PROJECT REPORT

OF

SIGANTURE GLOBAL CITY 92 - 2

BY

SIGNATURE INFRABUILD PRIVATE LIMITED

BRIEF DETAILS OF THE PROJECT

1.	**Name of the project**	Signature Global City 92-2
2.	**Name of the promoter/applicant**	Signature Infrabuild Pvt. Ltd.
3.	**Name of the license holder**	Yesha Developers LLP
4.	**Location of the project**	Village –Mewka, Wazirpur, Sec-92, Distt. Gurugram, Haryana
5.	**Registered address**	1310, 13th Floor, Dr. Gopal Das Bhawan, 28 Barakhamba Road New Delhi-110001
6.	**Status of the project**	New Project
7.	**Nature of the project**	Residential Floors (DDJAY)
8.	**Planning area**	GMUMC 2031
9.	**Type of zone**	Hyper 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**	8.3125
13.	**Area applied for registration**	8.3125
14.	**Date of very first license of the project**	License No. 81 of 2022 dated 24/06/2022

DETAILS OF PROJECT COST

S.NO	DETAILS	AMOUNT IN LAKHS
1.	**Land cost as per registration**	19585.66
2.	**Conversion charges**	67.91
3.	**License fee**	136.40
4.	**External Development Charges (as per LOI)**	968.93
5.	**Cost of construction**	22800.00
6.	**Cost of Infrastructure**	0
7.	**Infrastructure Development Charges(as per LOI)**	181.62
8.	**Other Cost**	6575.85
	Total Cost	51487.77

Revenue from Project

	For the project as a whole		
Component	**Average Rate**	**Carpet Area(Sqft**	**Estimated sale proceeds**
Apartments/plots	13825.50/ sqft	**402008.70/ sqft**	55579.71
Commercial	24000.00/ sqft	**20046.29/Sqft**	4811.11
Community facilities	NA	NA	NA
Garages	NA	NA	NA
Estimated total sale proceeds	60390.82		
Total cost	51488.77		
Return from the project	8902.05		

M/s Signature Infrabuild Pvt. Ltd.

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CONCEPTUAL PLAN

INTRODUCTION

M/s Signature Infrabuild Private Limited has planned for Expansion and Revision of Residential Plotted Colony on a land measuring 75,321.99 m^2 (18.61 Acres) of plot area located in the revenue estate of Haryana.

The project was earlier granted Environment Clearance by Sate Environment Impact Assessment Authority (SEIAA), Haryana vide EC Identification no. EC21B038HR158746 & File No. SEIAA/HR/2021/439 dated 7th December, 2021 for Plot area 41,682.555 m^2 and Built-up area 1,17,209.267 m^2.

Now, as per the Market scenario, the proponent decided to expand and revise the Residential Plotted Colony project therefore we have now proposed for Expansion and Revision of Project, due to which both the plot area & built-up area will increase to 75,321.99 m^2 and 2,02,558.34 m^2 for which we are applying for Terms of Reference as per EIA Notification 2006.

The company has vast experience in planning and construction of Residential & Commercial projects. The project facilities include:

- Plotted Development
- Commercial
- Community facilities

SITE LOCATION AND SURROUNDINGS

The project site is located at Village-Wazirpur & Meoka, Sector-92, Gurugram, Haryana. The geographical co-ordinates of project site are 28°24'38.58" N & 76°55'4.12"E. Google Earth image showing project site &surroundings within 500 m & Topo-sheet map within 10 km are shown in Fig: 1 & 2.

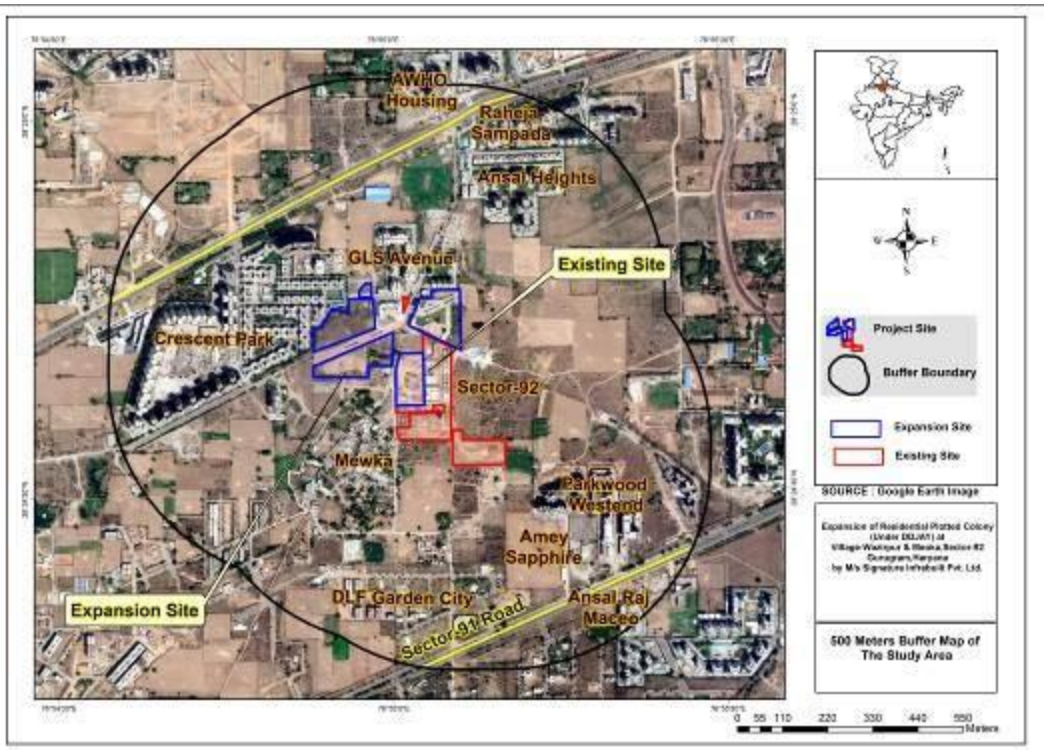

Fig.1: Location of the Project Site on 500 m Buffer Map

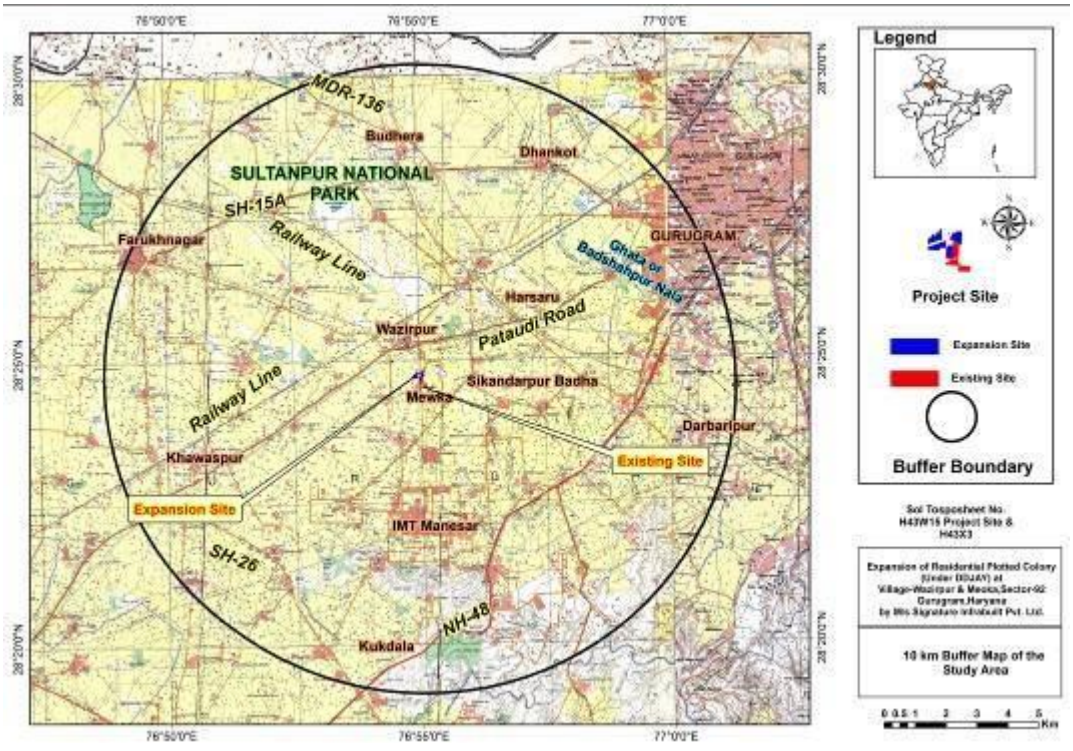

Fig. 2: SOI Toposheet Showing 10 km radius around Project site

CONNECTIVITY

- **Nearest National Highway: -** NH-48 which is approx. 5 km towards SE direction from project site.
- **Nearest Highway: -** SH-26 which is approx. 7.3 km towards SW direction from project site.
- **Nearest Railway Station: -** Garhi Harsaru Railway Station which is approx. 3 km towards NE direction from the project.
- **Nearest Airport: -** Indira Gandhi International Airport at 22 km towards NE direction from project site.

PROJECT COST

Total Project cost (Existing + Expansion and Revision) is INR 623.49 Cr.

Table 1: Comparative Cost Details (EC accorded + Expansion)

Particulars	As per earlier EC	Expansion	Total (As per earlier EC + Revision & Expansion)
Project Cost	INR 373.49 Cr	+ INR 250 Cr	INR 623.49 Cr

AREA STATEMENT

The total area of project is estimated to be 75,321.9956 m^2 (18.61 acres). The detailed Area Statement is provided below in Table 2:

Table 2: Detailed Area Statement

S. No.	Particulars	EC granted (in m^2)	Expansion (in m^2)	Total Area (EC granted + Expansion & Revision) (in m^2)
1.	**Total Plot area**	**41,682.555**	**+33,639.44**	**75,321.99**
2.	**Area Falling under 24.0 M wide road**	**3,197.011**	**+216.71**	**3,413.72**
3.	**Net Plot Area**	**38,485.544**	**+33,422.73**	**71,908.27**
4.	**Permissible area**	**31,261.90**	**+25,229.56**	**56,491.46**
	• Residential	(61% of the Plot Area) 25,426.35	+20,520.05	(61% of the Plot Area) 45,946.40
	• Commercial	(4% of the Plot Area) 1,667.30	+1,345.57	(4% of the Plot Area) 3,012.87

	• Community	(4% of the Plot Area) 4,168.25	+3,363.94	(4% of the Plot Area) 7,532.19
5.	**Proposed area**	**25,922.272**	**+21,856.24**	**47,778.51**
	• Residential	(48.19% of the Plot Area) 20,086.77	+17,146.66	(49.43% of the Plot Area) 37,233.43
	• Commercial	(4% of the Plot Area) 1,667.30	+1345.57	(4% of the Plot Area) 3,012.87
	• Community	(10% of the Plot Area) 4,168.39	+3363.80	(10% of the Plot Area) 7,532.19
6.	**Permissible FAR**	**55,530.03**	**+47,285.57**	**1,02,815.60**
	• Residential	(@2.64 of the proposed residential area) 53,029.07	+45,267.20	(@2.64 of the proposed residential area) 98,296.27
	• Commercial	(@1.5 of the proposed commercial area) 2,500.95	+2018.36	(@1.5 of the proposed commercial area) 4,519.31
7.	**Proposed FAR**	**50,645.49**	**+49,213.99**	**99,859.48**
	• Residential	(@2.396 of the proposed residential area) 48,144.54	+47,195.63	(@2.56 of the proposed residential area) 95,340.17
	• Commercial	(@1.5 of the proposed commercial area) 2,500.95	+2018.36	(@1.5 of the proposed commercial area) 4,519.31
8.	**Non-FAR Area**	**66,563.77**	**+36,135.09**	**1,02,698.86**
	• Basement Area	16,775.19	+13,446.98	30,222.17
	• Stilt Area	12,621.48	+13040.51	25,661.99
	• Terrace Area	12,461.81	-	12,461.81
	• Service Area	1,000	+800	1,800
	• Commercial (Balcony etc.)	923.39	+738.4	1,661.79
	• Residential (Balcony etc.)	22,781.89	+8109.2	30,891.09
9.	**Total Built up area**	**1,17,209.267**	**85,349.073**	**2,02,558.34**
10.	**Proposed Landscape Area**	**(@12.71% of the plot area) 5,297.85**	**+3,841.69**	**(@12.71% of the plot area) 9,139.54**

POPULATION DENSITY

The total population of project according to granted EC is 4,787 persons. After the proposed expansion the total population increases to 8,834 persons. The detailed population break-up is given below in Table 3 & 4:-

Table 3: Comparative Details of the Population (EC accorded + Expansion & Revision)

S. No.	Description	Value as per earlier EC	Expansion & Revision	Total Quantity (EC accorded + Expansion & Revision)
1.	Population	4787	+4047	8,834

Table 4: Population Break-up (EC granted + Expansion & Revision)

S. No.	Description	DUs/FAR (sqm)	PPU	Total Population
1.	Residential	354	18	6372
2.	Maintenance Staff	5% of residential population		319
3.	Visitors	10 % of residential population		637
4.	Commercial	4,519.3197	3 Sqm per person	151
	• Staff	10 % of commercial population		
	• Visitors	90 % of commercial population		1355
Grand Total Population				**8,834**

WATER REQUIREMENT & SUPPLY SYSTEM

During operation phase, the source of water supply will be GMDA. According to the granted EC, the total water requirement for the project is approx. 340 KLD out of which domestic water demand is 324 KLD. The fresh water requirement will be 236 KLD. After the proposed expansion and revision, The total water requirement for the project will be approx. 628 KLD out of which domestic water demand is 599 KLD. The fresh water requirement will be 436 KLD. The calculation of daily water requirement and waste water is given below in Table 6-7. The comparative water calculation is given below in Table 5.

Table 5: Comparative Water Calculation (EC accorded + Expansion & Revision)

S. No.	Description	Value as per earlier EC (KLD)	Expansion & Revision (KLD)	Total Quantity (EC accorded + Expansion & Expansion) (KLD)
1.	Total water demand	340	+188	628
2.	Domestic Water	324	+275	599
3.	Fresh water	236	+200	436
4.	Waste water	277	+235	512
5.	STP Capacity	350	+280	640

Table 6: Calculations for Daily Water Demand

S. No.	Description	Occupancy	Rate of water demand (lpcd)		Total Water Requirement		
A.	**Domestic Water**						
			Fresh	**Flushing**	**Fresh**	**Flushing**	**Total**
1	• Residents	6372	@65 lpcd	@ 21 lpcd	414.18	133.81	**547.99**
2	• Staff (Maintenance, Commercial, facilities)	470	@25 lpcd	@20 lpcd	11.75	9.4	**21.15**
3	• Visitors (residential Commercial, facilities)	1992	@ 5 lpcd	@ 10 lpcd	9.96	19.92	**29.88**
					435.89 KLD say 436 KLD	**163.13 KLD say 163 KLD**	**599.02 KLD say 599 KLD**
Total Domestic Water = 599 KLD							
B.	**Horticulture**	9,139.54 m^2	3 lt./m^2/day		**27.41 KLD say 27 KLD**		
Grand Total (A+B) = 626 KLD							

TABLE 7: WASTE WATER CALCULATIONS

Domestic Water	599 KLD
• Fresh water	436 KLD
• Flushing water	163 KLD

Waste water [@80% fresh + 100% flushing]	348.8 + 163 = **511.8 Say 512 KLD**
STP Capacity (at 1.25 times of W.W generated)	**640 KLD**

The water balance diagrams for different seasons are shown below:

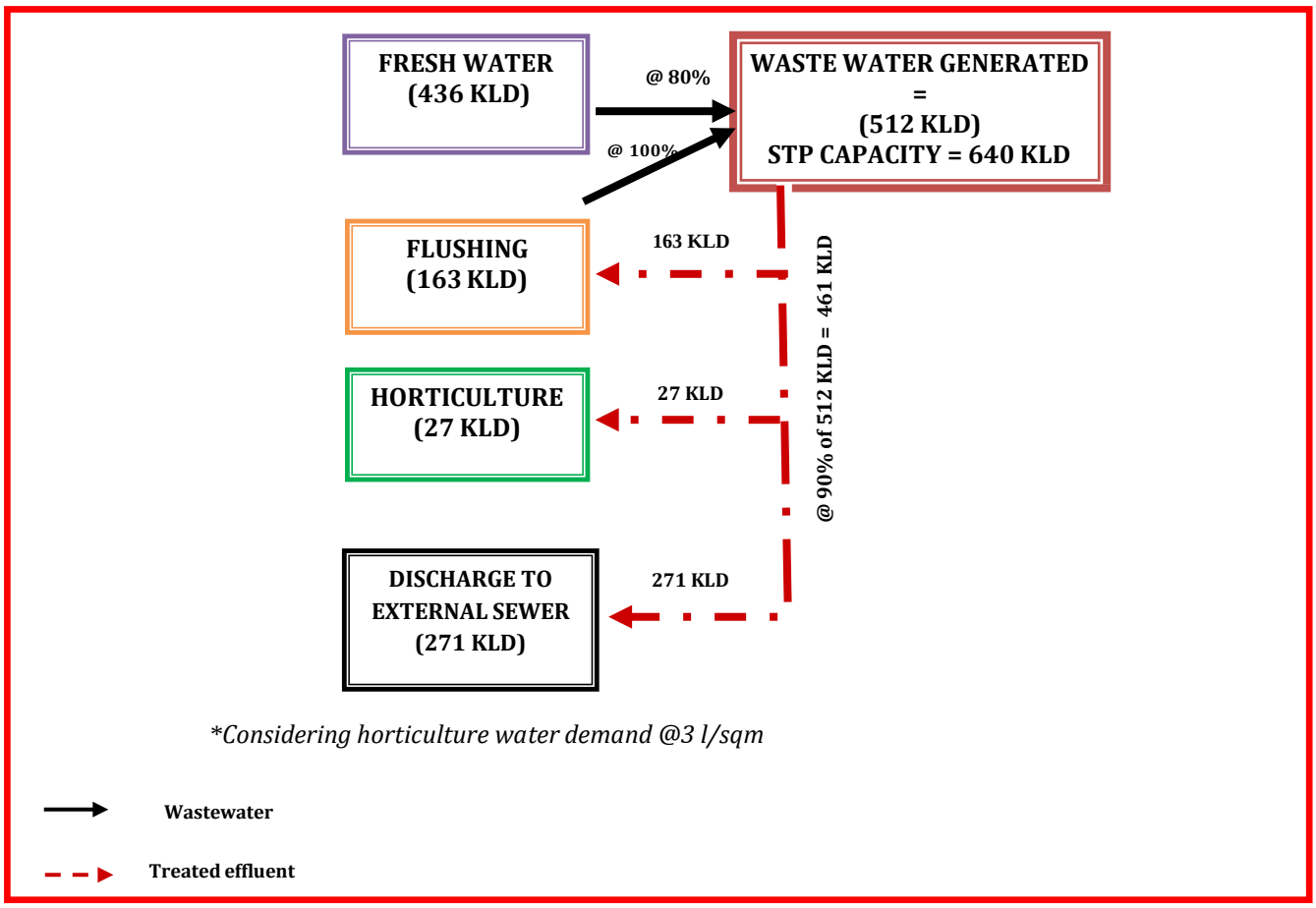

Figure 3: Water Balance Diagram (Summer Season)

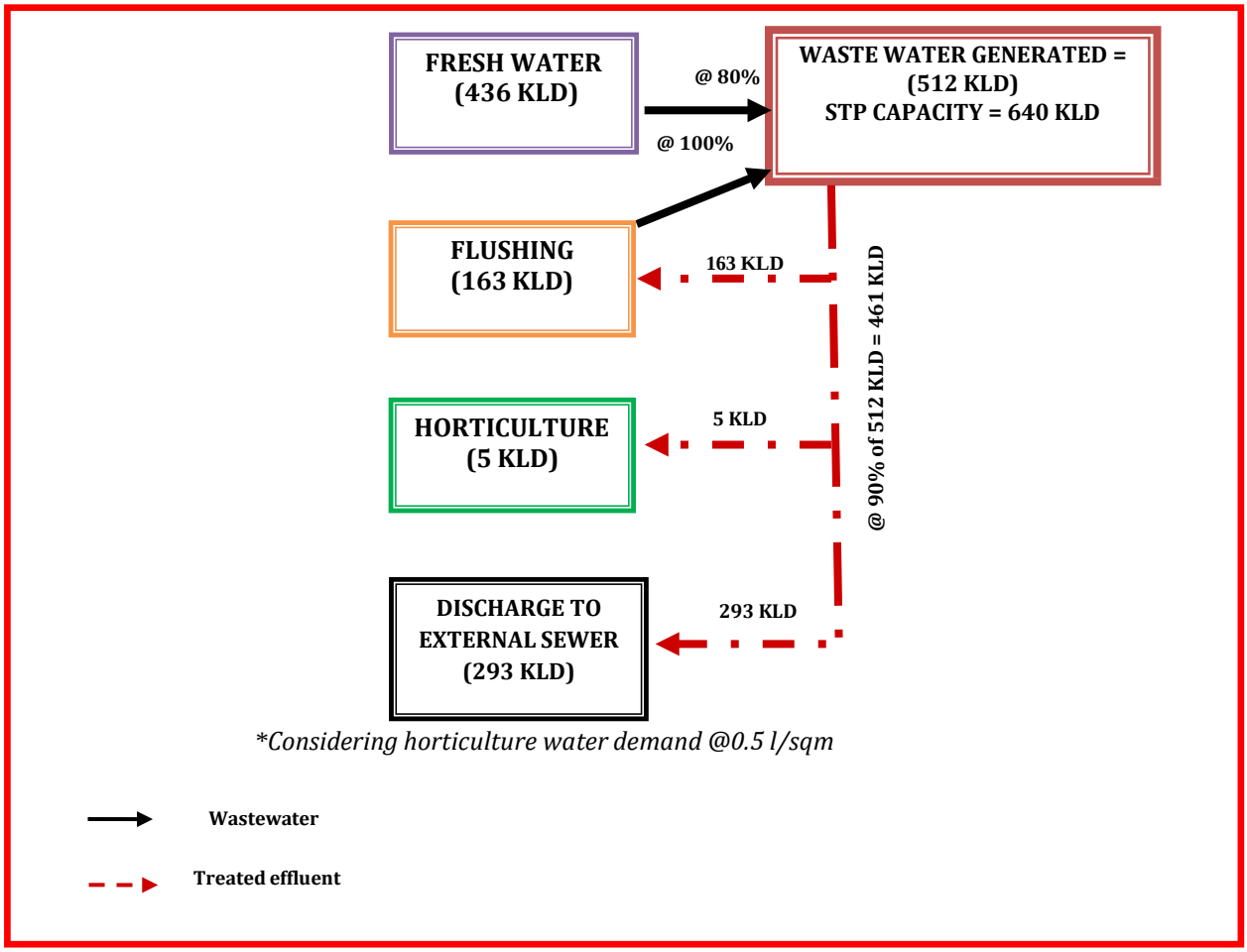

Figure 4: Water Balance Diagram (Monsoon Season)

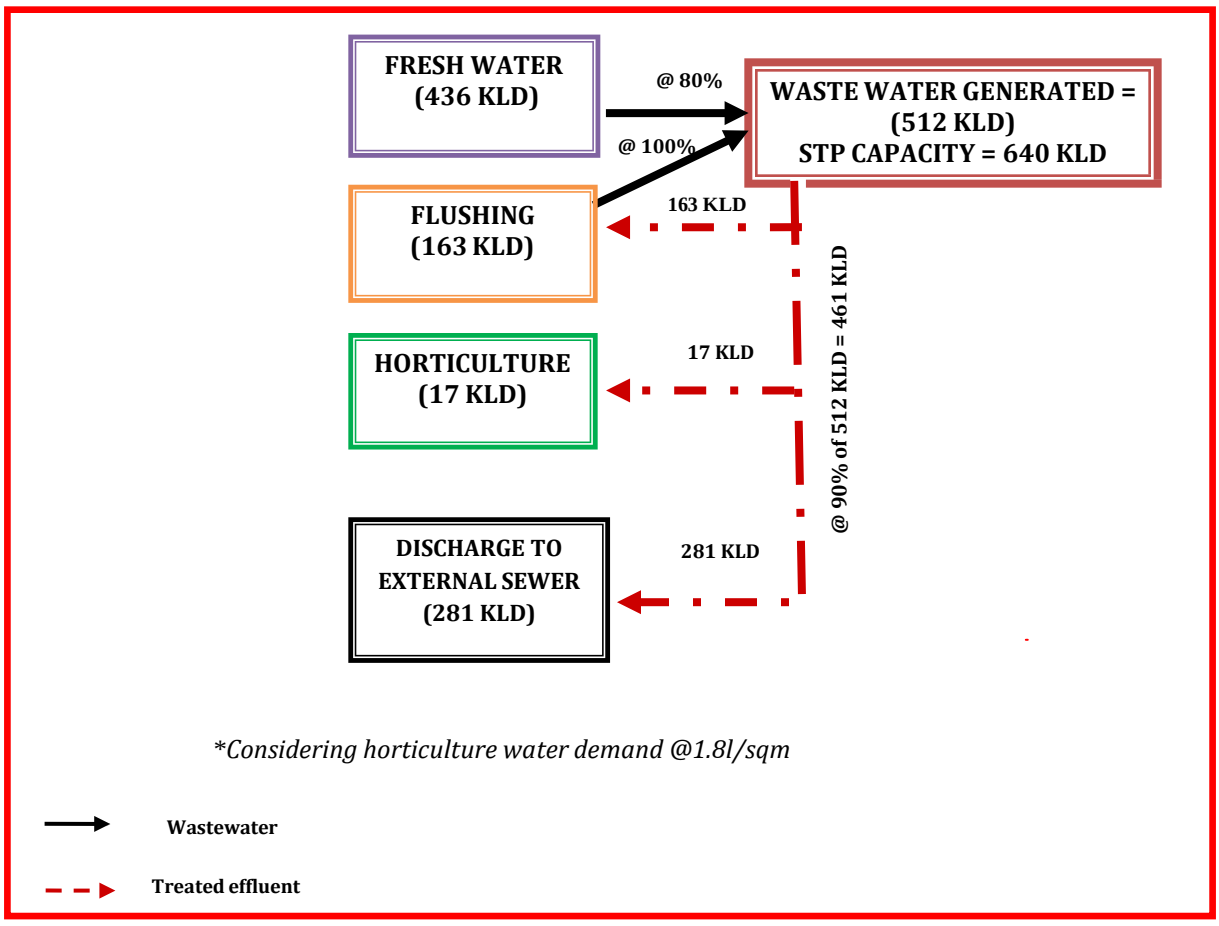

Figure 5: Water Balance Diagram (Winter Season)

Waste Water Generation & Treatment

It is expected that the project will generate approx. 512 KLD of wastewater. The wastewater will be treated in onsite STP of 640 KLD capacity. The treated effluent will be reused for flushing & horticulture. Surplus treated effluent will be discharged to external sewer.

SEWAGE TREATMENT PLANT

SBR TECHNOLOGY

An external sewage network shall collect the sewage from all units, and flow by gravity to the sewage treatment plant. Sewage Treatment Plant of 640 KLD has been proposed for the Project.

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 waste water.

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	:	512 KLD
(b)	Duration of flow to STP	:	24 hours
(c)	Temperature	:	Maximum 32oC
(d)	pH	:	6.5-8.5
(e)	Colour	:	Mild
(f)	T.S.S. (mg/l)	:	250-400 mg/l
(g)	BOD5 (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.	:	<5 mg/l
(c)	C.O.D.	:	<100 mg/l
(d)	Total Suspended Solids	:	<20mg/l

Treatment Technology

SBR TECHNOLOGY

The sequencing batch reactor (SBR) is a fill-and draw activated sludge system for wastewater treatment. In this system, wastewater is added to a single "batch" reactor, treated to remove undesirable components, and then discharged. Equalization, aeration, and clarification can all be achieved using a single batch reactor. To optimize the performance of the system, two or more batch reactors are used in a predetermined sequence of operations. SBR systems have been successfully used to treat both municipal and industrial wastewater. They are uniquely suited for wastewater treatment applications characterized by low or intermittent flow conditions. Fill-and-draw batch processes similar to the SBR are not a recent development as commonly thought. Between 1914 and 1920, several full-scale fill-and draw systems were in operation. Interest in SBRs was revived in the late 1950s and early 1960s, with the development of new equipment and technology. Improvements in aeration devices and controls have allowed SBRs to successfully compete with conventional activated sludge systems. The unit processes of the SBR and conventional activated sludge systems are the same. A 1983 U.S. EPA report, summarized this by stating that "the SBR is no more than an activated sludge system which operates in time rather than in space." The difference between the two

technologies is that the SBR performs equalization, biological treatment, and secondary clarification in a single tank using a timed control sequence. This type of reactor does, in some cases, also perform primary clarification. In a conventional activated sludge system, these unit processes would be accomplished by using separate tanks.

A typical process flow schematic for a municipal wastewater treatment plant using an SBR is shown in Figure 1. Influent wastewater generally passes through screens and grit removal prior to the SBR. The wastewater then enters a partially filled reactor, containing biomass, which is acclimated to the wastewater constituents during preceding cycles. Once the reactor is full, it behaves like a conventional activated sludge system, but without a continuous influent or effluent flow. The aeration and mixing is discontinued after the biological reactions are complete, the biomass settles, and the treated supernatant is removed. Excess biomass is wasted at any time during the cycle. Frequent wasting results in holding the mass ratio of influent substrate to biomass nearly constant from cycle to cycle. Continuous flow systems hold the mass ratio of influent substrate to biomass constant by adjusting return activated sludge flow rates continually as influent flow rates, characteristics, and settling tank underflow concentrations vary. After the SBR, the "batch" of wastewater may flow to an equalization basin where the wastewater flowrate to additional unit processed can be is controlled at a determined rate. In some cases the wastewater is filtered to remove additional solids and then disinfected. As illustrated in Figure 1, the solids handling system may consist of a thickener and an aerobic digester. With SBRs there is no need for return activated sludge (RAS) pumps and primary sludge (PS) pumps like those associated with conventional activated sludge systems. With the SBR, there is typically only one sludge to handle. The need for gravity thickeners prior to digestion is determined primary clarifiers are used prior to the biological system. However, primary clarifiers may be recommended by the SBR manufacturer if the total suspended solids (TSS) or biochemical oxygen demand (BOD) are greater than 400 to 500 mg/L. Historic data should be evaluated and the SBR manufacturer consulted to determine whether primary clarifiers or equalization are recommended prior to an SBR for municipal and industrial applications.

Equalization may be required after the SBR, depending on the downstream process. If equalization is not used prior to filtration, the filters need to be sized in order to receive the batch of wastewater from the SBR, resulting in a large surface area required for filtration. Sizing filters to accept these "batch" flows is usually not feasible, which is why equalization is used between an SBR and downstream filtration. Separate equalization following the biological system is generally not required for most conventional activated sludge systems, because the flow is on a continuous and more constant basis.

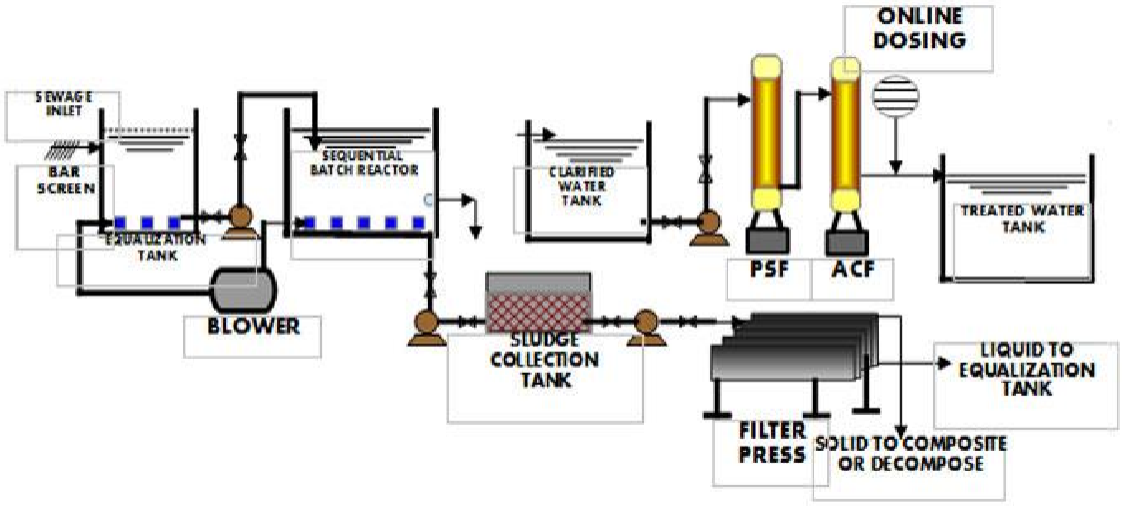

Figure 6: Schematic Diagrams for STP Based on SBR Technology

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 11 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.

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 3.5 m diameter and 3.5 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 10-20 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.

Table 8: Comparative RWH Pits Details

Rain Water Harvesting Pits	EC accorded	Expansion	Total (EC accorded +Expansion & Revision)
	11	No Change	11

Calculations for storm water load:

Plot Area = 71,908.27 m^2

Green Area = 9,139.54 m^2

Paved Area = Plot Area – [(Area under residential plots + Area under commercial complexes + Area under Community facilities) + Green Area]

= 71,908.27 – [(37,223.43+ 3,012.87+ 7532.19) + 9,139.54]

= 15000.24 m^2

Green Area = 9139.54 × 0.09 × 0.20

= 164.51 m^3/hr

Paved Area = 17980.10 × 0.09 × 0.70

= 945.01 m^3/hr

Total Runoff Load = 164.51+945.01

= 1109.52 m^3/hr

Taking 20 minutes retention time, volume of storm water = 1,109.52/3 = 369.84 m^3
Capacity of Recharge pit = $\pi r^2 h$ = 3.14 × 1.75 × 1.75 × 3.5 = 33.65 m^3
Hence No. of pits required = 369.84/33.65= 10.99 say 11.

PARKING REQUIREMENT

The project is a Plotted Residential Colony. For plotted development the parking will be within the plots by the individual plot owners.

POWER REQUIREMENT

The power supply will be supplied by Dakshin Haryana Bijli Vitran Nigam (DHBVN). The total maximum demand is estimated as 2535 KVA.

Details of D.G Sets

There is provision of 3 no. of DG sets of 500 KVA (total 1,500 KVA) capacities for Residential & Commercial Part (only for common facilities) for power back up in the Plotted Residential colony. The DG sets will be equipped with acoustic enclosure to minimize noise generation and adequate stack height for proper dispersion.

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 top soil 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.

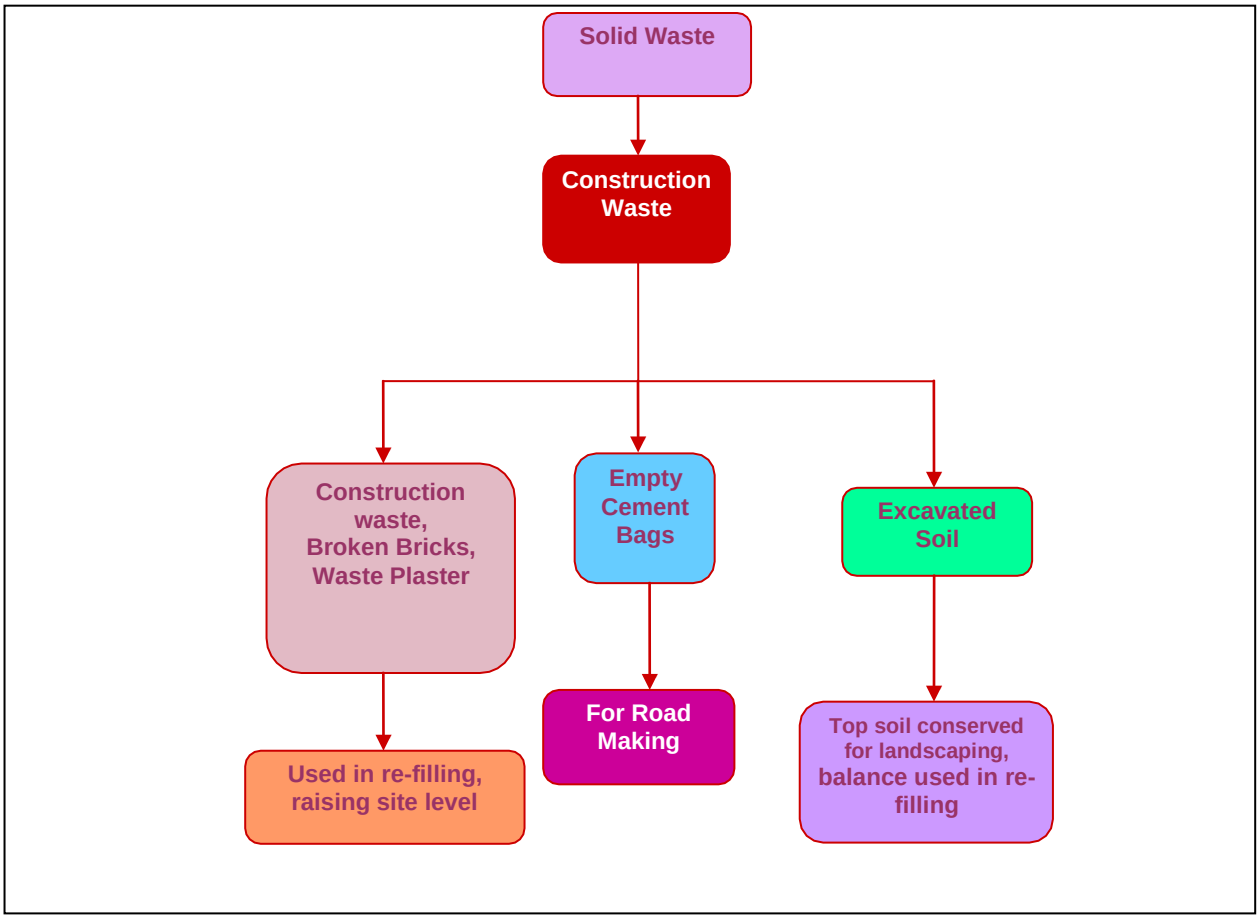

Figure 7: Solid Waste Management Scheme (Construction Phase)

During the operation phase, waste will comprise domestic as well as horticultural waste. The solid waste generated from the project shall be approx. 3,697 kg per day (@ 0.5 kg per capita per day for residents, @ 0.15 kg per capita per day for the visitor, 0.3kg per capita per day for the staff members and landscape waste @ 0.2 kg/acre/day). Following arrangements will be made at the site in accordance to Municipal Solid Waste (Management and Handling) Rules, 2000 and amended Rules, 2016:

Table 9: Comparative Solid Waste Generation Details

Solid Waste Generation	EC accorded (kg/day)	Expansion (kg/day)	Total (EC accorded + Revision & Expansion) (kg/day)
	1988	+1709	3697

Table 10: Calculation of Solid Waste Generation

S. No.	Description	Occupancy	Waste Generated (kg/capita/day)	Waste Generated (kg/day)
1.	**Domestic Solid Waste**			
	• Residents	6372	0.5	3186
	• Staff (Maintenance, Commercial, facilities)	470	0.3	141
	• Visitors	1992	0.15	298.8
2.	Horticultural Waste	2.25 Acres	@ 0.2 kg/acre/day	0.45
3.	STP Sludge	Waste Water generated x 0 .35 x B.O.D difference/1000		70.78
Total Solid Waste Generation= 3,697.034 Say 3697 kg/day				

❖ **Collection and Segregation of waste**

1. A door to door collection system will be provided for collection of domestic waste in colored bins from household units.
2. The local vendors will be hired to provide separate colored bins for dry recyclable and Bio-Degradable waste.
3. For commercial waste collection, 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 of the commercial area.
4. Litter bin 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:

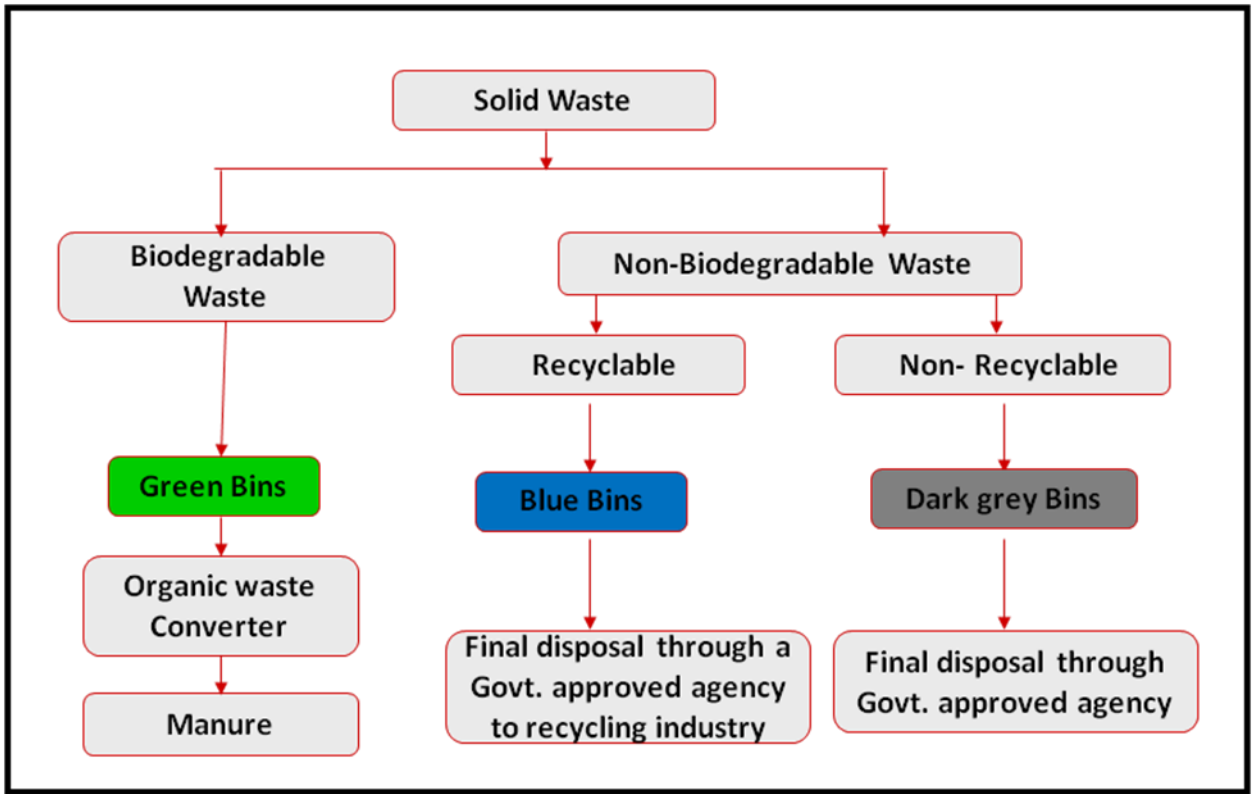

Figure 8: Solid Waste Management Scheme (Operation Phase)

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.

Operation cost of OWC:

Organic Waste Converter - 300 (Dim. 3m × 4m) is 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
Biodegradable Waste to be converted = 60% of total solid waste generated = 2,218.2 kg/day
Taking 20% higher = 2,661.84 kg/day
No. of batches to convert 2,661.84 kg/day = 2,661.84/120 = 22.182 say 22 batches

Operation Cost-monthly per capita:

The operating cost of OWC - 300 = 1, 80,000 INR/month
Cost/day = 1, 80,000/30
= 6000/-
1 batch/day cost = 6000/25
= 240 INR
Cost for 22 batch/day = 22 × 240/-
= 5,280/-
Monthly operating cost = 30 × 5280
= Rs. 158,400/- per month

Area proposed for the OWC = 100 Sq.m

GREEN AREA

Total green area measures 9139.54 m^2 i.e. 12.71% of the plot area. Plantation will be done at project boundary as well as at peripheral areas. And organized green would be planted on land available between blocks which would enhance the aesthetic beauty of the area. The indicative list of trees and plants proposed to be planted are given in Table 11.

Table 11: Plant Species with Local Names

S. No.	Botanical Name	Common Name
1.	*Acacia Nilotica*	Kikar
2.	*Azadirachata indica*	Neem
3.	*Bauhinia Purpurea*	Kachnar
4.	*Butea monosperma*	Dhak
5.	*Cassia fistula*	Amaltas
6.	*Dalbergia Sisoo*	Sheesham
7.	*Ficus Glomerata*	Gular
8.	*Polyalthia longifolia*	Ashoka

9.	*Pongamia pinnata*	Karanj
10.	*Terminalia arjuna*	Arjun

DETAIL OF CONSTRUCTION MATERIAL

List of building materials being used at site:

1. Coarse sand
2. Fine sand
3. Stone aggregate
4. Stone for masonry work
5. Cement
6. Reinforcement steel
7. Pipe scaffolding (cup lock system)
8. Bricks
9. CLC fly ash blocks
10. Crazy (white marble) in grey cement
11. P.V.C. conduit
12. MDS, MCBs
13. PVC overhead water tanks
14. 2 1/2'' thick red colour paver tiles
15. PPR (ISI marked)
16. PVC sullage lines
17. S.W. sewer line up to main sewer
18. PVC rain water down take
19. Stainless steel sink in kitchen
20. Joinery hardware- ISI marked

MATERIALS USED FOR CONSTRUCTION & THEIR U VALUE

Type of Construction	U values(in W/m2 deg C)
WALLS:	
Brick:	
Plastered both sides - 114 mm	3.24
Solid , Unplastered - 228 mm	2.67
Plastered both sides - 228 mm	2.44
Concrete,ordinary,Dense:	
- 152 mm	3.58
- 203 mm	3.18
Concrete block, cavity,250 mm (100+50+100), outside rendered,inside plastered:	
Aerated Concrete blocks	1.19
Hollow Concrete block, 228 mm,single skin,outside rendered, inside plastered:	
Aerated Concrete blocks	1.70
Roofs Pitched :	
Tiles or Slates on boarding and felt with plaster ceiling.	1.70
Roofs Flat :	
Reinfoced concrete slab, 100 mm, screed 63-12 mm, 3 layers bituminous felt.	3.35
Floors :	
Concrete on ground or hardcore fill	1.13
+ Grano,Terrazzo or tile finish	1.13
+ Wood block finish	0.85
WINDOWS :	
Exposure South , Sheltered:	
Single glazing	3.97
Double glazing 6 mm space	2.67

LIST OF MACHINERY USED DURING CONSTRUCTION

(i) Dumper
(ii) Concrete mixer with hopper
(iii) Excavator
(iv) Concrete Batching Plant
(v) Cranes
(vi) Road roller
(vii) Bulldozer
(viii) RMC Plant
(ix) Tower Cranes
(x) Hoist
(xi) Labor Lifts
(xii) Pile Boring Machines
(xiii) Concrete pressure pumps
(xiv) Mobile transit mixer