

PROJECT REPORT
OF
SIGNATURE GLOBAL
PARK –I EXT.
BY
SIGNATUREGLOBAL
HOMES PRIVATE
LIMITED

BRIEF DETAILS OF THE PROJECT

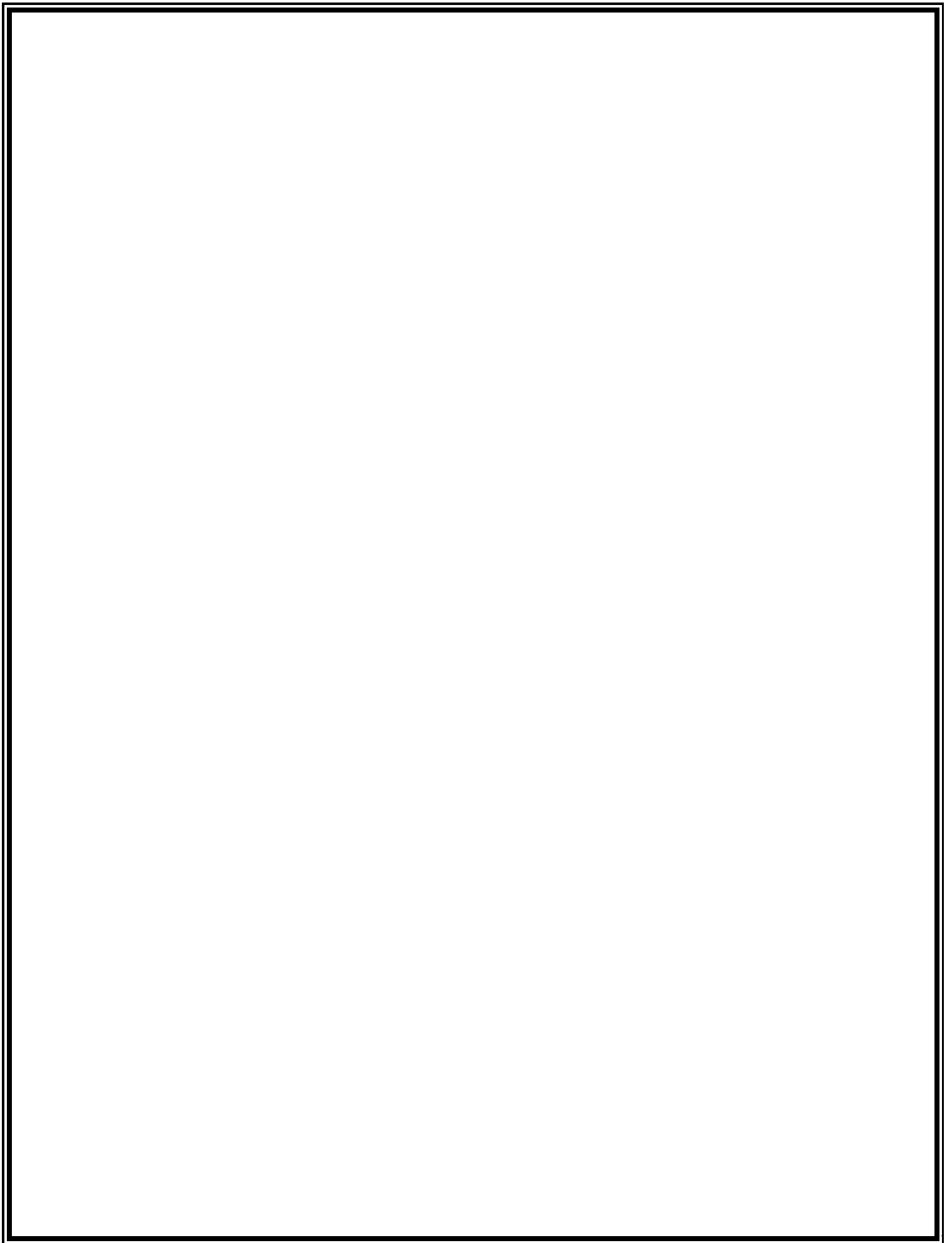
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|-----|--|--|
| 1. | Name of the project | Signature Global Park-I Ext. |
| 2. | Name of the promoter/applicant | Signatureglobal Homes Private Limited |
| 3. | Name of the license holder | Signatureglobal Homes Private Limited |
| 4. | Location of the project | Village Dhunela, Sector-36, Sohna, Gurugram |
| 5. | Registered address | 13th Floor, Dr. Gopal Das Bhawan, 28 Barakhamba Road, New Delhi 110001 |
| 6. | Status of the project | NEW |
| 7. | Nature of the project | Affordable Plotted Colony (DDJAY-2016) |
| 8. | Planning area | GMUMC 2031 |
| 9. | Type of zone | High-II Potential Zone |
| 10. | Web address of the project on the website of the promoter | www.signatureglobal.in |
| 11. | Email address for communication regarding project | compliance@signatureglobal.in |
| 12. | Total licensed area of the project | 2.96875 Acres |
| 13. | Area applied for registration | 2.96875 Acres |
| 14. | Date of very first license of the project | 154 of 2024 dated 17/11/2024 |

DETAILS OF PROJECT COST

| S.NO | DETAILS | AMOUNT IN LAKHS |
|------|---|-----------------|
| 1. | Land cost as per registration | 1285.17 |
| 2. | Conversion charges | 14.60 |
| 3. | License fee | 34.00 |
| 4. | External Development Charges (as per LOI) | 233.64 |
| 5. | Infrastructure Development Charges | 36.49 |
| 6. | Cost of construction | NA |
| 7. | Cost of Infrastructure (IDW) | 339.71 |
| 8. | Other Cost | 700.63 |
| | Total Cost | 2,644.24 |

For the project as a whole

| Component | AverageRate | Area (sq.Ft.) | Estimatedsale proceeds |
|-------------------------------------|------------------|------------------------|------------------------|
| Apartments/ plots | Rs. 0 persq. Sft | 68898.85 Sq Sft | 0 |
| Commercial | Rs 0 persq.Sft | 0 Sq Sft | 0 |
| Community facilities | NA | NA | NA |
| Garages | NA | NA | NA |
| Estimated total saleproceeds | | 0 | |
| Total cost | | 2,644.24 | |
| Return from the project | | 0 | |



CONCEPTUAL PLAN

INTRODUCTION

The proposed project is an Expansion of Residential Plotted Colony Project under DDJAY (Site-I) at Village-Dhunela, Sector-36, Sohna, Gurugram, Haryana by M/s Signature Global Homes Pvt. Ltd.

The company has vast experience in planning and construction of Residential Plotted Colony Project. The project was earlier granted Environment Clearance by SEIAA, Haryana vide EC identification no. EC21B038HR160253 dated 7th December 2021 for Total Plot area 20,234.28 sqm (5 acre) and Built-up area 42,538 sqm. A copy of the EC letter vide file no. SEIAA/HR/2021/440 dated 7.12.2021 is enclosed as **Annexure-I**.

Subsequently, Consent to Establish was obtained vide CTE No: No. HSPCB/Consent/: 313116322GUSOCTE18799607 dated July 05, 2022. A copy of the same is enclosed as **Annexure-II**.

Now, we are proposing the expansion of residential plotted colony project due to which the total plot area will increase to 32,248.164 sqm and total Built-up area will increase to 61,631 sqm for which the EC application is being submitted.

SITE LOCATION AND SURROUNDINGS

The project site is located at Village-Dhunela, Sector-36, Sohna, Gurugram, Haryana. The geographical co-ordinates of project site are 28°17'27.59"N and 77°03'48.34"E.

CONNECTIVITY

The Nearest Highway is SH-13 which is 0.1 km (E) away from project site. NH-71B is 5.0 km towards South direction, NH-8 is 13.2 km towards WNW direction. The nearest Railway Station being Garhi Harsaru Railway Station is about 20.4 km (NW) away from the project site. Indira Gandhi International Airport at 27.5 km (N) from project site.

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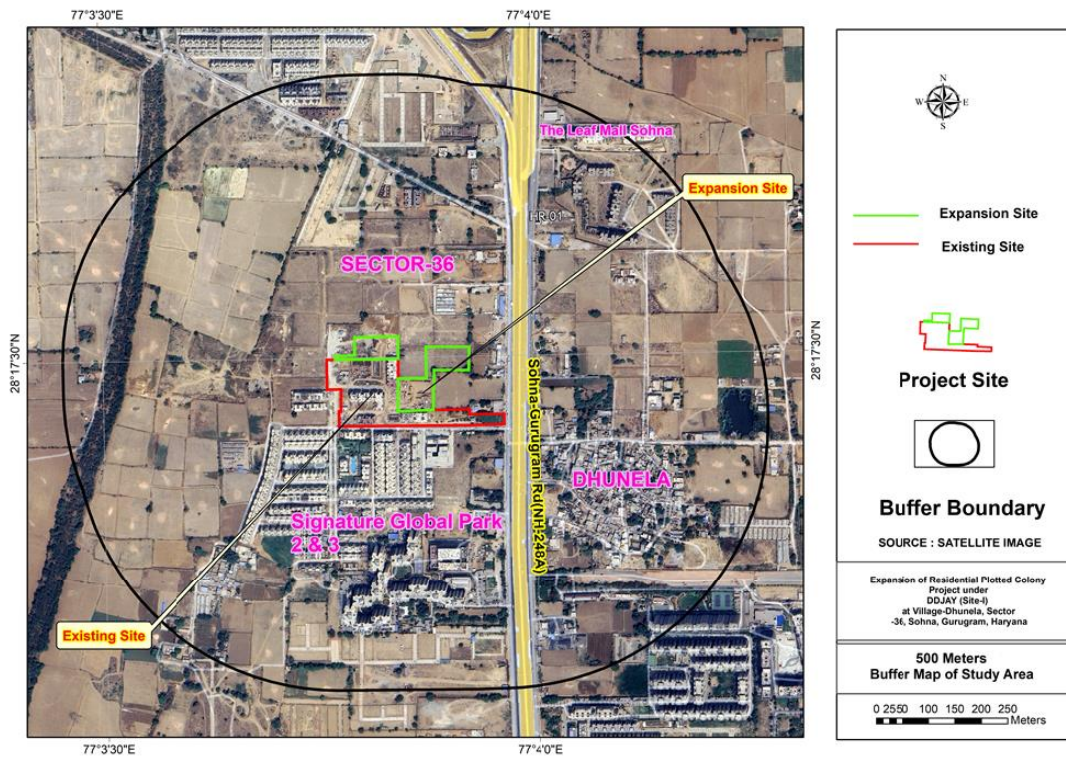


Fig.1: 500 m Buffer Map

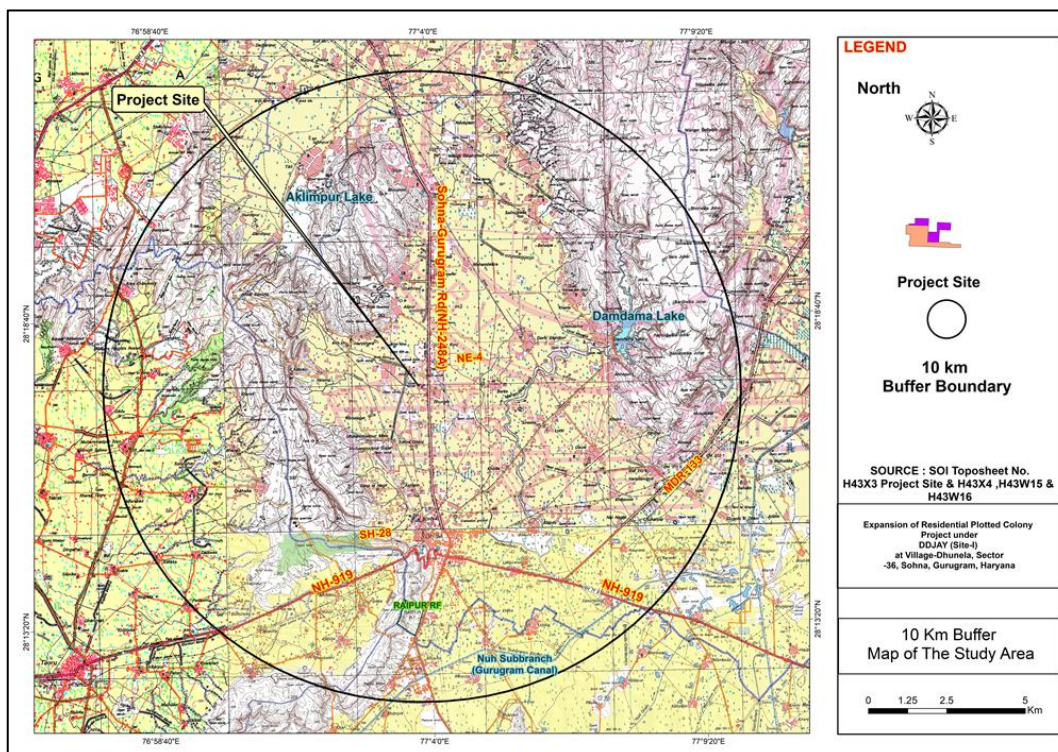


Fig. 2: SOI Toposheet Showing 10 km radius

PROJECT COST

The Total Cost (Land Cost + Development Cost) of the proposed project will be INR 26.44 Crores.

Comparison of Project Cost for Existing and Proposed project

| Project Cost | EC accorded (Crores) | Expansion (Crores) | Total (Crores) (After Expansion) |
|---------------------|---------------------------------|-------------------------------|---|
| | 154.213 | 82.12 | 236.34 |

AREA STATEMENT

The total area of project site is 32,248.164 m² (7.96 acre). The detailed area statement is provided below in Table 1 to 2:

Table 1: Detailed Area Statement

| S. No. | Particulars | Area (m²) (EC Accorded) | Area (m²) (Expansion) | Total Area (m²) (After Expansion) |
|---------------|---|---|---|---|
| 1. | Total Plot Area | 20,234.28 | +12013.884 | 32,248.164 |
| 2. | Area Under Sector Road & 50 m wide Green Belt with service road | 615.12 | No changes | 615.123 |
| 3. | Balance Area (1-2) | 19,619.16 | No changes | 31,633.041 |
| 4. | 50% of the area under road & green belt | 307.562 | No changes | 307.562 |
| 5. | Net Plot Area (3+4) | 19,926.722 | +12,013.878 | 31,940.60 |
| 6. | Permissible Ground Coverage Area | 14975.797 | +9010.409 | 23,986.206 |
| | • Residential (61% of Net Plot Area) | 12,155.30 | +7328.466 | 19,483.766 |
| | • Commercial (4% of Net Plot Area) | 797.069 | +480.555 | 1,277.624 |
| | • Community (10% of Plot Area) | 2,023.428 | +1201.388 | 3,224.816 |
| 7. | Proposed Ground Coverage Area | 11,580.671 | +7,602.252 | 19,182.923 |
| | • Residential | 8,760.174 (43.96% of Net Plot | +6400.862 | 15,161.036 (43.96% of Net Plot |

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| | | | | |
|-----|----------------------------|--|--------------------|--|
| | | Area) | | Area) |
| | • Commercial | 797.069 (4% of Net Plot Area) | No Changes | 797.069 (2.49% of Net Plot Area) |
| | • Community | 2,023.428 (10.01% of Plot Area) | +1201.390 | 3,224.818 (10.09% of Plot Area) |
| 8. | Permissible FAR | 24,323.01 | +16,897.726 | 41,220.736 |
| | • Residential | 23,126.86 (2.64 of the proposed residential area) | +16898.275 | 40,025.132 (2.64 of the proposed residential area) |
| | • Commercial | 1,196.15 (1.5 of the proposed commercial area) | -0.546 | 1,195.604 (1.5 of the proposed commercial area) |
| 9. | Proposed FAR | 22,252.327 | +19,197.261 | 41,449.588 |
| | • Residential | 21,056.177 (@2.40 of the proposed residential area) | +19,290.029 | 40,346.206 (@2.50 of the proposed residential area) |
| | • Commercial | 1,196.15 (@1.5 of the proposed commercial area) | -92.768 | 1,103.382 (@1.5 of the proposed commercial area) |
| 10. | Total NON-FAR Area | 20285.673 | -104.261 | 20,181.412 |
| 11. | Total Built Up Area | 42538 | +19,093 | 61,631 |
| 12. | Total Green Area with % | 2065.222 (10.21% of the Plot area) | +4,322.89 | 6,388.12 (20% of Net Plot area) |

BUILT-UP AREA BREAK-UP

Table 2: Built-up area break-up

| S. No. | Particulars | Area (m ²) (EC Accorded) | Area (m ²) (Expansion) | Total Area (m ²) (& Expansion) |
|--------|----------------------------|---|---------------------------------------|---|
| 1 | Proposed FAR | 22,252.327 | +19,197.261 | 40,346.206 |
| 2 | Non-FAR Area | 20285.673 | -104.261 | 20,181.412 |
| 3 | Total Built Up Area | 42,538 | +19,093 | 61,631 |

POPULATION DENSITY

The total population of the project will be 2,384 people. The detailed population break-up is given in Table 3:

Table 3(a): Comparative Details

| Population & DUs | Particulars | EC accorded | Expansion | Total (After Expansion) |
|-----------------------------|--------------------|--------------------|------------------|--------------------------------|
| | Dwelling Units | 67 Nos. | +45 Nos. | 112 Nos. |
| | Population | 1,786 persons | + 598 persons | 2,384 persons |

Table 3(b): Population Break-up

| S.No | Description | No. of Plots | DUs Or area in sq.m | PPU | Total Population |
|------|------------------------------|--------------------------------|---------------------|-----------------------|------------------|
| 1. | Residential | | | | |
| | • Residents | 112 | | 18 | 2,016 |
| | • Maintenance Staff | 5% of residential population | | | 101 |
| | • Visitors | 10 % of residential population | | | 202 |
| 2. | Commercial | | 1103 | 3 Sqm/ person persons | 368 |
| | • Staff | 10% of Commercial population | | | 37 |
| | • Visitors | 90% of Commercial population | | | 331 |
| | Grand Total Population (1+2) | | | | 2,384 |

WATER REQUIREMENT & SUPPLY SYSTEM

During the operation phase, the source of water supply will be HSVP. The total water requirement for the project will be approx. 194 KLD out of which 188 KLD is the Domestic water requirement. The freshwater requirement for the project will be 137 KLD.

The calculation of daily water requirement and wastewater is given below in Table 4, 5 & 6 respectively.

Table 4: Comparative Details of Water Demand

| S. No. | Description | Value as per Earlier Granted EC | Change due to Expansion | Total Quantity (After Expansion) |
|--------|-------------------------|---------------------------------|-------------------------|----------------------------------|
| 1. | Total Water Requirement | 121 KLD | + 73 KLD | 194 KLD |
| 2. | Fresh Water Requirement | 83 KLD | + 54 KLD | 137 KLD |
| 3. | Wastewater Generation | 98 KLD | +63 KLD | 161 KLD |
| 4. | STP Capacity | 125 KLD | + 75 KLD | 200 KLD |

Table 5: Calculations for Total Daily Water Demand

| S.No | Description | No. of DUs/Area (m2) | Occupancy | Rate of water demand (lpcd) | | Total Water Requirement (KLD) | | |
|--|--|----------------------------|-----------|--------------------------------|----------|-------------------------------------|----------|------------|
| A. | Domestic Water | | | Fresh | Flushing | Fresh | Flushing | Total |
| | • Residents | | 2016 | 65 | 21 | 131.04 | 42.33 | 173.37 |
| | • Staff (Maintenance & Commercial) | | 141 | 25 | 20 | 3.52 | 2.82 | 6.34 |
| | • Visitors | | 561 | 5 | 10 | 2.80 | 5.61 | 8.41 |
| Total | | | | | | 137 KLD | 51 KLD | 188 KLD |
| Domestic Water Requirement = 188 KLD | | | | | | | | |
| B. | Horticulture | 2,065.22 m² | | 3 lt./m²/day | | 6 KLD | | |
| Grand Total Population (A+B) = 194 KLD | | | | | | | | |

Table 6: Wastewater Calculations

| | |
|--|------------------|
| Domestic Water | 207 KLD |
| • Fresh water | 137 KLD |
| • Flushing water | 51 KLD |
| Waste water [@80% fresh + 100% flushing] | (110+51)161 KLD |
| STP Capacity | 200 KLD |

The water balance diagrams for different seasons are shown below:

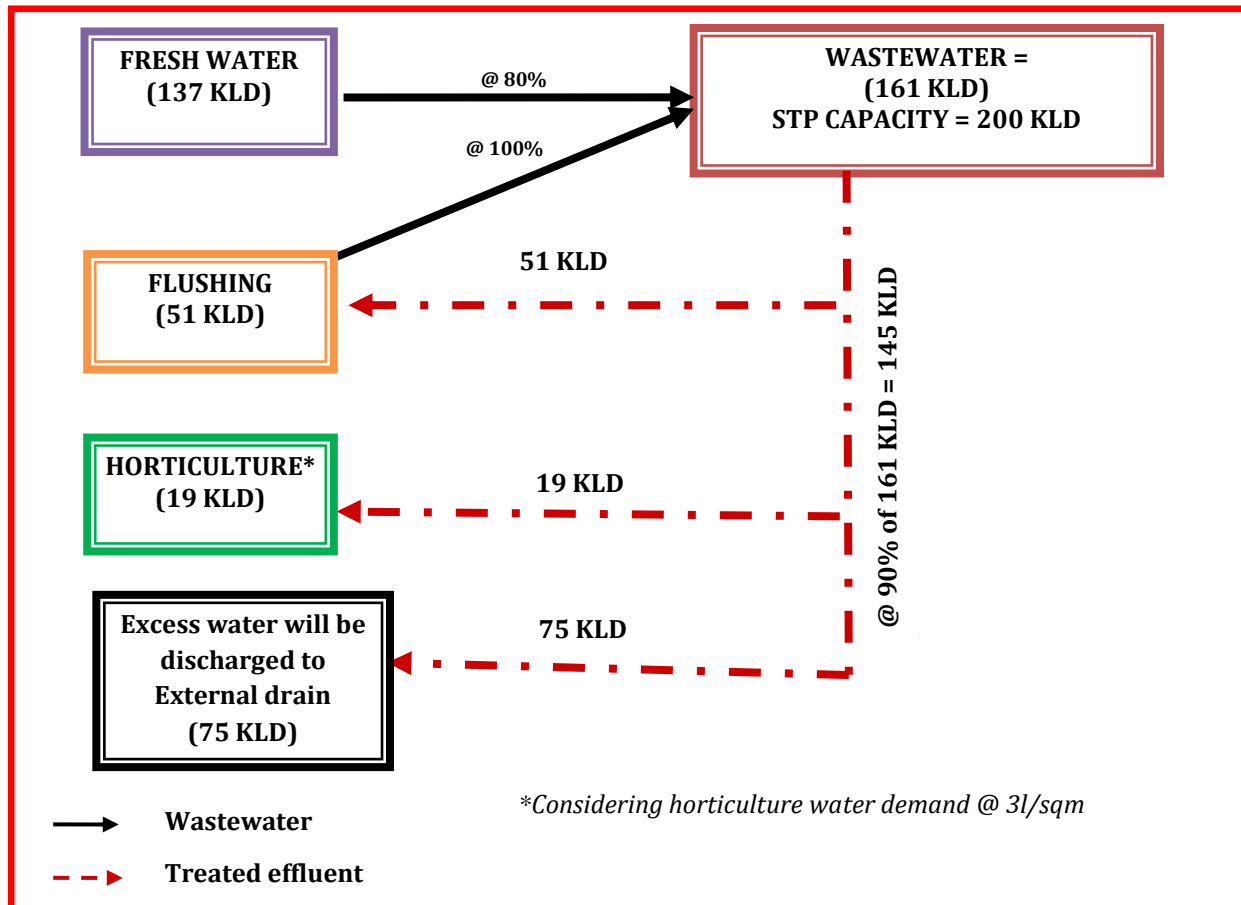


Figure 1: Water Balance Diagram (Summer Season)

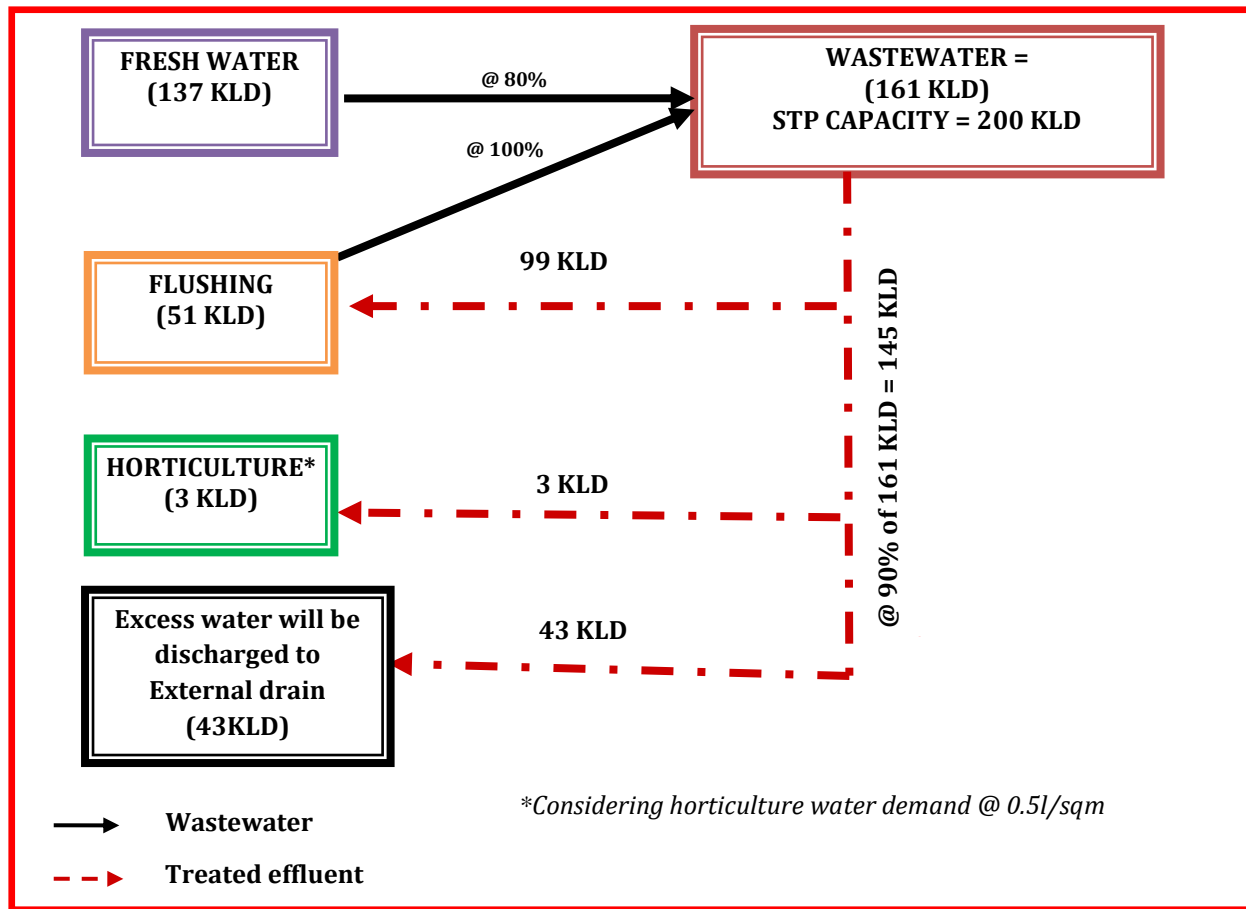


Figure 2: Water Balance Diagram (Monsoon Season)

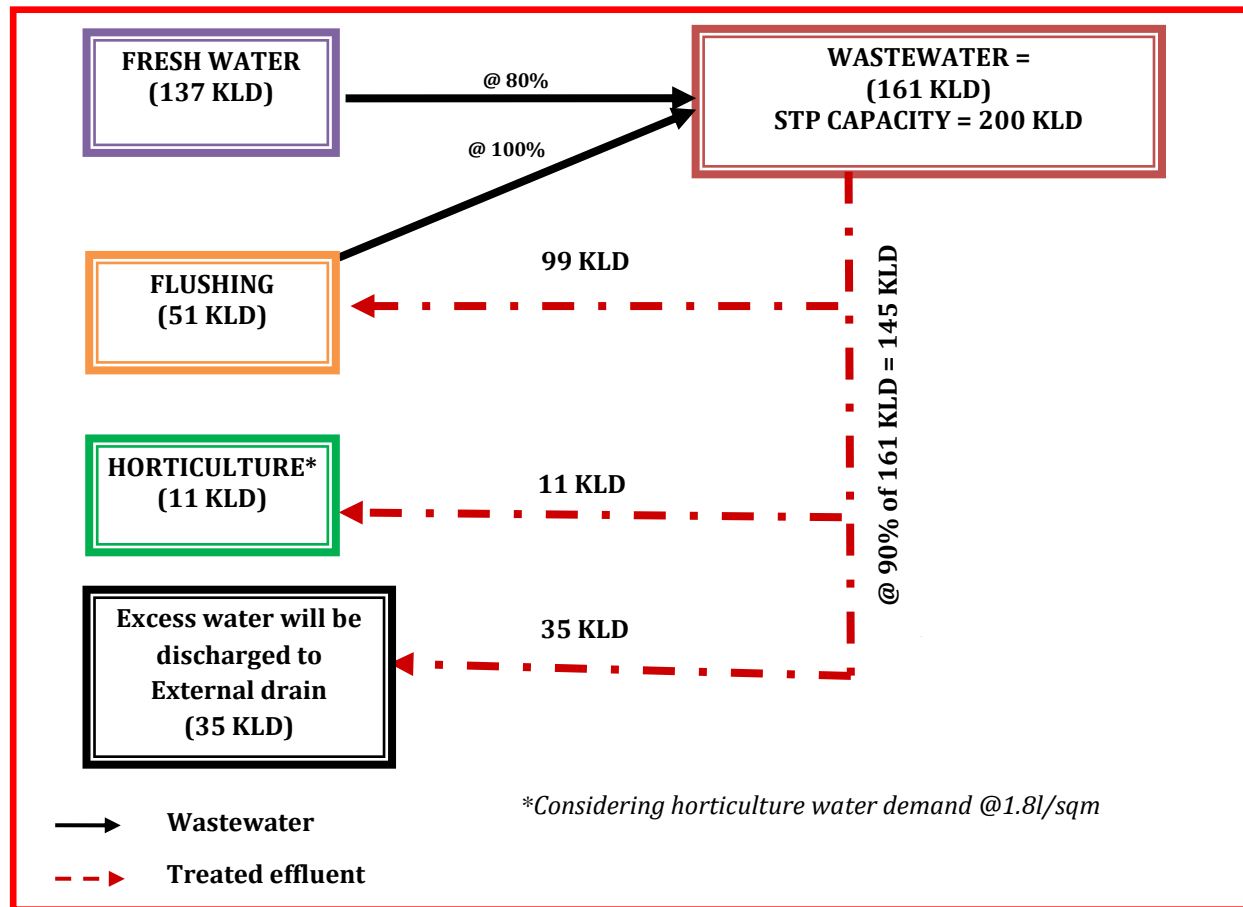


Figure 3: Water Balance Diagram (Winter Season)

Waste Water Generation & Treatment

It is expected that the project will generate approx. 161 KLD of wastewater. The wastewater will be treated in onsite STP of 200 KLD capacity. The treated effluent will be reused for flushing & horticulture. Surplus treated water will be discharged to sewer.

SEWAGE TREATMENT PLANT

MBBR TECHNOLOGY

An external sewage network shall collect the sewage from all units, and flow by gravity to the sewage treatment plant.

The following are the benefits of providing the Sewage Treatment Plant in the present circumstances:

- The process has long retention time and can absorb shock load situation.
- Reduced net daily water requirements, source for Flushing and Horticultural purposes by utilization of the treated wastewater.
- Reduced dependence on the public utilities for water supply and sewerage systems.
- The process produces a well-oxidized sludge in small quantities only, which can be removed and used as manure.

a. Wastewater Details:

| | | | |
|-----|-------------------------|---|--------------|
| (a) | Daily load | : | 161 KLD |
| (b) | Duration of flow to STP | : | 24 hours |
| (c) | Temperature | : | Maximum 32°C |
| (d) | pH | : | 6.5-8.5 |
| (e) | Colour | : | Mild |
| (f) | T.S.S. (mg/l) | : | 250-400 mg/l |
| (g) | BOD ₅ (mg/l) | : | 300-400 mg/l |
| (h) | COD (mg/l) | : | 600-700 mg/l |

b. Treated effluent:

| | | | |
|-----|------------------------|---|------------|
| (a) | pH | : | 6.0 to 8.5 |
| (b) | B.O.D. | : | <10 mg/l |
| (c) | C.O.D. | : | <30 mg/l |
| (d) | Total Suspended Solids | : | <10mg/l |

c. Treatment Technology:

MBBR TECHNOLOGY

Moving bed biofilm reactor technology is based on the principle of attached growth process. Raw sewage will be collected under gravity into the equalization tank after allowing to pass through the bar screen. Screens will be provided in screen chambers and it will be manually cleaned by going down to a platform. The bar screen, by removing coarse solids from the sewage help in protecting the raw sewage pump.

Fully submersible centrifugal non clog sewage handling pump will be provided in the collection cum equalization tank to pump the collected waste water to the next MBBR tanks. Automatic level controller will be provided in the tank to turn the pump off at the low water level in the tank and to start the pump when water level is high automatically. Air will be introduced in this tank to prevent any potential foul smell problem & to provide the mixing of wastewater to avoid the sedimentation of solids in this tank. Air Grid used for aeration purpose shall be non-clog.

The sewage collected in equalization tank is pumped the moving bed bioreactor. There shall be two nos. of bioreactors in series for the efficient working and removal of BODs for the required retention time. The process inside the moving bed bioreactors consists of adding small cylindrical-shaped polyethylene/polypropylene carrier elements in aerated basins to support biofilm growth. The small cylinders are provided with a cross inside the cylinder and longitudinal fins on the outside. The biofilm carriers are maintained in the reactor by the use of a perforated plate with appropriate slot at the tank outlet. Air agitation or mixers are applied in a manner to continuously circulate the packing. The packing may fill 25 to 50 percent of the tank volume. Specific surface area of the packing is about 450-500m²/m³ of bulk packing volume. The waste water from first bioreactor flows by gravity through the perforated plate/mesh to the next bioreactor kept in series. Inside the bioreactors, aerobic bacteria grow in an attached growth from around the moving plastic media inside the reactors. The bacteria have to reduce BOD & COD of waste water in the presence of oxygen provided through the air grids located at the bottom of the reactors. The Process does not require any return activated sludge flow or backwashing.

From the bio-reactors, the effluent passes by gravity into the clarifier (Tube Settling Tank). Clarifier will be a hopper bottom sedimentation tank provided with appropriate size PVC tube deck media. The suspended solids will settle at the bottom of the tank & clear supernatant will overflow to filter feed tank through outlet launder. The collected sludge at bottom shall be transferred through pumps to sludge holding tank.

The clear supernatant after clarifier will be collected in to filter feed tank. This tank will act as housing tank for filter feed pumps. The clarified & dis-infected water will be then fed to filtration unit.

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Filtration unit consisting of Dual Media sand filter, activated carbon filter and ultra-filtration system (optional) will remove the residual impurities such as odor/color, suspended solids, BOD/COD. The treated water after the filtration unit will be collected in Irrigation cum Flushing water storage tank from where it is transferred to flushing water tank at terrace & Irrigation System.

Excess sludge from the bottom of the settling tank will be removed and transferred to sludge holding tank. Air grid shall be provided in this tank to avoid conversion into anaerobic conditions, thickening of sludge and keep sludge in homogenous condition. The digested & thickened sludge shall be further thickened through Sludge Dewatering System (Filter press with screw pump) and disposed-off periodically through closed tanker or can be reused as manure.

Stages of Treatment: The treatment process consists of the following stages:

- Equalization
- Bio- Degradation
- Clarification & Settling
- Filtration

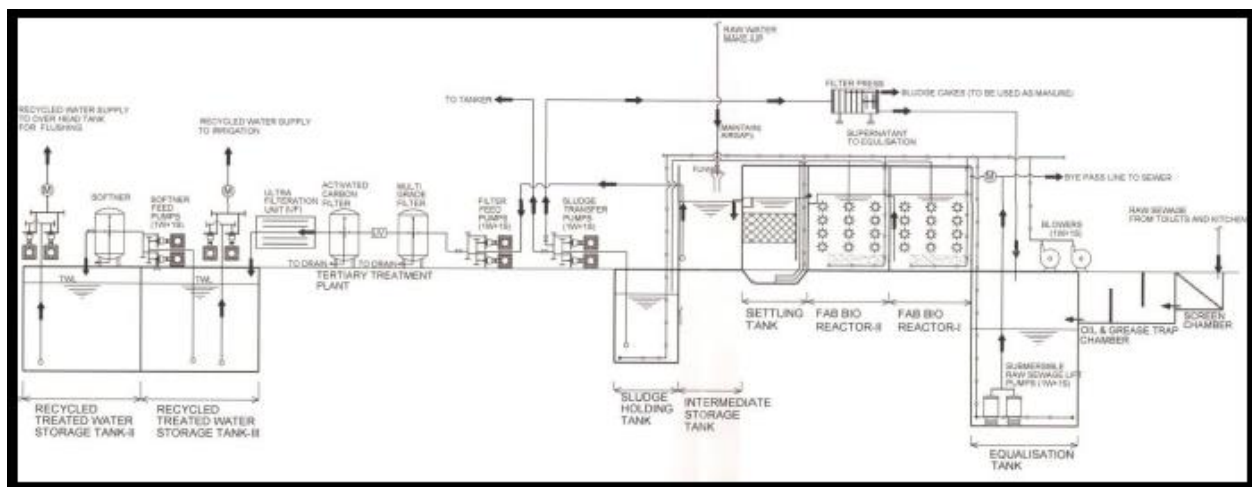


Figure 4: Schematic Diagram of STP

RAIN WATER HARVESTING

The storm water collection system for the premises shall be self-sufficient to avoid any collection/stagnation and flooding of water. The amount of storm water run-off depends upon many factors such as intensity and duration of precipitation, characteristics of the tributary area and the time required for such flow to reach the drains. The drains shall be located near the carriage way along either side of the roads. Taking the advantage of road camber, the rainfall run off from roads shall flow towards the drains. Storm water from various plots/shall be connected to adjacent drain by a pipe through catch basins. Therefore, it has been calculated to provide 8 rainwater harvesting pits at selected locations, which will catch the maximum run-off from the site.

- 1) Since the existing topography is congenial to surface disposal, a network of storm water pipe drains is planned adjacent to roads. All building roof water will be brought down through rain water pipes.
- 2) Proposed storm water system consists of pipe drain, catch basins and seepage pits at regular intervals for rain water harvesting and ground water recharging.
- 3) The peak hourly rainfall of 90 mm/hr shall be considered for designing the storm water drainage system.

Rain water harvesting has been catered to and designed as per the guideline of CGWA. Peak hourly rainfall has been considered as 90 mm/hr. The recharge pit of 5 m diameter and 4.5 m depth is constructed for recharging the water. Inside the recharge pit, a recharge bore is constructed having adequate diameter and depth. The bottom of the recharge structure will be kept 5 m above this level. At the bottom of the recharge well, a filter media is provided to avoid choking of the recharge bore. Design specifications of the rain water harvesting plan are as follows:

- Catchments/roofs would be accessible for regular cleaning.
- The roof will have smooth, hard and dense surface which is less likely to be damaged allowing release of material into the water. Roof painting has been avoided since most paints contain toxic substances and may peel off.
- All gutter ends will be fitted with a wire mesh screen and a first flush device would be installed. Most of the debris carried by the water from the rooftop like leaves, plastic bags

and paper pieces will get arrested by the mesh at the terrace outlet and to prevent contamination by ensuring that the runoff from the first 20 minutes of rainfall is flushed off.

- No sewage or wastewater would be admitted into the system.
- No wastewater from areas likely to have oil, grease, or other pollutants has been connected to the system.

Calculations for storm water load:

Net Plot Area = 31,940.60 m²

Roof-top area = Ground Coverage = 19,182.923 m²

Green Area = 6,388.12 m²

Paved Area = Plot Area – (Roof-top Area + Green Area)
= 31,940.60 – (19,182.923 + 6,388.12)
= 25,571.04 m²

Runoff Load

Green Area = 6,388.12 m² × 0.09 × 0.90
= 517.43 m³

Paved Area = 25,571.04 m² × 0.09 × 0.90
= 2,071.25 m³

Total Runoff Load = 517.43 + 2,071.25 m³/hr
= 2,588.68 m³/hr

Taking 15 minutes Retention Time, Total volume of storm water = 2,588.68 / 4
= 647.17 m³

Taking the effective diameter and depth of a Recharge pit 5 m and 4.5 m respectively, Volume of a single Recharge pit = $\pi r^2 h = 3.14 \times 2.5 \times 2.5 \times 4.5 = 88.31 \text{ m}^3$

Hence No. of pits required = 647.17 / 88.31 = 7.32 Say 8 Pits

Total 8 no. of pits proposed for artificial ground water recharge.

Comparison of RWH Pits for Existing and Proposed project

| RWH Pits | EC accorded | Expansion | Total (After Expansion) |
|----------|-------------|-----------|-------------------------|
| | 5 pits | +3 | 8 pits |

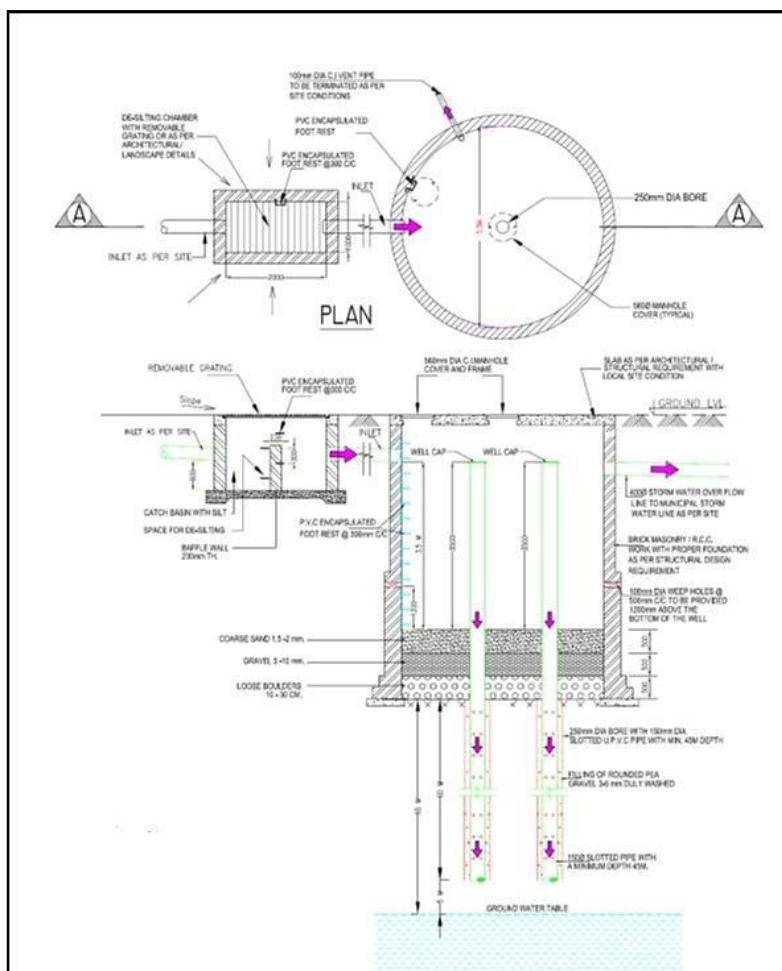


Figure 7: Rainwater Harvesting Pit

PARKING FACILITIES

Adequate provision will be made for car/vehicle parking at the project site. There shall also be adequate provision for visitors parking so as not to disturb the traffic and allow smooth movement at the site. For plotted development the parking shall be within the plots by the individual plot owners.

POWER REQUIREMENT

The power supply shall be supplied by Dakshin Haryana Bijli Vitran Nigam (DHBVN). The maximum load demand for the Expansion of Residential Plotted Colony Project will be approx. 5,490 kVA.

Table 7: Comparison of Power Requirement for Existing and Proposed project

| Power Requirement | EC accorded (kVA) | Expansion (kVA) | Total (kVA) (After Expansion) |
|--------------------------|--------------------------|------------------------|--|
| | 4800 | +690 | 5,490 |

Details of D.G Sets: There is provision of no. of DG sets of total capacity 3,140 kVA (1*1500kVA, 2*500kVA & 2*320kVA) for power back up in the Expansion of Residential Plotted Colony Project. The DG sets will be equipped with acoustic enclosure to minimize noise generation and adequate stack height for proper dispersion

Table 8: Comparison of Power Backup for Existing and Proposed project

| Power back up (D.G sets) | EC accorded (kVA) | Expansion (kVA) | Total (kVA) (After Expansion) |
|-------------------------------------|------------------------------|------------------------|--|
| | 2500 kVA | +640 kVA | 3,140 kVA |

SOLID WASTE GENERATION

Solid waste would be generated both during the construction as well as operation phase. The solid waste expected to be generated during the construction phase will comprise of excavated materials, used bags, bricks, concrete, MS rods, tiles, wood etc. The following steps are proposed to be followed for the management solid waste:

- Construction yards are proposed for storage of construction materials.
- The excavated material such as topsoil and stones will be stacked for reuse during later stages of construction
- Excavated topsoil will be stored in temporary constructed soil bank and will be reused for landscaping of the group housing project.

- Remaining soil shall be utilized for refilling / road work / rising of site level at locations/ selling to outside agency for construction of roads etc.

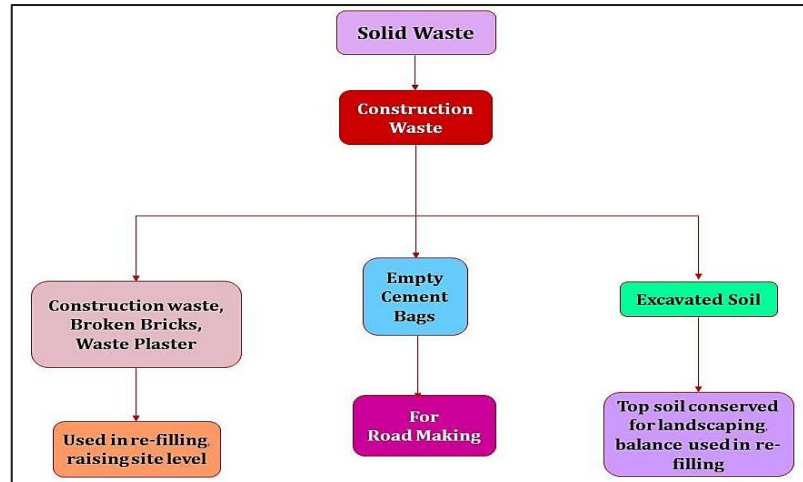


Figure 6: Solid Waste Management Scheme (Construction Phase)

During the operation phase, approx. 1153 kg per day (0.5 kg per capita per day for residents, @ 0.15 kg per capita per day for the visitor, 0.3 kg per capita per day for the staff members and landscape waste @ 0.2 kg/acre/day).

Table 9 : Calculation of Solid Waste

| S. No. | Description | Occupancy | Norms (kg/capita/day) | Waste Generated (kg/day) |
|--|------------------------------------|---|-----------------------|--------------------------|
| 1. | Domestic Solid Waste | | | |
| | • Residents | 2,016 | 0.5 | 1008 |
| | • Staff (Maintenance & Commercial) | 138 | 0.3 | 42 |
| | • Visitors | 533 | 0.15 | 80 |
| 2. | Horticultural Waste (1.57acres) | @ 0.2 kg/acre/day | | 0.314 |
| 3. | STP Sludge | Sludge generated x 0.35 x B.O.D difference/1000 | | 21.97 |
| Total Solid Waste Generation = 1,152.28 kg/day say 1153 kg/day | | | | |

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Table 10: Comparison of Waste Generation for Existing and Proposed project

| Solid waste Generation | EC accorded (kg/day) | Expansion (kg/day) | Total (kg/day) (Expansion) |
|------------------------|----------------------|--------------------|----------------------------|
| | 718 | + 435 | 1153 |

The following arrangements will be made at the site in accordance to Solid Waste Management Rules, 2016:

❖ **Collection and Segregation of waste**

1. A local vendor will be hired for waste collection and disposal from project.
2. Adequate number of colored bins (Green and Blue & dark grey bins– separate for Bio-degradable and Non-Bio-degradable) are proposed to be provided at the strategic locations.
3. Litter bins will also be provided in open areas like parks, etc.

❖ **Treatment of waste**

- **Bio-Degradable waste**

1. Bio-degradable waste will be subjected to composting by organic waste converter and the compost will be used as manure.
2. STP sludge is proposed to be used for horticultural purposes as manure.
3. Horticultural Waste is proposed to be composted and will be used for gardening purposes.

- **Recyclable wastes**

- i. Grass Recycling – The cropped grass will be spread on the green area. It will act as manure after decomposition.
- ii. Recyclable wastes like paper, plastic, metals etc. will be sold off to recyclers.

❖ **Disposal**

Recyclable and non-recyclable waste will be disposed through a local agency. Solid waste management scheme is depicted in the following figure:

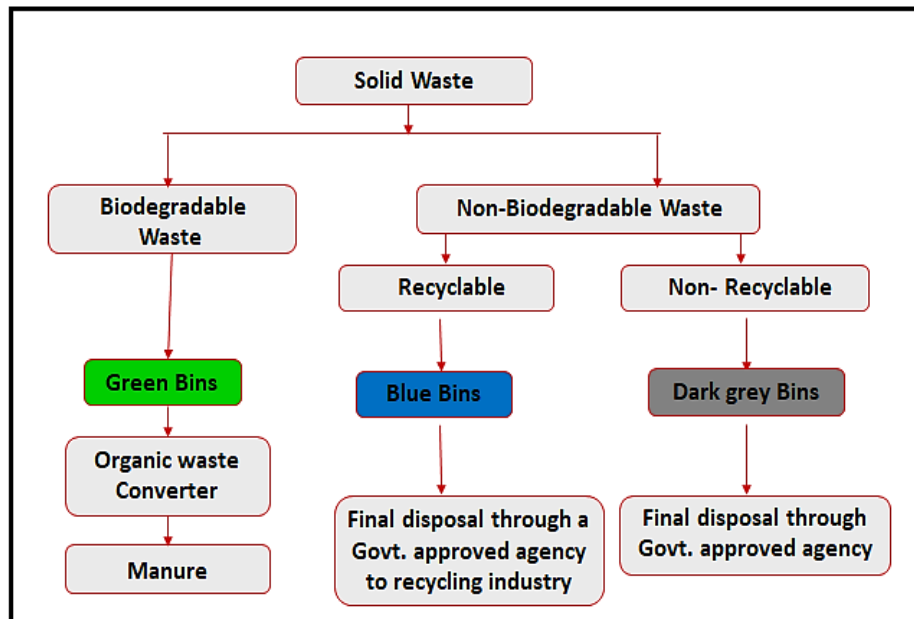


Figure 7: Solid Waste Management Scheme (Operation Phase)

Organic Waste Converter

A waste converter is a machine used for the treatment and recycling of solid and liquid refuse material. A converter is a self-contained system capable of performing the following functions: pasteurization of organic waste; sterilization of pathogenic or biohazard waste; grinding and pulverization of refuse into unrecognizable output; trash compaction; dehydration.

Benefits of organic waste converter:

1. Large quantity of solid waste is converted to manure in a very short period
2. Manure can be used as compost for gardening
3. Machine requires less space and the efficiency is high
4. Manpower and maintenance is very less
5. This is one of the latest techniques of managing biodegradable solid waste.

Organic Waste Converter - 300 (Dim. 3m × 4m) 2 machines are proposed to be used for composting waste 120kg/batch or 3000 kg/day & it requires electricity of about 13.5 HP.

No. of batches /day = $3000/120 = 25$

Bio-degradable waste = 60 % of total generated waste.

$$= 0.6 \times 1153 = 692 \text{ kg/day}$$

Taking 20% higher = 830 kg

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Village-Dunela, Sector-36, Sohna
Gurugram, Haryana**

No. of batches to convert 830kg = $830/120 = 6.91$ say 7

Operation Cost-monthly per capita:

The operating cost of OWC - 300 = 1, 80,000 INR/month

Cost/day = $\text{INR } 1, 80,000/30 = 6000/-$

1 batch/day cost = $6000/25 = 240 \text{ INR}$

Cost for 7 batch/day = $7 \times 240/-$

$= 1,680/-$

Monthly operating cost = $30 \times 1,680 = \text{INR } 50,400/-$ per month

Population of the project (Residents) = 2,016 Nos.

Per capita cost/month = Monthly operating cost/Residents of the project (i.e. 1,196)

$= 50,400/1,196$

= INR 42/resident/month

It will be treated by OWC of capacity 3,000 kg/day & it requires electricity of about 13.5 hp.

GREEN AREA

Total green area measures 6388.12 m² i.e. 20% of the net plot area (Shelter belt, Avenue plantation and lawn). Evergreen tall and ornamental trees like *Acacia leucophloea*, *Acacia nilotica*, *Acacia senegal*, etc. have been proposed to be planted inside the premises.

No. of trees required = $1 \text{ tree}/80\text{m}^2 \text{ of plot area} = 31,940.60/80 = 399.25 \text{ Nos.}$

Total no. of trees proposed = 410 trees.

Table 11: Proposed Plant Species with Local Names

| ROADSIDE & PERIPHERAL PLANTATION | | | |
|----------------------------------|--------------------------------|---------------|--------------|
| S. No. | Botanical Name | Common Name | No. of Trees |
| 1. | <i>Acacia leucophloea</i> | Raunj | 10 |
| 2. | <i>Ficus religiosa</i> | Peepal | 15 |
| 3. | <i>Azadirachata indica</i> | Neem | 10 |
| 4. | <i>Anogeissus pendula</i> | Dhauk | 10 |
| 5. | <i>Bombax ceiba</i> | Semal | 15 |
| 6. | <i>Boswellia serrata</i> | Salai | 15 |
| 7. | <i>Butea monosperma</i> | Dhak | 15 |
| 8. | <i>Cassia fistula</i> | Amaltas | 20 |
| 9. | <i>Cordia dichotoma</i> | Lasura | 10 |
| 10. | <i>Dalbergia sissoo</i> | Shisham | 10 |
| 11. | <i>Holoptelia integrifolia</i> | Papri | 10 |
| 12. | <i>Kigelia pinnata</i> | Kigelia | 15 |
| 13. | <i>Melia azedarach</i> | Bakain | 15 |
| 14. | <i>Pongamia pinnata</i> | Papri, Karanj | 10 |
| 15. | <i>Prosopis cineraria</i> | Jand, Jandi | 10 |
| 16. | <i>Salvadora oleoides</i> | Jal | 15 |
| 17. | <i>Terminalia arjuna</i> | Arjun | 25 |
| 18. | <i>Bauhinia variegata</i> | Kachnar | 60 |
| 19. | <i>Ficus religiosa</i> | Peepal | 60 |
| 20. | <i>Ficus bengalensis</i> | Bad | 60 |
| Total no. of trees | | | 410 |