventilation shall be provided for Supply of outside air into, or the removal of inside air from an enclosed space as per NBC of India -8.

Adequate fire protection facilities will be installed including fire detectors, fire alarm and firefighting system to guard the building against fire. All fire protection facilities are designed as per the latest National Building Code of India.

Adequate provision has been made in the plan for Fire Station at City level. For details refer Section-7 Disaster Management Plan.

Adequate fire protection facilities will be installed including fire detectors, fire alarm and fire-fighting system to guard the building against fires.

- Building is in group A, sub division A-4
- FIRE-ZONE No. 1

Following component/ item will be provided:

- Fire Extinguishers
- Hose Reel
- Down corner
- Manually operated electric fire alarm system
- Terrace Tank: 25,000 lt
- Pump of 900 lt/min of capacity at the Terrace Tank level with minimum pressure of 2.0 kg/cm^2

CHAPTER 3

DESCRIPTION OF ENVIRONMENT

Before the start of any Environmental Impact Assessment study, it is necessary to identify the baseline levels of relevant environmental parameters, which are likely to be affected as a result of the construction and operation of the planned project. A similar approach has been adopted for conducting the study for the proposed group housing project. The planning of the baseline survey through secondary sources, commenced with the short-listing of impacts and identification of parameters for which the data needs to be collected. This section assesses the nature, type and dimensions of the study area and describes the relevant physical and biological environmental components of the project site.

3.1 Physical Resources

Accurate determination of baseline conditions of natural and physical environmental components at project site is vital for robust impact assessment. The components of the environment for which the information has been collected are described in the following subsections.

3.1.1 Geography, Land Use and Drainage

(a) Geography

The district of Bhopal is landlocked by the Guna district to the north, Vidisha in the northeast, Sehore in the southwest, Raisen in the east, and Rajgarh in the northwest. This beautiful city has mesmerizing landscapes, historical monuments, busy commercial complexes and peaceful residential areas. The city shares the borders with two large but beautiful lakes, which are known as the Upper Lake or BadaTalab (360 square km) and Lower Lake or ChotaTalaab (10 square km), respectively. Some of the important hills of the city are Shayamala and Idgah hills that fall in the northern part of Bhopal, while the Arera and Katara hills occupy the central and the southern region respectively.

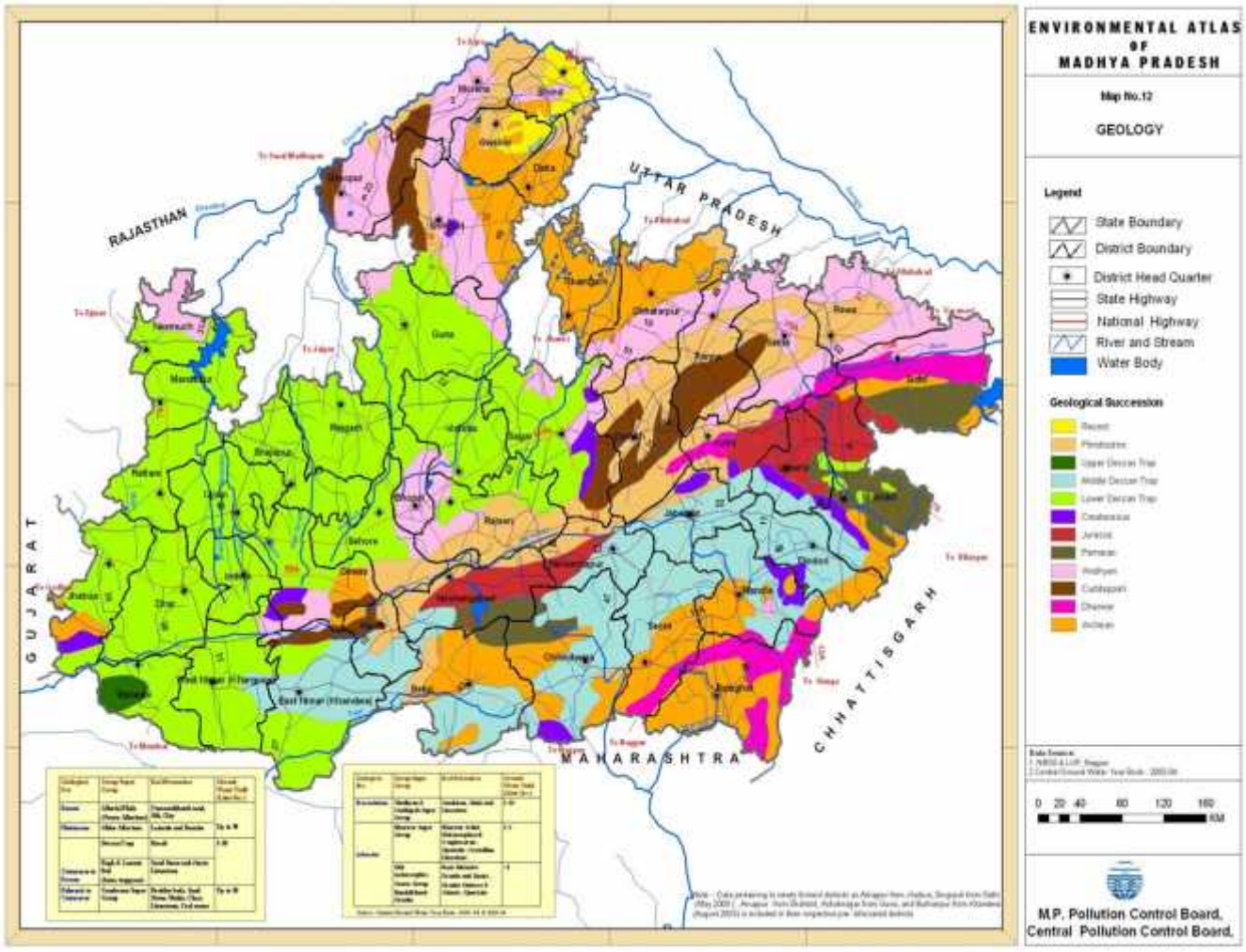


Fig 13: Environmental Atlas of Madhya Pradesh

(b) Physiography and Drainage

The region forms a part of the vast deccan plateau of Central India. It marks the beginning of the plateau at the nothern boundary. Major physiographic units in the region are:

1. The Satpura Range
2. The Vindhyan Range
3. The Bundelkhand Region and
4. The river valleys.

The hill ranges running across the plateau have a subdued topography of old pen plains. The Satpura range located with an E-W trend, it has an average elevation of 600 m amsl and highest elevations of 1350 m amsl. The vindhyan range occurs in the Central part of the

region and has a ENE-WSW trend. It is seperated from the Satpura range by the Narmada River and vast tract of its basin area. The vindhyan range extends into the Malwa plateau and Bundelkhand region. The malwa plateau and Bundelkhand region form high ground and are dissected by a large number of northerly flowing rivers and their tributaries. The rest of the area is occupied by low lying areas along river courses. The river valleys are very limited and form narrow belts along the rivers.

Drainage:

The natural drainage of the city is provided by three main streams, which are of course, joined by small nallahs and rivulets. On the northeastern side, the drainage is provided by river Halali and on the southeastern side, it is provided by Kaliyasot River. Both these rivers, drains out in Betwa, Halali near Vidisha and Kaliyasot near Bhojpur. On the southwestern side, the drainage is provided by various small nallahs, which drain out in Kolar River, which ultimately joins river Narmada.

The drainage water of old city including wastewater of straw products and cotton Mills is carried away by a Nallah, which joins river Halali, which is a perennial river. The water of this river is being used for irrigation purposes and very little discharge meets river Betwa near Vidisha. Moreover, the meeting point is on the down streamside of water works for Vidisha town. River Kaliyasot, which provides drainage on the southeastern side, joins Betwa near Bhojpur in Raisen District. There is hardly any possibility of utilization of this water on the way for irrigation purposes as passes through a hilly terrain. The water polluting industries located on this side will discharge supply to Vidisha. The Development of Mandideep Industrial growth Centre and its extensions need to be strictly controlled in respect of industries to be permitted in this area to avoid water pollution.

For the purpose of landscape studies, the natural drainage of Bhopal can be classified mainly in three categories viz. Dendritic (tree like branching), Basil and parallel pattern. These are the major landscape indicators revealing the biophysical phenomenon of the area.

Site is almost flat with an altitude 502 m above mean sea level. Drainage pattern and slope of proposed site is towardsNorth West of the project site. There areno wetland or low lying areas confined within project boundaries.

(c) Land use

The study of land use in the area enables one to know about the land that can be used for various development activities envisaged in post project scenario. It also enables to envisage the

scenario emerging due to the increase in demand for land with increase in population and the impacts arising due to the interface with the various project activities.

The Proposed land area of the project is spread over 17440 m^2 (1.74 Ha or 4.309 Acre) and the land use is residential as per Bhopal Master Plan, 2005.

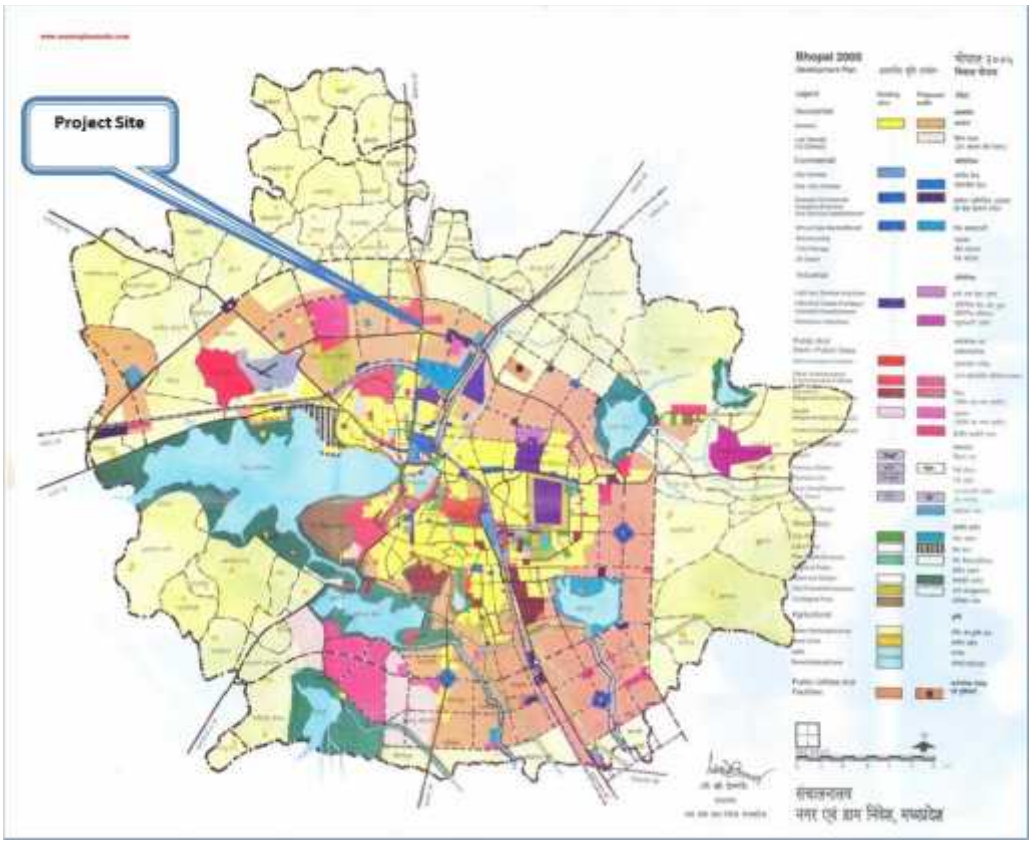


Figure 14: Land use of the Bhopal as per Master plan 2005

(d) Seismo-Tectonic Appraisal of the Area

Project area is categorized in seismic intensity zone II, which is classified as having a moderate seismic risk zone.It is very important to take this fact in consideration during designing of the structural components of the project in the construction phase. The depth of the foundation, footing of the structural components, the bending moment calculations shall adhere to the criteria of seismic load. All the structures must be conforming to IS 1893(1) and NBC regulations.

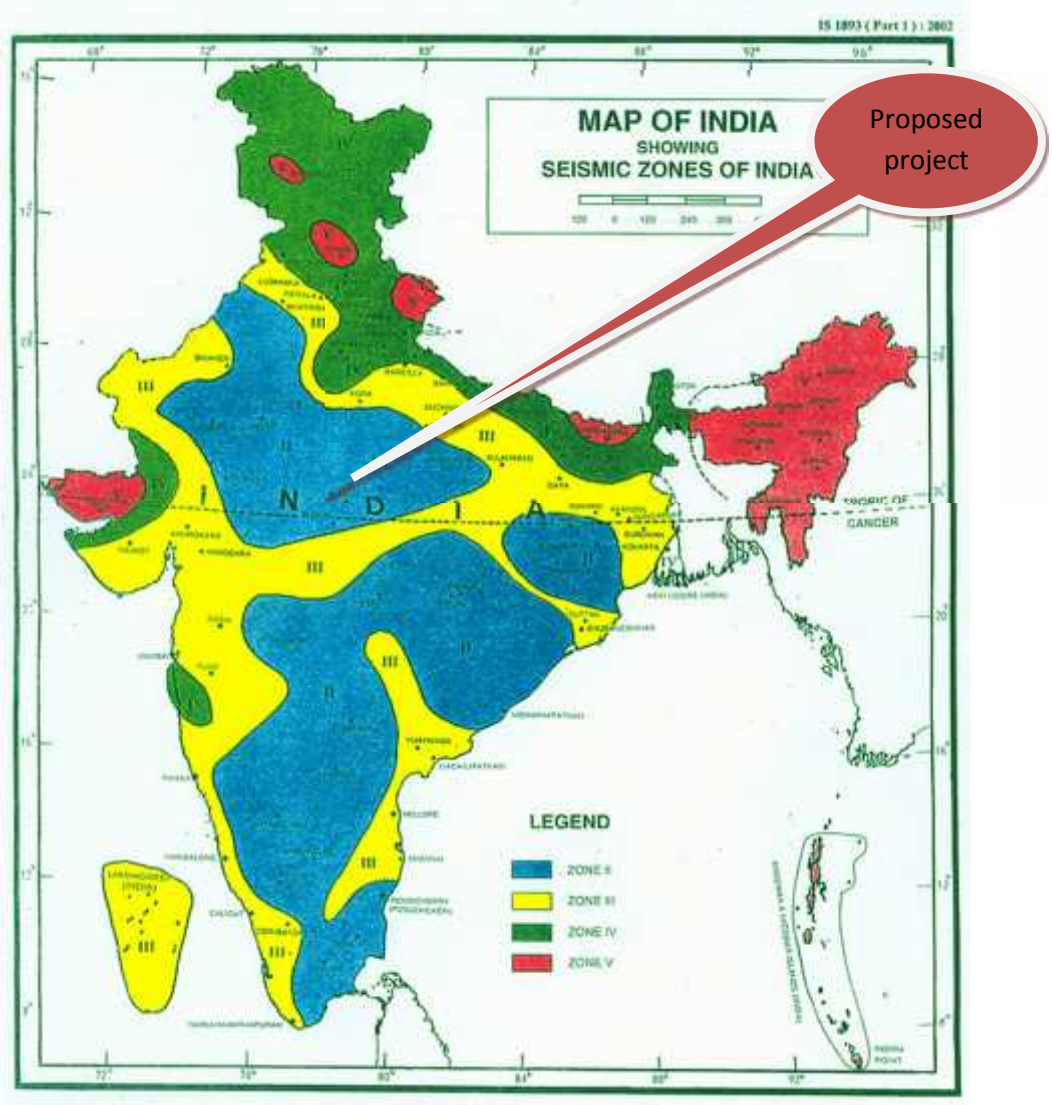


Figure 15: Seismological and Natural Hazard Map of India

(e) Hydrogeology:

The area is underlain by Basaltic lava flows underlying Vindhyan Shale and sandstone. Sandstones are exposed in west of the proposed site in Katara and Barai villages. Hydrogeology shows wide variation in their nature and extent. Weathering of basaltic flow is playing a vital role to control the hydrogeology of the area. At places, the weathered portion of some basaltic rocks has been converted into clay and finally collapsible strata. Therefore during construction of borewells in the area, the well casing is essential for variable depth ranges.

Due to several horizontal lava flows, the area is characterized by multi aquifer system. The aquifers show wide variation in their extent that affects the yield characteristics of groundwater structures.

The groundwater in the basaltic lava flows generally occurs under unconfined to semi-confined condition. Thickness of the upper part of aquifer system varies in the depth range of 4.0 –8.00 mbgl. In the area, potential dug well zone occurs in depth range 6-10 mbgl ofweathered vesicular basalt in nature.

The deeper aquifer zone is within a depth range of 140 m bgl. Basalt and Vindyan Sandstone contact occur at the depth range of about 20.0 mbgl as reported. Thedepth of tube wells in the area varies in the depths range of 20.0 mbgl to 150.0mbgl. Major Irrigation as well as drinking water supply is being made throughtubewells.

As per hydrogeological investigations carried out by CGWB, there are no high yielding open wells around site. The ground water structures by which groundwater are exploited is the tube wells only. The tube wells around premises possess good yield up to the end of winter and during summer there is a drastic fall in water table. The depth of water bearing zone around project site are 10 to 20 m, 5 to 10 m, and at some places 2 to 5 m below ground level.

3.1.2 Climate and Meteorology

The Bhopal city is perched at an average height of 500 meters above the sea level.Bhopal has a humid subtropical climate, with cool, dry winters, a hot summer and a humid monsoon season. Summers start in late March and go on till mid-June, the average temperature being around 30 °C (86 °F), with the peak of summer in May, when the highs regularly exceed 40 °C (104 °F). The monsoon starts in late June and ends in late September.These months see about 40 inches (1020 mm) of precipitation, frequent thunderstorms and flooding. In such moderate climate, residential areas can be developed at higher densities as three to four storied buildings can be constructed without causing discomfort to the occupants.

3.1.2.1 Relative Humidity

The summer Season is dry period of the year. The humidity is lowest (about25%) during the month of April. The humidity is highest during the month of Augustabout 88%. The humidity again decreases due to rise in temperature and withdrawof the monsoon.

3.1.2.2 Temperature and Rainfall.

Ambient temperature is a key parameter as it indirectly governs the dilution capacity of the atmosphere. Generally, the temperature controls the reaction rate of pollutants as well as how fast the surface dries out. If the temperature is high, the moisture in the surface will evaporate, exposing the surface to effects of wind erosion thereby increasing dust emissions. Temperature near the surface also controls the buoyant component of turbulence (vertical motion). Heat from the earth's surface heats the air near the ground causing it to rise. This

phenomenon reaches a maximum in early afternoon and is a minimum near sunrise and sunset.

The average temperature is around 25 °C (77 °F). Temperatures rise again up to late October when winter starts, which lasts up to early March. Winters in Bhopal are cool, sunny and comfortable, with average daily temperatures around 16 °C (61 °F) and little or no rain. The winter peaks in January when temperatures may drop close to freezing on some nights. Lowest temperature ever recorded was 0.3C.

The rainfall data of Bhopal rain gauge stations which is located about 25 km from proposed site has been studied. About 92 % of the normal annual monsoon rain fall in the area is received during the monsoon month of June to September. Only 8 % of the annual rainfall takes place from November to May. Total annual rainfall is about 1260 mm (50 inches).

The mean deviation, standard deviation and coefficient of variation have been calculated which is based on the long term rainfall data indicate that thedispersion of rainfall from the Mean rainfall is not very high. The coefficient ofvariation for Bhopal is about + 22.9 % which indicate that during most of the yearthe rainfall fluctuation is only + 22% from the mean rainfall. The mean deviationand standard deviation of rainfall for Bairagarh (Bhopal) are 193.6 and 266.8 mm respectively.

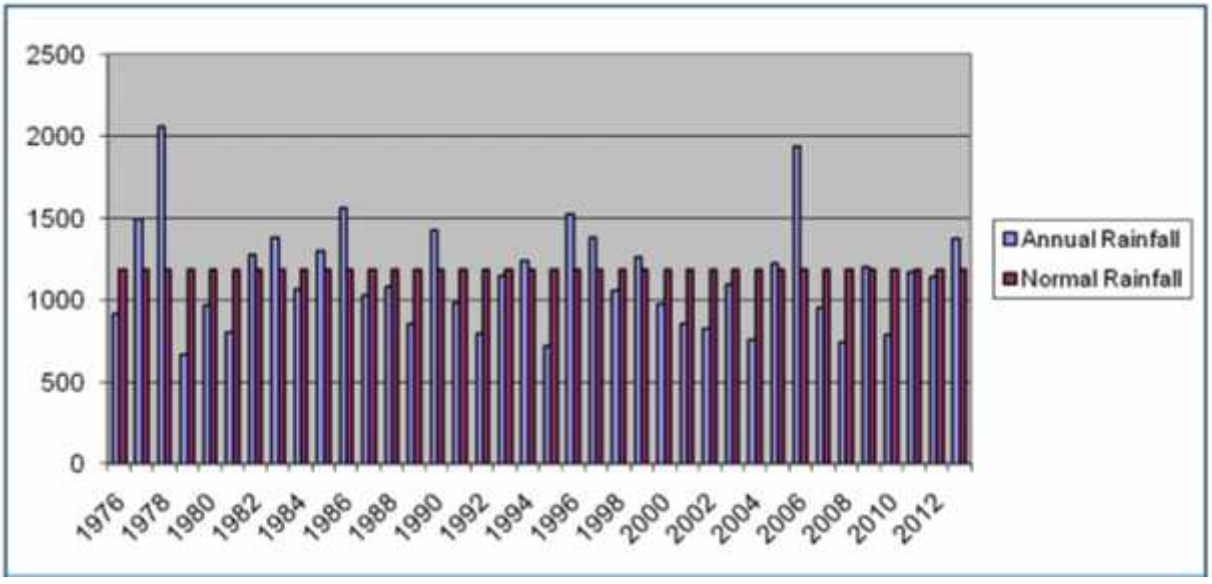


Figure 16: Annual rainfall of Bhopal, Madhya Pradesh

Table14: Rainfall data of Bhopal district (1976-2013)

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
Normal	17	5.3	8.8	3.6	10.2	148.3	490.7	277.6	240.9	317	20.6	6.3	***1260.2***
1976	13.9	9.5	1.0	14.9	24.5	97.9	244.9	311.5	172.4	.2	15.2	15.4	913.9
1977	0	0	16	0	0	209	225.2	517.2	207.1	23	30.3	0	1497.7
1978	14.8	43.9	6.5	20.1	0	453.6	821	565.9	64.3	0	12.9	51	2054.0
1979	49.2	37.8	1.7	0	21.3	77.2	156.6	185.6	12.5	1.3	115.5	9.3	668.0
1980	0	5.4	0.1	0	0	300.7	160.3	435.1	22.7	2.6	0	43.3	970.2
1981	13.5	0	3.1	0	0	0	261.2	344.4	106.2	32.6	9.3	31	801.3
1982	60.7	9.1	0	3.2	5.9	138.9	337.8	513.8	130.6	46	38.6	0	1278.6
1983	0	0	0	0	19.8	110.2	297.4	419.8	494.2	37.5	0	1	1379.9
1984	56	16	0	0	0	115.8	87	763.4	22.9	1.3	0	0	1062.4
1985	0	0	0	0	37	48.6	287.5	554.3	250.2	120.9	0	0	1298.5
1986	3.8	0	0	.4	7.4	215.7	1031.4	249	39.8	0	0	14.3	1561.8
1987	48.9	30.5	2.6	0	4	108	201.1	460.1	62.5	87.2	0	21.4	1026.3
1988	1.4	10	0	2.4	13.9	158	497.7	294.2	77.6	28.9	4.6	0	1078.7
1989	0	0	57.7	0	3.3	114.9	174.8	357.3	156.3	0	0	15.8	855.9
1990	0	6.5	10.7	0	64.4	270.5	329.8	381.9	347.2	16.3	0	0	1427.3
1991	0	0	0	0	0	200.1	274.7	481.1	20.1	6.6	0	0	982.8
1992	0	0	0	0	0	55.2	210.3	309.9	71.4	66.4	0	0	793.2
1993	0	0	8.9	6.3	0	54.3	363.5	310.0	360.4	38.9	0	0	1145
1994	0	0	0	6	0	269.0	284.2	55.0	101.1	5.8	0	0	1241.0
1995	0	0	0	0	0	51.4	319.6	201.1	133.8	16.4	0	0	722.3
1996	0	18.1	0	0	0	73.2	530.2	694.7	211.0		0	0	1527.7
1997	6.6	0	0	11.6	0	122.8	426.6	317.5	111.3	146.7	0	0	1379.1
1998	0	0	0	0	0	163.3	357.0	279.5	266.6	0	97.0	111.7	1061.5
1999	0	0	33.6	0	14.7	101.5	433.7	193.2	459.3	87.0			1260.0
2000	0	8	2.0	0	64.2	86.8	56.2	226.6	27.8	0	0	0	974.4
2001	0	0	4.0	0	65.2	276.2	260.2	173.3	1.8	66.3	0	0	856.8
2002												Annual Rainfall	822.6
2003												Monsoon Rainfall	1099.5
2004												Monsoon Rainfall	757.8
2005	1.7	1.6	14.3	0.8	0.6	45.4	672.8	149.2	238.7	0.5	0.0	0.0	1225.6
2006	0.0	0.0	108.8	17.3	94.0	64.6	311.2	903.8	406.7	27.8	3.6	2.0	1939.8
2007	0.2	21.3	0.0	0.3	12.1	80.5	425.8	175.1	236.5	0.0	0.0	1.0	952.8
2008	0.0	0.0	11.6	1.8	18.6	152.5	220.3	187.4	137.2	1.1	9.5	0.0	740.0
2009	36.3	0.0	0.0	2.6	0.0	111.9	528.3	110.6	130.2	143.1	104.0	36.2	1204.2
2010	12.4	8.2	3.6	0	0.2	76.7	244.9	200	76.3	46	113.4	4.4	786.1
2011	0	1.4	1.8	2	0.3	275.7	306.6	348.9	238	0	0	0	1174.7
2012	0	0	0	2.5	6.7	94.9	360	615	61.2	0	0	0	1140.3
2013	0	24.8	21.4	38.8	0	459.5	429.1	332.8	42	26.2	0	0	1374.6

Source: Revenue and Land Record, Gwalior, Govt. of MP & IMD Website

Monsoon Normal: 1188.4 mm
Non Monsoon Normal: 71.8 mm
Annual Normal: 1260.2mm.

Average number of Rainy days: 54 day.

Table 15:Temperature and Evapo-Transpiration data from Bhopal observatory.

Month	Temperature (^{0}C)		Evapo Transpiration in mm	
	Max	Min	8.30 hrs	17.30 hrs
January	25.7	10.4	60	42
February	28.5	12.5	47	34
March	33.6	17.1	31	17
April	37.8	21.2	25	17
May	40.7	26.4	32	17
June	36.9	25.4	63	41
July	29.9	23.2	86	70
August	28.6	22.5	88	79
September	30.1	21.7	83	64
October	31.3	18.0	62	38
November	28.5	13.3	53	34
December	26.1	10.1	59	37

3.1.3 Air Environment

The existing quality of the air environment serves as an index for assessing the pollution load and the assimilative capacity of any region and forms an important tool for planning project activity in the area. Primary data was collected for pre monsoon season to understand the air quality in the region and to assess the impacts on air environment.

Air quality stations	4 (3 residential, 1 industrial)
Air quality trend	Analysis of nine year air quality data with respect to PM_{10}shows an increasing trend till2008 and slight decrease in2009. NO_2also showed an increasing trend but SO_2showed a decreasing trend (Figure17).

Source: CPCB

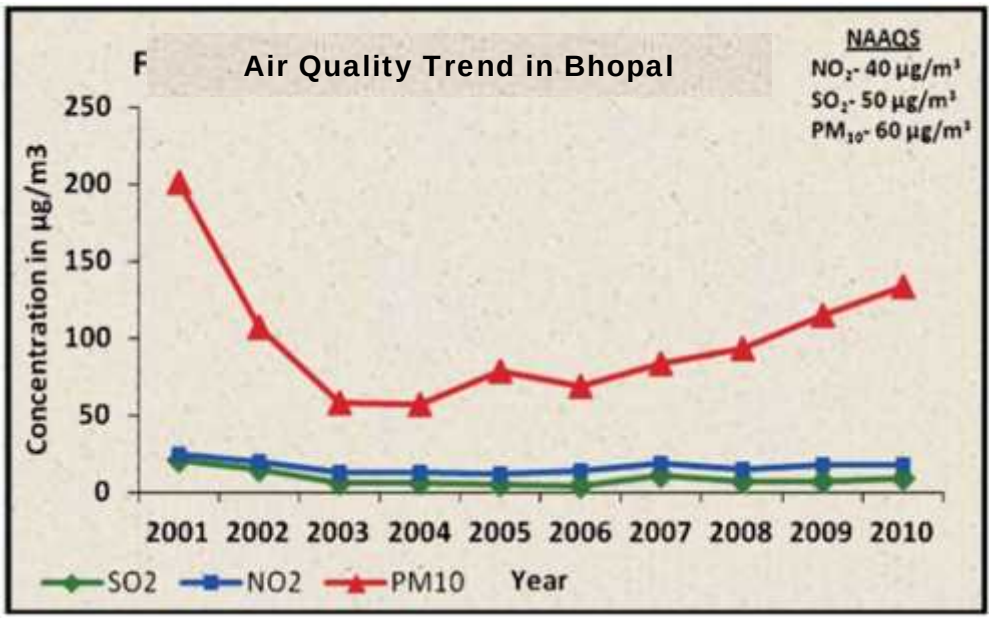


Figure 17: Air Quality Trend in Bhopal

Table 16: Ambient Air Quality in Bhopal (M.P)

City	SO_2		NO_2		PM_{10}	
	Annual avg ($\mu g/m^3$)	Air Quality	Annual avg ($\mu g/m^3$)	Air Quality	Annual avg ($\mu g/m^3$)	Air Quality
Bhopal (2009)	7	L	18	L	115*	C
Bhopal (2010)	9	L	18	L	133*	C

*L: Low; C: Critical *Concentration exceeding NAAQS*

Source: NAAQ Monitoring, 2011-2012, CPCB

Table 17: SPM levels (Annual average) in Ambient Air Quality Stations under National Air Quality Monitoring Program during 2010, CPCB

Station	Type	No. of Mon. days (n)	Min	Max	SPM Annual avg. ($\mu g/m^3$)	Std Deviation
Hamidia Road, M.P. HastshilpVikas Nigam	RIRuO	73	80	803	363	171
C E T P	RIRuO	74	41	753	277	158

Govindpura						

Table 18: PM_{10} levels (Annual average) in Ambient Air Quality Stations under National Air Quality Monitoring Program during 2010, CPCB

Station	Type	No. of Mon. days (n)	Min	Max	PM_{10} Annual avg. ($\mu g/m^3$)	10 Percentile	50 Percentile	90 Percentile	Std Deviation	% exceedence (24 hourly)	Air Quality
Hamidia Road, M.P. HastshilpVikas Nigam	RIRuO	73	29	486	144*	50	126	240	92	64	C
C E T P Govindpura	RIRuO	74	19	444	121*	28	107	223	91	54	C

Table 19: NO_2 levels (Annual average) in Ambient Air Quality Stations under National Air Quality Monitoring Program during 2010, CPCB

Station	Type	No. of Mon. days (n)	Min	Max	NO_2 Annual avg. ($\mu g/m^3$)	10 Percentile	50 Percentile	90 Percentile	Std Deviation	% exceedence (24 hourly)	Air Quality
Hamidia Road, M.P. HastshilpVikas Nigam	RIRuO	73	11	67	21	12	19	28	9	0	M
C E T P Govindpura	RIRuO	74	1	111	15	7	12	22	13	1	L

Table 20: SO_2 levels (Annual average) in Ambient Air Quality Stations under National Air Quality Monitoring Program during 2010, CPCB

Station	Type	No. of Mon. days (n)	Min	Max	SO_2 Annual avg. ((µg/m^3)	10 Percentile	50 Percentile	90 Percentile	Std Deviation	% exceedence (24 hourly)	Air Quality
Hamidia Road, M.P. HastshilpVikas Nigam	RIRuO	72	2	93	10	3	8	13	12	1	L
C E T P Govindpura	RIRuO	73	0	61	7	3	5	13	8	0	L

*RIRuO- Residential/ Industrial/ rural/other area; n- no. of days monitored for 16 and more hours a day; L: Low; M: Moderate; C: Critical; *Concentration exceeding NAAQS*
Source: NAAQ Monitoring, 2011-2012

3.1.4. Water Environment

North Central Region has taken up hydrogeological studies in Bhopal; the following are the significant findings:

- Underlain by Vindhyan sandstone and basalts of the Deccen Trap.
- Promising aquifer zones in the Vindhyan within a depth range of 60-70 mbgl especially at the base of Vindhyan hillocks or under a cover of weathered basalt.
- Weathered and vesicular basalts also form potential aquifers.
- Areas identified for construction of tubewells.
- Need for rooftop rainwater harvesting stressed to make the aquifer more sustainable.
- Chemically the ground water contains high nitrate at a few places.

Status of Surface Water Quality in Bhopal

KaliasotRiver is located near road bridge, Mandideep. The water quality of Kaliasot tributary streams is conforming to water quality criteria with respect to pH and conductivity at all the locations.

The water quality monitoring of groundwater in Madhya Pradesh is carried out by respective State Pollution Control Boards. pH of groundwater is observed in the range of 7.3-8.2 andmeet the water quality criteria. Conductivity varies from 340-2182 µmhos/cm. BOD and Total Coliformare meeting the desired criteria at all the locations. Fluoride concentration in

ground water is observed in the range 0.05- 0.3 mg/ l. The quality of ground water in Bhopal is presented in Table 21.

Table 21: Water Quality of Surface water located nearby to the site, M.P, 2011

Location	**Temp. °C**			**D.O. (mg/l)**			**pH**			**Conductivity (µmhos/cm)**			**B.O.D (mg/l)**			**Nitrate + Nitrite (mg/l)**			**Fecal Coliform (MPN/100 ml)**			**Total Coliform (MPN/100 ml)**		
	Min	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**
				>4 mg/l			**6.5-8.5**			**<2250 µmhos/cm**			**<3 mg/l**						**<2500 MPN/100 ml**			**<5000 MPN/100 ml**		
River Kaliyasot, near road bridge, mandideep				8.8	8.8	8.8	7.5	7.5	7.5	691	691	691	5.4	5.4	5.4				7	7	7	70	70	70
Shahpura lake at weir near Ayushman hospital	35	35	35	9.0	9.0	9.0	7.5	7.9	7.7	593	880	737	4.8	8.5	6.7	1.42	1.42	1.42	26	26	26	140	1600	870

Table 22: Status of Ground Water Quality in Bhopal, M.P., 2011

Location	**Temp. °C**			**pH**			**Conductivity (µmhos/cm)**			**B.O.D (mg/l)**			**Nitrate (mg/l**			**Fecal Coliform (MPN/100 ml)**			**Total Coliform (MPN/100 ml)**		
	Min	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**
				6.5-8.5			**<2250 µmhos/cm**			**<3 mg/l**						**<2500 MPN/100 ml**			**<5000 MPN/100 ml**		
Ibrahimganj near bus stand, Bhopal	**36**	**36**	**36**	7.8	7.8	7.8	510	510	510	1.3	1.3	1.3	1.64	1.964	1.8				50	50	50

3.1.5 Noise Environment

Noise attributed to roads, depends on factors such as traffic intensity, the type and condition of the vehicles plying on the road, acceleration/deceleration/gear changes by the vehicles depending on the level of congestion and smoothness of road surface (IRC: 104-1988). High noise levels are a concern for sensitive receptors, i.e., hospitals, educational institutions, etc. Noise is an area of concern and the high noise levels may be attributed to vehicular movement and congestion on the roads as well as on-going construction work around the area.

The ambient noise levels at Bhopal ranged from 59 to 91 dB (A). The increased commercial activities during the festival season and increased vehicular traffic also contributed to the noise levels.

National Ambient Noise Level Standards

Area Code	Category	Limits in Decibels (dB A)	
		Day Time	Night Time
A	Industrial	75	70
B	Commercial	65	55
C	Residential	55	45
D	Silence Zones	50	40

Source: Central Pollution Control Board, New Delhi

Note: (1) **Day-time:** 6 AM to 10 P.M., **Night-time:** 10 PM to 6 AM;

(2) Silence zone is an area up to 100 m around premises as hospitals, educational institutions and courts.

Noise level observed in Bhopal city during 2010 to 2011 year

S. No.	City	No. of noise level counts done		No. of values exceeding limit		Total Noise level		
		Day	Night	Day	Night	Counts	No. of values Exceeding limit	% of values exceeding limit
1.	Bhopal	279	80	241	42	359	283	78.8

It can be inferred from the above results that out of 359 noise monitoring stations (279 at day time, 80 at night time)set up in Bhopal, 283 stations(241 at day time, 42 at night time) showed exceeding values of noise levels than the permissible limit.

3.1.6 Land Environment

In modern economies, various types of activity, including agriculture, residential and transportation, produce a large amount of wastes and new type of pollutants. Sustainability of soil productivity in the present scenario will encounter constraints of degraded resource base, need for higher inputs and energy use which leads to environmental degradation. It is difficult and sometimes misleading to consider soil or land without its environmental context, and concern for the soil and its use is inseparable from the one for ecology as a whole.

Soil Type

The agriculture of any state depends upon the type of soil it has. The surface consists of black cotton soil at various depths from 1 to 3.0 m in Bhopal. The black soil also known as Regur (Humus) soil. Black soil is composed of Basaltic rocks mainly found in Deccan Trap (Malwa Plateau). Such soil mainly consists of Iron and lime rocks. The presence of iron gives it the Black color and the presence of lime increases its moisture retention capacity therefore needs less irrigation. Cotton and soyabean are most suitable crops to be grown in such soil. The quantity of calcium, magnesium, Aluminium, Iron, Potasssium and magnesium carbonate is more in black soil but it lacks in nitrogen, phosphorus and carbonic elements. Soil erosion is lesser in Black soil.

The yellow Murram is visible after black clay soil. They are also called black cotton soil due to prominent presence of Organic matter & high ion exchange materials. They are famous for their expansion & shrinking characteristics due to presence of clay. These soils possess alkaline pH.The Sodium Absorption Ratio (SAR) measures the relative proportion of sodium ions in a water sample to those of calcium and magnesium. The SAR is used to predict the sodium hazard of high carbonate waters especially if they contain no residual alkali. High concentration of sodium disperses soil colloidal particles, rendering the soil hard and resistant to water penetration. The potential of sodium hazards increases in soil with higher SAR values. The results analysis of the different secondary sources available shows SAR for the soil samples range between 2.36-2.84, which indicate that the soil is less sodic in nature.

(Source: MPPCB, 2010)

The permeability of a soil is a measure of the soils hydraulic conductivity or the ease that water will pass through the soil when exposed to a pressure gradient. It determines the rate at which water will migrate through an aquifer towards well heads. The result of the permeability coefficient shows that soil is clay with some silt content.

3.2 Ecological Resources

Flora of the study area (Secondary sources):

Table 23 (a): List of Trees

Botanical name	Local name (Devanagari)	Nature of species
Azadirachtaindica	Neem	Evergreen
Bassialatifolia	Mahua	Evergreen
Bombaxmalabaricum	Semal	Deciduous
Terminaliabelerica	Bahera	Deciduous, road side
Terminaliaarjuna	Arjun	Evergreen
Sterculiaurens,	Kulu	Deciduous
Dalbergiasissoo	Sheesham	Deciduous
Dilleniapentagyna	Kalla	Deciduous
Wendlandiaexserta	Tilwan	Deciduous
Cupresseslucetenica	White cedar	Evergreen
Piceasmithiana	spruce	Evergreen, fast growing
Cedrusdeodara	Cedar	Evergreen
Cassurainaequisetifolia	Whistling pine	Evergreen
Abiespindrow	Blue pine	Evergreen

Botanical name	Local name (Devanagari)	Nature of species
Neolamarckiacadamba	Kadamb	Evergreen, flowering, road side
Acacia arabica	Babul	Evergreen, Flowering
Buteamonosperma	Palash / Dhak	Deciduous, flowering
Lagerstroemia parviflora	Dhaura	Deciduous, flowering
Bauhinia variegata	Kachnar	Deciduous
Hardwickiabinata	Anjan	Deciduous
Wrightiatinctoria	Kapar / Dudhi	Evergreen
Magnolia champaka	Champa	Evergreen
Terminaliapaniculata	Kindal	Deciduous, road side
Cochlospermumreligiosum	Galgal	Deciduous
Capparisbrevispina	Indian Caper	Deciduous
Miliusatomentosa	Hoom / Kari	Evergreen
Cassia fistula	Amaltas	Evergreen, flowering
Araucaria columnaris	Christmas tree	Evergreen
Cassia siamea	Cassod tree	Evergreen, flowering

Botanical name	Local name (Devanagari)	Nature of species
Acacia pennata	AglaBel/ Biswal	Evergreen, flowering, road side
Caesalpiniapulcherrima	Peacock flower	Evergreen, flowering
Acacia catechu	Khayar	Deciduous
Prosopis cineraria	Jhand	Evergreen, flowering
Celastruspaniculatus	Malkangani	Deciduous, ornamental
Ochnaobtusata	RamdhanChampa	Evergreen, flowering
Bombaxceiba	Semal	Deciduous, ornamental
Albizialebbek	Kala-siris	Deciduous, flowering, road side
AlbiziaProcera	Safed-siris	Semi-deciduous
Eucalyptus tereticornis	Eucalyptus	Evergreen
Tamarindusindica	Imli	Evergreen
Ficusvirens	Pakad	Evergreen
Toonaceiliata	Red Cedar	Deciduous, fast growing
Schleiraoleosa	kosum	

Table 23 (b) Fauna of the Study area (Secondary sources)

Mammals		**Butterflies**		**Amphibians**	
Local Name	**Zoological Name**	**Local Name**	**Scientific Name**	Toad	*Bufosp*
Antelopes	*Antilocapra americana*	Browns	The Satyrids	Frog	*Ranatigrina*
Bats	*Desmodusrotundus*	Brush Footed	The Nymphalids	**Reptiles**	
Cows	*Bostaurus*	Skippers	The Hesperlids	Indian garden lizards	*Calotesversicolor*
Cats	*Feliscatus*	Swallowtails	The Papilios	House Lizards	*Hemidactylus sp.*
Civets	*Viverriculaindica*	White Yellow	The Pieridae	Cobra	*Najanaja*
Deer	*Cervus axis*	Blues	The Lycaenidae	Viper	*Viperasp*
Dogs	*Cuonalpinus*	Milkweed	The Danids		
Hares	*Lepusnigricollis*	**Aves**			

Hyena	*Crocutacrocuta*	**Local Name**		
Inspectivores	*Anathanaellioti*	Small blue kingfisher	*Alcedoatthis*	
Mongoose	*Herpestesedwardsi*	Indian roller	*Coraciasbenghalensis*	
Monkeys	*Macacamulatta*	Black drongo	*Dicrurusmacrocercus*	
Otters	*Lutrogalepersicillata*	Black redstart	*Phoenicurusochruros*	
Pangolin	*Maniscrassicaudata*	Purple sunbird	*Nectariniaasiatica*	
Pigs	*Susscrofa*	Crow	*Corvussplendens*	
Rodents	*Rattusrattus, Funambuluspalmarum*	Parrot	*Parrotuiselailia*	

Van Vihar National Park

In the heart of the capital city Bhopal, on a hill adjacent to the upper lake, Van Vihar national park is located in an area of 445.21 ha. In the natural habitat, a variety of herbivores and carnivores are managed in line with the modern concept of zoo management.

The upper lake on the south west boundary attracts a variety of migratory birds during the winter. About 200 species of birds have been sighted in the park. Some of the migratory birds that have been frequently sighted are pintail, spotbill, barheaded goose, spoonbill, painted stork, open billed stork and purple heron.

(Source: Govt. of M.P.)

3.3 Socio Economic Environment

Socio-Economic Scenario

This section discusses the baseline scenario of the socio-economic environment in the study area and the anticipated impacts of the Proposed Project on the socio-economic environment. The issues under focus in this section are demographic structure, economic activities, and education literacy rate and infrastructure resources.

3.3.1 Population

In 2011, Bhopal had population of 2,371,061 of which male and female were 1,236,130 and 1,134,931 respectively. In 2001 census, Bhopal had a population of 1,843,510 of which males were 972,649 and remaining 870,861 were females.

There was change of 28.62 percent in the population compared to population as per 2001. In the previous census of India 2001, Bhopal District recorded increase of 36.40 percent to its population compared to 1991.

The initial provisional data released by census India 2011, shows that density of Bhopal district for 2011 is 855 people per sq. km. In 2001, Bhopal district density was at 665 people per sq. km. Bhopal district administers 2,772 square kilometers of areas.

3.3.2 Literacy

Average literacy rate of Bhopal in 2011 were 80.37 compared to 74.61 of 2001. If things are looked out at gender wise, male and female literacy were 85.42 and 74.87 respectively. For 2001 census, same figures stood at 81.94 and 66.37 in Bhopal District. Total literate in Bhopal District were 1,660,690 of which male and female were 920,314 and 740,376 respectively. In 2001, Bhopal District had 1,159,823 in its total region.

3.3.3 Gender Ratio

With regards to Sex Ratio in Bhopal, it stood at 918 per 1000 male compared to 2001 census figure of 895. In 2011 census, child sex ratio is 920 girls per 1000 boys compared to figure of 925 girls per 1000 boys of 2001 census data.

Table 24: Demographic Status of 2011 compared with 2001 for Bhopal

Description	2011	2001
Actual Population	**2,371,061**	**1,843,510**
Male	1,236,130	972,649
Female	1,134,931	870,861
Population Growth	**28.62%**	**36.40%**
Area Sq. Km	2,772	2,772
Density/km2	**855**	**665**
Proportion to Madhya Pradesh Population	3.26%	3.05%
Sex Ratio (Per 1000)	**918**	**895**
Child Sex Ratio (0-6 Age)	920	925
Average Literacy	**80.37**	**74.61**

Male Literacy	85.42	81.94
Female Literacy	74.87	66.37
Total Child Population (0-6 Age)	**304,713**	**288,916**
Male Population (0-6 Age)	158,721	150,098
Female Population (0-6 Age)	145,992	138,818
Literates	**1,660,690**	**1,159,823**
Male Literates	920,314	673,981
Female Literates	740,376	485,842
Child Proportion (0-6 Age)	**12.85%**	**15.67%**
Boys Proportion (0-6 Age)	12.84%	15.43%
Girls Proportion (0-6 Age)	12.86%	15.94%

3.3.4 Settlements

There are densely populated areas of Bhopal, Indore, and Ujjain nearby suburban towns and Gokuldham colony, Sanjeev Nagar, Kamal Nagar, villageBadwai, BishanKheda,ParvaliyaSanito the proposed site.

3.3.5 Markets

There are several markets nearby the site.

3.3.6 Basic Infrastructure Facilities in Villages

All the villages lying in the study area are well connected by pitched roads. All the villages have at least a primary school, a primary health centre, post office and branches of nationalized bank. All the villages are connected by telephone and electricity grid.

3.3.7 Infrastructural Facility in the study area:

Semi-urban area with several group housing projects and Institutes are in proximity of project sites. Site and Surroundings within 10 km from proposed project is as follows:

North: Village Badwai, BishanKheda and ParvaliyaSani are at a distance of 500 m, 2.4 Km and 2 km the site. Bhopal Bypass Road (NH-12) is 3.75 km from the site.

West: Gokuldham colony, Abbas Nagar and Rajiv Gandhi Technical University are about 700 m, 1.5 Km and 2.0 km from the site. Raja Bhoj International Airport is about 5.5 km in North West direction and Central Jail colony about 1.0 km in South west direction from the site.

South: Dwarkadham colony and Hahnemann Homeopathic Medical College are 400 m and 500 m from the site. Sanjeev Nagar, Kamal Nagar and Nariyalkheda are situated at a distance of 1.2 Km, 1.7 Km and 2.5 km from the site. Ayodhya Bypass Road (NH-86) is 600 m from the site

East: Truba Institute of Engineering & IT, Krishak Nagar and Central Institute of Agricultural Engineering is 20 m, 1.5 Km and 2.0 Km from the site. Peoples Campus, village PipliyaBajkhan and Malikhedi are 4.0 Km, 4.5 Km and 6.0 Km from the site.

3.3.8 Drinking Water: The study Area has good drinking water facility. Drinking water is available in all villages. Major source of drinking water is tap water, hand pumps and well. Ground water quality is drinkable as per IS standards.

3.3.9Communication: Telecommunication facility in the study area is very good and mobile facility is also available. The major mobile operators are Airtel, Vodafone, Tata, Reliance, BSNL& Idea.

3.3.10Roads and Transportation System: The project area is having high road density. It is connected by a network of state level and internal roads to the entire region. Being the capital of Madhya Pradesh, the transport and infrastructure facilities around the project site is excellent. It is in close proximity to major cities which are Indore, Hoshangabadand Ujjain.

3.3.11 Cropping Patternand Vegetation:

The double cropping system is practiced within 12 km of city area, while outskirts area comprises of single crop system. The cropping patterns are based upon Rabi &Kharif types. Rabi crops include wheat, gram, oilseeds, while the Kharif crops include paddy, maize, millet, soyabean, pulses & cereals. The basaltic soils are very suitable for Cash crops. Cotton & sunflower are also grown in adjoining blocks of Bhopal city. The vegetation found in the city comprises of sub-tropical type with interspersed tropical sub-types, consisting of teak and mixed forest.

CHAPTER 4
IMPACT IDENTIFICATION & ASSESSMENT

4.0 General

Prediction of the impacts due to the development, construction and functional activities encompass the development process to be undertaken during construction and functional phases. For each category of environmental receptor (such as, ambient air quality, water quality, soils, land, etc) the potential impacts of activities during development & construction and functional phases and magnitude of the impacts have been assessed and discussed in detail in following sub sections. In each case, cognizance has been taken to mitigation measures inherited in the development, construction and functional phase.

The important steps in Impact Assessment are: Impact identification, prediction and evaluation. A number of techniques are available for identification, prediction and evaluation of impacts. Appropriate techniques have been applied for environmental impact assessment of the proposed project.

4.1 Pollution Sources

Pollutants generated in the development of proposed complex during both construction and operational phases are solid, liquid and gaseous in nature. Also the generation of pollutant could be continuous, periodic or accidental. Sources of pollutants and their characteristics during the construction and operational phase are given in **Table 25.**

TABLE 25: POLLUTANT SOURCES AND CHARACTERISTICS

S.I.	Activity / Area	Pollutant	Pollutant Characteristics	Frequency
DEVELOPMENT & CONSTRUCTION PHASE				
1	Site Preparation	Air emission- PM_{10}, $PM_{2.5}$, SO_2 and NO_2	a. Dust from construction activities and excavation. b. Particulates matter, NO_2 and CO from Vehicle exhaust.	a. Temporary during construction phase only. b. Bulk of the emissions are expected from ground working and leveling activities.
		Earth / Solid waste	Solid waste from construction activity and excavation.	Periodic

		Noise	Noise generated from construction equipment and machinery	Temporary during initial construction phase
2	Labour welfare Camps	Sewage	Sewage generated from temporary labour camps on site	Temporary during the initial construction phase
		Solid Waste	Solid Waste generated from temporary labour camps	Temporary during the initial construction phase

OPERATIONAL PHASE				
1	Vehicular Movement	Air emissions and Noise	Vehicle exhaust emissions	Continuous / periodic
2	Diesel generators	Air emissions	SO_2, NO_2, SPM, CO from fuel burning	Occasional during power failure
		Noise	Noise due to running of equipment	Occasional during power failure
		Hazardous Waste	Used Oil Generation	Occasional during oil changes
3	LPG Cylinders	Thermal / Blast Effect	Accidental Explosion due to LPG leaks and fire	Accidental
4	Maintenance / Housekeeping	Wastewater	Floor washing	Continuous
		Solid waste	Used equipment parts and garden wastes	Continuous
5	Vehicle Parking Area	Oil spills	Minor oil leaks In parking space	Continuous, Negligible quantities
6	Storm water drains	Waste water	Contamination discharge from site- mainly suspended solids	During rainy season

Environmental Aspects of Development & Construction Operations

- Generation, storage, and disposal of construction wastes
- Noise pollution due to plant, machinery, equipment and vehicle movement
- Air pollution due to vehicle movement
- Generation and disposal of wastewater
- Impact on ecology
- Consumption of resources such as water, electricity, and diesel
- Physical change in landscape due to earth work excavation and related activities
- Soil erosion caused due to loss of vegetation and other construction activities
- Impact on socio-cultural environment.

Environmental Aspects of Building Planning and Use

Impacts identified during operation of the proposed project and its use includes major concerns such as:

- Disposal of domestic (sewage) effluent generated
- Increase in noise levels due to transport
- Consumption of water and impact on water resources
- Impact on traffic on the road
- Storm water during rains
- Management and maintenance of the project

4.2 Impact Identification

The areas of environmental concerns for which the impacts and their predictions are taken into consideration are mainly:

4.2.1 Physical Environment
4.2.2 Land Environment
4.2.3 Air Environment
4.2.4 Water Environment
4.2.5 Noise Environment
4.2.6 Biological Environment
4.2.7 Socio economic Environment
4.2.8 Aesthetics Environment
4.2.9 Solid Waste

The impacts can be further categorized as positive impacts and negative impacts depending on their nature, potential and magnitude.

Site History before Construction

Before construction, the site was plain land with no green belt but agriculture fields. Air environment is moderately effected due to heavy traffic movement on NH-86 near to the site. Noise environment is high due to traffic movement at adjacent 18 m wide road (West). Ground water level in and around the site is 10 to 20 mbgl. The land use has been converted into residential purpose as per Madhya Pradesh Master Plan, 2005.

4.2.1 PHYSICAL ENVIRONMENT

(i) Topography

Impact

Topography around the proposed project is almost plain. Therefore, topography and physiography of the area will not get affected during the construction and post construction phase of the project. Hence, no significant impact is anticipated on the topography and physiography from proposed Residential project.

Mitigation measures

Since there is no significant impact on topography from the proposed project, no detailed mitigation measures are proposed. It is however proposed that apart from the proposed plantation greens, turfing with local species will be carried out extensively.

Land Use Pattern

Proposed land for construction of residential project is spread over 17440 m^2 (1.74 Ha or 4.309 Acre) and the land use of the project is residential as per Bhopal Master Plan and will be developed as per the approvedBhopal Development Authoritybye-laws and NBC-2005. Earlier the land use of the site wasagriculture.

4.2.2 LAND ENVIRONMENT

4.2.2.1 Construction Phase

(i) Earthwork

Impact

During construction phase, top layer of soil will be excavated for preparation of the land and provide foundations for the houses and for construction of underground water storage tanks. Approximately 5300 m^3 of soil will be excavated for preparation of land and construction of

underground structures. Almost all the excavated soil will be reutilized in road construction or filling the low lying area.

Mitigation measures

- Excavated material will be properly stacked within the site under tarpaulin cover and will be re-used for road construction and filling low-lying areas.
- The top-soil will be preserved separately and will be used for landscaping, green turfing purpose only. Hence, no immediate adverse impacts on the land environment are envisaged.
- Proper drainage system shall be provided to deal with the storm water in case of rain. The impact on soil during construction phase will be marginal and reversible in the nature.
- It is proposed to remove vegetative cover only from the specific site on which construction is to take place and allowing minimal disturbance to the vegetation in adjacent areas. Land clearing activities will only be confined to necessary areas. The number, frequency and area of movement of heavy machinery will also be restricted.

(ii) Soil

Impacts

Construction Phase: Impact on soil will be mainly associated with loss of topsoil, erosion due to clearing and grubbing, compaction of soil due to movement of heavy machineries and equipments and contamination of soil due to dumping of solid waste, ingress of oil and lubricants.

Solid waste generated during construction phase is majorly inert waste i.e. Cement, earth, rubble, debris, etc. and minor chemical waste i.e. oil spills, paints, VOCs which can effect human health, groundwater quality and soil quality.

Mitigation Measures

- The soil excavated during construction will be first temporarily stored in an area earmarked and later will be used to fill up low lying area in and around the project as well as for landscaping of project site. Proper drainage system shall be provided to deal with the storm water in case of rain.
- Solid waste generated during the construction phase shall be properly collected and segregated as plastic, metal, and other and shall be disposed off as per the standard practice.

- Personal protective equipment and special procedures for handling of waste to prevent injury.
- During the development and construction phase, some amount of debris, cuttings of construction materials may be observed at construction site. However, the quantity of these waste materials would be very small and limited up to the construction site only. Contamination of these wastes would be minor and would be collected time to time during construction phase and it will be reused in different application and non-usable items will be disposed accordingly.
- The impact on soil during construction phase will be marginal and reversible in nature.
- Almost 100% of the soil excavated during construction will be used up as discussed above.

4.2.2.2 Operation Phase

Impact

During the operation phase of the project, the soil may get polluted/ contaminated from littering of various kinds of wastes generated within the site such as food items, paper, wood pieces, paints, pesticides, oil & grease etc. However, owing to the proposed solid waste management system, no significant impact is anticipated.

Mitigation Measures

To ensure against any chances of soil pollution, it is imperative to establish a well-planned solid waste collection system covering all areas of the site apart from door to door for the residential units. An identified area shall be designated for storage and segregation of the wastes which will be treated/ disposed as per their characteristics. The waste handling management and its disposal has already described in Section 2.

4.2.3 AIR ENVIRONMENT

4.2.3.1 Construction Phase

The potential sources of air emissions during the construction and development phase of the project will be as follows:

- Dust from earth works (during site preparation)
- Emissions from power generator at site
- Emissions from the operation of construction equipment and machines
- Fugitive emissions from vehicles running to site
- Fugitive emissions during the unloading of material at the site

- Fugitive emissions during mixing of cement with other building materials during development and construction activities
- Air emissions other than dust arise from combustion of hydrocarbons. The pollutants of concerns are NO_2, SO_2, CO and particulate matter.

Potential Impacts

The likely impacts on air environment during construction phase have been identified in the form of "Impact Matrix".

Ambient air quality effects are normally assessed in relation to their potential to cause

- Health deterioration and nuisance in local communities
- Health deterioration amongst onsite workers

A. Assessment of the Impacts due to Dust Emissions

During the excavation of channels, foundations, unloading of construction material, cement bags and mixing of cement with other building materials, fugitive dust emissions may be emitted at construction site. It may be noted that these emissions would be in the form of coarse particulate matter and will be settled down ultimately in the closed vicinity of construction site. Therefore, no significant impact is anticipated due to dust emission during development and construction phase.

Mitigation measures

- The soil management as discussed in EMP. The excavated soil shall be stored and used in landscaping.
- The dust emissions shall be controlled by regular sprinkling of water during earthwork and construction cement bags shall be placed in covered areas. Sand and bricks shall be covered with gunny bags to avoid dispersion of material in air.
- The approach roads to the proposed site are good metaled roads, therefore during material handling there shall be least spread of dust in the environment.
- It is further proposed to cover scaffolding, hosing down road surfaces and cleaning of vehicles especially during the dry season.
- It is mandatory for all automobiles vehicles to maintain the quality of exhaust emissions within permissible standards.

- The ambient air quality shall be monitored regularly to ensure that the activities at site are not polluting the ambient environment.
- Pollution under Check (PUC) certificate provision at entry gate.

B. Assessment of the Impact due to Diesel Generators

Emissions from the DG sets during construction phase may cause some localized impact on ambient air quality for short duration, as these will be operated during power failure only. It may be noted that the DG set power will be used to operate construction equipment only if required.

Adequate height of stacks will be provided to the DG sets as per guidelines of MoEF***(as per the Gazette of India Part II, Section 3, Sub-section (I) No. 318, dated July 11, 2002, is given below, refer table no. 26)*** to facilitate the dispersion of flue gases into the atmosphere.

Table 26: DG set Stack height Rule, as per MoEF

Stack height (for generator sets commissioned after 1/7/2003)	Stack height shall be maximum of the following, in meter: i. $14\ Q^{0.3}$, Q = Total SO_2 emission from the plant in kg/hr ii. Minimum 6 m above the building where generator set is installed. (iii) 30 m.

Table 27: DG set Stack height (Provided)

Nos.	Capacity of DG set (KVA)	Stack Height Provided (m)
1	25 KVA	6.0 m + Highest Building Height

Mitigation Measures

Low sulphur diesel (LSD) will be used which will result in lower emissions and increased efficiency.Avenue and curtain plantation on the internal roads and peripheral plantation around the site will also be developed.

4.2.3.2 Operation Phase

Emission Sources: Increased traffic generation due to project is not going to cause significant increase in atmospheric concentration of gases and will not result in heat island formation.
During the post construction phase, cars, scooter/motorcycle will be owned by the residents of proposed Group Housing and buses will be for the visitors to the Commercial area. Vehicular emissions will be major sources of air pollution on Kolar road and approach road and will depend upon the traffic density on the road at particular time. Quantum and dispersion of pollution from vehicular emission will depend upon the following.

- Volume of traffic at the roads
- Meteorological conditions.
- Emission sources from automobiles engines (petrol/diesel)

From the vehicular emissions, NO_2 and SO_2 will be pollutant of primary concern. The dispersion of vehicular emissions would be confined within up to 100 m from the road and concentration will decrease with the increase in distance from road. It is anticipated that the contribution of vehicular emissions in ambient air quality will be marginal but will be below the stipulated National Ambient Air Quality Standards for NO_2 ($60\mu g/m^3$). At higher wind speeds the dispersion will be faster.
In the proposed integrated project, green belt will be developed in the form of Parks and along the internal roads, which will also works as barrier for the movement of pollutants.

4.2.4 WATER ENVIRONMENT

4.2.4.1 Construction Phase

(i) Surface Water Hydrology

Impact

The project site falls in the plain area. Runoff during rains takes way to natural drain and in storm water drains laid in the area. During construction phase, there is no impact anticipated on the drainage pattern of the project area.

Mitigation Measures

Project proponent will ensure zero impact on water runoff flow direction and drainage pattern of the area throughout the construction of the proposed project by providing adequate water channel.

(ii) Ground Water Hydrology

Impact

Water requirement during construction phase will vary depending upon construction activities and will be met from private tankers at the site. It is expected that construction of proposed project will be spread over a period of 1.5-2 years.

Approx. 12 KLD water will be required for site preparation activities dust settlement, consolidation, compaction and curing as well as building construction, drinking water purposes and other low end uses. The requirement of construction water will not put sudden pressure on the available water recourses of area.

Mitigation Measures

As the private tankers will be used for construction water, no impact is anticipated on the groundwater regime.

It is proposed to carry out the following to further minimize the demand on freshwater resources:

- Curing water will be sprayed on concrete structures and free flow of water not allowed.
- After liberal curing on the first day, all concrete structures will be painted with curing chemical to save water to stop daily water curing hence save water.
- Concrete structures will be covered with thick cloth/gunny bags and then water sprayed on them to avoid water rebound and ensure sustained and complete curing.
- Ponds will be made using sand mortar to avoid water flowing away from the flat surface while curing.
- Water ponding will be done on all sunken slabs. This will also highlight the importance of having an impervious formwork.
- Rain water collection in temporary pits along the low lying areas of slope.

(iii) Impacts on Surface Water Quality

Drainage pattern and slope of proposed site is toward North Westof the project site. It may be observed that the rainwater from the project site shall be recharged to ground water by rain water harvesting pit.

The primary concerns relating to surface water quality associated with construction activities are pointed out below:

- Runoff related to unpaved and excavated areas during the rain shower.

Runoff before Construction

Maximum runoff from the site before construction is calculated at the maximum precipitation rate of 40mm/hr.

Total runoff before construction = Runoff Coefficient X Area (m^2) X Rainfall intensity

= 0.2x 17440x 0.04

= 139.5 m^3/hr

- Sediments transported to runoff from the construction site.
- Run off related to area where lubricant, fuel other materials are stored, used and disposed, off.

Surface water quality may be affected with the discharge of the runoff from the project site. The impact to the surface water bodies could arise from the increased soil erosion from excavated site only cause to increase in the suspended particles and turbidity of runoff water from the site. However, this impact will be temporary in the nature and would be observed in first rain only and as soon as rain is over, excavated soil at site would be stabilized. Therefore, the surface water quality during rains would be impacted marginally for very short duration.

Mitigation Measures

During the construction phase, surface water quality is likely to be affected due to soil erosion during first rain and generation of wastewater mainly from construction labour camp. However, this phenomenon will be temporary and restricted to close vicinity of construction site. The impact on surface water quality can be minimized by adopting following measures:

- Excavation during dry season and proper management of excavated soils,
- Clearing all debris from site as soon as construction is over.
- Covering the top soil with tarpaulin sheets or filled cement bags around the top soil.
- Site barricading around the site can also prevent runoff.
- By providing proper hutment and toilet facilities for construction labour in the form of portable toilets.

- Through the proper disposal of waste water generated at site with its final outfall to municipal sewers.

(iv) Construction Wastewater

Wastewater generated from the site during the construction contains suspended materials, spillage and washings from the various areas which can be hazardous and should not be mixed with the sewage water or allowed to percolate into the ground.

Mitigation Measures

- A separate drainage should be provided for the construction wastewater and collected in a separate basin.
- The water should be discharged into the sewer after pre-treatment including filtration and removal of contaminants to the standards prescribed for disposal.
- Sewage generated from the areas occupied by the construction labourers have to be directed into the existing sewage drain of the area. In case of non-availability of the sewer system, an onsite decentralized treatment system has to be provided.

(v) Impacts on Groundwater Quality.

No hazardous chemical and material will be used in the development and construction phase of a project. Debris and wastes generated during this phase will be collected and disposed suitable. Therefore, possibility of contamination of ground water will be negligible. The quantity of water used during construction will be 12 KLD, provided from private tankers. Hence, no impact is anticipated on the ground water quality during the construction phase.

Mitigation Measures

Solid waste generation during construction phase will be negligible. However, a well-planned solid waste management plan will be followed during the construction phase including timely collection, segregation and disposal as per legal requirements. All the solid waste generated during construction phase will be managed as per solid waste management & handling rules, 2000, by hired agency.

4.2.4.2 Operational Phase

(i) Surface water Hydrology

Impact

The sewage effluents generated from the Residential Complex will be collected through the sewer line network provided in scheme, collected sewage effluents will be treated in STP of

375KLD (20% higher capacity to total waste water generated). The treated sewage will be recycled for different low end usage and the balance water after treating up to secondary treatmentwill be discharged into the municipal sewers.

Therefore, anticipated impacts on the surface water quality during post construction phase would be insignificant in nature.

Mitigation Measures

It is proposed to provide rainwater harvesting across the project site. The roof tops of buildings will also be connected to the rainwater collection system. This will not only reduce the pressure of storm water management system of the city but also recharge groundwater.

(ii) Ground Water Hydrology

Impact

During post construction phase, out of total water requirement of 364KLD, 229 KLD of fresh water will be met from the municipal supply available in the region and rest 135 KLD will be recycled water. 310KLD wastewater will be generated from the project out of which will be treated upto tertiary level and shall be reused for horticulture, DG set and other low end use. The requirement of water will be met by municipal water supply. The developer shall make internal distribution network of water in the proposed project. Underground water tank of required capacity will be provided and over-head tanks will provided for water storage.

Mitigation Measures

The proposed rainwater harvesting will recharge groundwater aquifers from the open areas as well as roof top of the buildings. Treated wastewater from the site will be recycled for landscaping and D.G. Set cooling to further reduce demand on ground water resources.

As indicated in baseline environment conditions, plenty of ground water sources in the area are available. Further, rainwater harvesting will also recharge groundwater aquifers. Therefore, no impact is anticipated on ground water resources due to proposed project as no abstraction of ground water is proposed.

Water meters conforming to Indian standards should be installed at the inlet point of water uptake and at the discharge point to monitor the daily water consumption. To further lower the water consumption, options of Low flow flushing systems, sensor based fixtures, waterless urinals, tap aerators etc will be explored.

(iii) Surface Water Quality

Impact

Upper Lake, Hatayekheda Lake, Kaliasot Damand Shahpura Lake are about 09 Km, 11.0 Km, and12.0 Kmrespectively from the site.No discharges from the project site will be made to any surface water body. The spare treated sewage will be discharged to municipal sewers for which permission from municipal authorities have already been obtained.

However, in the event of excessive rainfalls the surplus runoff will be guided into natural drains flowing along the periphery of the colony. Number of rain water harvesting pits proposed during operation phase will be 5.

Total Runoff potential before construction will be 139.5m^3/hr
Total Runoff potential post construction = 414.6m^3/hr

Thus, there will be as increase of 297% in the total runoff volume post construction due to increase in paved area.

Mitigation Measures

As no significant impact is anticipated on the water bodies of the region, so no mitigation measures are suggested. Rainwater is generally devoid of any impurities and can ensure good quality water if certain precautions are taken:

- Catchments such as roofs should be accessible for regular cleaning and ensuring no dead animals etc are present onthe surface.
- The roof should be made of non- toxic material, havesmooth, hard and dense surface which is less likely to bedamaged allowing release of material into the water. Roofpainting is no advisable since most paints contain toxicsubstances and may peel off.
- All gutter ends must be fitted with a wire mesh screen and a first flush device must be installed. Most of the debris carried by the water from the rooftop like leaves, plastic bags and paper pieces can be arrested by the mesh at the terrace outlet and contamination can be prevented to a large extent by ensuring that the runoff from the first 10-20 minutes of rainfall is flushed off. Remaining contaminants like silt and blow dirt can be removed by installing appropriate filters.
- No sewage or wastewater should be admitted into the system.

- No wastewater from areas likely to have oil, grease, or other pollutants should be connected to the system. For runofffrom parking lots and roads, grease filters etc may benecessary to prevent risk of contamination from chemical spillage.

(iv) Ground Water Quality

Impact

The storm water from the site will be used for recharging groundwater resources after adequate treatment of the storm water through oil and grease traps and filtration. The wastewater from the site is proposed to be used for landscaping only after adequate treatment in Sewage Treatment plant. Hence, no adverse impact is anticipated on the groundwater quality form the proposed project.

Mitigation Measures

The proposed Project will be well maintained. Solid waste management practices will be adopted to prevent groundwater pollution through leaching.

4.2.5 NOISE ENVIRONMENT

4.2.5.1 Construction Phase

Impact

During the construction phase of project, noise will be generated from the various sources. Some major sources of noise generation at project site are listed here under:

- Generation of noise during movement of vehicles carrying materials and loading & unloading activities.
- Generation of noise from excavation machines, concrete mixer and other construction machines.
- Generation of noise during the operation of DG set.
- Generation of noise during concreting, hammering, etc.

All the above-mentioned sources at proposed development and construction activities will be intermittent and would be experienced occasionally.

Table 28: noise intensity of different construction instruments

From vehicles bringing materials to the site	70 dB (A)
DG set (with acoustic enclosures)	75 dB (A)
Excavation	80 dB (A)

Concrete Mixtures	80 dB (A)
Hammering	80 dB (A)

Mitigation Measures

To minimize impacts of noise generation from construction activities, the workers will be provided with ear muffs and other protection devices. Silent type D.G. Set with anti vibration pads will be installedfor noise and vibration control.

4.2.5.2 Operational Phase

Impact on Noise

The main sources of noise from the project are running of D.G. Sets and vehicular traffic. D.G. Sets installed in the proposed scheme will provide emergency electricity supply during power failure. This will be intermittent and for short durations. The vehicles plying within the site will be mainly of the residents and workers and hence are notexpected to cause unnecessary noise. Hence, during this phase, no major impact on noise environment is anticipated.

Mitigation Measures

D.G. Sets will be fitted in acoustic enclosures to control the noise generated. Adequate personnel protective equipment (PPE) will be provided to the personnel engaged in D.G. Set room. The traffic noise will diminish within a short distance from the source of origin. Honking within the site will be discouraged. Proposed plantation will further restrict the noise on either side of the plantation.

4.2.6 BIOLOGICAL ENVIRONMENT

4.2.6.1 Construction Phase

The project site is relatively free from vegetation and animals except some species of grasses & bushes. There will be no cutting or felling of plantation as the site is vacant. The road side plantation will be started during construction itself. Site is without any type of low laying area or fauna. Study area is predominantly Tropical Dry Deciduous type vegetation. Hence, no significant impactswill be there.

4.2.6.2 Operational Phase

Impact

Biological impacts on ecosystem are typically predicted in two ways.

- Professional judgment based upon knowledge of the biota and habitat, present knowledge of the impending impact resulting from similar studies and common sense.
- Similarity models based upon simplifying assumptions and knowledge of the biota & habitat within the study area, which is predominantly agricultural, these are no reserve forests and no endangered species in the core zone.
- Increase of green cover, avian fauna, butterflies, etc and hence pollination.

Mitigation Measures

The change in land use profile of core zone shall induce some impact on biological environment, though this impact will be limited to the maximum extent in the core zone alone & is inevitable. Although there would be some traffic increase in the buffer zone and increase in the fuel consumption in the core zone of the project area, but its impact is not envisaged to be significant on the biological environmental of the buffer zone.

In the core area there is no reserve forest to be cleared which could affect the normal functioning of food chain, food web, prey-predator relationships locally. Hence as such, no impact is predicted on the biological Environment in the core zone.

Turf area shall be minimized and vegetative area shall be increased.Plantations of species will be done that are native to the area, fast growing and with good canopy cover.

Threat to Biodiversity

As such there will not be any threat to biodiversity at the project site as a whole area is totally denuded and does not have any water body also to support aquatic life. There is no existing vegetation as the area has been previously developed for such schemes and is totally denuded.

4.2.7 SOCIO-ECONOMIC ENVIRONMENT

4.2.7.1 Construction Phase

During the development and construction of proposed Complex, about 100 to 200 skilled, semiskilled and unskilled workers per day will get direct employment opportunity, which will have beneficial impact on the socio-economic conditions of the area.

(i) Construction Camp

Impact

During the development and construction phase most of the labours will be coming from local areas termed as temporary workers and rest permanent skilled workers, as proposed project will develop gradually in the time span of approximately 1.5 years.

Therefore, labour camp will be constructed to accommodate the permanent laborers at the project site. Suitable measures will be taken for their welfare at the site to mitigate anticipated impacts.

Mitigation Measures

Suitable measures will be taken at the construction camps to mitigate anticipated impacts due to temporary accommodation of laborers such as provision of clean drinking water, adequate toilet facilities, medical aid, crèche facilities for the children of workers, water and solid waste disposal system.

Other safety precautions to be maintained at work site including provision of PPEs, guarding of dangerous machine parts, maintenance of equipments as hoists and lifts etc, and adequate provision of different types of fire extinguishers will be made. All applicable rules and regulations pertaining to workplace health and welfare of workers will be adhered to.

Facilities for construction workers

- The project proponent would provide safe and hygienic working condition for the workers.
- Crèche facilities would be established to children of labour.
- Drinking water and sanitary facilities will be provided.
- Clean fuel will be provided
- Medical facilities will be maintained at readily accessible place where necessary appliance including sterilized cotton, wool etc shall be available.
- Pep talk, routine inspection, housekeeping of site would be carried out.

(ii) Land use

The existing land use will not get altered from the project as the current land use of the project is residential as per the Bhopal Master Plan 2005 and the proposed development will be as per the approval and building bye-laws. Earlier the land use was barren; hence, no agriculture land is going to be affected by the proposed scheme.

(iii) Economic Impacts

Relatively long-lived economic impacts of the development and construction phase are likely to be experienced in local area for the duration of construction phase 1.5 years as workers make everyday purchases from local traders in nearby areas. This is likely to give a short-lived stimulus to the traders that may disappear as soon as the construction is complete. Noticeable, flow-on economic impacts will be experienced in other sectors of economy as a result of purchase of construction materials and the payment of wages and salaries to the personnel engaged in the development and construction of Complex. Once the development and construction of proposed complex will complete, there will be some long-term positive impact on the economic structure of the area. People in the area will get direct / indirect employment opportunities and other benefits from the residents of the proposed complex. Therefore, overall positive impact is anticipated on economy of the area due to development and construction activity of the proposed complex.

4.2.7.2 Operational Phase

Impact

There will be no predominant potential impact on the socio-economic environment as the proposed project site is a barren land. Adequate compensation has been provided to the landowners by the authorities and now the land use of the present area is residential as per Bhopal Master Plan, 2005.

Project will provide adequate employment opportunities to the local people. During post construction of proposed project, more than 500 persons will get direct employment opportunity to be engaged in management, maintenance and security.

Mitigation Measures

To further improve the socio-economic conditions of the area, it may be proposed toemploy mainly local people as workers. Much of the maintenance arrangements may alsobe made with local companies and purchase of new parts from the local market. TheEMC shall be responsible for implementation of the environment management plans andthe pollution control measures to ensure that no disturbance is caused to the surroundingareas by the scheme activities.

4.2.8 AESTHETIC ENVIRONMENT

Impact on Aesthetics, Sensitive Targets

There is no scenic amenity or landscapes around the project site which will deteriorate due to proposed project. The surrounding vicinity shall be aesthetically improved as far as possible. There are no sensitive targets like religious and historical places, archaeological monuments.

4.2.9 SOLID WASTE

4.2.9.1 Construction Phase

During construction phase, Solid waste generated will include waste from labour camps, construction and other wastes. The construction wastes also include excavated soil and sand, brick bat, metal, bitumen, cement bags, cartons etc.

Mitigation Measures

Implement waste management plan that identifies and characterizes every waste associated with proposed activities and which identifies the procedures for collection, handling, and disposal of each waste arising.

Colored litter bins will be provided in the open areas. Construction waste/ debris will be collected and suitably used on site as per construction waste management plan and rest will be disposed off through hired agency.

4.2.9.2 Operational Phase

During operation phase impact on component of Valued Eco System (like soil, ground water, surface water and air quality) can occur if solid waste is not disposed properly. The following impact may take place:

- Ground water contamination by leachates generation due to non-scientific dumping of solid waste
- Surface water contamination by the runoff from the dumping site
- Bad odour, pests, rodents, and windblown litter in and around the waste dump.
- Generation of inflammable gas (e.g. methane) within the waste dump
- Bird menace above the waste dump which affects the flight of air craft
- Fires within the dump

Table 29: solid waste generation potential (kg/day)

Total Solid waste generated	**Approx.1730 Kg/day**
Horticulture Waste	11Kg/Day
E-Waste (0.15 kg/C/Yr)	1.02 Kg/Day

Mitigation Measures

Solid waste from site will be collected on a daily basis and managed as per MSW management and handling rules, 2000, through hired agency. The detailed process of handling the waste is described in section 2.

4.3 Transport Linkage and Traffic

4.3.1 Construction Phase

Impact

During development and construction phase,vehicles carrying labour and construction materials will approach the project site. The proposed scheme is well connected to neighborhood, where public transport facility, like, buses and minibuses are easily available in the area as transport linkage. The project site is easily accessible.

During construction phase, some impact is anticipated on the transport linkage of the area, however increase in traffic will not adversely affect the local traffic pattern since the site is well connected by network of roads running adjacent to the project site. Site is well connected to Kolar road by a 24 m wide road. As the proposed project is group housing, labour and construction material would not be transported in bulk. Construction material will be transported in little amount as per the convenience of the plot owner, this will reduce peak traffic load bringing construction material and labours at the site.

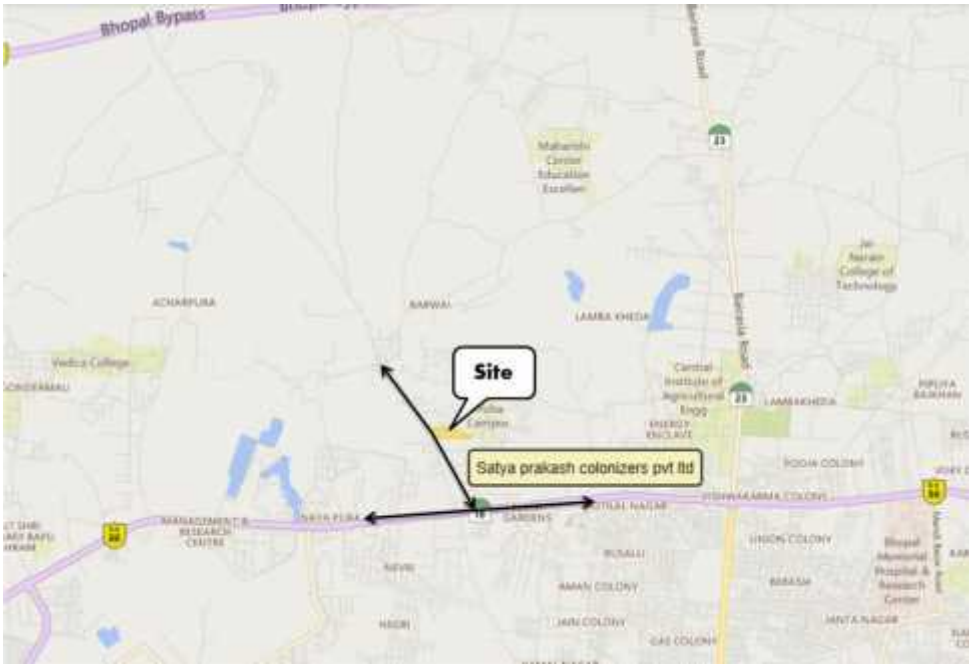


Figure 18: Map showing Connectivity of Roads Around the site

Mitigation Measures

The vehicles from the project will increase car and two wheeler traffic load on roads during peak hour. However, since present load is lean, increase in traffic load may not lead to traffic congestion problem. Once construction work finishes, heavy traffic volume will decrease and that will further improve traffic condition in the area.

Additionally, the proposed construction site is well inside the road and there would not be sudden influx of vehicles on the road from the proposed project. The available width will provide sufficient merging space for the vehicles while meeting the road. Hence it can be concluded that traffic impact is not a significant adverse impact from the construction and operation of the proposed project.

4.3.2 Operational Phase

Impact

It is observed from the traffic count that the maximum capacity of the road utilized near site in the morning and evening peak hours are about 56% and 59% respectively. The vehicle from the project will increase car and two wheeler traffic load along the road during peak hours. However, since present load is lean, increase in traffic load may not lead to traffic congestion problem.

Mitigation Measures

The project complex will have one traffic entry and exit from 24 m wide road on North West. For internal circulation, roads having width of 9 m and 6 m will be provided for smooth circulation of traffic. The entry/exit points have been marked on the layout plan. The project site is well connected to network of roads leading from various parts of the city.

4.4 Energy Resources

Construction Phase

Electric supply will be provided by Madhya Pradesh KshetraVidyutVitran Company Limited. During construction phase, power requirement will be kept minimum~ 100KVA and construction work will be done gradually in about 1.5 years. Therefore, energy resources will not be affected significantly.

Operational Phase

Impact

During the operation phase of the project, 1620 KW (2025 kVA)electric supply will be provided from Madhya Pradesh KshetraVidyutVitran Company Limited supplemented with 1 DG sets of 25kVA. The proponents will make arrangements for meeting any electricity shortage for the project. Therefore, energy resources of the region will not be affected significantly.

Mitigation Measures

To promote energy conservation, it is proposed to provide the buildings with low energy consuming fixtures maximize availability of natural light and make plans in conformance to the sun's path.

- The water supply pumping system will be provided with variable speed drive to conserve energy at part load.
- Maximum utilization of natural light.
- CFLand LEDs lamps will be used.
- 20% street lighting will be powered by solar lighting. LEDs will be used in place of sodium lamps.
- The DG sets will be automatically controlled to optimize the usage based on the actual load requirement at any given time. These measures will effectively cut down the electricity/ diesel consumption.
- Glazing glass: to keep the U value as per ECBC.
- External glazing will be below 40% of the total vertical Surface as per ECBC.

4.5 Impact on sensitive targets

The sensitive targets include the following:

1. Religious and historical places.
2. Scenic areas
3. Health resorts
4. Seismic Zone
5. Areas of scientific and geological interests
6. Defense Installations
7. Airports

There is no anthropological or archaeological site or artifacts nearby. There shall be no activity of the present scheme which would cause any impact to any sensitive target.

4.6 Impact Matrix

Various activities from the proposed project scheme are likely to have some impacts on the environmental constituents during its construction as well as functional phase. The impact assessment matrix given in **Table30** reveals the impact associated with each activity of the project on various environmental parameters during construction and function phase respectively before any mitigation measures are implanted.

Table 30: Impact Matrix

Environmental Parameters	**Nature of Potential Impacts during Construction and Function**							
	Local	**Regional**	**Short Term**	**Long Term**	**Reversible**	**Irreversible**	**Adverse**	**Beneficiaries**
Topography	√							
Drainage	√							
Soil	√							
Water Resources	√	√			√		√	
Water Quality	√							
Land Use	√					√		√
Air Quality	√	√			√		√	
Noise	√	√			√		√	
Flora	√					√	√	
Fauna	√					√	√	
Employment	√					√		√
Aesthetic	√					√		√

CHAPTER 5
ENVIRONMENTAL MANAGEMENT PLAN

5.1 Preamble

The Environmental Management Plan consists of a set of mitigation measures, management, monitoring and institutional measures to be taken during implementation and operation to eliminate adverse environmental impacts, offset them or reduce them to acceptable levels. The present Environmental Management Plan addresses the components of environmentally affected area during construction of the project and by the different activities forming part of the processes.

In the process of project planning, an EMP needs to be formulated to ensure that resources are used with maximum efficiency, waste minimized, residuals are treated adequately and products are recovered and recycled to the extent possible. The overall strategy should not cut down pollution control costs but should also result in savings in the cost of operation.

Welfare Associations, formed by the participation of people in the proposed project, can greatly assist in proper management of project. The committee can educate residents regarding rules and regulation formed by the committee. This can help achieve sustainable development, increased standards of living and also maintain ecological balance in the proposedproject.

Following table 31,will list the predicted impacts and their mitigation measures to be followed:

Table 31: Summary matrix of predicted impacts and mitigation measures

S. No	Environmental components	Potential impacts	Potential source of impact	Controls through EMP & design	Impact evaluation	Parameters for Monitoring
1.	Groundwater Quality	Ground water contamination	<u>Construction Phase</u> ▪ Waste water generated from Labour tents. ▪ Spillage of hazardous construction material such as oil, paints, tar, adhesive, sealants etc. and subsequent leaching	▪ Septic Tank, Mobile STP ▪ Limited use of hazardous material ▪ Effective storage to avoid spillage ▪ Proper disposal, in case of spillage, as per Hazardous Wastes (Management,Handling and Transboundary. Movement) Rules, 2008	No significant impact as majority of laborers would be locally deployed. If uncontrolled, the impact would be long term and significant. But, with effective control, anticipated impact is insignificant.	• No discharge hoses in vicinity of watercourses. • Discharge norms for effluents as given in consent to operate by MP State Pollution Control Board. Log books, records of storage and usage of hazardous construction material
			<u>Operation Phase</u> ▪ Sewage disposal	• No sewage shall be discharged into water or land. ▪ Waste water will be treated in on site STP for	No significant negative impact on ground water quality envisaged.	• No discharge hoses in vicinity of watercourses • Discharge norms for effluents as given in consent to operate by MP State Pollution Control Board.

			▪ Maintenance activity like repair, paints which involve hazardous material such as oil, paints, tar, adhesive, sealants etc and subsequent leaching	recycling and residual secondary treated water will be discharged into Municipal Sewer. ▪ Limited use of hazardous material ▪ Effective storage to avoid spillage • Proper disposal, in case of spillage, as per Hazardous Wastes (Management,Handling and Transboundary. Movement) Rules, 2008		
2.	Groundwater Quantity	Ground Water Depletion	<u>Construction Phase</u> ▪ No ground water will be use for construction work. Private tankers will be employed for supply of required water.	• Controlled use of water supplied through tankers. • Rain water collection in temporary pits along the low lying areas of slope. • Use of treated CSTP water or surface water located nearby the site.	No significant impact on ground water quantity envisaged.	• Record of water tanker receipts • Visual inspection of temporary storm water collections pits
			<u>Operation Phase</u> ▪ Municipal supply will	• Storm water collection for	No significant impact on	• Records of proper functioning of

			be used to water supply during operation.	Water Harvesting • Recycling of tertiary treated water to reduce dependency on ground water. • Ensure drainage system and specific design measures are working effectively. • Design to incorporate existing drainage pattern and avoid disturbing the same. • Awareness Campaign for reduced water use by occupants.	ground water quantity envisaged. recycling of tertiary treated will reduce pressure of ground water RWH will help in ground water recharge. Bhopal lies in water safe region due to presence of many water bodies	STP & Dual Plumbing • Records of proper operation and maintenance of RHW pits, especially pre and post monsoon. • Visual inspection of drainage and records thereof
3.	Surface Water Quality	Surface water contamination	<u>Construction Phase</u> • Discharge of the runoff • Increased soil erosion from excavated site • Discharge of wastewater generated	• Excavation during dry season and proper management of excavated soils • Site barricading • Mobile toilets with soak pits • Proper disposal of waste	Temporary and not significant	• No discharge hoses in vicinity of watercourses • Discharge norms for effluents as given in consent to establish by MP State Pollution Control Board. • Visual inspection of temporary

				water		storm water collections pits
			Operational Phase • Discharges from the project site made to any surface water body. • During rainfall, the surplus runoff will be guided into natural drains	No specific mitigation measures are suggested. Rainwater is generally devoid of any impurities and can ensure good quality water if certain precautions are taken described in section 4. Waste water will be treated in on site STP for recycling and residual secondary treated water will be discharged into Municipal Sewer.	Not significant	• No discharge hoses in vicinity of watercourses • Discharge norms for effluents as given in consent to operate by MP State Pollution Control Board. • Records of proper operation and maintenance of RWH pits, especially pre and post monsoon. • Visual inspection and well managed maintenance of drainage system.
4.	Air Environment	Dust Emissions	Construction Phase ▪ All heavy construction activities.	• Dust suppression through water sprinkling using water trucks, handheld sprays and automatic sprinkler systems. • Vehicles transporting loose construction	Not significant because dust generation will be temporary and will settle fast due to dust suppression techniques used.	• Visual inspection for minimizing dust emission at site. • Vehicle logs • Absence of stockpiles or open containers of dusty material • Construction logs • Inspection by contractors for

				material should be covered. • Compaction of soil during various construction activities. • Any dry, dusty materials stored in sealed containers or under tarpaulin to prevent from blowing. • Contractors will be advised to provide dust masks for the employed labour. • Vehicle trips to be minimized to the extent possible. • Tyre washing at entry and exit points to prevent transportation of soil and dust, to and fro from the site.		labour health and safety precautions. • Records of any medical conditions of workers, such as asthma, that could be aggravated due to dust emissions.
		Emissions of PM, SO_2, NO_2	<u>Construction Phase</u> ▪ Operation of	• Rapid on site construction • PUC certified vehicles	Temporary and not significant	• Random checks of equipment/

		and CO	construction equipment and vehicles during site development.	• Use of Improved equipments and maintenance of equipments to be operated at site. • Ambient air quality within the premises to be monitored.		vehicles logs/ manuals • The ambient air quality shall conform to the standards for PM_{10}, $PM_{2.5}$, SO_2, NOx
			<u>Construction Phase</u> Indoor air quality/ contamination	• Recovery, isolation and ventilation of spaces, especially when using any toxic materials or creating exhaust fumes. • Protection of stored on-site and installed absorptive materials from moisture damage. • Ensuring a clean job site to control potential contaminants such as dirt, dust and debris. • Cleaning up spills, and keeping work areas dry. • Avoid finish materials	Temporary and insignificant with good housekeeping practices	• Maintenance of Logs/ manual for storage and use of VOC and formaldehyde products • Employment of housekeeping staff during construction

				with high VOC and formaldehyde levels		
			<u>Operation Phase</u> ▪ Power generation through D.G. Set Operation. ▪ Emissions from vehicular traffic.	• Use of low Sulphur diesel, if available. • Stacks will be provided of adequate height (as per MoEF norms) • Stack emissions from DG set to be monitored. • Exhaust from vehicles to be minimized by use of fuel efficient vehicles and well maintained vehicles having PUC certificate. ▪ Green belt to be provided with dust absorbing species to help reduce PM levels. ▪ Walking tracks to reduce	Not significant as D.G. Set would be used as power back-up only.	• Vehicle logs to be maintained • Stack monitoring records to be maintained. • The ambient air quality will conform to the standards for PM_{10}, $PM_{2.5}$, SO_2 and NOx as given by MP state Pollution Control Board.

				the use of vehicle within premises. ▪ Ambient air quality within the premises of the proposed unit to be monitored.		
			Operation Phase • Indoor air quality/ contamination	• Perform a building flush out before occupancy. • Contaminants such as CO, CO_2 and VOCs to be dispersed by providing adequate ventilation. • Use of Green Seal low VOC paints • Prohibit smoking in common areas	Temporary and insignificant with good housekeeping practices	• Monitoring of indoor air contaminants such as CO, CO_2 and VOCs.
5.	Noise Environment	Noise emissions	Construction Phase ▪ Operation of construction equipment and vehicles during site development.	• List of all noise generating machinery onsite along with age to be prepared. • Equipment's to be maintained in good working order and operated within specified	• Significant and temporary	• Equipment logs, manuals, noise reading. • Working hour records • Maintenance records of vehicles • Site working practices records, noise reading

				design parameters. • Generation of vehicular noise • Night time working to be minimized • Implement good working practices (equipment selection and siting) to minimize noise and also reduce its impacts on human health (ear muffs, safe distances, and enclosures). • Acoustic mufflers/ enclosures to be provided in D.G Sets and large engines • Noise to be monitored in ambient air within the premises. • Vehicle trip to be minimized to the extent possible. • Use of PPE such as ear		• Mufflers/ enclosures in place • Noise reading • Vehicle logs

				muffs to onsite workers • Job rotation, if necessary		
			Operation Phase ▪ Noise from vehicular movement. ▪ Noise from D.G. sets operation	• Peripheral plantations to act as noise barriers. • Providing acoustic enclosures on D.G. Sets • Generation of vehicular noise • Vehicle trips to be minimized to the extent possible. • DG sets are to be provided within acoustic enclosures with height of chimney as specified by MoEF.	Not significant Short-term exposure within permissible limit.	• Maintain record of operations • Maintain record of vehicles
6.	Land Environment	Change in land Use	The land use of the project is residential as per Bhopal Master Plan, 2005.	-	Positive Impact	-

		Leveling and Demolition work	Topography around the proposed project is almost plain, so will not be affected during the construction and post construction phase	-	Positive Impact	-
		Soil Erosion	<u>Construction Phase</u> ▪ Excavation of top soil ▪ Loosening of soil due to movement of heavy vehicles and/or other construction activity.	• Excavated top soil should be covered with tarpaulin sheets or filled cement bags around the soil and by site barricading. • Minimize area extent of site clearance, by staying within the defined boundaries. • Creating temporary dug pits at the drainage slope of project site to collect loose soil along with run off storm water • Tyre washing at entry and exit points to prevent transportation of soil to and fro from the site.	Low and insignificant	• Site inspection to assure proper storage of excavated soil • Records of usage of excavated top soil within premises. • Records of trees planted

				• Initiation of plantation to bind soil.		
			Operation Phase ▪ Erosion of soil during rainfall ▪ Topography around the proposed project is almost plain, so no impact.	• Plantation of soil binding species • Turf/ grass lawn maintenance • RWH pits (with desilting chamber) to collect washed away soil along with run off • Use of the recovered soil from desilting chamber, along with the sludge from STP for horticultural purposes.	Positive impact	• Records of trees/ shrubs/ grasses planted • Records of proper operation and maintenance of RHW pits, especially pre and post monsoon.
		Soil contamination Waste Management (prior to site clearance)	Construction Phase ▪ Disposal of construction debris and other waste. ▪ Protection of excavated top soil.	• Construction waste/ debris will be collected and suitably used on site as per construction waste management plan. • Preventing oil spillage from D.G Sets, heavy vehicles or construction	• Impact will be local, as any waste generated will be reused for construction activities. • Spillage shall be avoided, and in case of spillage, it shall be disposed as per	• Effective cover in place. • Site boundaries not extended/ breached as per plan document. • Comprehensive waste management plan in place and available for inspection on-site. • Compliance with Municipal Solid

				equipments by proper upkeep and maintenance of machinery. • Proper storage of oil, paints, varnishes, sealants, adhesives etc. to prevent spillage. • Implement waste management plan that identifies and characterizes every waste associated with proposed activities and which identifies the procedures for collection, handling, and disposal of each waste arising.	Hazardous Wastes (Management, Handling and Trans boundary movement Rules), 2008 Not significant.	Wastes (Management and Handling Rules), 2000 and Hazardous Wastes (Management, Handling and Trans boundary movement Rules), 2008.
			<u>Operation Phase</u> ▪ Dumping of municipal solid waste on land. • Handling of waste oil from D.G. Sets. • Operation, renovation or	• Solid waste from site will be collected on a daily basis and managed as per MSW Rule. • Waste oil generated will be sold to authorized	Not Significant Negligible impact	• Inspection of the operator handling the waste. • Compliance with Municipal Solid Wastes (Management and Handling Rules), 2000 and Hazardous Wastes (Management, Handling and Trans

			repair activities using paints, varnishes, primers, repair or road (tar, bitumen), batteries waste etc	recyclers • Hazardous waste shall be disposed as per Hazardous Wastes (Management, Handling and Trans boundary movement Rules), 2008		boundary movement Rules), 2011.
7.	Biological Environment	No impact as the land was barren before construction. Increase of Green Cover Increase in avian fauna, butterflies etc, hence pollination	<u>Construction Phase</u> _	_	No impact	
			<u>Operation Phase</u> ▪ Plantations along the periphery of the complex. ▪ Green belt development including both regional and ornamental species	• Plantations of species that are native to the area, fast growing and with good canopy cover. • Minimization of turf area and increase of vegetative area.	Beneficial impact	• Inspection of the environment management cell. • Selected plants will be grown as per normal horticulture practice • Adequate provisions for water and protection of the saplings.
8.	Socio -Economic Environment	Labour activity	<u>Construction Phase</u> ▪ Discussed in detail in section 4.	• Discussed in detail in section 4.		

		Socio-economic Condition	<u>Construction Phase</u> • Employment opportunities for labourers	• Skilled, semi-skilled and unskilled labour will get employment • Improvement in their social conditions	Beneficial impact	
			<u>Operation Phase</u> • Employment opportunities for local vendors, hawkers • Boost to local market for increased demand in goods of daily need. • Labourer shall get employment due to Operation, renovation or repair activities	• Project will provide employment opportunities. • Improvement in their social conditions	Beneficial impact	
9.	Traffic Pattern	Increase of Vehicular traffic	<u>Construction Phase</u> ▪ Heavy vehicular movement during construction.	• Heavy vehicular movement will be restricted to daytime only and adequate parking facility will be provided.	No negative impact	• Maintenance records of vehicles. • Vehicle logs.

			Operation Phase ▪ Increased traffic from the proposed project.	• Vehicular movement will be regulated inside the site • Adequate parking space provided.	Moderate negative impact	• Maintenance records of vehicles. • Vehicle logs
10.	Energy	Energy Usage	Operation Phase • High energy consuming fixtures and construction material	• Energy usage for air-conditioning and other activities to be minimized. • Conduct annual energy audit for the buildings • Provided energy efficient lighting & ventilation and control of indoor environment.	Beneficial impact	• Finding of energy audit report.
11.	Fire Fighting	Emergency preparedness, such as fire fighting	Operation Phase • Malfunctioning of electrical appliances, leakage in diesel storage tanks and other operational activities.	• Fire protection and safety measures to take care of, fire and explosion hazards to be assessed and steps taken for their prevention.	Beneficial impact	• Mock drill records, on site emergency plan, evacuation plan • Monitoring of fire protection facilities (fire detectors, fire alarm, fire fighting system)
12.	Site Management	Environment Management Cell	Construction Phase • Environmental Monitoring	• The environmental Management Cell/ Unit is to set up to ensure	Beneficial impact	A formal letter from the management indicating formation of Environment Management Cell

			• Management and decision making of environmental issues	implementation and monitoring of environmental safeguards		
			<u>Operation Phase</u> • Environmental Monitoring • Management and decision making of environmental issues	• The environmental Management Cell/ Unit is to set up to ensure implementation and monitoring of environmental safeguards	Beneficial impact	A formal letter from the management indicating formation of Environment Management Cell

5.2Construction Hazards

Construction hazards consists of physical, mechanical, electrical, fire, chemical, biological, etc.

Table 32: Construction Hazards type, source and its Management Practices

Hazards	Activity/ Situation/ Source	Control Measures/ Management Practices
Physical Hazards	• Adverse weather • Bad housekeeping • Contact with hot/cold surfaces (welding and cutting) • Slips/Trip or Fall from	• Temporary Labour camps or shelter and facilities near camps • Good Work Layout, Proper Lighting and Ventilation, Display and Dos and Don'ts • Insulation, Guarding and Physical barriers, Signs or caution boards, Dos and Don'ts • Screening, Work Permit, Edge Protection, Safety lines/Harnesses, Safe means of access, Egress (e.g. scaffolding), Netting, Signs or caution boards, and Dos and Don'ts etc.

	height(steel erection bolting, fitting up and plumbing up, work over water and some deep excavation work) • Lighting etc. • Trenching and Excavation	• Fall protection in the form of guard rails and toe rails, ladders (extend a minimum of 1.8 m above the landing surface) and stairs, safety monitoring system. • Working surfaces must be kept dry to prevent slips and falls and to reduce nuisance odors from pooled water. • Good work area design and lighting equipment, measuring of illumination, use of lighting fit for purpose • Improved Safety Attitude, Safety Inspection, Use of Personal Protective Equipments (safety boots, safety nets, ear plugs, ear muffs, canal caps, safety glasses and burning goggles, face shields, apron, welding helmets and gloves). • Oxygen and flammable bottles are separated by at least 7 m when not in use. • Area around trenching and excavation should be kept clear of surface encumbrances. The trench or excavation would be shored or sloped to prevent cave-ins. Water should not be allowed to accumulate in the excavation.
Mechanical Hazards	• Hand Tools and Machines • Mechanical lifting operations, Manual Handling • Moving vehicles (Eg. Cranes)	• Periodic Inspection of tools and tackles • Standard Operating Procedures for each and every machineries • Display of Bearing Capacity, Dos and Don'ts, Caution Board (Day and Night) • Periodical mock drill and Use of Personal Protective Equipments (Burning goggles, face shields, apron, welding helmets and gloves)
Electrical Hazards	• Use of electrical and Electronic equipments	• Avoid Live Working, Use competent Person • Regular Inspection, Periodical inspection, electrical testing and maintenance, good electrical safety design, Insulation and Earthing protection etc. • The overhead power line must be de-energized and grounded before work is started.

		• Use of fuses and circuit breakers.
Fire Hazards	• Combustible/ Inflammable/Highly Inflammable materials, Electrical fire etc.	• Segregation from sources of combustion, guarding special construction if used in hazardous areas • Glow Sign Board for Fire Prone Areas, • ABC Type Fire Extinguishers, Trained Persons, Periodical Mock Drill • Controlled storage, use and disposal (e.g. limit quantities held), Fire proof storage, signs, No Smoking Zone, Emergency Plan • "No Smoking Policy", avoid or reduce; restrict smoking to designated 'low risk' areas • Limit use of static generators in hazardous areas. Use of anti-static devices • Dos and Don'ts, Use of Personal Protective Equipments
Chemical hazards	Chemical substances, Corrosives (acids, alkalis), , Irritants	• Identified storage of chemicals/Hazardous material, SOPs, • Dos and Don'ts etc. • Use personal protective equipment (PPE)
Biological hazards	Biological Agents (micro-organisms; pathogens, mutagens, carcinogens), Food Poisoning, Insects bites, etc.	• Anti-venom Injection, First Aid, etc.
Ergonomic Hazards (It include repetitive and forceful movements, vibration, temperature extremes, and awkward postures that arise from	Risk of injury to the musculoskeletal system of the worker.	• Screening, • Display of bearing capacity, • Use of PPEs • Job Rotation, • Dos and Don'ts etc.

improper work methods and improperly designed workstations, tools, and equipment)		

5.3 Green Belt Plan

Plants grown in such a way so as to function as pollutant sinks are collectively referred as greenbelts. These plants should also provide an aesthetic backdrop for persons using the site and for the surrounding community.

General principles in greenbelt design considered for this study area:

- Type of pollution likely air, noise, water and land pollution generated from the activities at the site.
- Agro-climatic zone and sub-zone where the greenbelt is located
- Water quantity and quality available in the area
- Soil quality in the area.

Green belt is designed to minimize the predicted levels of the possible air and noise pollutants. While designing the scheme the following facilities are considered:

- Site perimeter and approach road
- Along the internal roads
- In and around the office area.

To ensure a permanent green shield around the periphery planting is recommended in two phases.

- In the first phase one row of evergreen and fast growing trees (which grows up to 10- 15m) with maturity period of around three years shall be planted at 3.0 m interval along with fast growing ground covers to enhance the water holding capacity, improve the organic content and check the soil erosion.
- In the second phase after eighteen months, second row of trees with large leaf surface area with large ever green canopy and longer life span shall be planted at 6.0 m intervals.

Greenbelt Design for Site

The selection of plant species for the development depends on various factors such as climate, elevation and soil. The selection of the trees is based on their phenology (thus road side trees will not have leaf fall during summer and rainy seasons when shade is most needed). Trees with more litter fall have been avoided.

The criteria of the species are based on pollution mitigation capacity (including Particulate matter), large leaf surface area, deep root system and less litter fall. Faster growing trees with lighter canopy will be planted alternatively with relatively slow growing trees with wider canopy. Trees of about 6 m heights will be planted at 4.5 m intervals, 2.5 m away from the road curbing as per CPCB guidelines. Trees will be planted along the outer periphery at centerline of road between the set back line and the boundary of the plots. Palms and shrubs will be planted along the roads and around recreational lawns.

The list of plant species, which can be suitably planted, and having significant importance are provided in Section 4.

Greenbelt Management

It is presumed threat the selected plants will be grown as per normal horticultural practice and the authorities responsible for the plantation will make adequate provisions for water and protection of the saplings. A budgetary cost estimate is also prepared for greenbelt development.

Water Source

Tertiary treated water will be used and also water tankers at the initial stages of development of the plant.

Irrigation Method

Water hydrants may be installed at 50 m intervals to irrigate area under shrubs and ground covers.

5.4 EMP for Energy Conservation

Energy conservation program will be implemented through measures taken both on energy demand and supply sides. Energy conservation will be one of the focuses during the project planning and operation stages. The conservation efforts would consist of the following.

Architectural Design

- Public areas will be cooled by natural ventilation as opposed to air conditioning.
- Maximization of use of natural lighting and achieve minimum glazing factor through building design.
- Passive solar cooling, utilizing building shading through overhangs.
- Ensure that building envelope measures (Solar Heat Gain Coefficient (SHGC), Window Glazing U-value, and Overall Roof Assembly U-value) meet the baseline criteria of ECBC/IGBC/GRIHA.

- Ensure that the interior, exterior, common and parking area lightening power densities (LPD) meet the baseline values through 'building area method' *(Ref ECBC)*
- Design the building to eliminate or minimize tobacco smoke pollution in common/public areas
- Strategies include building orientation towards the north, appropriately designed windows to ensure day lightening, double height roof, etc.
- Design of openable areas (doors or windows), in all regularly occupied spaces of each dwelling unit providing adequate air ventilation.
- Design of exhaust systems in kitchen and bathrooms providing adequate fresh air ventilation.
- Adequate cross ventilation in design
- Proper landscaping reduces direct sun from striking and heating up of building surfaces.

Energy Saving Practices:

- Promoting use of solar power for water heating, street light and open area.
- Use of energy efficient appliances.
- Constant monitoring of energy consumption and defining targets for energy conservation.
- Adjusting the settings and illumination levels to ensure minimum energy used for desired comfort levels.
- Sunscreen films on windows to reduce heating inside buildings.

5.5 Composition of Environmental Management Cell

Environmental Management Cell (EMC)

The responsibilities of the various members of the environment management cell are given in following tables:

Table 33: Environmental Management Cell

S.No.	Designation	Proposed Responsibility
1.	President of Society	Overall responsibility for environment management and decision making for all environmental issues

2.	Secretary	Hires a consultant and fulfils all legal requirements as per MoEF/ MPPCB/ CPCB
3.	Supervisor	Ensure environmental monitoring as per appropriate procedures

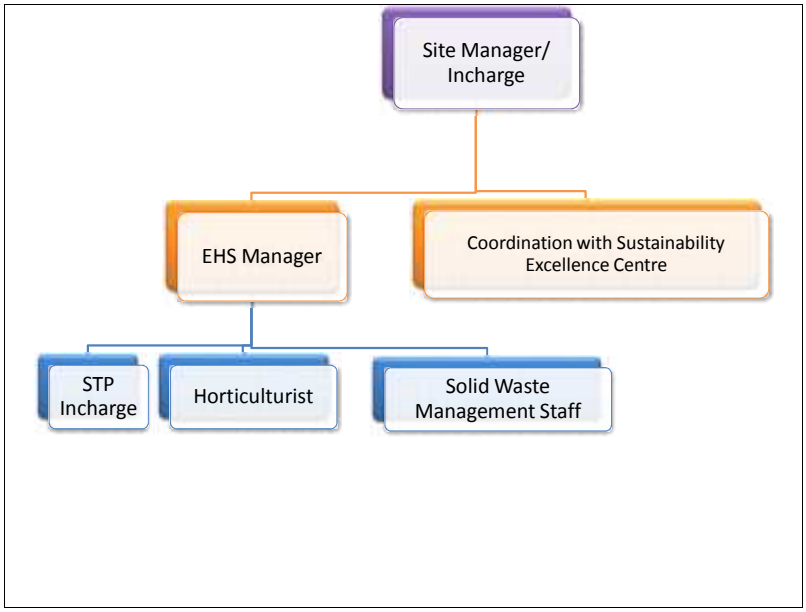


Figure 19: structure of environmental monitoring cell

5.6 Environmental Monitoring Plan

The purpose of environmental monitoring is to evaluate the effectiveness of implantation of Environmental Management Plan (EMP) by periodically monitoring the important environmental parameters within impact area, so that any adverse effects are detected and timely action can be taken to rectify.

In consultation with the Madhya Pradesh Pollution Control Board (MPPCB), the project proponents will monitor ambient air quality, noise levels, groundwater quality and quantity, soil quality and solid wastes in accordance with an approved monitoring schedule. The monitoring protocol and location selection will have to be done carefully. The monitoring sampling program shall be discussed and approved by MPPCB.

The construction phase monitoring and post project monitoring plan including areas, number and location of monitoring stations, frequency of sampling and parameters to be covered is summarized in the Tables below. The monitoring will be the responsibility of EMC.

The post operational monitoring program will be under the supervision of the Site Engineer at the project site. Monitoring will be carried out by recognized laboratories. The conditions mentioned in E.C and N.O.C. will be taken due care while post-construction monitoring.

Table 34: Environmental Monitoring Plan – Construction Phase

Source	**Monitoring Location**	**Parameters to be monitored**	**Frequency**
Ambient Air Quality	3 samples covering whole site	PM_{10}, $PM_{2.5}$, SO_2, NO_x	Pre and Post Monsoon or as per SPCB requirement.
Ambient Noise	3 samples covering whole site	Day and Night equivalent noise level	Pre and Post Monsoon or as per SPCB requirement.
Groundwater	At least two location	IS:10500 (drinking water standards)	Pre and Post Monsoon or as per SPCB requirement.
Soil	1 sample (composite)	As per standards	Pre and Post Monsoon or as per SPCB requirement.
Solid Waste Generation Monitoring/ Record Keeping	Inside and Outside the complex	Construction Waste, Hazardous Waste	To be updated daily

Table 35: Environmental Monitoring Plan – Operation Phase

Source	**Monitoring Location**	**Parameters to be monitored**	**Frequency**
DG set emissions	DG stacks	PM, SO_2, NO_2, H/C	Once in quarter or as per requirement of SPCB

DG set noise	At 0.5 m distance from enclosure	Noise level	Once in quarter or as per requirement of SPCB
Ambient Air Quality	At 3 locations (1 inside the complex i.e. basement and 2 outside in surrounding. 1 km zone along predominant (wind directions)	PM_{10}, $PM_{2.5}$, SO_2, NO_2	Once in each non-monsoon season or as per requirement of SPCB
Ambient Noise	At 3 locations (1 inside the complex and 2 outside in surrounding area)	Day and night equivalent noise level	Once in a season or as per requirement of SPCB
Solid Waste Generation Monitoring/ Record Keeping	Inside the complex	MSW, Hazardous waste	To be updated daily
STP effluent/Influent monitoring	STP	BOD, COD, pH, oil & grease and TSS	Daily

5.7 Awareness and Training

Training and human resource development is an important link to achieve sustainable operation of the facility and environmental management. For successful functioning of the project, relevant EMP shall be communicated to the following groups of people.

A. Residents and Contractors

Residents & contractor shall be made aware of the importance of waste segregation and disposal, water and energy conservation. This awareness can be provided through leaflets and periodic housing society meetings. They shall be informed of their responsibilities for Successful operation of various environmental management schemes inside the premises.

B. Site Staff

Relevant personnel at site shall be trained for the following.

- Collection, transport, treatment and disposal of solid and hazardous waste.
- Requirements of the Disaster Management Plan in case of an emergency.
- Techniques for waste minimization, water conservation and energy conservation.
- Applicable environmental healthand safety regulation and compliance requirements for the same.
- Environmental Management System including environmental monitoring, reporting and documentation needs.

5.8 Record Keeping and Reporting

Record Keeping and reporting of performance is an important management tool for ensuring sustainable operation of the complex. Records shall be maintained for regulatory, monitoring and operational issues.

5.8.1Environmental Audits and Corrective Action Plans

To assess whether the implemented EMP is adequate, periodic environmental audits will be conducted by the Environmental Division. These audits will be followed by corrective action plans (CAP) to correct various issues identified during the audits.

5.8.2 Maintenance of Proposed Project

1. The dedicated team shall be deployed for upkeep and maintenance of complex.
2. The project maintenance cell shall be situated near main gate in the main receiving station complex. It shall be managed by 24 hours.
3. The security of the complex will be assigned to a private security agency. Entrances shall be guarded by security guards for 24 hours, if in use.
4. The power consumption for lifts, pump house, street lighting and other common services shall be separately metered and charged to the occupants on monthly basis.
5. Expenditure on maintenance of lift, parks and substation equipment including replacement of bulbs and tubes for street lighting and common area will also be charged to the occupants.
6. Services like collection and disposal of garbage, sweeping of area, maintenance of drains and sewer lines shall be assigned to expert agencies and would be charged to the occupants.

5.9 Projected Expenditure on Environmental Matters

Expenditure to be incurred by M/s SatyaPrakash Colonizers, Pvt. Ltd structureon environmental matters is given below.

Table 36: Environmental Management budget

S. No.	Particulars	Capital Cost (Rs. Lacs)	Recurring Costs (Rs. Lacs/Year)
1	Sewage Treatment Plant	60	6.0
2	Rain Water Harvesting	10	0.5
3	Solid Waste Management	10	8.0
4	Environmental Monitoring	--	1.5
5	Horticulture/Green belt	20	5.0
6	Fire Fighting	20	2.0
7	Miscellaneous (Health, Safety & Energy)	6	3.0
	Total	**126**	**26lacs/year**

Table37: Environmental Monitoring Costs (Construction phase)

S. No.	Particulars	Parameters	No. of stations	Frequency	Aprox. cost /Annum (Rs.)
1.	Ambient Air Monitoring	$PM_{2.5}$, PM_{10}, SO_2,& NO_2	2 Samples covering whole site	24 hour sample twice a week for one month	15,000
2.	Water Quality Monitoring	Ground water (As per IS:10500 Drinking Water Specifications)	At least 2 locations	Once in a season	18,000
		Surface Water (As per CPCB norms)	At least 2 locations	Once in a season	8,000
3.	Noise Level Monitoring	24 Hrs. Noise Level (CPCB Standards)	2 Samples covering whole site	Once in a season	8,000
4.	Soil Test	pH, Colour, Texture, Bulk Density, Organic matter, NPK, Alkalinity, Acidity, heavy metals, Alkalinity, Porosity, Permeability & WHC.	1 sample (composite)	Once a year	12,000

		Miscellaneous	10,000
		Total Cost	**Rs. 71,000**

Table 38: Environmental Monitoring cost (operational phase)

S. No.	Particulars	Parameters	No. of sample	Frequency	Aprox. cost /Annum (Rs.)
1.	Ambient Air Monitoring	$PM_{2.5}$, PM_{10}, SO_2,& NO_2	2 samples covering whole site	Pre-monsoon & Post monsoon	20,000
2.	Water Quality Monitoring	As per IS:10500 Drinking Water Specifications	At least two location	Pre-monsoon & Post monsoon	20,000
3.	Noise Level Monitoring	24 Hrs. Noise Level (CPCB Standards)	2 samples covering whole site	Pre-monsoon & Post monsoon	8,000
4.	Soil Test	pH, Colour, Texture, Bulk Density, Organic matter, NPK, Alkalinity, Acidity, heavy metals, Alkalinity, Porosity, Permeability & WHC.	1 sample (composite)	Pre-monsoon & Post monsoon	10,000
5.	DG stack emission	SPM, NO_X,SO_X,CO, HC,	As per DG	Pre-monsoon & Post monsoon	10,000
6.	STP Effluent/ Influent Monitoring	pH, BOD, COD, Oil, Grease & Total Suspended solids		Daily	80,000
7.	Miscellaneous				10,000
				Total Cost	**Rs. 1,58000**

CHAPTER 6
PROJECTS BENEFITS

6.1 General

The project would provide positive benefits such as employment for a significant number of persons, many of whom will be employed from the residing community as well as surrounding area. Additionally, the cumulative effects of this type of development would result in noticeable economic benefits for the area. The proposed project will also make a positive contribution to social infrastructure and over all residential development. The benefits of the projects are given as under.

6.2Residential Facilities

M/s SatyaPrakash Colonizers, Pvt. Ltd plan to provide excellent residential facilities. It offers for the houses to portray a modern style of living with a optimum space utilization and well-designed interiors and special features like modular kitchens with granite platform, preassembled wardrobes in bedrooms, individuals split type air-conditioned units as per designed, 24 hour manned security on entrance gate, water supply through underground lines / overhead tanks, fire detection system as per norms. These units are characterized by large open spaces and comfortable lifestyle.

6.3 Landscaped area

Extensive plantation and organized green area development is one of the main objectives of the proposed development which will enhance the aesthetics within the site and improve the micro-climate of the region.

6.4 Job opportunity:

The proposed project will provide group houses and commercial space to the people. The project will also attract the middle to high-income groups to invest in the project and thusbring about economic growth of the city. Further, the proposed project shall require maintenance staff during its operation period. The local people shall be given employment in the project, thus bringing about economic benefits to the economically backward local population. During the development and construction of proposed project skilled, semiskilled and unskilled workers per day will get direct employment opportunity, which will have beneficial impact on the socio-economic conditions of the area.

6.5 Benefits to women:

The proposed facility would generate jobs for the women laborers during construction as well as during the operation phase. This will considerably reduce their travel time and therefore enable them to attend to their children and also other household chores.

6.6 Wider economic growth*:*

This project will increase the economic activities around the area,creating avenues for direct/indirect employment in the post project period. There would be a wider economic impact in terms of generating opportunities for secondary occupation such as new markets, repair and maintenance shops.

6.7 Additional Revenues for District Government: The development of land for any purpose creates both an immediate demand for services and a flow of revenues to the community from a variety of sources e.g. property tax, licenses and permits fee etc.

6.8 Corporate Social Responsibility

Corporate Social Responsibility is commitment of the company to improve the quality of life of the workforce and their families and also the community and society at large. In order to provide better facilities in term of educational, health and medical and for betterment of environment, the company is in process to negotiate with the local authorities and NGOs.

Area for CSR will be decided after the Need Based Assessment (NBA) and Focus Group Discussion (FGD) which will be decided from the following:

- Medical center or mobile medical van will provide treatment to the villagers and family welfare program will also organize from time to time.
- Installation of Community Drinking Water System and Sanitary facilities in schools
- In order to tackle the problem of clean water scarcity, treated water will be provided to the villagers of surrounding areas.
- Plantation along the road side and median.

CHAPTER 7
DISASTER MANAGEMENT PLAN

7.0 Introduction

Disaster has struck mankind from time immemorial. Disasters continue to strike unabated, without notice and are perceived to be on the increase in their magnitude, complexity, frequency and economic impact. These hazards pose a threat to the people, structures or economic assets and assume disastrous proportions when they occur in areas of dense human habitations. This has compelled the need for a comprehensive approach to prevent and mitigate disasters.

7.1 Definition of Disaster

A Disaster is called when following one or the other or more incidents occur:

- Risk of loss of human lives-ten or more in one single situation
- A situation which goes beyond the control of available resource
- Loss of property as a consequence of the incident is over Rs. 1 Crore and/or bears a potential to the above
- A situation apparently may not have much loss but its long-term severity can affect loss of life, production and property.

Disaster occur due to

Emergencies on account of:

- Fire
- Explosion
- Electrocution

Natural calamity on account of:

- Earthquake
- Lightning
- Storm
- Epidemics
- Floods

7.2 Need and Objectives of Disaster Management Plan

The Disaster Management Plan is designed to:

- Anticipate the types of disasters that are most likely to occur
- Identify the possible effects of any disaster that may occur
- Identify the preventative and mitigating strategies to deal with any possible disaster

- Involve all role players in a coordinated manner to respond to the challenges posed in disaster situations
- Procure essential goods and services for disaster management
- Identify the weaknesses in respect of capacity and skills to deal effectively with disaster situations
- Provide essential training in skills and to promote awareness and preparedness in respect of the occurrence of disasters and
- Plan in advance the relief operations that may be required or to be exercised in disaster situations.

7.3 Identification and Assessment of Hazards

This stage is crucial to both on site and off site emergency planning and requires to systematically identifying what emergencies could arise. These should range from small events, which can be dealt with by authorized personnel without outside help to the largest event for which it is practical to have a plan. Experience has shown that for every occasion that the full potential of an accident is realized, there are many occasions when some freak event occurs or when a developing incident is made safe before reaching full potential.

- The assessment of possible incidents should produce a report indicating
- The worst events considered
- The route to those worst events
- The time scale to lesser events along the way
- The size of lesser events if their development is halted
- The relative likelihood of events
- The consequences of each event

7.3.1 Disaster Preventive Measures

It is not easy to control any disaster if contingency plans are not available. For effective control of disaster adequate manpower, technical know- how, alertness and internal help are the prime requirements. It is always better to take preventive measures to avoid any disaster. In the proposed project following prevention measures will be taken to prevent disaster:

- Design, manufacture and construction of the building will be as per national and international codes as applicable in specific cases and laid down by the appropriate statutory authorities.

- Routes for escape during disaster are provided.

(ii) Guidelines for Disaster Management Plan

A Disaster Management Plan (DMP) is formulated for better and safe management. The DMP will include the following elements:

- Assessment of the size and nature of the events foreseen and the probability of their occurrence.
- Formulation of the plan and liaison with authorities, including the emergency services.
- Appointment of key personnel and their duties and responsibilities
- Action on-site
- Action off-site

7.4 Appointment of Personnel and Definition of Duties

Effective emergency plans require that, in the event of an accident, nominated individuals be given specific responsibilities, often separate from their day-to-day activities. The two principal people are the site incident controller and the site main controller. A Senior Management Personnel will be appointed to act as site main controller and a personnel Junior to him as Site incident Controller The site incident controller will take control of the incident. He or she will often be the person in charge at the time of the incident.

The responsibilities of the site incident controller include the following:

- To assess the scale of the incident (both for internal and external emergency Services)
- To initiate the emergency procedures to secure the safety of persons and minimize loss of material
- To direct rescue and fire-fighting operations until (if necessary) the fire brigade arrives
- To search for casualties
- To arrange evacuation of the building
- To assume the responsibilities of the site main controller pending his or her arrival
- To provide advice and information as requested to the emergency services.

The site main controller will be chosen from the senior management of the works with general responsibility of directing operations from the emergency control center after relieving the site incident controller of the responsibility for overall control.

The specific responsibilities of the site main controller include:

- To decide (if not decided already) whether a major emergency exists or is likely, requiring the emergency services and the off-site emergency plan
- Continually to review and assess possible developments to determine the most probable course of events
- To ensure that casualties are receiving adequate attention
- To liaise with Chief Officers of the fire and Police services.
- To arrange for a log of the emergency to be maintained
- To issue authorized statements to the news media
- To control rehabilitation of affected areas after the emergency.

7.4.1 Procedure for Treatment

On getting a signal of an emergency, the site incident controller officer will take control of the situation. First aid parties will render first aid to casualties at the place of occurrence and those requiring further treatment would be transported to the nearest hospital by ambulance. The following phone numbers will be prominently displayed in the proposed academic block:

- Fire Office
- Police Station
- Nearest Hospital
- District Administration

First Aid

It is necessary to give first aid to the persons injures in the disaster. Doctor and paramedical staff will be made ready during emergency. There will be adequate first aid facility available to meet the workload.

Repair Services

Repair of damaged parts of the buildings will be taken up. Essential public utility services viz. water, electricity and sewerage system will be maintained in the case of a disaster.

Fire Fighting Services

Required fire-fighting arrangements will be provided in the proposed Academic block. All regulations for prevention of fire will be enforced. The following provisions will be made like Automatic Fire Alarm and detection system, Manual fire Alarm, Sprinkler System,

Following three teams will be created

- Fire Fighting Team
- Rescue / Salvage Team

- Picket / Cordon Party

In case of Emergency following will be the duty of the different teams

Duties of fire-fighting team

- On hearing the fire alarm rush to the scene of Fire.
- Try to rush the fire with the help of fire extinguishers, Hose reels and Hydrants (Internal / External)
- Act as per the directions of i/c Fire Officers at site
- The members of fire-fighting teams shall enter the building in pairs
- The exit routes shall be marked.
- Do not open the doors / windows, it will fan the fire.
- Direct the jet of water at the seat of fire
- If the room is full with smoke, Do Not walk. Tie a wet cloth on mouth and crawl towards the exit.
- Help in fire-fighting to the Fire Brigade Personnel.

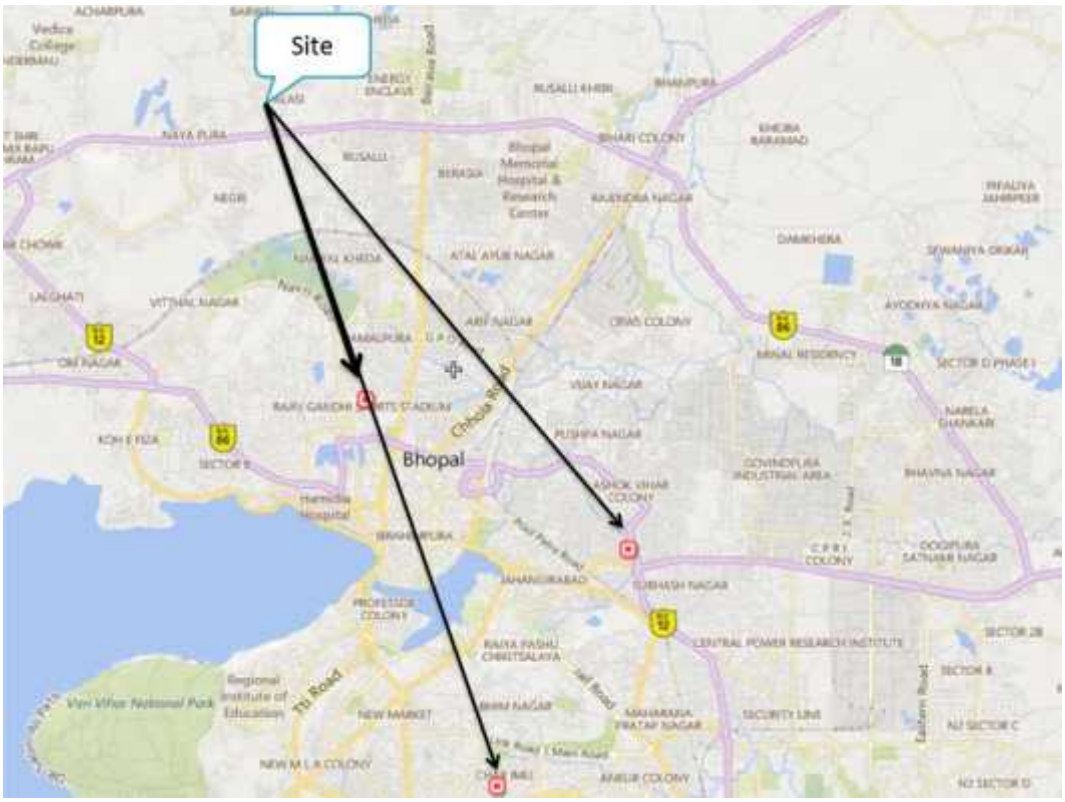


Figure20: Distance of fire stations from the project site.

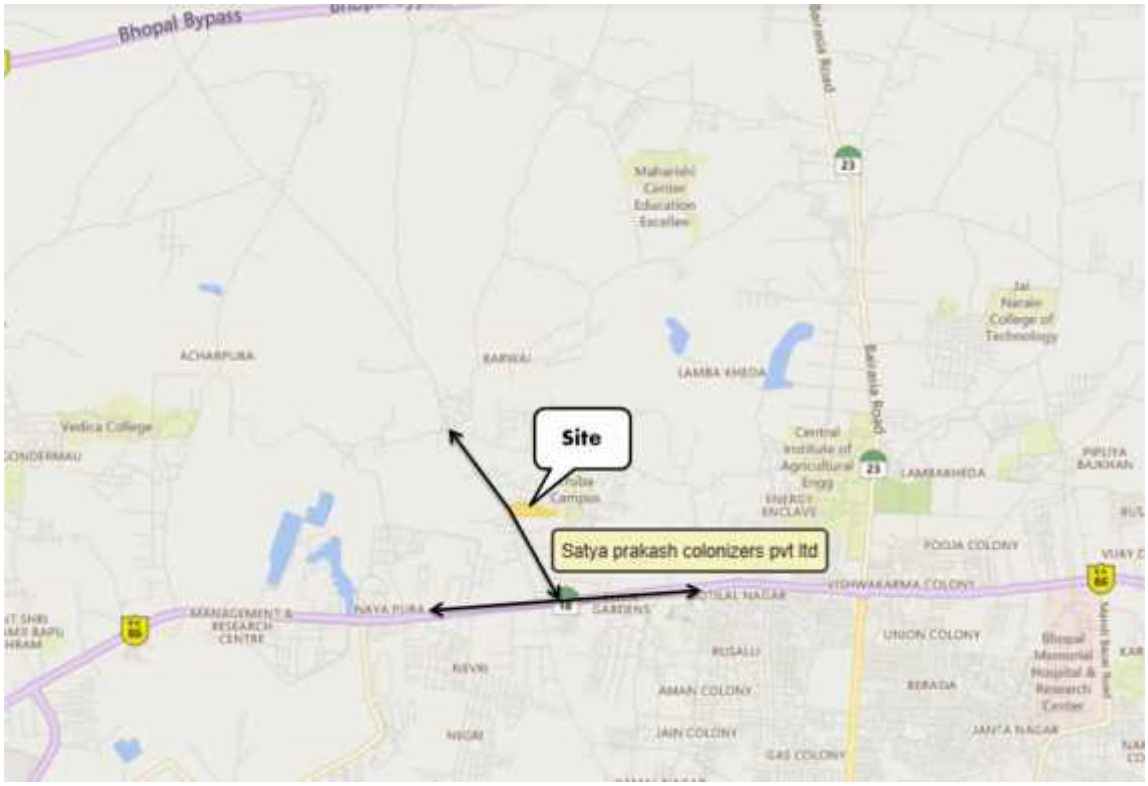


Figure 21: emergency escape route for project

Duties of rescue / salvage plan

- On hearing the fire alarm rush to the scene of Fire
- Rescue the trapped person if any inside the building
- Salvage the important documents / materials and keep them away at a safer place.
- Always enter in pairs
- Mark the Exit points
- Help the fire-fighting team after work of Rescue / Salvage is over.

Duties of Picket / Cordon Party

- On hearing the fire alarm reach the site of accident.
- Cordon the area of Fire (Building involved in Fire) as some miscreants tries to steal the material.
- Do not allow to crowd the persons who are not the members of Fire Frightening /Salvage / Rescue party
- Keep vigil on all persons assembled at the site.

Traffic Control

The free movement of the fire vehicle and ambulance at the scene of fire / emergency is very important and therefore, the security personnel on the duty ensures that all the roads at the scene of fire /emergency are kept clear and free from obstruction. Persons arriving by motor transport at the scene of fire / emergency will not be allowed to park their vehicle within 100 meters of fire.

Preventive Measures for Earthquake

An Earthquake is a series of underground shock waves and movements on the earth's surface caused by natural processes weathering the earth's crust.

- The proposed building lies in Seismic Zone-II. The proposed building will be seismically resistant and designed as per the following IS: Code.
- IS 1893:2002 Criteria for Earthquake Resistant Design of Structure
- IS 4326:1993 Earthquake Resistant Design & Construction of Buildings –Code of Practice
- IS 13920:1993 Ductile Detailing of Reinforced Concrete Structures subjected to Seismic Forces – Code of Practice

Contingency Plan

The following plan shall be followed:

- Fire-fighting Plantis activated
- Site incident controller officer takes overall charges of the situation
- Emergency controller assesses the situation for possible after effect of the fire in the plant and the surrounding areas likely to get affected
- Emergency controller Informs local authority to send fire tenders
- Emergency controller informs the people of likely affected area to leave the area and move to other area, if necessary
- Controls the traffic and law and order
- Arranges medical aid and for the affected people
- Emergency controller arranges inspection of affected area to get the first hand knowledge of damages occur

CHAPTER 8
CONCLUSION

M/s SatyaPrakash Colonizers, Pvt. Ltd is coming up with Multiunit Residential Development project named **"Nice Space"** on khasra no. 243/244/1/1/KH/3, 243/244/1/1/KA/2, 243/244/1/1/KH/2, 243/244/1/1/GHA/2, 243/244/1/1/GA/2, 243/244/1/1/DA/2, 243/244/1/1/CHA/2, 243/244/1/2/2, 243/244/1/CHHA/2, 243/244/1/1/KA/3 at Village- Badwai, Tehsil-Huzur, District- Bhopal, Madhya Pradesh, India.

It is proposed to develop a group housing project with wide roads, large open areas, basic amenities with self-sufficient civic amenities like water supply, wastewater collection and treatment along with proper solid waste management system and rain water harvesting system, all conforming to the prevailing Government norms and regulations.

Bhopal is fast emerging as an industrial/commercial hub and lot of development potential in this city is available.It offers residential apartments that are pollution free yet well connected to the outer world with community centre/ shops for the residents to spend their leisure time and relax.
Based on the environmental assessment, the associated potential adverse environmental impacts can be mitigated to an acceptable level by adequate implementation of the measures as stated in the EMP.

Hence, it may be concluded that the project will have significant positive economic and social impact on the local community apart from meeting the housing needs of the occupants, without bearing any significant adverse environmental impacts. Landscape area will enhance aesthetic beauty of site and attract avifauna and micro-fauna.

List of Annexure attached

Resolution for Violation	Annexure I
Building Permission & AAI NOC	Annexure II
NOC Water Supply	Annexure III
Garbage Disposal NOC	Annexure IV
Sewage Disposal NOC	Annexure V
Layout Plan	Annexure VI
Water Supply NOC	Annexure VII
Circulation Plan	Annexure VIII
Parking Plan	Annexure IX
Rain Water Harvesting	Annexure X
Fire Tender Movement	Annexure XI
Storm Water Drain	Annexure XII
DG set Location Plan	Annexure XIII
Fire NOC	Annexure XIV
Airport NOC	Annexure XV
Land Documents	Annexure XVI
Consultant Authorization Letter	Annexure XVII

भारतीय गैर न्यायिक

एक सौ रुपये Rs. 100

रु. 100 ONE HUNDRED RUPEES

भारत INDIA

INDIA NON JUDICIAL

मध्य प्रदेश MADHYA PRADESH

AK 155902

AFFIDAVIT

I Mehmood ali S/o Wali mohammad_aged about 52 years, resident of T-12 third floor city conter press complex Zone 1 m.p. Nagar bhopal am the director/ proponent of the project Nice space situated at Badwai I solemnly affirm that :

- "There is no litigation pending against the project and/or land in which the project is proposed and that for any such litigation, whatsoever, the sole responsibility will be borne by Project Proponent"
- "No activity relating to this project including civil construction has been undertaken at site, except fencing of the site to protect it from getting encroached and construction of temporary shed(s) for the guard(s)."

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

Deponent

IDENTIFIED BY ME

SOLEMNLY AFFIRMED BEFORE ME BY THE WITHIN NAMED

10 MAR 2016

Mahesh Kumar Choudhary
NOTARY/ADVOCATE, BHOPAL (INDIA)

Satya Prakash

SATYA PRAKASH COLONIZERS PVT. LTD.

T12 3rd Floor, City Centre, Press Complex, Zone-I, M.P. Nagar, Bhopal-462011 (M.P.)
Telephone - 0755- 2570011, Fax : 4235814
Email : spcolonizers.pvt.ltd@gmail.com, satya.prakash.colonizers.pvt.ltd@gmail.com

RESOUTION OF THE BOARD OF DIRECTORS UPON THE VIOLATION OF THE PROVISIONS OF GOI NOTIFICATION OF SEPTEMBER 2006 ON ACCOUNT OF CONSTRUCTION PRIOR TO SEEKING OF ENVIRONMENTAL CLEARANCE for Nice space.(Badwai)

1. The Board of Directors would like to humbly submit that approx 40% was constructed prior to the submission of application for grant of Environmental Clearance for the Nice space (Badwai)

2. This omission occurred purely because of a misunderstanding on the part of the management because we understood construction as being linked to the FAR Area.

3. The Board of Directors expresses their sincere regret on this mistake (which amounts to violation of the Environment (Protection) Act, 1986) and resolved to assure the SEAC that this mistake would not occur again.

4. We have stopped construction, which will not be restarted till the grant of EC or disposal of application.

5. The Board of Directors further resolves to assure the SEAC, M.P. that they will fully comply with all the general and specific conditions and envisages by the Hon'ble SEAC, M.P. it was also resolved to inform SEAC, M.P. that adequate steps shall be incorporated into the Environment Management Plan and any other conditions put forth by the SEAC, M.P. will be fully complied.

This resolution is submitted by the authority of Board of Directors of Satya prakash colonizers pvt.ltd.

For Satya Prakash colonizers pvt. ltd.

(Authorized Signatory)

REGISTERED OFFICE :
"Parishram" MADAN MAHAL CHOWK NAGPUR ROAD JABALPUR - 482001
Telephone - 0761-2425833, 2425162, 401687, Fax - 0761-245540, 4016858

विकास योजना

यह मानचित्र भूमि-स्वामित्व का दस्तावेज नहीं है

PROPOSED LAYOUT OF MULTIUNIT RESIDENTIAL DEVELOPMENT ON KH. NO 243/2/44/1/1/KH/3,243/2/44/1/1/KA/2, 243/2/44/1/1/KH/2,243/2/44/1/1/GH/2, 243/2/44/1/1/GA/2,243/2/44/1/1/DA/2, 243/2/44/1/1/CH/2,243/2/44/1/2/2, 243/2/44/1/1/CH/A/2,243/2/44/1/1/KA/2, AT VILLAGE BADWAL BHOPAL BELONGING TO (1)NIC CONSTRUCTION PVT.LTD. BHOPAL THROUGH BILAL VALI MOHAMMAD,(2)RAMKUMAR TIWARI S/O BADRIPRASAD TIWARI (3)RAM ASSOCIATE THROUGH PARTNER ABDUL AZEEM KHAN S/O LATE SH. ABDUL AZIZ KHAN AND AMBARISH TIWARI S/O H.N. TIWARI, (4)A.G. CONSTRUCTION THROUGH S.K AHUJA S/O R.C. AHUJA AND P.S. GULIANI S/O LATE N.S. GULIANI THROUGH M/S SATYAPRAKASH COLONISERS PVT LTD.

COLONISER

SATYAPRAKASH COLONISERS PVT LTD.
LIC NO 310 DATED 31/03/2011

STATEMENT OF LANDUSE

SNO.	DESCRIPTION	SQM
	AREA OF LAND	17440.
1	FAR	1:1.25
2	GROUND COVERAGE	30%
3	OPEN AREA INCL SERVICES (2860.87SQM)	16.40%
5	INFORMAL SECTOR(1092SQM)	6.26%

STATEMENT OF AREA OF PARKING
AS PER TABLE-07-16 OF BHOPAL DEVELOPMENT PLAN 2005 AND RULE 81 OF M.P. BHUMI VIKAS RULE 2012 APPROVAL DATED
@ 1050 Q.M. PER CAR UNDER STILT @ 1250 Q.M. CAR IN OPEN

MOS.	MAX.HEIGHT
FRONT -9.00 M. ALL SIDES -7.50M	24 M + STILT

INFORMAL SECTOR — Area M

TOPOGRAPHIC DETAILS — 402.NOS-(C)

BAY & LEG (1M,0.6T-02) — 668-(B)

1. ENGINEERING — 3 BIG BAY 70 NOS-(C)
2. LANDSCAPE — 2 BIG BAY M NOS-(D)

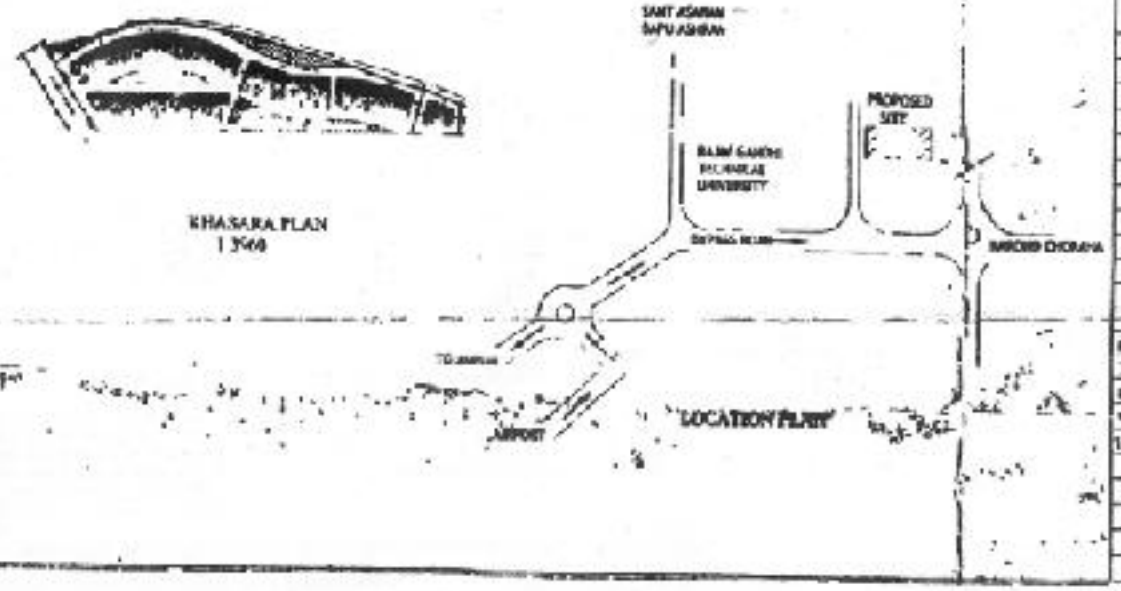
BUILT UP AREA — 1ST FLOOR 2ND FLOOR
G.F. AREA — 1ST FLOOR 2ND FLOOR
TOTAL FOOTPRINT AREA — 1ST FLOOR 2ND FLOOR

PARKING CALCULATIONS
Total plot area under planning = 17440.00 sq.m
Total Built-up area = 12743.00 x 1.25
= 21860.00 sqm
Parking req. = 1 ECS/ 100 sq.m BUA
= 218 cars
proposed parking under site = 3000.00/90 =134 +171 =171 nos(4)
BASEMENT = 1540.6/30
OPEN SCHEME = 46 (Stilt)
TOTAL = 171 + 44 Cars
= 215 Cars

AREA UNDER CON. SHOP 353.61 SQM

OWNERSHIP DETAIL

	KH NO	OWNER	AREA (HA.OT)
1	243/2/44/1/1/KH/3	NIC CONSTRUCTION PVT. LTD BHOPAL THROUGH BILAL VALI MOHAMMAD	0.242
2	243/2/44/1/1/KA/2	RAMKUMAR TIWARI S/O BADRIPRASAD TIWARI	0.050
3	243/2/44/1/1/KH/2	—DO—	0.050
4	243/2/44/1/1/GA/2	—DO—	0.231
5	243/2/44/1/1/DA/2	RAM ASSOCIATE THROUGH PARTNER ABDUL AZEEM KHAN S/O LATE SH. ABDUL AZIZ KHAN AND AMBARISH TIWARI S/O H.N. TIWARI	0.283
6	243/2/44/1/1/CH/A/2	—DO—	0.283
7	243/2/44/1/1/CH/2/2	—DO—	0.283
8	243/2/44/1/2/2	—DO—	0.065
9	[illegible]	[illegible]	0.0
10	243/2/44/1/1/KA/2	A.G. CONSTRUCTION THROUGH S.K AHUJA S/O R.C. AHUJA AND P.S. GULIANI S/O LATE N.S. GULIANI	0.242
		TOTAL	1.744 H



ARCHITECT
ARADHANA SINGH
LIC NO. 2016
COUNCIL OF ARCHITECTURE
LIC No. A/2016/70708
VALID UP TO 31/12/2020
INTERVISION, E-8, BHANWAR VIHAR, BHOPAL

OWNERS

SITE PLAN

(1) [illegible]
(2) [illegible]
(3) [illegible]
(4) [illegible]
(5) [illegible]
(6) [illegible]
(7) [illegible]
(8) [illegible]
(9) [illegible]
(10) [illegible]
(11) [illegible]

कार्यालय नगर पालिक निगम, भोपाल

कालोनी प्रकोष्ठ (शाहपुरा)

दिनांक 12/9/2013 अनुमति क्रमांक 710

मध्यप्रदेश नगर पालिक निगम अधिनियम, 1956/मध्यप्रदेश नगरपालिका अधिनियम, 1961 और इसके अन्तर्गत निर्मित मध्यप्रदेश नगर पालिका (कॉलोनाईजर का रजिस्ट्रीकरण, निर्बन्धन तथा शर्तें) नियम 1998 के अधीन निम्नलिखित शर्तों के अधीन रहते हुऐ—

श्री/मेसर्स/ मेसर्स सत्यप्रकाश कालोनाईजर्स प्रा.लि. द्वारा भूमि स्वामी 1) मेसर्स ए.जी. कन्स्ट्रक्शन द्वारा श्री एस.के. आहूजा एवं श्री एम.पी.एस. गुलियानी पुत्र स्व. श्री एन.एस. गुलयानी, 2) एन. आई.सी. कन्स्ट्रक्शन इंडिया प्रा.लि. भोपाल द्वारा श्री मो. बिलाल पुत्र श्री वली मोहम्मद, 3) मेसर्स सेम एसोसियेट्स द्वारा श्री अब्दुल अजीम खान पुत्र स्व. श्री अब्दुल अजीज खान, एवं श्री अम्बरीश तिवारी पुत्र श्री एच.एन. तिवारी, 4) श्री रामकुमार तिवारी पुत्र श्री बद्री प्रसाद तिवारी

निवासी 238—ए, शाश्वत टॉवर, द्वितीय तल, जोन 1 एम.पी. नगर, भोपाल

मोहल्ला वार्ड : नगर : भोपाल तहसील : हुजूर जिला : भोपाल को

ग्राम— बड़वई, स्थित भूमि खसरा क्रमांक 243/244/1/1/ख/3, 243/244/1/1/ख/2, 243/244/1/1/ख/1, 243/244/1/1/घ/2, 243/244/1/1/ग/2, 243/244/1/1/ङ/2, 243/244/1/1/च/2, 243/244/1/1/छ/2, 243/244/1/1/ज/2, 243/244/1/1/क/3 रकबा 1.744 हेक्टेयर की कृषि इकाई आवासीय विकास हेतु विकास कार्य प्रारंभ करने की अनुमति प्रदान की जाती है, कि—

(1) भू-राजस्व संहिता अधिनियम तथा नियंत्रण 1976 के उल्लेखित प्रावधानों अन्तर्गत विभाग अधिकारी द्वारा भूमि सीमा से प्राप्त अनापत्ति प्रमाण पत्रों में उल्लेखित शर्तों का पालन करना होगा।

(2) म0प्र0 भू-राजस्व संहिता 1959 के अन्तर्गत भू-व्यवर्तन की शर्तों का पालन करना होगा।

(3) म0प्र0 नगर तथा ग्राम निवेश अधिनियम 1973 के अन्तर्गत कार्यालय नगर तथा ग्राम निवेश से प्राप्त अनुमोदित मानचित्र क्रमांक- 1012/एल.पी.0058/29(3)/नयानि/जिका/2010—13 भोपाल, दिनांक 29/05/2013 की समस्त शर्तों का पालन करना होगा। तथा शर्त क्र. 5 अनुसार प्रस्तुत मानचित्र के पूर्व एक्सपर्ट अथॉरिटी से इस आशय अनापत्ति नगर निगम में प्रस्तुत की जाये कि सड़क की चौड़ाई ऐसी होनी चाहिये कि विनाश प्राधिकरण द्वारा अनापत्ति दी जाए।

(4) नगर तथा ग्राम निवेश द्वारा प्राप्त अनुमोदित मानचित्र अनुसार विकास कार्य कराया जाना।

(5) [illegible] विकासकर्ता/कालोनाईजर द्वारा प्रस्तुत किया गया [illegible] किया जाना अनिवार्य होगा।

(6) नगरीय प्रशासन एवं विकास विभाग के आदेश दिनांक 26/05/2010 अनुसार कॉलोनी में कॉमन इन्फ्रास्ट्रक्चर प्लॉट (एस.टी.पी.) प्रस्तावित किया जाना अनिवार्य होगा एवं सेटेलाईट टॉउन से उपलब्धता की अनुमति स्थान पर छोड़ना होगा एवं इसका व्ययभार आवश्यकतानुसार आसपास की कॉलोनियों के साथ किया जाना आवश्यक होगा।

(7) विकासकर्ता संस्था को यह बाध्यता होगी कि वह अपनी भूमि/कालोनी से लगी कालोनी/भूमि से तल, मल निकास का सामंजस्य करते हुए ही विकास कार्य करें एवं अनरिकार्डेड (Unrecated) जल, मल की किसी भी दशा में सार्वजनिक अथवा अन्य किसी स्वामित्व की भूमि पर प्रवाहित नहीं किया जा सकेगा।

(8) रेन वाटर हार्वेस्टिंग प्रावधान अनुसार रेन वाटर हार्वेस्टिंग अनुमति स्वीकृत किया जाना अनिवार्य होगा।

(9) मध्यप्रदेश नगर पालिक (कॉलोनाईजर का रजिस्ट्रीकरण निर्बन्धन तथा शर्तें) नियम 1998 के [illegible] सहित अन्य समस्त संबंधित शर्तों एवं माह माननीय [illegible] दिनांक 19/[illegible] कॉलोनाईजर द्वारा सुनिश्चित किया जाना अनिवार्य होगा।

प्रभारी
कालोनी प्रकोष्ठ

[illegible]

[illegible]

210

कार्यालय संयुक्त संचालक नगर तथा ग्राम निवेश जिला भोपाल, मध्यप्रदेश

ई-5 एक्सटेंशन, पॉलिटेक्निक एरिया कोलार, भोपाल

क्रमांक / एस.टी.ओ.58 / 29(3) / ग्रा.नि. / जिला / 2010–13 भोपाल,दिनांक / 2013

प्रति,

आयुक्त एवं सक्षम प्राधिकारी,
कालोनी सेल, एकल खिड़की प्रणाली,
नगर पालिक निगम, भोपाल ।

विषय :– ग्राम बलखेड़ी तहसील हुजूर, जिला भोपाल खसरा क्रमांक 243/244/1/1/ख/3, 243/244/1/1/क/2,243/244/1/1/ख/2,243/244/1/1/घ/2,243/244/1/1/ग/2,243/244/1/1/ङ/2,243/244/1/1/च/2,243/244/1/2/2,243/244/1/छ/2, 243/244/1/1/क/3 पर रकबा 1.744 हेक्टेयर पर बहु इकाई आवासीय विकास हेतु अनुज्ञा बाबत

सन्दर्भ :– आवेदक का आवेदन दिनांक–25.3.2013 एवं
इस कार्यालय का पूर्व अनुमोदन क्रमांक 553 से 562 दिनांक -30.3.2011

उपरोक्त विषयान्तर्गत संदर्भ से ग्राम बलखेड़ी तहसील हुजूर, जिला भोपाल खसरा क्रमांक 243/244/1/1/ख/3,243/244/1/1/क/2,243/244/1/1/ख/2,243/244/1/1/घ/2,243/244/1/1/ग/2,243/244/1/1/ङ/2,243/244/1/1/च/2,243/244/1/2/2,243/244/1/छ/2, 243/244/1/1/क/3 पर रकबा 1.744 हेक्टेयर जिसका भूमि उपयोग भोपाल विकास योजना 2005 में आवासीय निर्दिष्ट है, पर इस कार्यालय द्वारा पत्र क्र.–556 से 562 दिनांक 30.3.2011 इ.ओ.एल.प्र. नगर तथा ग्राम निवेश अधिनियम, 1973 की धारा 30 (1) राजपत्रित मध्य प्रदेश भूमि विकास नियम, 2012 के नियम 27 (1) के अंतर्गत विकास अनुज्ञा प्रदान की गई थी आवेदक–मेसर्स ए. जी. कंस्ट्रक्शन द्वारा श्री. एस. के. अहूजा, श्री. एस. पी. एस. गुलियानी,निदेशक, आई. सी. कंस्ट्रक्शन इण्डिया प्रायवेट लिमिटेड, श्री मोहम्मद हिलाल एवं अन्य, द्वारा सत्यप्रकाश कालोनाईजर्स एण्ड प्रमोटर्स लिमिटेड, 127 आदर्श नगर, नागदा रोड, जबलपुर (म.प्र.) नगर तथा ग्राम निवेश अधिनियम, 1973 की धारा 29 (3) में संशोधन हेतु आवेदन प्रस्तुत किया है । उल्लेखित के परिप्रेक्ष्य में में मध्य प्रदेश भूमि विकास नियम 2012 के नियम 14 (3) (तीन) के अंतर्गत दिनांक–18.4.2013 को दो स्थानीय पत्रों में निर्धारित प्रारूप में सूचना का प्रकाशन किया गया । सूचना में उल्लेखित कालावधि में कोई आक्षेप, सुझाव या दावा प्राप्त नहीं हुआ । उपरोक्त परिप्रेक्ष्यों वर्तमान आवासीय बहुउद्देशीय विकास हेतु भोपाल विकास योजना 2005 एवं मध्य प्रदेश नगर तथा ग्राम निवेश अधिनियम, 1973 की धारा 30 (1) (ङ) एवं मध्य प्रदेश भूमि विकास नियम 2012 के नियम एवं 27(1) के प्रावधानों अनुसार प्रस्तावित उपांतरण हेतु निम्न अतिरिक्त शर्तों के आधार पर प्रदान की जा रही है :–

(1) प्रस्तावित अभिन्यास में रामपुरा श्रेणी की कुल 432 आवासीय इकाईयाँ प्रस्तावित की गई हैं एवं प्रस्तावित अभिन्यास में कमजोर वर्ग के लिए मध्य प्रदेश होगेटेड पालिका (कालोनाईजर का पंजीकरण नियंत्रण तथा शर्तें) नियम,1998 के नियम 19(2) के अनुसार मध्य प्रदेश राजपत्र दिनांक 19.4.2013 में उल्लेखित प्रावधानानुसार ई.डब्लू. एस. हेतु 25 वर्गमीटर के 39 आवासीय इकाईयों एवं एल. आई. जी हेतु 36 वर्गमीटर के 26 आवासीय इकाईयों का प्रावधान किया गया है । कृपया कालोनाईजर नियम 1998 के परिप्रेक्ष्य में इस बाबत परीक्षण कर नियमानुसार आवश्यक कार्यवाई करने का कष्ट करें । इसका अनुपालन सुनिश्चित कराये जाने के उपरांत ही नियमानुसार विकास अनुमति प्रदान की जावे ।

(2) मध्य प्रदेश भूमि विकास नियम, 2012 के नियम 21 के परिप्रेक्ष्य में आवेदन हेतु प्रोसेसिंग शुल्क रूपये 10000/- मध्य प्रदेश भूमि विकास नियम 2012 के नियम 14 (दस) सहपठित 21 (3) (क) के अनुसार विकास अनुज्ञा शुल्क–65400 कुल रूपये 75,400 रूपये क्रमशः चालान क्रमांक 56 दिनांक 20.3.2013 एवं चालान क्रमांक 89 दिनांक 11.3.2013 एवं चालान क्रमांक–36 दिनांक 21.6.2013 द्वारा जमा किये जाकर सत्यापन के अधीन है । यदि आवेदक द्वारा किये गये प्रोसेसिंग शुल्क की गणना में कोई त्रुटि परिलक्षित होती है तो शेष अंतर की राशि राजस्व बकाया के रूप में वसूलनीय होगी ।

(3) आवेदित स्थल पर स्थित एक्स्ट्रा हाईटेंशन / इलेक्ट्रिक लाईन / (टॉवर लाईन) से मध्य प्रदेश भूमि विकास नियम 2012 के नियमानुसार निर्धारित दूरी तक कुल क्षेत्र उपयोग अनिवार्य होगा । उसके पश्चात किसी भी प्रकार का विकास / निर्माण कार्य मान्य नहीं होगा ।

(4) कि.मी. से (राजस्व अभिलेख ... के अनुसार ... भूमि विकास नियम 2012 के नियम 21 (3) (ख) के अनुसार ... 211

कार्यालय नगर पालिक निगम भोपाल (म.प्र.)
(कालोनी प्रकोष्ठ)
रजिस्ट्रीकरण प्रमाण–पत्र

दिनांक 22/02/2011 रजिस्ट्रीकरण क्रमांक 510

मध्यप्रदेश नगरपालिका निगम अधिनियम 1956 / मध्यप्रदेश नगर पालिक अधिनियम 1961 और उसके अन्तर्गत निर्मित मध्यप्रदेश नगर पालिक (कालोनाईजर का रजिस्ट्रीकरण निर्बन्धन तथा शर्तें) नियम, 1998 के अधीन निम्नलिखित शर्तों के अध्यधीन :–

श्री / श्रीमती / अन्यक्ष / मेसर्स सत्य प्रकाश कालोनाइजर्स प्रा0लि0

निवासी– 127, आदर्श नगर, नर्मदा रोड,

ग्राम / वार्ड – नगर जबलपुर

तहसील – जिला जबलपुर

का एतद द्वारा कालोनाईजर के रूप में रजिस्ट्रीकरण किया जाता है कि

(1) यह म्यूनिसिपल नगर पालिक निगम, भोपाल के क्षेत्र तक के लिए है।

(2) प्रत्येक अतिरिक्त कालोनी स्थापना की सूचना कालोनाईजर को कालोनी स्थापना से पूर्व देना होगा।

(3) प्रत्येक कालोनी के लिए विकास अनुमति / लिखित कार्यों की प्रारंभ करने की अनुमति अलग से प्राप्त करना होगी।

(4) रजिस्ट्रीकरण की अवधि दिनांक तक होगी। को अवधि दिनांक 10/11/2015 तक मान्य रहेगी।

स्थान भोपाल

दिनांक 22/02/2011

टीप– कालोनी की स्थापना/विकास कार्य कालोनी में भू-खण्डों/भवनों का विक्रय या आवंटन करने के करार की तारीख तक होगी और कालोनी का विकास पूर्ण अनुमति नियमानुसार प्राप्त कर ली जावेगी।

सील

SATYA PRAKASH COLONIZERS PVT. LTD. Authorised Signatory

कालोनी प्रकोष्ठ
नगर निगम भोपाल

प्राधिकृत अधिकारी
नगर निगम भोपाल

कार्यालय नगर पालिक निगम, भोपाल
फायर ब्रिगेड, माता मंदिर लिंक रोड क्र.–3
दूरभाष: 0755–270[illegible]21
([illegible] बिल्डिंग कोड 2005 के पार्ट 4 एवं [illegible] नगरपालिक निगम अधिनियम 1956 के प्रावधानों के अनुसार)

कार्यालय क्रमांक 61....

भोपाल, दिनांक [illegible]

फायर सुझाव प्रमाण पत्र

प्रमाणित किया जाता है कि श्री [illegible] [illegible] सुनील [illegible] डायरेक्टर [illegible] [illegible] एम पी नगर भोपाल के द्वारा प्रस्तावित जी+08 [illegible] [illegible] आवासीय [illegible] के [illegible] [illegible] कजाई तहसील हुजूर जिला भोपाल के [illegible] [illegible] [illegible] भूमि के खसरा क्रमांक–243/244/1/1/ख/3, 243/244/1/1/ग/2, 243/244/[illegible]/1/ख/2, 243/244/[illegible]/4/2, 243/244/1/[illegible]/2, 243/244/[illegible]/1/क/2, 243/2[illegible]/1/1/घ/2, 243/244/1/2/[illegible], 243/244/1/ङ/2, 243/244/1/[illegible]/3 कुल रकबा 1,67,454 वर्गफीट का निरीक्षण किया गया। प्रस्तावित जी+08 आवासीय भवन हेतु फायर ब्रिगेड अग्नि दुर्घटना से बचाव हेतु निम्नलिखित सुझावों के पालन की अपेक्षा करता है :

1. प्रस्तावित जी+08 आवासीय भवन में [illegible] भूमि विकास नियम 1984 तथा नेशनल बिल्डिंग कोड 2005 के पार्ट 4 के अनुसार फायर एवं [illegible] लाइफ के समस्त शर्तों का पालन किया जावे।
2. प्रस्तावित जी+08 आवासीय भवन में [illegible] [illegible] की [illegible] [illegible] [illegible]
3. [illegible] [illegible] के [illegible] क्रमांक [illegible] 25/4/22[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] जावे।
4. [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] जिला भोपाल [illegible] [illegible] प्रस्तावित जी+08 आवासीय भवन के निर्माण की [illegible] शर्तों का [illegible] किया [illegible]
5. [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] की जावे।
6. प्रस्तावित जी+08 आवासीय भवन [illegible] [illegible] [illegible] जावे [illegible]
7. प्रस्तावित जी+08 आवासीय भवन में प्रत्येक फ्लोर [illegible] [illegible] [illegible] [illegible] लगाए जावें।
8. प्रस्तावित जी+08 आवासीय भवन में लगने वाले [illegible] फायर [illegible] आई.एस.आई. [illegible] तथा उच्च गुणवत्ता के होना चाहिए।
9. आवासीय भवन में निर्माण कार्य पूर्ण होने के पश्चात [illegible] विभाग [illegible] [illegible] निरीक्षण करवाकर फायर एन.ओ.सी. प्राप्त की जावे।

उपर्युक्त सुझाव प्रमाण पत्र [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] दिनांक 26.09.2013 को [illegible] [illegible] [illegible] [illegible] जारी किया जाता है।

कुल क्षेत्रफल 1,67,454 वर्गफीट
शुल्क राशि 20,000/–
रसीद क्र. 2262/49
दिनांक 26.09.2013

SATYA PRAKASH COLONIZERS PVT. LTD.
Authorised Signatory

प्रभारी फायर ब्रिगेड [illegible]
नगर पालिक निगम, भोपाल

[illegible]
[illegible] निगम, भोपाल

कार्यालय अनुविभागीय अधिकारी एवं उपजिला अधि. बैरसिया जिला भोपाल(म.प्र.)
क्रमांक/242/नजूल/बैरसिया/11 बैरसिया दिनांक 15/09/2011

प्रति,

मेसर्स अविनेश निगम,
डिरेक्टर्स एवांष्ट,शिवालयी नगर भोपाल

विषय–विकास अनुमति बाबत।

संदर्भ– आपका पत्र क्रमांक–042/कालएजंट/11,दिनांक 09.08.2011एवं 043/कालएजंट/2011 भोपाल दिनांक 08–8–2011

–:00:–

विषयान्तर्गत संदर्भित पत्र की साथ एनएनएक्स0.5सी ग्राम बडवाई स्थित भूमि खसरा क्रमांक–243,242/1/155/3, रकबा 0.60 एकड, 243,244/1/1 स/3 रकबा 0.60 एकड, 243,244/1/157/2 रकबा 0.64.9 एकड, 243,244/1/156/2 रकबा 0.60 एकड, 243,244/159/2 रकबा 0.16 एकड, 243,244/1/2/2 रकबा 0.254 एकड, 243,244/1/1 क/2 रकबा 0.05 एकड, 243,244/1/155/2 रकबा 0.25 एकड, 243,244/1/158/2 रकबा 0.67 एकड, कुल रकबा 4.31.5 एकड भूमि पर विकास अनुज्ञप्ति धारी जारी किये जाने की अनुशंसा की गई है

आवेदित भूमि का स्थल निरीक्षण क्रमांक–42/ए–2, 10–11 दिनांक 16.4.2011 को किया गया।

2. नगर एवं ग्राम निवेश से पत्र क्रमांक 2145/एल0पी0 05/चानि/2011 भोपाल दिनांक 27.7.2011 से आवेदित भूमि उपयोग में राजधानीय अभिन्यास के विकास अनुज्ञा कुल रकबा 1.941 हेक्टर जारी की गई थी

3– प्रकरण क्रमांक 159/1-जूल/बी–121/10-11 दिनांक 28.4.2011 रकबा 4.315 हेक्टे. का जूल अभ्यापत्ति जारी की गई है।

राजस्व निरीक्षक प्रतिवेदन तथा नगर ग्राम निवेश के विकास अनुमति के अंचार पर निम्नांकित शर्तों की पूर्ति के आधार पर ही विकास अनुज्ञप्ति दिए जाने के लिए इस कार्यालय की अभापत्ति दी जा रही है।

(ए) नगर एवं ग्राम निवेश के अनुमोदित अभिन्यास पृष्ठ क्रमांक विकास अनुमति दिनांक 30.3.11 के अनुरूप ही विकास किया जाए तथा 31 शर्तों का पालन अपरिहार्यतः किया जाए।

(बी) राजस्व प्रकरण क्रमांक 42/ए–2/10–11 दिनांक 15.4 में वर्णित शर्तों का पालन अनिवार्यतः किया जाए

(सी) सामुदायिक सुविधाओं हेतु भूमि छोड़ी जाए।

(डी) प्रकरण 159/बी 121/10–11 दिनांक 28.4.2011 से जारी जूल अभापत्ति में वर्णित शर्तों का पालन सुनिश्चित किया जाए।

(ई) शासकीय / सार्वजनिक हेतु की भूमियों पर कि.मी. पी. स्थापित की अस्थाई / स्थाई सीमांकन किया जाए।

(एफ) नगर तथा ग्राम निवेश के अनुमोदित अभिन्यास अनुरूप अन्य आवश्यक व्यवस्थायें की जाए।

(जी) शर्तों के उल्लंघन की स्थिति में यह अभापत्ति शून्यवत होगी।

उक्त उपरोक्त शर्तों के पालन की पूर्ति के आधार पर राजस्व निरीक्षक प्रतिवेदन के आधार पर विकास अनुज्ञप्ति हेतु इस कार्यालय की अभापत्ति जारी की जा रही है।

अनुविभागीय अधिकारी एवं
नायब तहसीलदार,
नजूल बैरसिया भूमि भोपाल

भारतीय विमानपत्तन प्राधिकरण
पश्चिमी क्षेत्र मुख्यालय

AIRPORTS AUTHORITY OF INDIA
WESTERN REGION HQRS.

No. BT-1/NOC/MUM/13/NOCAS/BP/271

Date : 17/09/2013

To,
M/s., Satyaprakash Colonisers Pvt. Ltd.
T-12, 3rd floor,City Center,
Press Complex, Zone-1,
M.P. Nagar. Bhopal-462011

Subject : Issue of NOC ID No.BHOP/WEST/B/070213/14866.

1. Please refer to your letter No.NIL dated 06/09/2013 on the subject mentioned above.

2. This office has no objection to the construction of the proposed building / structure / chimney by M/s., Satyaprakash Colonisers Pvt. Ltd.., Bhopal, here in after// /refered to as the applicant(s) at location Khasra No.243/244/1/1/KH5,243/244/1/1/KA/2,243/244/1/1/KH2, 243/244/1/1/GHA/2, 243/244/1/1/GA/2, 243/244/1/1/DA/2, 243/244/1/1/CHA/2, 243/244/1/2/2/, 243/244/1/CHHA/2, 243/244/1/1/KA3,Village-Badwai Bhopal, Madhya Pradesh. (23 18 27.20 – 77 22 56.51 , 23 18 25.43 – 77 22 57.87 23 18 26.35 – 77 23 7.86 2318 25.73 – 77 23 57.89 23 18 27.78 – 77 23 0..38) to height 30.00 Mtrs ABOVE GROUND LEVEL, so that the top of the proposed structure when erected, shall not exceed 501.55 Mtrs. (Site Elevation) – 30.00 Mtrs (Height of the structure) i.e. 531.55 Mtrs ABOVE MEAN SEA LEVEL.

3. This no objection certificate is being issued on the express understanding that the site elevation reduced level (height above mean sea level) viz. 501.55 Mtr, relative location of the proposed area Bldg / Structure & its distance and Bearings from the ARP / Runway ends, as tendered by the applicant are correct, if, however, at any stage it is established that the said data as tendered by the said applicant is actually different from the one tendered & which could adversely affect aircraft operations, the structure or part (s) thereof in respect of which this 'NOC' is being issued will have to be demolished at his own cost as may be directed by the Airports Authority of India. The applicant(s) is/are therefore advised in his/their own interest to verify the elevation and other data furnished for the site, before embarking on the proposed construction.

4. The issue of the 'NOC' is further subject to the provisions of Section 9-A of the Indian Aircraft Act, 1934 and those of any notifications issued thereunder from time to time and under which the applicant may be called upon by the Airports Authority of India to demolish in whole or in part the structure now being authorized vide this 'NOC'.

5. No radio/TV Antenna, lightning arresters, staircase, Mumtee, Overhead water tank and attachments of fixtures of any kind shall project above the height indicated in para 2.

6. The use of oil fired or electric fired furnace is obligatory within 8 Kms of the Aerodrome.

SATYAPRAKASH COLONIZERS PVT. LTD.

227

BHOPAL MUNICIPAL CORPORATION
BUILDING PERMISSION SECTION
PERMISSION CERTIFICATE

अपर आयुक्त महोदय द्वारा अनुमोदित

PERMISSION NO. : NC6814-3190-122013

DATE : 19.12.2013

Shri/Smt./Miss. **SATYAPRAKASH COLONIZERS PVT LTD**
S/o,D/o,W/o,Shri **BILAL MOHAMMAD** is allowed to re-erect or alter of...on the land possessed by the applicant situated at KH NO/243,244/1/1/KH/3,VILLAGE BARWAI City **BHOPAL** Ward no. 0668 Zone No. 0614 estimated cost of which comes to RS ..... for which the B.P. amounting RS. 342,500.00 has been deposited vide receipt 32/2830 dated 18.12.2013 in accordance with the enclosed plan and technical sheet subject to the condition below...

Residential/Commercial/
Residential ... Hostel
Institute/Other ... School
Plot Area 17440.00 sq.ft
Type ... Stilt+Ground+I to VII Floors

CITY PLANNER
BHOPAL MUNICIPAL CORPORATION

Under Powers delegated to the Commissioner u/s 69 (4) of M.P. Mpl. Corpn. Act. 1956

Condition :

1. This is not a ownership/property document.
2. The permission has been granted on the basis of the affidavit filed by applicant.
3. Construction should not be made on the land marked crossed in the sanctioned plan.
4. Note given on the plan are to be followed stricity.
5. Valid period of permission is one year from the date of the issue of this permission.
6. After the completion of construction a note should be given to this office for information of completion of the work. within a month as required under section 301 of the M.P. Municipal corporation Act. 1956 for which a completion Certificated shall be issued from this office.
7. No building shall be occupied for residential or commercial purpose before a Completion Certificate is obtained from the Corporation as desired under Section 301 (4) of the M.P. Municipal Corporation Act. 1956.
8. Violation of any of the above conditions will lead to automatic cancellation of this permission.

SATYAPRAKASH COLONIZERS PVT. LTD. (Authorised Signatory)

Office of the Municipal Corporation,
Zone-17, Water Works Department,
Bhopal M.P. - 462003

Letter No. 21.../WWD/ZONE 17/AE/2015 Bhopal, Date. 16/12/15

To,

SATYA PRAKASH COLONIZERS PVT. LTD.
Nice Space, Near Truba College,
Bhopal

Subject:- Water Supply Connection for Driking Water in Your Colony Name Nice Space.

This is in reference to your application dated 07/11/2015 for drinking water supply for your under Construction Township at Nice Space, Badbai. Your water demand is 275 m3/day.

Bulk connection of Nice Space is coming under nayapura ESR zone, water demand of your township is not considered in the distribution system designed and now your township is under construction and at present we have not so much water to full fill your demand.

Your water demand may be fulfilled from future if any new water supply scheme comes in Bhopal city. Then we will consider your water demand in the scheme.

(A.E.)
Water Works Zone-17
Bhopal Municipal Corporation
सहायक अभियंता
जल कार्य विभाग
नगर निगम, भोपाल
(जोन-17)

कार्यालय नगर निगम भोपाल
स्वास्थ्य विभाग

क्रमांक 707 /स्वा0वि0/2016 भोपाल दिनांक 13.12.16

प्रति

सत्य प्रकाश कालोनाइजर्स प्रा.लि.
डी 12 3rd फ्लोर, सिटी सेंटर, ऐरा कॉम्पलेक्स
जोन-1 एम.पी. नगर, भोपाल

विषय :— ओस अपशिष्ट प्रबंधन के संबंध में गारबेज डिक्लोज डावर।

संदर्भ :— आपका पत्र दिनांक 7-11-2016

—00—

उपरोक्त विषयान्तर्गत संलग्नित पत्र के परिप्रेक्ष्य में निम्न शर्तों के अधीन कंसेन्ट निर्गतानुसार है :—

1. सत्य प्रकाश कालोनाइजर्स प्रा.लि. द्वारा हुवा कालेज के पास, गेल रोड, बड़वाई, तहसील हुजूर, जिला भोपाल के खसरा क्रमांक 243/244/1/1/क/3 243/244/1/1/क/2, 243/244/1/1/ख/3, 243/244/1/1/ख/2, 243/244/1/1/ग/2, 243/244/1/1/ड/2, 243/244/1/1/च/2, 243/244/1/1/छ/2, 243/244/1/2/2, 243/244/1/2/2, 243/244/1/1/झ/3 के रकबा 1.744 हेक्टेयर स्थित "**गाईस स्पेस**" कालोनी का ओस अपशिष्ट एकत्रित कर निगम की डंपिंग साइट पर भेजा जाना अनिवार्य होगा।
2. सत्य प्रकाश कालोनाइजर्स प्रा.लि. द्वारा उक्त कालोनी में बने जाने वाले (ओस अपशिष्ट) रूपांग के व्यय का वहिनत किया जायेगा।
3. सत्य प्रकाश कालोनाइजर्स प्रा.लि. द्वारा उक्त कालोनी डंपिंग साइट पर भेजे जाने वाला कचरा जैसे हानिकारक पैथोलॉजिकल कचरा, सभी मेडिकल वेस्ट सहित हानिकारक कचरा लेकर जाना निषेध होगा।
4. सत्य प्रकार कालोनाइजर्स प्रा.लि. द्वारा उक्त कालोनी में उत्पन्न किये जाने वाले कचरे को गृहकचरा (बी.डी.ओ एवं अर्बनिक) कचरा अलग-अलग रखकर डंपिंग साइट पर भेजा जाना अनिवार्य होगा।
5. परिसर में उगते सारा कचरे को जैकर डंपिंग साइट पर जमा कराया जायेगा।
6. परिसर में होने वाला खर्च सत्य प्रकाश कालोनाइजर्स प्रा.लि. द्वारा स्वयं वहन किया जायेगा।
7. डंपिंग साइट पर किसी भी प्रकार की घटना/दुर्घटना आदि की जवाबदारी सत्य प्रकाश कालोनाइजर्स प्रा.लि. की होगी।
8. बिन्दु क्रं0-01 से 07 तक वर्णित शर्तों का पालन नहीं किया जाने पर अधिकृत नहीं की जाती है ऐसी स्थिति में संस्था को नगर पालिक निगम भोपाल के स्थाई आदेश क्रं0 7/2011 अनुसार सुपरविजन प्रभार के अन्तर्गत वर्णित प्रावधानों अनुसार राशि जमा की जावेगी।
9. सत्य प्रकाश कालोनाइजर्स प्रा.लि. द्वारा नगरीय ओस अपशिष्ट (प्रबंधन और हथालन) नियम 2000 के प्रावधानों का पालन ओस अपशिष्ट के एकत्रीकरण, पृथक्करण एवं परिवहन तथा निष्पादन में करना होगा।
10. सत्य प्रकाश कालोनाइजर्स प्रा.लि. द्वारा नगर निगम भोपाल के स्थाई आदेश क्रं0-7/2011 के वर्णित प्रावधानों का पालन करना होगा।
11. सत्य प्रकाश कालोनाइजर्स प्रा.लि. द्वारा नगर निगम भोपाल द्वारा समय-समय पर जारी निर्देशों का पालन करना होगा।
12. सत्य प्रकाश कालोनाइजर्स प्रा.लि. द्वारा हुवा कालेज के पास, गेल रोड, बड़वाई, तहसील हुजूर, जिला भोपाल के खसरा क्रमांक 243/244/1/1/ख/3 243/244/1/1/क/2, 243/244/1/1/ख/2, 243/244/1/1/ग/2, 243/244/1/1/ड/2, 243/244/1/1/च/2, 243/244/1/1/छ/2, 243/244/1/2/2, 243/244/1/2/2, 243/244/1/1/झ/3 के रकबा 1.744 हेक्टेयर स्थित "**गाईस स्पेस**" कालोनी में ओस अपशिष्ट प्रबंधन एवं हथालन नियम 2000 के अन्तर्गत गारबेज डिस्पोजल व्यवस्था तैयार जाना अनिवार्य होगा।

अपर आयुक्त
नगर निगम भोपाल

कार्यालय नगर निगम भोपाल
स्वास्थ्य विभाग

क्रमांक : 5408 /स्वा0वि0/2015 भोपाल दिनांक 17/12/15

प्रति,

सत्य प्रकाश कालोनाइजर्स प्रा.लि.
टी 12 3rd फ्लोर, सिटी सेंटर, प्रेस कॉम्प्लेक्स
जोन-1 एम.पी. नगर, भोपाल

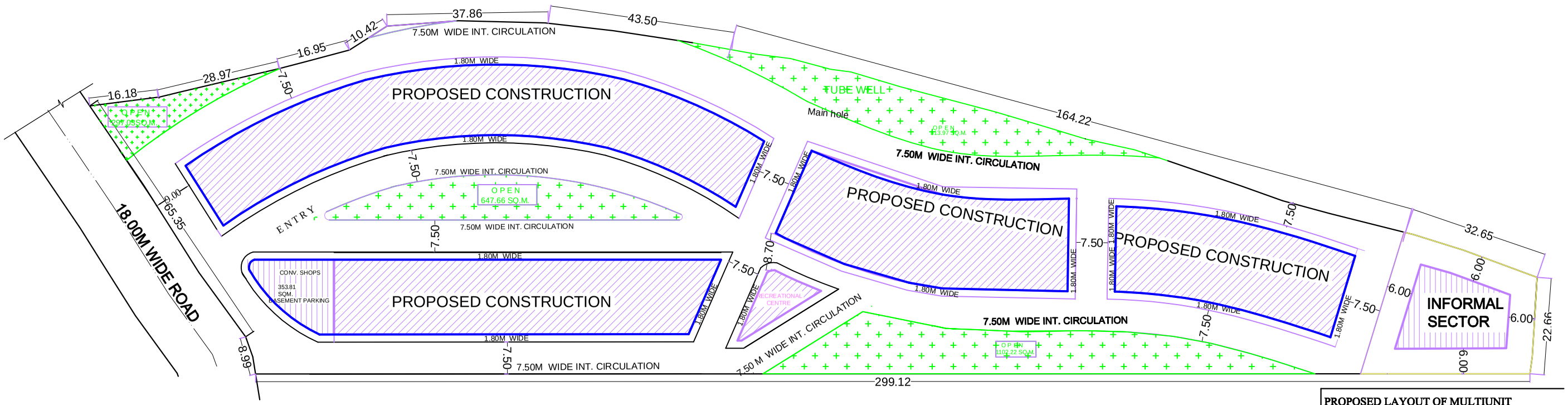
विषय :— सीवेज लाईन एवं वेस्ट वाटर के संबंध में।

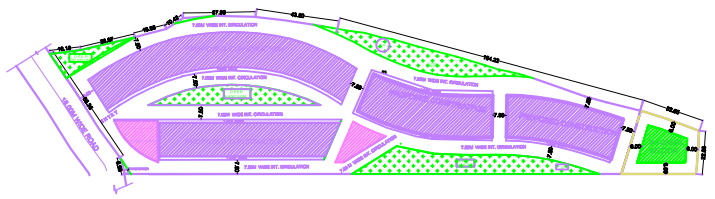
संदर्भ :— आपका पत्र दिनांक 7.11.2015

—00—

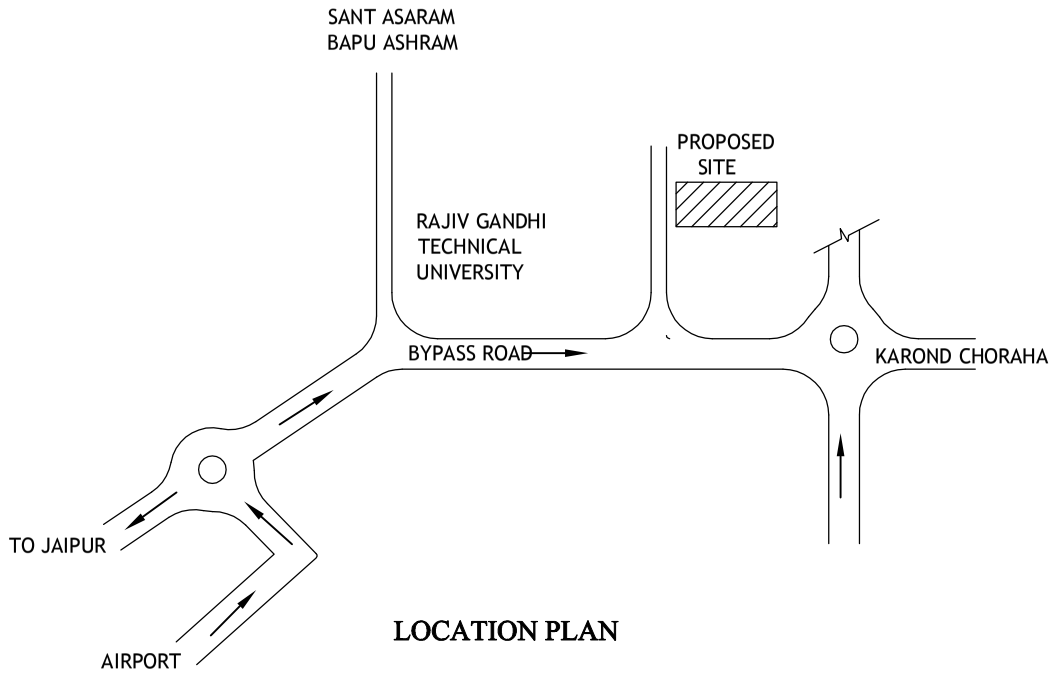
उपरोक्त संदर्भित विषयान्तर्गत लेख है कि सत्य प्रकाश कालोनाइजर्स प्रा.लि. द्वारा ईश्वा कालोनी के पास, मेन रोड, बडवई, तहसील हुजूर, जिला भोपाल के खसरा क्रमांक 243/244/1/1/ख/3, 243/244/1/1/क/2, 243/244/1/1/ख/2, 243/244/1/1/घ/2, 243/244/1/1/ग/2, 243/244/1/1/ङ/2, 243/244/1/1/च/2, 243/244/1/2/2, 243/244/1/छ/2, 243/244/1/1/क/3 के रकबा 1.744 हेक्टेयर स्थित "नाईस स्पेस" कालोनी में स्वयं के व्यय पर Under Ground Sewage System कराया जाकर सीवेज डिस्पोजल सीवेज ट्रीटमेंट प्लान्ट S.T.P. के माध्यम से किया जाकर जिसका आपरेशनल अण्डर ग्राउन्ड सीवर लाईन में डालने में होने वाला व्यय व पम्पिंग होने वाला व्यय एवं संधारण व्यय आवेदक को स्वयं वहन करना होगा तथा निगम द्वारा समय-समय पर निर्धारित शुल्क एवं शर्तें तथा नियम आवेदक पर बन्धन कारी होंगे।

स्वास्थ्य अधिकारी
नगर निगम भोपाल





KHASARA PLAN
1:3960



LOCATION PLAN

PROPOSED LAYOUT OF MULTIUNIT RESIDENTIAL DEVELOPMENT ON KH. NO.243/244/1/1/KH/3,243/244/1/1/KA/2, 243/244/1/1/KH/2,243/244/1/1/GHA/2, 243/244/1/1/GA/2,243/244/1/1/DA/2, 243/244/1/1/CHA/2,243/244/1/2/2, 243/244/1/CHHA/2,243/244/1/1/KA/3, AT VILLAGE BADWAI ,BHOPAL BELONGING TO (1)NIC CONSTRUCTION PVT.LTD. BHOPAL THROUGH BILAL VALI MOHAMMAD.(2)RAMKUMAR TIWARI S/O BADRIPRASAD TIWARI (3)SAM ASSOCI/ THROUGH PARTNER ABDUL AZEEM KHAN S/O LATE SH. ABDUL AZIZ KHAN AND AMBARISH TIWARI S/O H.N. TIWARI. (4)A.G. CONSTRUCTION THROUGH S.K. AHUJA S/O R.C. AHUJA AND P.S. GULIANI S/O LATE N.S. GULIANI. THROUGH M/S SATYAPRAKASH COLONISERS PVT. LTD.

COLONISER:

SATYAPRAKASH COLONISERS PVT. LTD.
LIC. NO 310 DATED 22.02.2011

STATEMENT OF LANDUS

SNO.	DESCRIPTION	SQ.M
	AREA OF LAND	1744
1.	FAR	1:1.2
2.	GROUND COVERAGE	30%
3.	OPEN AREA INC.SERVICES (2860.87SQ	16.4(
5.	INFORMAL SECTOR(1092SQM)	6.26

STATEMENT OF AREA OF PARKING

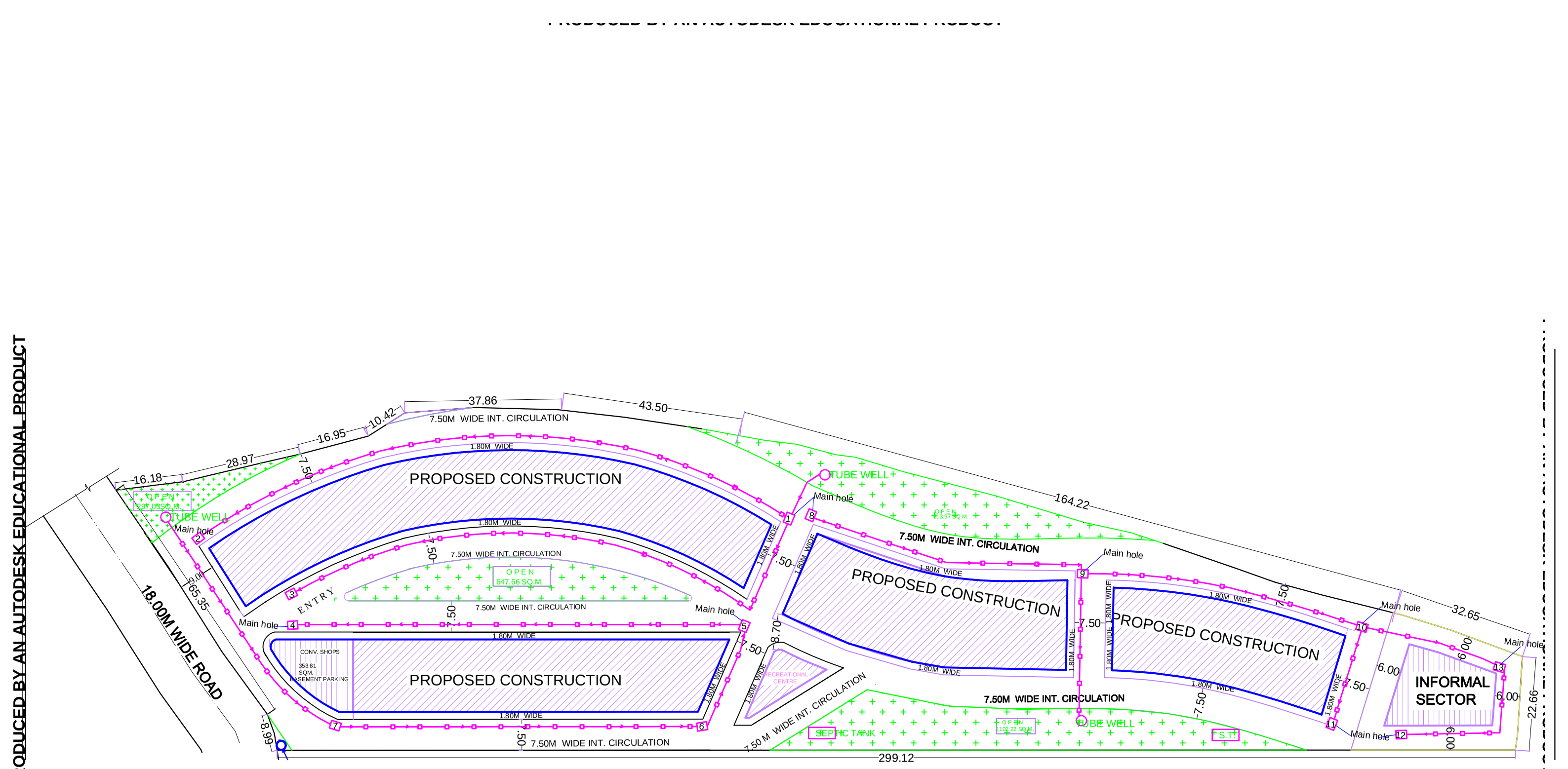
AS PER TABLE 4-T-16 OF BHOPAL DEVELOPMENT PLAN 2005 AND RULE 81 OF M.P. BHUMI VIKAS RULE 2012 APPENDIX L & LA @ 30 SQ.M. PER CAR UNDER STILT & @ 25 SQ.M./CAR IN OPEN

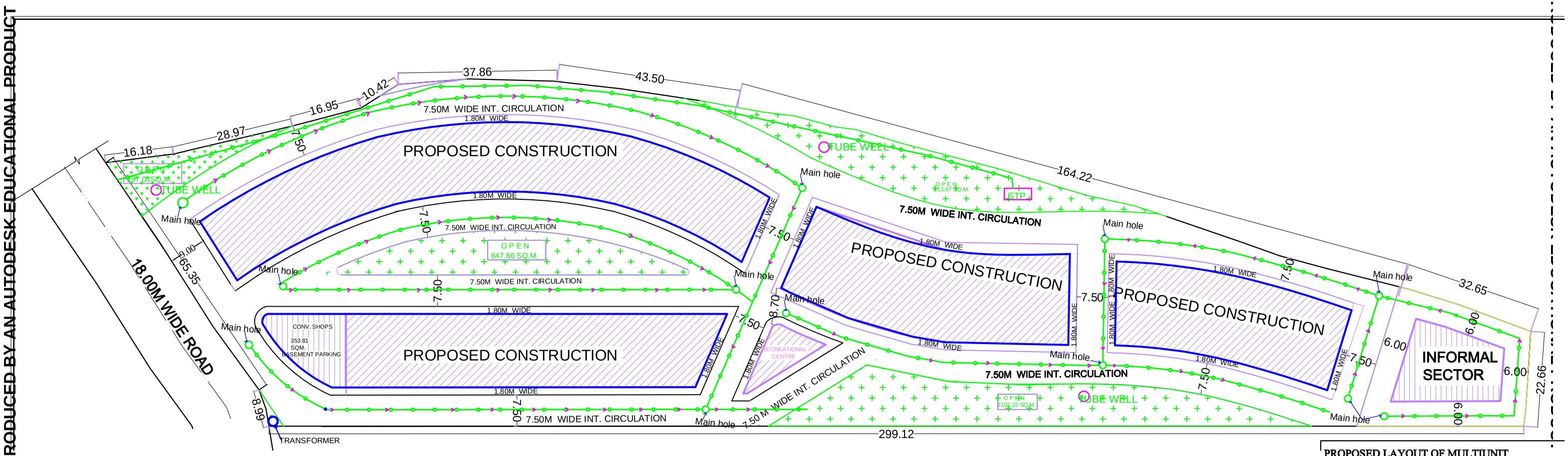
MOS.	MAX.HEIGHT
FRONT - 9.00 M. ALL SIDES -7.50M	24 M. + STILT

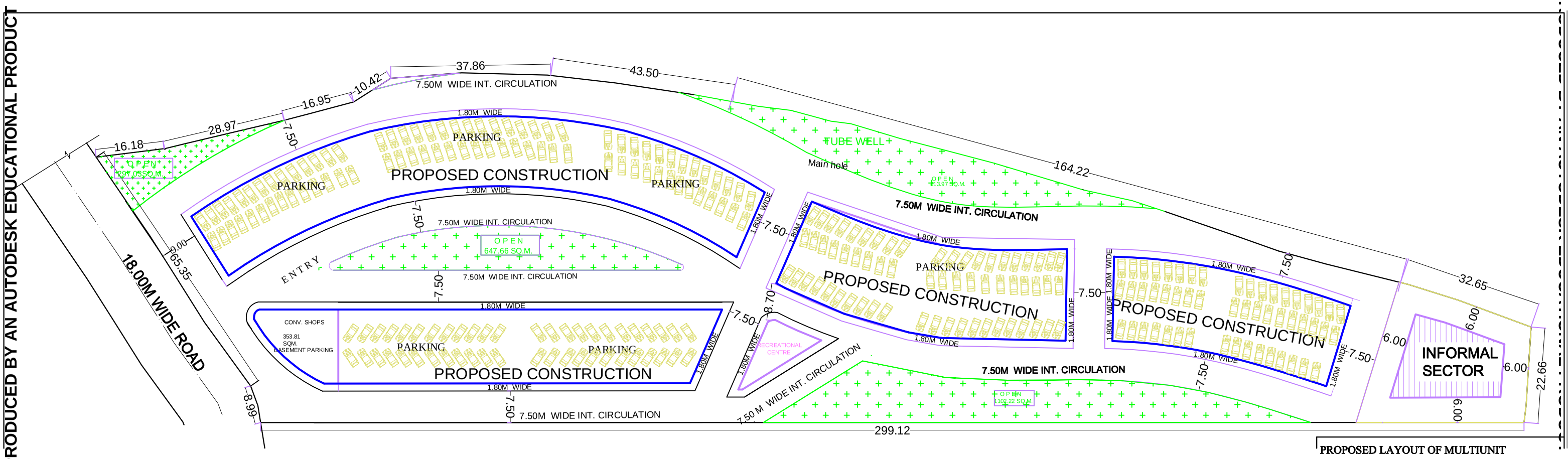
	INFORMAL SECTOR	Sq.M.
	TOTAL NO. OF.DUS.	432 .NOS --(A)
	EWX & LIG (15% OF 432 .)	64.8--(B)
1.	EWS (60%OF B)	38.88 SAY 39.NOS-(C
2.	LIG (40%OF B)	25.92 SAY 26. NOS-(I
	BUILTUP AREA . C X 25.00 SQM D X 36.00 SQM TOTAL PLOT SIZE REQD.	 975.00SQM . 936.00SQM 1911.00SQM 1911.00 ♦ 1.75 10 92.00SQM

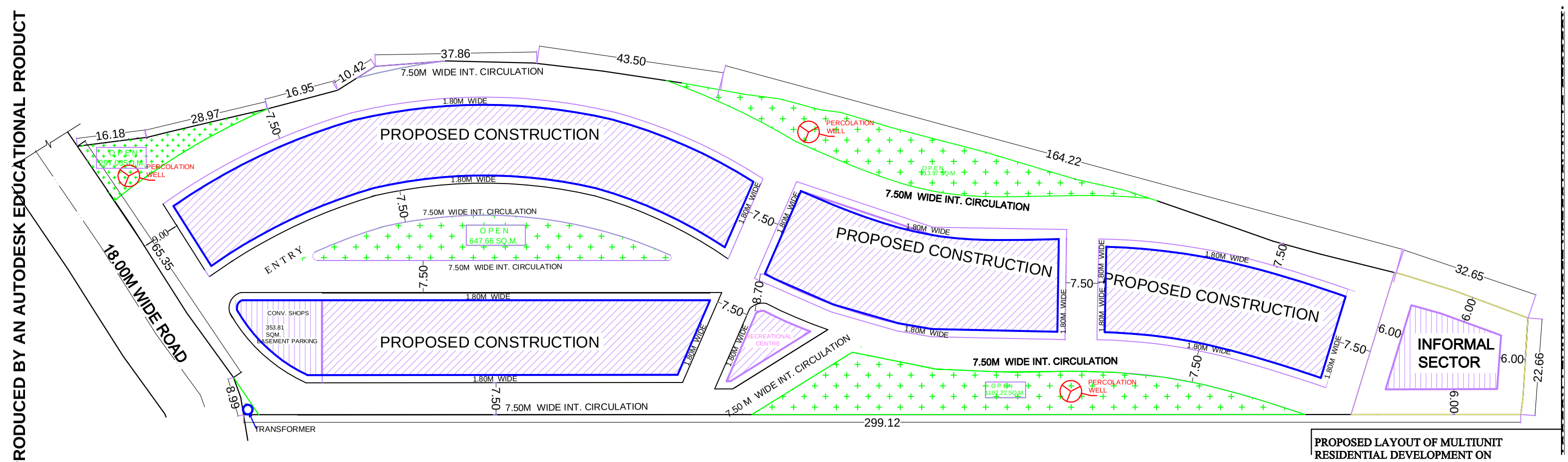
SCALE:-	OWNERS
DATE:-	

ARCHITECTS	LAYOUT PLAN
	SCALE :-1:1000 DATE :-APR. 2013 DRAUT :-
VIKRAM & ARADHANA MOHILE	Interarch ARCHITECTS, ENGINEERS, LANDSCAPERS & INTERIORS.



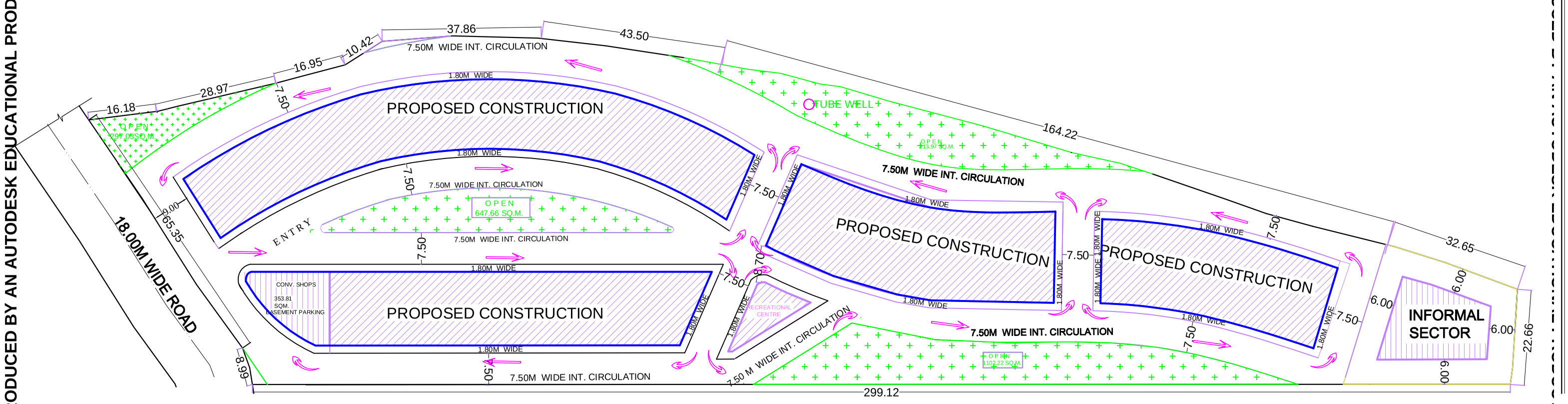


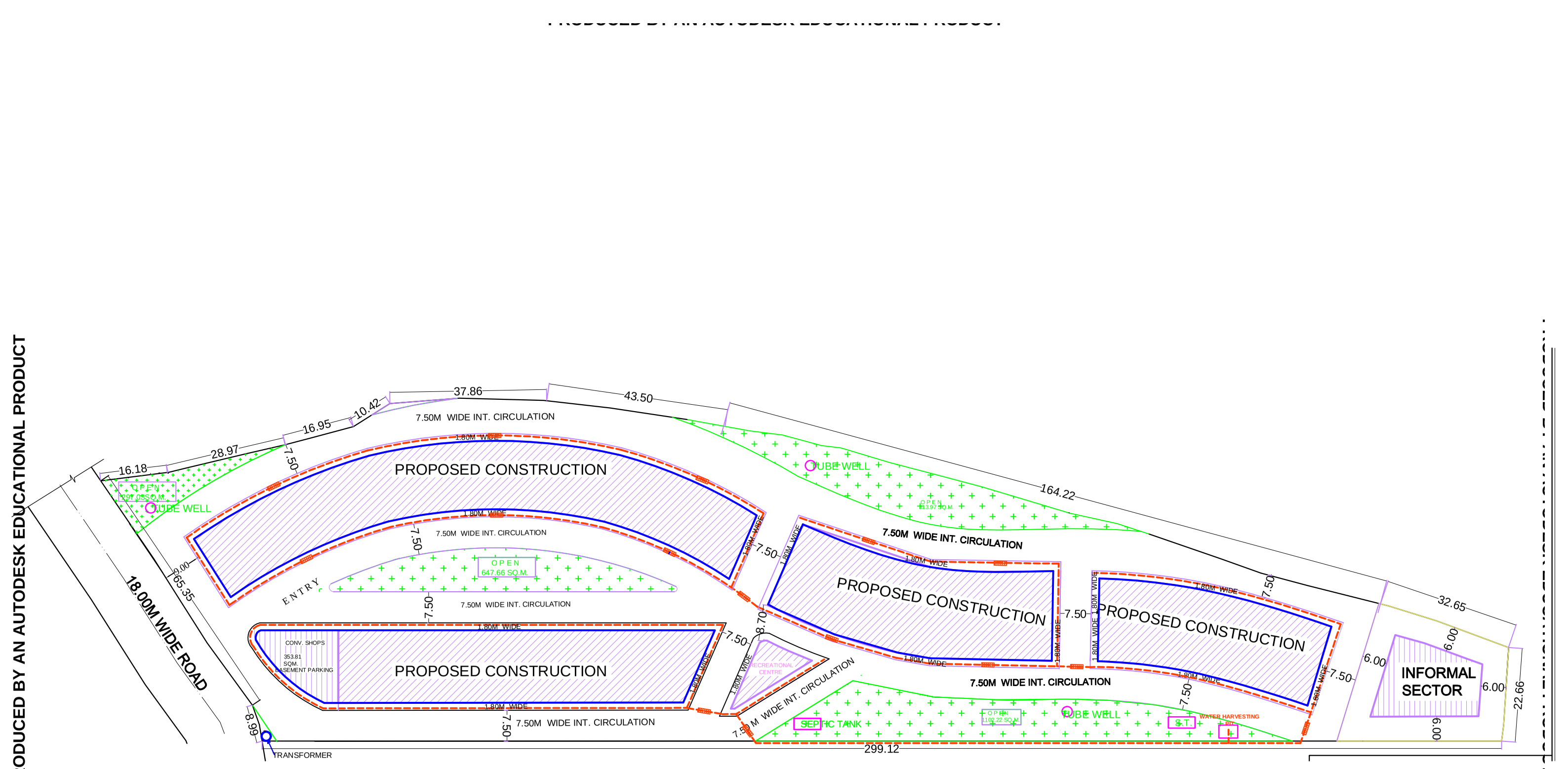




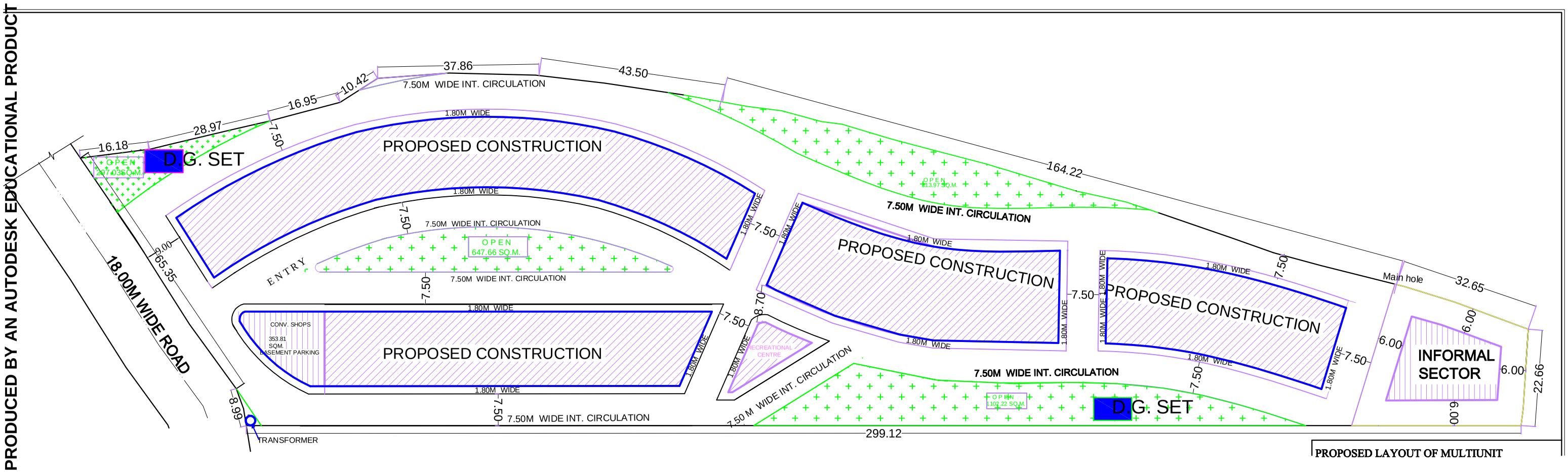
PROPOSED LAYOUT OF MULTIUNIT RESIDENTIAL DEVELOPMENT ON

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT





PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



PROPOSED LAYOUT OF MULTIUNIT

कार्यालय नगर पालिक निगम, भोपाल
फायर ब्रिगेड, माता मंदिर लिंक रोड क्र.–3
दूरभाष: 0755–270[illegible]21
(नेशनल बिल्डिंग कोड–2005 के पार्ट 4 एवं मध्यप्रदेश नगरपालिक निगम अधिनियम 1956 के प्रावधानों के अंतर्गत)

कार्यालय क्रमांक 61....

भोपाल, दिनांक [illegible]

फायर सुझाव प्रमाण पत्र

प्रमाणित किया जाता है कि श्री [illegible] [illegible] सुनीता रोड [illegible] टावर [illegible] जो [illegible] एम से नगर भोपाल के द्वारा स्वीकृत की 108 [illegible] [illegible] आविदा [illegible] के [illegible] कजाई तहसील हुजूर जिला भोपाल के [illegible] भूमि के खसरा क्रमांक– 243/244/[illegible]/ख/3 243/244/1/[illegible]/क/2 243/244/[illegible]/1/ख/2 243/244/[illegible]/4/2 243/244/1/[illegible]/2 243/244/[illegible]/1/क/2 243/2[illegible]/1/1/ग/2 243/244/1/2/[illegible] 243/244/1/ब/2 243/244/1/[illegible]/3 कुल रकबा 1,67,454 वर्गफीट का निरीक्षण किया गया। प्रस्तावित जी+08 आवासीय भवन हेतु फायर ब्रिगेड अग्नि दुर्घटना से बचाव हेतु निम्नलिखित सुझावों के पालन की अपेक्षा करता है :

1. प्रस्तावित जी+08 आवासीय भवन में म.प्र. भूमि विकास नियम 1984 तथा नेशनल बिल्डिंग कोड 2005 के पार्ट 4 के अनुसार फायर एवं सेफ्टी [illegible] के समस्त शर्तों का पालन किया जावे।
2. प्रस्तावित जी+08 आवासीय भवन में [illegible] [illegible] की व्यवस्था रखा जावे।
3. अग्निशमन विभाग के सुझाव क्रमांक 10[illegible] 284/22[illegible] [illegible] [illegible] जावे।
4. कार्यालय संयुक्त संचालक नगर तथा ग्राम निवेश जिला भोपाल के [illegible] स्वीकृत जी+08 आवासीय भवन के निर्माण की [illegible] शर्तों का पालन किया जावे।
5. [illegible] [illegible] की जावे।
6. प्रस्तावित जी+08 आवासीय भवन [illegible] [illegible] जावे।
7. प्रस्तावित जी+08 आवासीय भवन के प्रत्येक फ्लोर [illegible] [illegible] लगाए जावें।
8. प्रस्तावित जी+08 आवासीय भवन में लगने वाले [illegible] फायर [illegible] आई.एस.आई. [illegible] के होना चाहिए।
9. आवासीय भवन में निर्माण कार्य पूर्ण होने के पश्चात अग्निशमन विभाग [illegible] निरीक्षण कराकर फायर एन.ओ.सी. प्राप्त की जावे।

उपर्युक्त सुझाव प्रमाण पत्र [illegible] दिनांक 26.09.2013 को [illegible] के आधार पर जारी किया गया है।

कुल क्षेत्रफल 1,87,454 वर्गफीट
शुल्क राशि 20,000/–
रसीद क्र. 2262/49
दिनांक 26.09.2013

SATYA PRAKASH COLONIZERS PVT. LTD.
Authorised Signatory

प्रभारी फायर ब्रिगेड [illegible]
नगरनिगम, भोपाल

[illegible]
नगर निगम, भोपाल

भारतीय विमानपत्तन प्राधिकरण
पश्चिमी क्षेत्र मुख्यालय

AIRPORTS AUTHORITY OF INDIA
WESTERN REGION HQRS.

No. BT-1/NOC/MUM/13/NOCAS/BP/271

Date : 17/09/2013

To,
M/s., Satyaprakash Colonisers Pvt. Ltd.
T-12, 3rd floor,City Center,
Press Complex, Zone-1,
M.P. Nagar. Bhopal-462011

Subject : Issue of NOC ID No.BHOP/WEST/B/070213/14866.

1. Please refer to your letter No.NIL dated 06/09/2013 on the subject mentioned above.

2. This office has no objection to the construction of the proposed building / structure / chimney by M/s., Satyaprakash Colonisers Pvt. Ltd.., Bhopal, here in after// /refered to as the applicant(s) at location Khasra No.243/244/1/1/KH5,243/244/1/1/KA/2,243/244/1/1/KH2, 243/244/1/1/GHA/2, 243/244/1/1/GA/2, 243/244/1/1/DA/2, 243/244/1/1/CHA/2, 243/244/1/2/2/, 243/244/1/CHHA/2, 243/244/1/1/KA3,Village-Badwai Bhopal, Madhya Pradesh. (23 18 27.20 – 77 22 56.51 , 23 18 25.43 – 77 22 57.87 23 18 26.35 – 77 23 7.86 2318 25.73 – 77 23 57.89 23 18 27.78 – 77 23 0..38) to height 30.00 Mtrs ABOVE GROUND LEVEL, so that the top of the proposed structure when erected, shall not exceed 501.55 Mtrs. (Site Elevation) – 30.00 Mtrs (Height of the structure) i.e. 531.55 Mtrs ABOVE MEAN SEA LEVEL.

3. This no objection certificate is being issued on the express understanding that the site elevation reduced level (height above mean sea level) viz. 501.55 Mtr, relative location of the proposed area Bldg / Structure & its distance and Bearings from the ARP / Runway ends, as tendered by the applicant are correct, if, however, at any stage it is established that the said data as tendered by the said applicant is actually different from the one tendered & which could adversely affect aircraft operations, the structure or part (s) thereof in respect of which this 'NOC' is being issued will have to be demolished at his own cost as may be directed by the Airports Authority of India. The applicant(s) is/are therefore advised in his/their own interest to verify the elevation and other data furnished for the site, before embarking on the proposed construction.

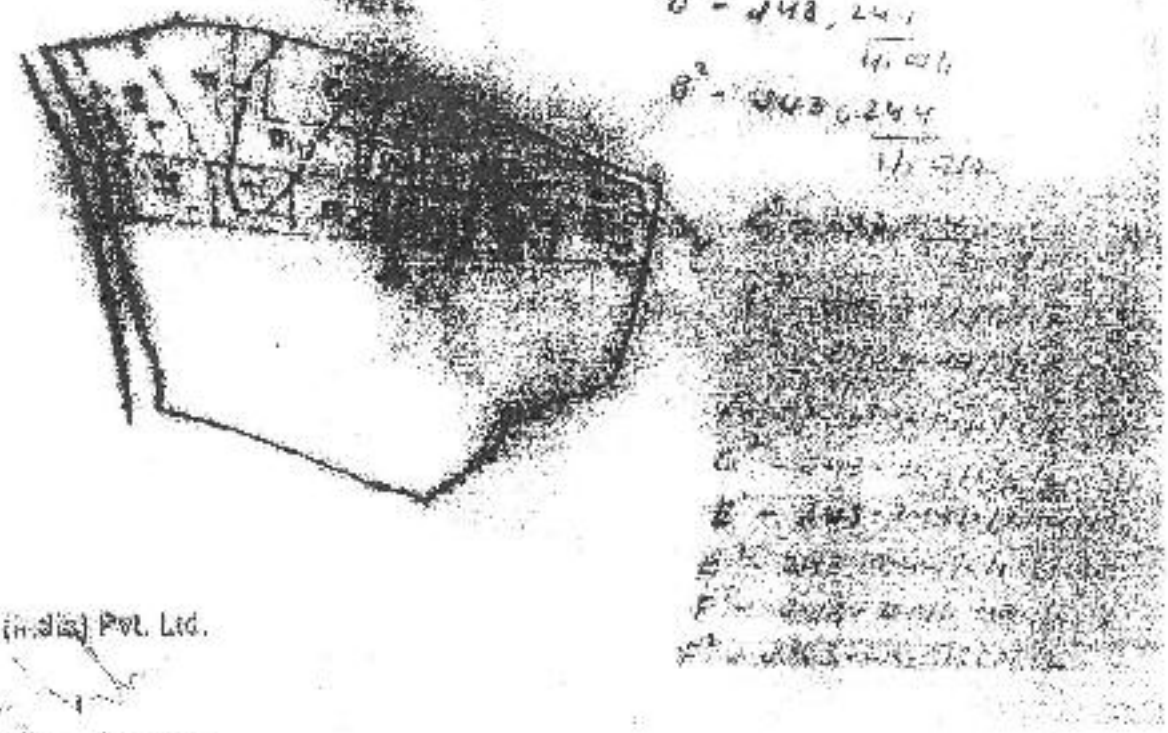
4. The issue of the 'NOC' is further subject to the provisions of Section 9-A of the Indian Aircraft Act, 1934 and those of any notifications issued thereunder from time to time and under which the applicant may be called upon by the Airports Authority of India to demolish in whole or in part the structure now being authorized vide this 'NOC'.

5. No radio/TV Antenna, lightning arresters, staircase, Mumtee, Overhead water tank and attachments of fixtures of any kind shall project above the height indicated in para 2.

6. The use of oil fired or electric fired furnace is obligatory within 8 Kms of the Aerodrome.

SATYAPRAKASH COLONIZERS PVT. LTD.

227



NIG Construction (India) Pvt. Ltd.

Director

For SAM Associates

Partner

(एस. के. पाण्डेय)

(एस. डी. ओझा)

SATYA PRAKASH COLONIZERS PVT. LTD.

Authorised Signatory

831215:4825

ग्राम बड़नाई — कलां फुरानां — प. नि. सं. इटावेंडी मांडव — राहसील हुजूर. — जिला भोपाल — वर्ष २०१२-१३

क्रमांक	शेत्रफल (और यदि भूमि खाते में सम्मिलित न हो तो उसका वर्णन)	कब्जेदार का नाम, उसके पिता का या पति का नाम तथा निवास स्थान, अधिकार जिसके अन्तर्गत भूमि धारण की गई हो और देय राजस्व का खाता	किसी भूमिस्वामी या पट्टेदार का या किसी भौकसी काश्तकार के अन्य कोदार का नाम, पिता का नाम, खाता या पट्टे की रकम और उस पट्टे पर दिये गये भाग का क्षेत्रफल	खाते की भूमि						खाते के धारक के कब्जे में कोई गई फसल का नाम तथा क्षेत्रफल	टिप्पणियां
				क्षेत्रफल जिसमें उन्हें के सिवा फसल हुई			पड़ती तथा क्षेत्रफल				
				फसल का नाम	दोफसली	एकफसली क्षेत्रफल	चालू साल की पड़ती	दो से पांच साल तक की पड़ती	अन्य पड़ती उत्पादन ५ वर्ष से अधिक		
१	२	३	४	५	६	७	८	९	१०	११	१२
४३/२४	०.२४२	ए.जी. कन्सट्रक्शन द्वारा पार्थिवर प्लॉट के आसपास पुल आर.सी.सी. [illegible] पुल स्व. एस.एस.गुलियानी एवं नि.प्रवेश किलोर रोड पुल रोड कोलार रोड भोपाल पुलि (खाते (कृषि भिन्न प्रयोजन) भू-पार्थिक [illegible]						० २४२		तह.के.पत्र क्र.एस.डी.ओ./२४.८/२०१३ के अनुसार, [illegible]

[illegible] तहसीलदार के हस्ताक्षर :

दिनांक : [illegible]

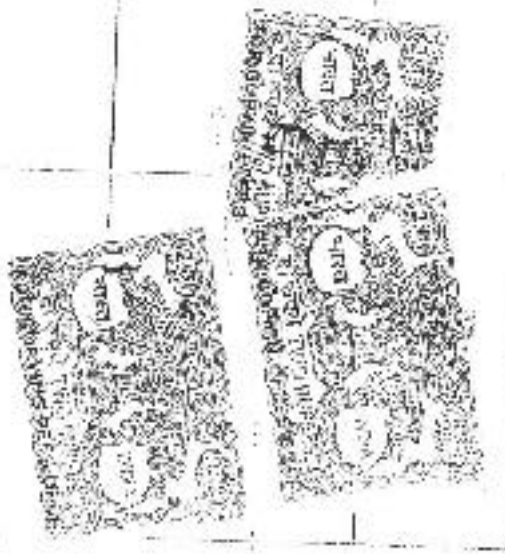
SAI KRIPA PRAKASH COLONIZERS PVT. LTD.

068

44944110310

सिंचाई का साधन: सिंचित कुआना रा. सि. सं. हटकेरा २७०८ तहसील: तुलूर जिला: भोपाल वर्ष २०२२-२०२३

क्रमांक	खेत का नंबर और भूमि धारी के अधिकार का वर्ष	कब्जेदार का नाम, उसके पिता का या पति का नाम तथा निवास स्थान, अधिकार जिसके अन्तर्गत भूमि धारण की गई हो और देय राजस्व का लाभ	किसी भूमिस्वामी या पट्टेदार का या किसी सैनिकी कास्तकार के अन्य हकदार का नाम, जिस का नाम, लगान या पट्टे की रकम और इस भूमि पर किस का भाग का क्षेत्रफल	खाते की भूमि: सिंचाई जिसके द्वारा की जाती है उसका संकेत			पड़ती का क्षेत्रफल			खाते के अक्षर के अंशों में बोई गई फसल का नाम तथा क्षेत्रफल	टिप्पणियां
				फसल का नाम	क्षेत्रफल	दुफसली क्षेत्रफल	परती वर्ष की पड़ती	२ या ५ वर्ष तक की पड़ती	अन्य पड़ती अर्थात् ५ वर्ष से अधिक		
१	२	३	४	५	६	७	८	९	१०	११	१२
[illegible]	[illegible]	मै० एसोसियेट्स द्वारा भागीदार अब्दुल अजीज खां पुत्र स्व. अब्दुल अजीज जी [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]							[illegible]		[illegible]
[illegible]	[illegible]	मै० एसोसियेट्स द्वारा भागीदार अब्दुल अजीज खां [illegible] [illegible] [illegible] [illegible] [illegible]							[illegible]		[illegible]
[illegible]	[illegible]	मै० एसोसियेट्स द्वारा भागीदार									



4494417031O

ग्राम बड़खाई हल्का कलिया रा. नि. नं. ईटखेड़ी राइफल तहसील हुजूर. जिला भोपाल वर्ष २०१२-२०१३.

क्रमांक	खेत का नं. या भू-खंड संख्या जैसा कि राजस्व अभिलेख में उल्लेखित है	काश्तकार का नाम, उसके पिता का या पति का नाम तथा निवास स्थान, अचिन्हार किसके अन्तर्गत भूमि धारण की गई है और देय राजस्व का लगान	किसी भूमिस्वामी या पट्टेदार का या किसी गौरमी काश्तकार के इस पट्टेदार का नाम, पिता का नाम, लगान या पट्टे की रकम और उस पट्टे पर दिये गये भाग का क्षेत्रफल	खरीफ की फसल			रबी की फसल			खरीफ के बाहर के क्षेत्रों में बोई गई फसल का नाम तथा क्षेत्रफल	टिप्पणियां
				फसल का नाम	क्षेत्रफल	दुफसली क्षेत्रफल	नवीन पट्टी	२ से ५ वर्ष तक की पट्टी	५ वर्ष से अधिक		
२	३	३	४	५	६	७	८	९	१०	११	१२
[illegible]	[illegible]	अनुज्ञप्ति क्र.[illegible] खां वल्द[illegible] के २४३/२४४/[illegible]/२ मु.भदभदा [illegible]									[illegible] के अनुसार
[illegible]	[illegible]	मैसर्स एलोसियेट्स द्वारा ठेकेदार अब्दुल अजीम खां वगैरह नं. २४३/२४४/[illegible]/२ मु.भदभदा ६८.७०.००									[illegible] के अनुसार
[illegible]	[illegible]	[illegible] द्वारा ठेकेदार अब्दुल अजीम खां वगैरह नं. [illegible] मु. भदभदा [illegible]									[illegible] के अनुसार

070

तहसील हुजूर जिला भोपाल वर्ष २०१२-२०१३

क्रमांक	हस्तान्तरण कराने वाले व्यक्ति का नाम, उसके पिता का या पति का नाम तथा निवास स्थान, अधिवास जिलावार	किसी भूमिस्वामी या पट्टेदार का या किसी गैर-भूमि कर्मचारी के अधीन पट्टेदार का नाम, पिता का नाम, पता इ०	खाते की भूमि						खरीदे के बाद के क्षेत्रों में बोई गई फसल का नाम तथा क्षेत्रफल	टिप्पणी
			क्षेत्रफल जिसमें खरीदे के क्षेत्र में हस्तान्तरण सहित			पट्टे का क्षेत्रफल				
			फसल का नाम	क्षेत्रफल	एकमुश्त क्षेत्रफल	प्रथम वर्ष की पट्टी	२ से ५ वर्ष तक की पट्टी	५ वर्ष से अधिक		
	२	३	४	५	६	७	८	९	१०	११
४४/२/१/२	रामकुमार तिवारी पुत्र श्रीप्रसाद तिवारी पता मि. ८ सिविल लाईन सतना (म.प्र.) भूमि स्वामी (मूल्य निम्न आशय) पु-फसल ३१२.००									
	रामकुमार तिवारी वल्द श्री पु-फसल ३६३.००									
	रामकुमार तिवारी वल्द श्री पु-फसल ३६३.००									

SATYA PRAKASH COLONIZERS PVT. LTD.

072

9419692577

ग्राम चंदनखेड़ा हल्का कुराना प.नि.नं. ईस्तेहारी राइक तहसील हुजूर जिला भोपाल वर्ष २०२२-२०२३

क्रमांक	खेसरा (और गाटा भूमि खातों में सम्मिलित हो तो उसका वर्णन)	काश्तकार का नाम, उसके पिता का या पति का नाम तथा निवास स्थान, अधिकार जिसके अन्तर्गत भूमि धारण की गई हो और देय राजस्व का लगान	किसी भूमिस्वामी या पट्टेदार या किसी गोरमी खाशतकार के उप पट्टेदार का नाम, पिता का नाम, लगान या पट्टे की रकम और उस पट्टे पर दिये गये गाता का क्षेत्रफल	खाते की भूमि						खड़ी के बाहर के क्षेत्रों में बोई गई फसल का नाम तथा क्षेत्रफल	केफियत
				खेसरा नंबर के खेत में खेती की फसल			पड़ती का क्षेत्रफल				
				फसल का नाम	क्षेत्रफल	दूसरी फसल क्षेत्रफल	चालू वर्ष की पड़ती	2 से 5 वर्ष तक की पड़ती	अन्य पड़ती जमीन 5 वर्ष से अधिक		
१	२	३	४	५	६	७	८	९	१०	११	१२
सरा क्र २४३/२/२४/१/१/२/२	निरंतर										हजूर न्यायालय अनु वि.अधि हुजूर के [illegible]

[illegible]

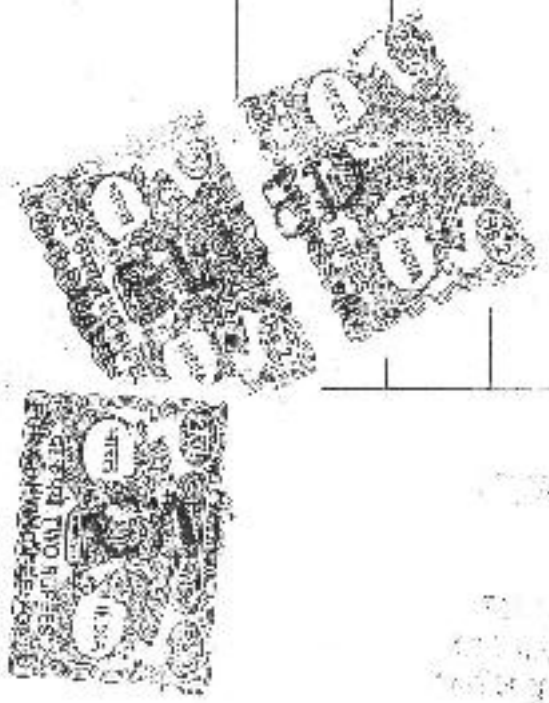
[illegible]

SATYA PRAKASH COLONIZERS PVT. LTD.

073

ग्राम पड़ोरे हल्का कुरावा रा. नि. नं इंटखेड़ी सदर तहसील हुजूर जिला भोपाल वर्ष २०१२-२०१३

क्रमांक	खेत-नं (और यदि पूरा खसरा नं सम्मिलित न हो तो उसका भाग)	कब्जेदार का नाम, उसके पिता का या पति का नाम तथा निवास स्थान, अधिकार जिसके अन्तर्गत भूमि धारण की गई हो और देय राजस्व का भार	किसी भूमिस्वामी या पट्टेदार का या किसी सीरदार कास्तकार के का पट्टेदार का नाम, पिता का नाम, आवास	भोग की भूमि						स्वतो के बाहर के खेतों में बोई गई फसल का नाम तथा क्षेत्रफल	टिप्पणियां
			पट्टे की रकम और इस पट्टे पर दिये गये भाग का क्षेत्रफल	अभिलेख रिकार्ड खसरे के परिमाण में फसल उगाई गई			पड़ती का क्षेत्रफल				
				फसल का नाम	क्षेत्रफल	दुफसली क्षेत्रफल	चालू वर्ष की पड़ती	२ से ५ वर्ष तक की पड़ती	अन्य पड़ती अर्थात ५ वर्ष से अधिक		
१	२	३	४	५	६	७	८	९	१०	११	१२
[illegible]	० २५१	एल आई.सी.कस्टूकल्चर (इंडिया) प्रा.लिमि. भोपाल द्वारा संचालकर्ता.विलास एस.वी. [illegible] पिता स्व. श्री एम.एस.-४२ [illegible] नगर पालिका क्र.१ प्लेक्स ६४ [illegible] तहसील हुजूर जिला भोपाल (मूर्तिय चित्र अवलोय) सिविल लाईन्स भोपाल जिला भोपाल मु.पो.व. ४७०४.००							०.२४२		ता.न.क्र. ७१ आ.दि. ०४.२.२०१३ के अनुसार तहसीलदार हजूर/ता.अधि.क्र. [illegible] एम.ज-१/२०१२ [illegible] दि. [illegible] २०१३ के अनुसार



पटेरिया ४० वर्ष के हलाहार :

राज, पद एवं हिताक्ष :

074

L ... A ... 238647

मध्यप्रदेश शासन

भू-अधिकार
एवं
ऋण पुस्तिका

(एकीकृत)

भाग-1 एवं भाग-2

पी. सी. कंस्ट्रक्शन द्वारा श्री प्रकाश भाऊराव की पत्नी श्रीमती पुत्र श्री ओम प्रकाश की बहू पुत्र श्री. की पत्नी श्रीमती

ग्राम पटवारी

पटवारी

L क्र० A 238627

मध्यप्रदेश शासन

भू-अधिकार
एवं
ऋण पुस्तिका
(एकीकृत)
भाग-1 एवं भाग-2

खातेदार/सह-खातेदार का नाम ए. जी. लक्ष्मीनारायण पिता
स्व. गोपाल राव जी एवं एल. ए. उषा पुत्र नीलम-
जी उपाध्याय एस. पी. पुत्र सुनियानी पुत्र ए
एन. एल. सुब्रमणियानी नगर पालिक परिषद
नरसिंहगढ़ तहसील फारेस्ट एवं
नरसिंह गढ़ भोपाल
पता S/ ए डब्लू

कृषक का नाम .....

(जिसे भूमिका आवंटन किया जाना है)

पिता/पति का नाम .....

ग्राम ..... पट्टाधारी क्षेत्रफल .....

राजस्व निरीक्षक मंडल ..... विकास खण्ड .....

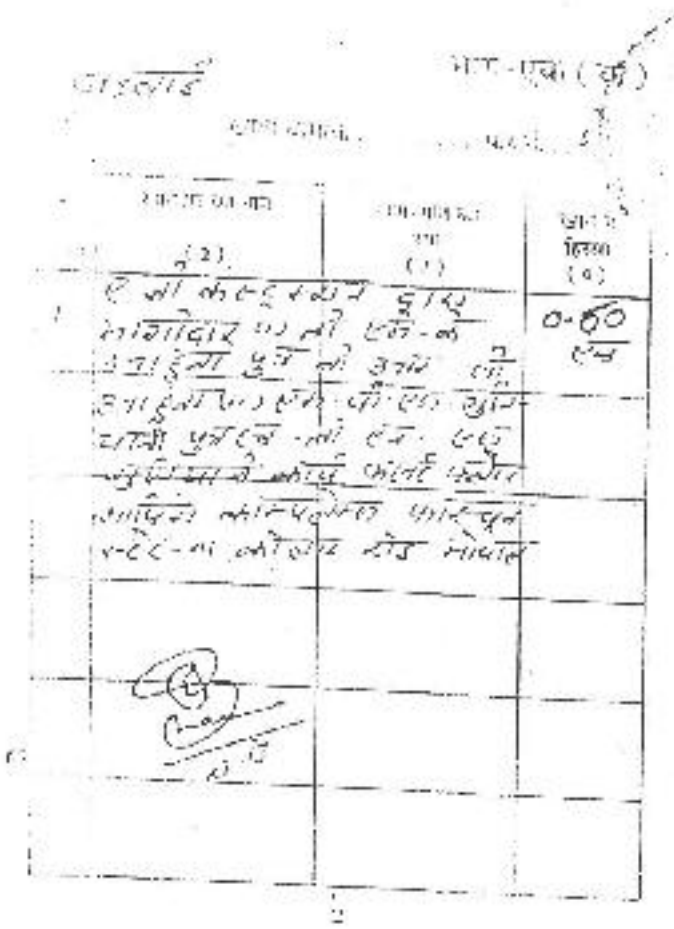
तहसील ..... जिला .....

कृषक के हस्ताक्षर या अंगूठे की निशानी का नमूना

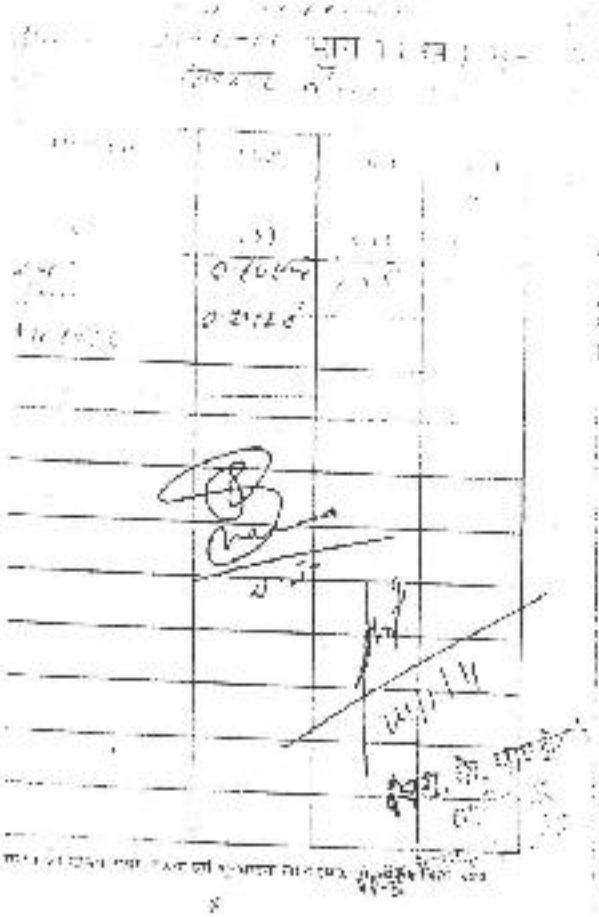
जारीकर्ता अधिकारी के हस्ताक्षर

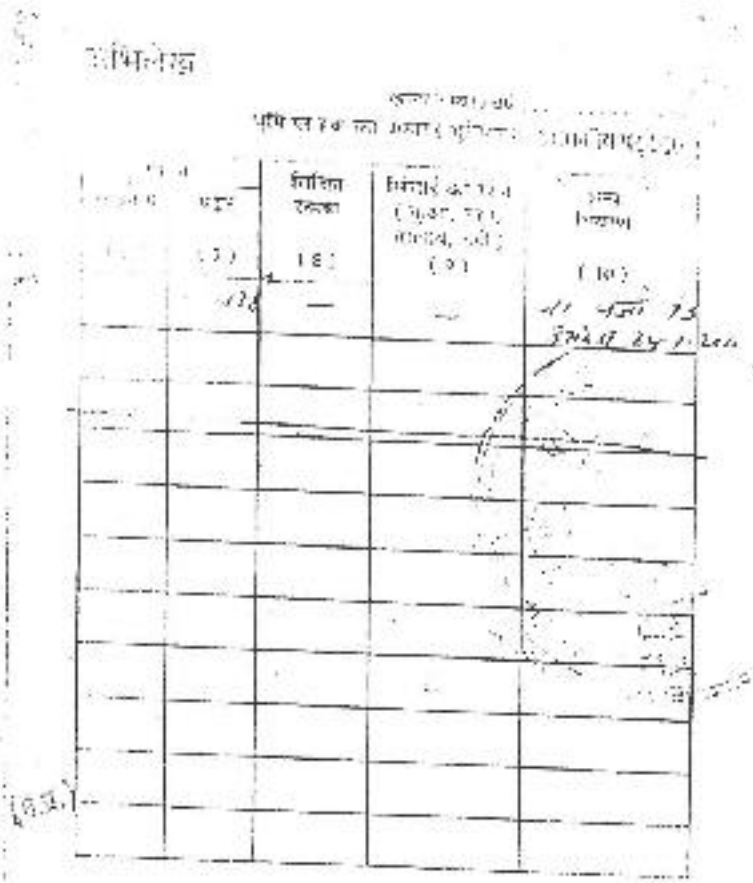
पदनाम/पदमुद्रा

SATYA PRAKASH COLONIZERS PVT. LTD.
Authorised Signatory

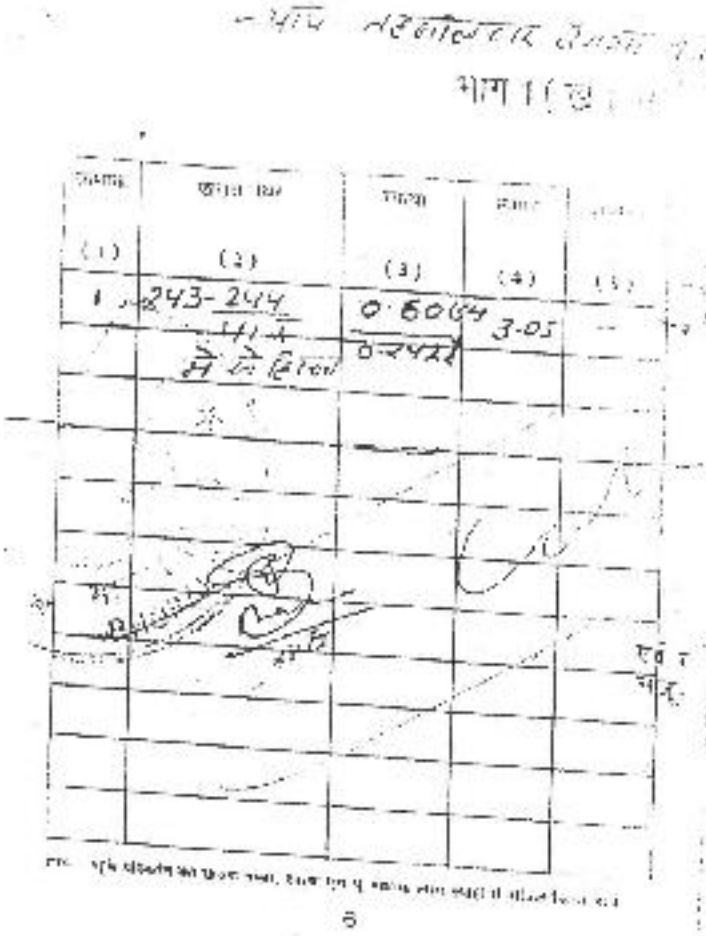


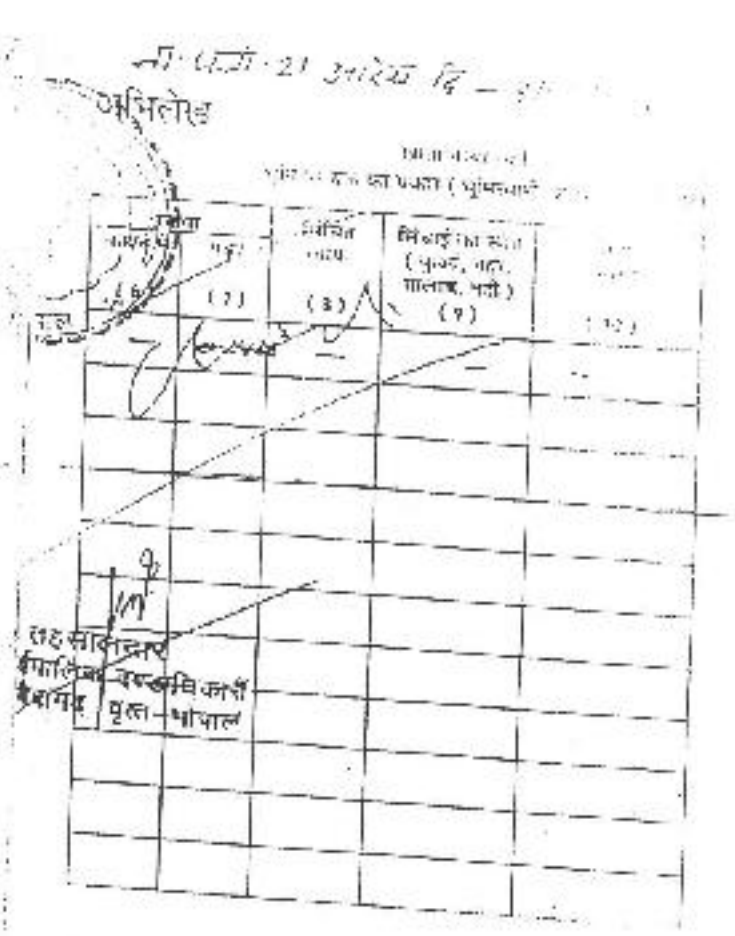
(1)	(2)	(3)	(4)





SATYA PRAKASH COLONIZERS PVT. LTD.
Authorised Signatory




अभिलेख
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
(9)
1 243-244
0.6064
3-05
0.2422
मे से हिस्सा
रहे सलिलद्वार
पुत्र भोपाल

Nil - 0.6 decimal

L क्रमांक A 238628

मध्यप्रदेश शासन

भू-अधिकार
एवं
ऋण पुस्तिका

(एकीकृत)

भाग-1 एवं भाग-2

एन. आई. सी. लेटरहेड (भोपाल)

खातेदार/सह-खातेदार का नाम प्राइवेट लि. भोपाल

ग्राम सचालन की मोहम्मद मिलाल पुत्र की

वर्ती मोहम्मद कार्य : एल एम-0128 द्वारा

आर्यवेस्ट 64 लिमिटेड लाईन व्यावसायिक

पत्र बीडखाड़ मांगट

प.ह.नं. 5

SHIVAPRAKASH COLONIZERS PVT. LTD. Authorised Signatory

एस. आई. सी. कॉर्पोरेशन लिमिटेड

खातेदार/सह-खातेदार का नाम मेसर्स मेसर्स मोहम्मद युनुस एण्ड मोहम्मद सलीम खिलाड़ी पुजारी वर्क्स मोहम्मद सलीम एस.एस.-वी.-ई पुजारी कॉन्ट्रेक्टर्स

(सह-खातेदार की स्थिति में प्रथम सह-खातेदार का नाम एवं पता)

पंजीयक का नाम 64 सिविल लाईन्स भोपाल (म.प्र.)

(जिले पुस्तिका जारी की जा रही है)

पिता/पति का नाम

ग्राम बड़खाई

पटवारी हल्का नं. 5

राजस्व निरीक्षक मंडल कोलार विकास खण्ड कोलार

तहसील हुजूर जिला भोपाल

पंजीयक के हस्ताक्षर या अंगूठे की निशानी का नमूना

आवेदक/अधिकृत के हस्ताक्षर

पदनाम/मुद्रा

सहायक रजिस्ट्रार
एवं कार्यपालिक दण्डाधिकारी
तहसील हुजूर जिला-भोपाल

भाग-एक (क)

सहखातेदारों का विवरण

गांव ..... खाता संख्या ..... प.ह.नं. .....

क्र. (1)	खातेदार का नाम (2)	पिता/पति का नाम (3)	खाते में हिस्सा (4)
1	एच उदई सी अल्टमाउंट (इंडिया) प्रायवेट लि. मोथा द्वारा संचालक श्री शेहनाद मेलाल पुत्र श्री वली महेमद मोथा. एम. एच-02-ए पनवेल तालुका पनवेल जिल्हा रायगड मोथा		0-60 एच

2

गांव ..... खाता क्रमांक ..... प.ह.नं. .....

क्र. (1)	खातेदार का नाम (2)	पिता/पति का नाम (3)	खाते में हिस्सा (4)

3

SATYA PRAKASH COLONIZERS PVT. LTD.

भाग 1 (ख)-1

अभिलेख

खाता संख्या/वर्ष .....

भूमि का वर्ग का प्रकार (भूमिस्वामी/शासकीय पट्टेदार)

खसरा नंबर (2)	रकबा (3)	लगान (4)	शेरा (5)	रकबा सिंचित (6)	रकबा असिंचित (7)	सिंचित रकबा (8)	सिंचाई का स्रोत (कुआं, नहर, तालाब, नदी) (9)	अन्य विवरण (10)
243-244	0.6048	3.05	—	—	0.2424	—	—	—
1.1.14	0.2424							
ले.दे.कि.(-0)								

हस्ताक्षर
पदनाम
नगर पालिका निगम दतिया-भोपाल

6

7

नगर पालिका निगम दतिया

भाग 1 (ख)-1 अभिलेख

नि. पत्रों के आदेश दि. 31-8-2010

खातेदार/सह-खातेदार का नाम .....

[सह-खातेदार की स्थिति में पहले मुख्य खातेदार का नाम दें]

कृषक का नाम .....

(जिसे पुस्तिका जारी की जा रही है)

पिता/पति का नाम .....

ग्राम ..... पटवारी हल्का नं. .....

जनपद शिक्षक मंडल ..... विकास खण्ड .....

तहसील ..... जिला .....

कृषक के हस्ताक्षर या अंगूठे की निशानी का नमूना

जारीकर्ता अधिकारी के हस्ताक्षर
प्रदर्शित पदमुद्रा

SHIVA PRAKASH COLONIZERS PVT. LTD.

वी डैमार्ट

भाग-एक (क)

ग्राम ..... खाता क्रमांक ..... प.ह.नं. .....

सहखातेदारों का विवरण

क्र. (1)	खातेदार का नाम (2)	पिता/पति का नाम (3)	खाते में हिस्सा (4)
1	मैसर्स एमोडिएटेड द्वारा मान्यवर अब्दुल अजीज खां पुत्र स्व. अब्दुल अजीज खां अम्बरीन मेवाती पुत्र श्री एजाज अहमद मार्फत मार्फत मेसर्स बेयर हाउसिंग एवं लोन ट्रस्ट श्री गोविन्दपुरा उनकोंसिल एरिया जे.के. रोड भोपाल		2.34½ एकड़

2

3

सह-आवेदक/सह-खातेदार का नाम

(सह-आवेदक की स्थिति में प्रथम सह-आवेदक का नाम एवं अन्य ..... संख्या ..... हो)

कृषक का नाम

(जिसे भूमिका जारी की जा रही है)

पिता/पति का नाम

ग्राम पड़ौती हल्का नं

राजस्व निरीक्षक मंडल जिला एवं

तहसील जिला

कृषक के हस्ताक्षर या अंगूठे की निशानी जो लगाए

जारीकर्ता अधिकारी के हस्ताक्षर

पदनाम

SATYAPRAKASH COLONIZERS PVT. LTD.

भाग 1 (ख)-भू-

अभिलेख

खाता नम्बर/वर्ष .....

भूमि पर हक का प्रकार (भूमिस्वामी/राजस्व/पट्टेदार)

क्रमांक	खसरा नंबर	रकबा	लगान	अन्य
(1)	(2)	(3)	(4)	(5)
1	243-244/1113 मे0हे0	0.6499 हे0 0.2636 हे0	3.00	—
2	243-244/1114 मे0हे0	0.6499 हे0 0.2636 हे0	3.00	—
3	243-244/1113 मे0हे0	0.6499 हे0 0.2636 हे0	3.00	—
4	243-244/1 मे0हे0	0.1608 हे0 0.0652 हे0	1.00	—
5	243-244/12 मे0हे0	0.2545 हे0 0.0949 हे0	1.15	—
		0.3494 हे0	11.15	—

रकबा		सिंचित रकबा	सिंचाई का स्रोत (कुआं, नहर, तालाब, नदी)	अन्य विवरण
बंजर भूमि	पड़त			
(6)	(7)	(8)	(9)	(10)
—	0.2636 हे0	—	—	—
—	0.2636 हे0	—	—	—
—	0.2636 हे0	—	—	—
—	0.0652 हे0	—	—	—
—	0.0949 हे0	—	—	—
—	0.3494 हे0	—	—	—

नोट :- इस खतौनी में खसरा नम्बर, रकबा एवं भू-भाग में लाल स्याही से अंकित किया गया.

उप-खण्डाधिकारी
एवं कार्यपालिक दण्डाधिकारी
मुजफ्फरपुर बेलसंड

SATYA PRAKASH COLONIZERS PVT. LTD.

T-12 3rd Floor, City Centre, Press Complex, Zone-I, M.P. Nagar, Bhopal-462011 (M.P.)

Telephone - 0755- 2570011, Fax : 4235814

Email : spcolonizers.pvt.ltd@gmail.com, satya.prakash.colonizers.pvt.ltd@gmail.com

Satya Prakash

CERTIFIED TRUE COPY OF THE RESOLUTION PASSED AT THE MEETING OF BOARD OF DIRECTORS OF SATYA PRAKASH COLONIZERS PVT. LTD. HELD ON DATE. 15.01.2016. AT THE REGISTERD OFFICE .T -12, THIRD FLOOR, CITY CENTER, PRESS COMPLEX ZONE -1.M.P. NAGAR.BHOPAL.

RESOLVED that **Mr. Mehmood Ali** Director of the company was authorized by the Board of Directors as an authorized person for obtaining Environment Clearance as part of Statutory requirement ,to sign on documents relating to Environment Clearance and to be present in SEAC/SEIAA Appraisal Meetings.

Specimen signature of Authorized signatory

Certified to be true

For.Satya prakash colonizers pvt ltd

x.....

Director

REGISTERED OFFICE :

"Parishram" MADAN MAHAL CHOWK NAGPUR ROAD JABALPUR - 482001

Telephone - 0761-2425833, 2425162, 401687 Fax - 0761-245540, 4016858

Satya Prakash

SATYA PRAKASH COLONIZERS PVT. LTD.

T12 3rd Floor City Centre Press Complex, Zone-I, M.P. Nagar, Bhopal-462011 (M.P.)
Telephone - 0755- 2570011, Fax : 4235814
Email : spcolonizers.pvt.ltd@gmail.com, satya.prakash.colonizers.pvt.ltd@gmail.com

MR. Ashutosh chaturvedi on behalf of M/s, Satya Prakash Colonizers Pvt Ltd. Have M/s ENV Development Assistance Systems India Pvt Ltd.An environmental consultancy, which is QCI/NABET accredited, for obtaining prior Environmental Clearance. The consultant was authorized to take care of all SEAC/SEIAA submission meetings and all other required correspondences from time to time for NICE SPACE located at New jail bay pass road Badwai.

Authorized signatory

Certified to be Ture

For: - Satya Prakash Colonizers Pvt Ltd.

Director

REGISTERED OFFICE :
"Parishram" MADAN MAHAL CHOWK NAGPUR ROAD JABALPUR - 482001
Telephone - 0761-2425833, 2425162, 401687. Fax - 0761-245540, 4016858