

1.0 INTRODUCTION

M/s Jag Narayan Singh Memorial Trust, Patna has proposed to construct the Proposed Ram Sakhi Devi Medical College and Hospital at Village – Sripalpur, Punpun, Thana No. – 60, P.S. – Punpun, District – Patna, Bihar. The project is proposed over Plot/Khasra No. – 404, 405, 407, 408, 429, 439, 444, 90 and 91 under Khata No. – 17, 20, 27, 30, 43, 44, 72 and 109

The Total Plot Area as per land documents is **16379.52 Sq.m** and the estimated Total Built-up Area is approximately **67, 913.55 Sq.m.** with a proposed FAR of **4.33**.

The project offers the following components/facilities:

- Hospital Block (G+5)
- Medical College Building (G+4)
- Boys Hostel (G+6)
- Girls Hostel (G+5)
- Canteen Block (G+1)
- Guard Rooms
- Open Parking Areas
- Emergency Parking Area
- Internal Driveways and Circulation Network
- Rain Water Harvesting System
- Landscaped/Open Areas
- Entry & Exit Gates
- Utility and Support Infrastructure

The proposed campus has been planned as an integrated institutional and healthcare development with modern infrastructure facilities, efficient circulation planning, emergency accessibility, environmental sustainability measures, and adequate open spaces as per the uploaded site plan.

1.1 APPLICABLE LEGAL FRAMEWORK

The project involves the development of **Proposed Ram Sakhi Devi Medical College and Hospital, At – Sripalpur, Punpun, Run by Jag Narayan Singh Memorial Trust, Patna** at Mauza – Sripalpur, Thana – Punpun, District – Patna, Bihar. The Total Built-up Area of the proposed project is approximately **67,913.55 Sq.m.** within a plot area of **15,663.75 Sq.m.**

The proposed campus comprises Medical College Building, Hospital Block, Boys Hostel, Girls Hostel, Canteen Block, Guard Rooms, Parking Areas, Internal Roads, Emergency Parking, and Rain Water Harvesting structures. The project has been planned with proper internal circulation, separate entry and exit provisions, landscaped/open spaces, and adequate emergency access facilities.

The campus layout has been planned with an 18.30-meter-wide internal roadway to ensure smooth vehicular circulation and adequate accessibility for emergency and fire tender movement within the project premises. Open parking facilities and designated emergency parking areas near the hospital block have also been incorporated in the site planning. Further, Rain Water Harvesting structures along with a proper storm water drainage network have been proposed to promote sustainable water management and environmental conservation within the campus.

As per the provisions of the EIA Notification, 2006 and its subsequent amendments, projects listed under the Schedule of the notification attract the applicability of prior Environmental Clearance requirements. Building and Construction Projects having a built-up area of more than 20,000 sq.m are covered under Category 8(a) of the Schedule. Since the proposed project has a total built-up area of approximately 67,913.55 sq.m, the project falls under Category 8(a) – Building and Construction Projects and therefore requires prior Environmental Clearance from the competent authority.

The Acts and Rules applicable to the proposed project include the following:

- Environment (Protection) Act, 1986
- EIA Notification, 2006 and subsequent amendments
- Solid Waste Management Rules, 2026
- Construction & Demolition Waste Management Rules, 2016
- Plastic Waste Management Rules, 2016
- Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016
- E-Waste Management Rules, 2016
- Air (Prevention & Control of Pollution) Act, 1981
- Water (Prevention & Control of Pollution) Act, 1974
- Applicable Local Building Bye-Laws
- Forest (Conservation) Act, 1980, wherever applicable
- Indian Forest Act, 1927, wherever applicable

1.2 CONNECTIVITY AND SURROUNDINGS OF PROJECT SITE

The proposed project site is located at Village – Sripalpur, Punpun, District – Patna, Bihar. The geographical coordinates of the project site lie approximately between latitude **25°29'52.70"N to 25°29'58.68"N** and longitude **85°06'41.66"E to 85°06'45.63"E**.

The project site is well connected through the regional road network and is located near **NH-59**, situated at an approximate distance of about **0.59 km towards the west** of the project site, providing connectivity to Patna city and adjoining regions. The project site falls within the developing area of Patna district with availability of basic infrastructure and transportation facilities.

The nearest river to the project site is the **Punpun River**, located at an approximate distance of about **0.32 km towards the west**. The nearest healthcare facility is **PHC Punpun Government**

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Proposed Ram Sakhi Devi Medical College and Hospital, At – Sripalpur, Punpun, Patna, Bihar

Hospital, situated at an approximate distance of about **0.99 km towards the west** of the project site. The nearest educational institution is **S.B.C.P + 2 Girls School, Sripalpur**, located at an approximate distance of about **0.20 km towards the west** of the project site.

The surrounding land use of the project site primarily comprises educational institutions, healthcare facilities, transportation corridors, open/vacant land and residential developments. No ecologically sensitive area falls within the immediate vicinity of the proposed project site, making the site suitable for the proposed medical college and hospital development.

Table 1: Surroundings of Project Site

S. No.	Feature	Name / Description	Distance	Direction
1	Nearest River	Punpun River	~0.32 km	West
2	Nearest Highway	NH-59	~0.59 km	West
3	Nearest City / Town	Patna	Within city	—
4	Nearest Hospital	PHC Punpun Government Hospital	~0.99 km	West
5	Nearest School	S.B.C.P +2 Girls School , Sripalpur	~0.20 km	West
6	Ecologically Sensitive Area	-	-	-



Figure 1: Google Map

1.3 PROJECT COST

The total cost of the project is INR 75 Crores.

1.4 LAND REQUIREMENT AND AREA SUMMARY

The total Plot Area as per land documents is **16379.52 Sq.m** and as per site plan is **15,663.75 Sq.m** and the estimated Total Built-up Area is approximately **67,913.55 Sq.m.** with proposed FAR of **4.33**.

The detailed area statement is provided below in **Table 2:**

Table 2: Detailed area statement

S. NO.	DESCRIPTION	Detail
1.	Plot Area (as per Site Plan)	15,663.75 Sq.m
2.	Total Plot Area (as per Land Documents)	16379.52 Sq.m
3.	Total Ground Coverage Area	13613.44 Sq.m
4.	Total Built up Area	67,913.55 Sq.m
5.	Green Area (A+B) @9.75%	1528 sqm.
6.	Total Parking Area (A+B)	2040 sqm.
7.	Number of Beds	650
8.	No. of Student Seats per year in Medical College	150
9.	Number of OPD	1050
10.	FAR	4.33
11.	STP	600 KLD
12.	ETP	50 KLD
13.	Total Municipal Waste	1200 kg/day
14.	Total Biomedical Waste	650 Kg/day
15.	Building Height	30 Meter
16.	Power Requirement	50 KWH
17.	Power Backup	70 kVA
18.	Total Water Requirement	537
19.	Waste Water Generated	461
20.	Project Cost	75 cr.

Table 3: Block-wise Built-up Area Details (Sq.m)

S. No.	Block	Ground Coverage / Ground Floor Area	No. of Floors	Total Built-up Area
1	Hospital Block	4987.59 Sq.m	G+5	26054.34 Sq.m
2	Medical College Building	5992.50 Sq.m	G+4	25827.70 Sq.m
3	Boys Hostel	1196.09 Sq.m	G+6	8372.63 Sq.m
4	Girls Hostel	1196.09 Sq.m	G+5	7176.54 Sq.m
5	Canteen Block	241.17 Sq.m	G+1	482.34 Sq.m
	Grand Total Built-up Area			67913.55 Sq.m

Table 4: Floor-wise Built-up Area Details (Sq.m)

Floor	Hospital Block	Medical College Building	Boys Hostel	Girls Hostel	Canteen Block	Total Floor Area
Ground Floor	4987.59	5992.50	1196.09	1196.09	241.17	13613.44
First Floor	4213.35	4958.80	1196.09	1196.09	241.17	11805.50
Second Floor	4213.35	4958.80	1196.09	1196.09	—	11564.33
Third Floor	4213.35	4958.80	1196.09	1196.09	—	11564.33
Fourth Floor	4213.35	4958.80	1196.09	1196.09	—	11564.33
Fifth Floor	4213.35	—	1196.09	1196.09	—	6605.53
Sixth Floor	—	—	1196.09	—	—	1196.09
Total Built-up Area	26054.34	25827.70	8372.63	7176.54	482.34	67913.55 Sq.m

Site Plan is attached as ***Annexure***.

1.5 POPULATION DENSITY

The total population of the hospital will be approximately 3555 persons, which includes outdoor patients, indoor patients, attendants, OPD, Doctors, Resident Doctors, Nurses, technicians, and staff. The population break-up is given below in **Table 5**.

Table 5: Population Density

Category	No of Beds/DUs	Person/Unit	Population
Resident population			
No. of Beds	650 beds	1/bed	650
Attendant	650 beds	1/bed	650
Staff Residents (Doctors & Administration Staff)	650 beds	1/5 Beds	130
Student Seats	150 per year	(5.5 Year)	825
Total Residential			2255
OPD	1050	--	1050
Staff (Doctors+ Nurse+ Admin Staff+ Security+ Housekeeping)	250	--	250
Total Floating			1300
Total Population			3555

1.6 WATER REQUIREMENT

Water requirement during the construction phase is expected to be about **30–50 KLD**, which will be sourced through government water supply or private water tankers.

The total domestic water requirement for the project will be approximately **537 KLD**. The water source will be a private water tanker supply or groundwater (if required). However, permission from the CGWB will be obtained prior to extracting groundwater during the operational phase. The freshwater requirement will be approximately **376 KLD**.

Detailed water requirement calculations are presented in **Table 6, Table 7 and Table 8** and the water balance diagram is provided in **Figure 2 and Figure 3**.

1.7 WASTE WATER GENERATION

Wastewater generation from the site is expected to be 461 KLD, which will be treated in 1 No. of ETP of capacity 50 KLD and 1 No. of STP of capacity 600 KLD, respectively. Treated water from the STP will be used for flushing, Fire Fighting, DG cooling, and horticulture. The STP will be provided with MBBR Technology.

Table 6: Calculations for Total Daily Water Demand

Category	Capacity	Standard (LPCD)	Water Requirement (KLD)	Fresh Water Requirement (70%) (KLD)	Recycled Water Requirement (30%) (KLD)
No. of Beds	650	450	293	205	88
Attendant	650	135	88	62	26
Other Residence (Staff & Student)	955	135	129	90	39
Floating Staff	250	45	11	8	3
OPD	1050	15	16	11	5
Domestic Water Requirement			537	376	161
Landscaping	1528 Sq.m	1 L/sq.m	2	0	2
Fire Fighting	—	—	5	0	5
HVAC	—	—	20	0	20
DG Cooling	70 kVA	1 KLD/100 kVA	1	0	1
OT & Laundry	650 Beds	45 Litre/Bed	29	0	29
Total Water Requirement			594 KLD	376 KLD	218 KLD

Table 7: Waste Water Calculations-ETP

Category	Total Quantity (KLD)
Effluent generation (OT, Laundry)	29
Capacity of ETP (1 No. of 50 KLD)	50
Recovered water from ETP (90% of Waste Water)	26

Table 8: Wastewater Calculations-STP

Category	Total Quantity (KLD)
Fresh water Req.	376
Flushing water Req.	161
Total Domestic water requirement	537

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Sewage generation (@80% of the Fresh + 100% flushing water requirement)	461
Capacity of STP	600 KLD
Recovered water from STP (90% of Waste Water)	414
Total Recycled Waste Water Generated STP	414
1. Flushing	161
2. Landscaping (1 ltr/sqm)	2
3. Fire Fighting	5
4. HVAC	20
5. DG cooling	1
6. Sewer	225

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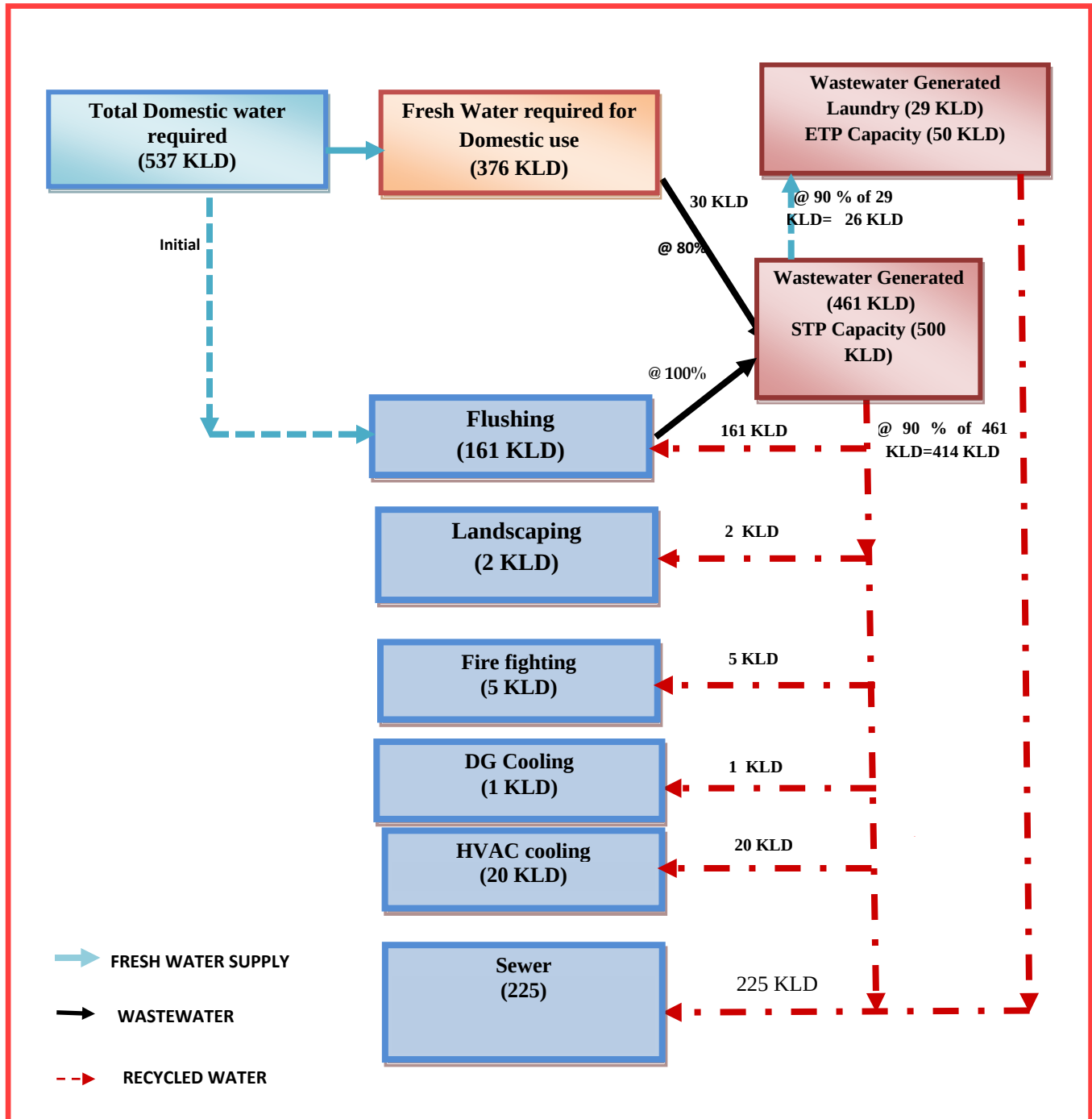


Figure2: Water Balance Diagram-Dry Season

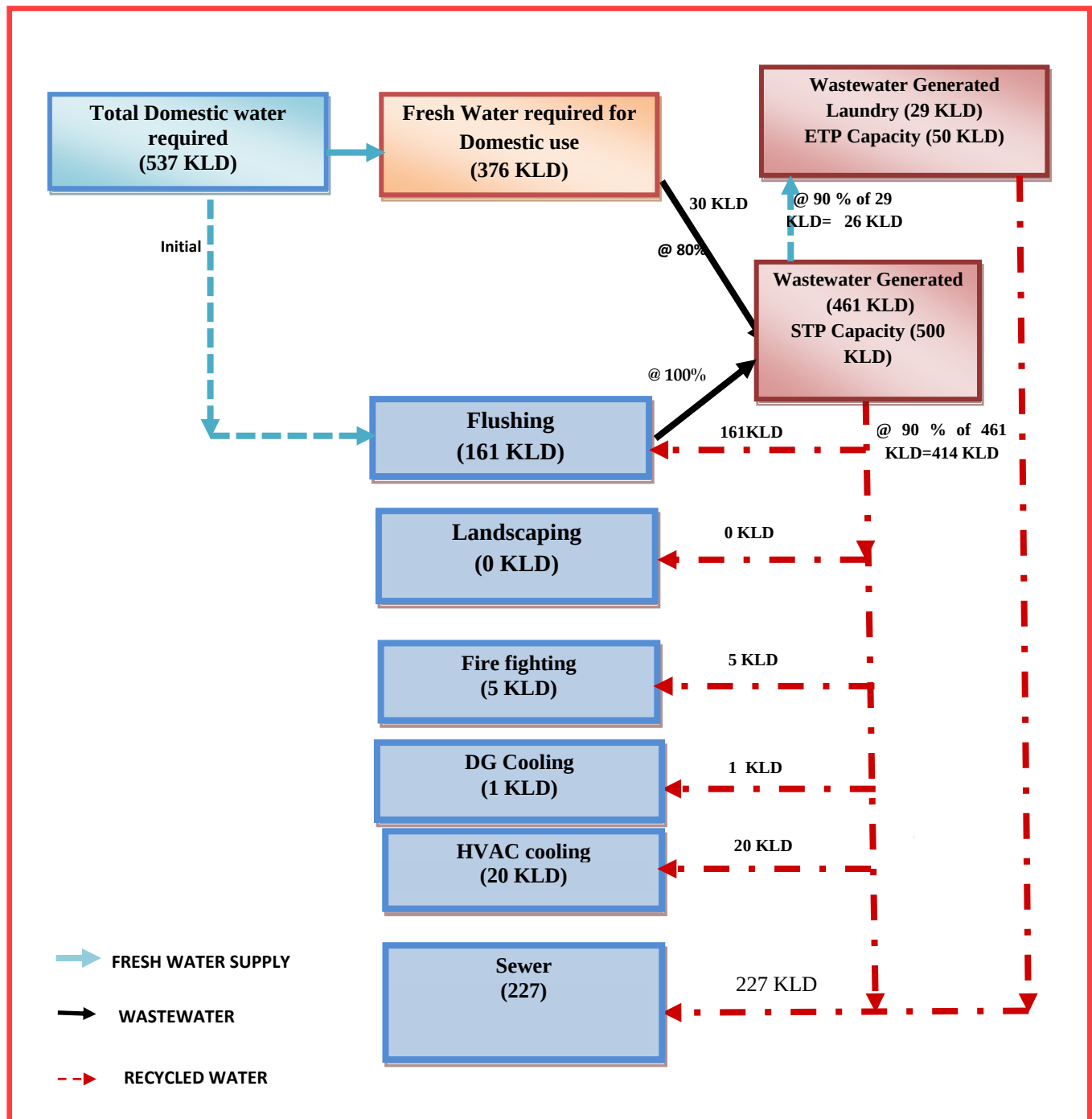


Figure 3: Water Balance Diagram-Monsoon Season

1.8 SEWAGE MANAGEMENT

INTRODUCTION:

Moving Bed Bio Reactor System provides a highly effective treatment solution using **Biofilm** to provide organic carbon removal and nitrification / de-nitrification where necessary. The process forms a highly reliable and robust solution for wastewater treatment. In this process Biofilm act as carriers in the treatment tanks on which the Biomass grows.

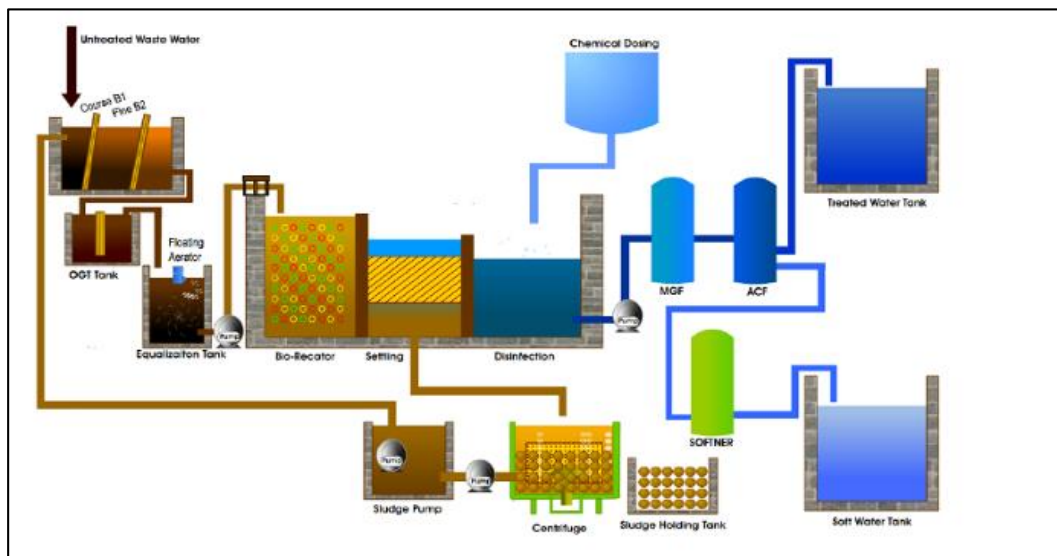
DESCRIPTION OF PROCESS:

The treatment process shall comprise the following stages:

Physical treatment	:	Fine bar-screening / Oil & Grease Chamber
Equalization / Collection tank	:	Flow equalization with air mixing
Biological treatment	:	FMBR-based
Final sedimentation	:	Settler tank
Water reclamation	:	Tertiary filtration

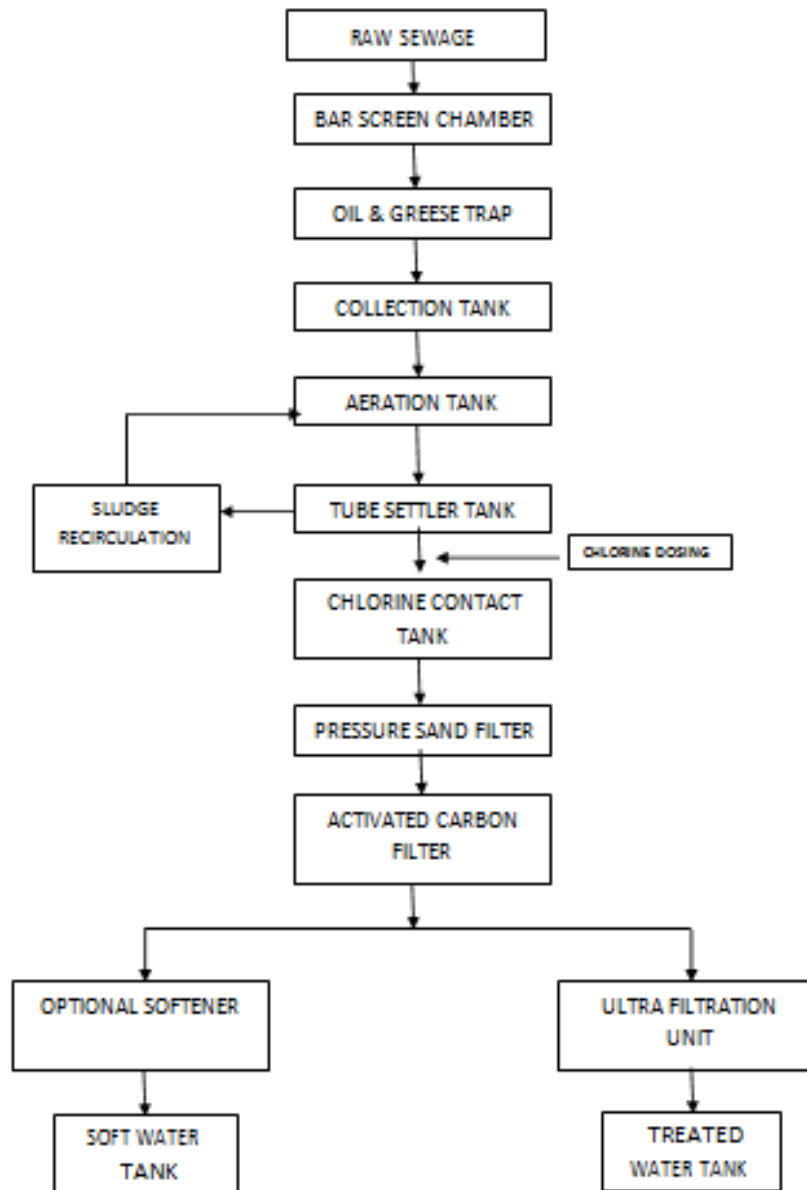
(For irrigation Spouses, flushing or cooling tower make-up)

Sludge disposal screwed	:	In cake form through Filter Press or (Transfer through a type of pump to a municipal tanker)
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MBBR TECHNOLOGY PROCESS DIAGRAM

GENERAL PROCESS DESCRIPTION FOR SEWAGE TREATMENT PLANT (SCHEME):



1. Inlet Screen Chamber / Oil & Grease Chamber

- a. Raw sewage shall flow into the inlet screen chamber by gravity. A fine screen shall intercept large solid particles. Then, there shall be an Oil and grease Tank. Sewerage will then flow into an Equalization / Collection Tank. The incoming sewage shall be mixed in the EQT, and fine bubble aeration shall be maintained.

2. Equalization / Collection Tank

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- a. The equalization tank shall be designed to provide a minimum storage of 6 hours at peak flow while pumping. Submersible pumps as per schedule shall be provided with level switch control and automatic cut-in of the standby unit.
- b. An aeration system shall be provided for mixing and aeration of the sewage.

3. FMBR Tank

- a. Sewage shall be retained in the FAB tank for a minimum of 7-8 hours and subjected to biochemical oxidation by fine bubbles aeration. The FMBR media shall be installed in the form of rectangular blocks & shall be float in the form of layers. The media shall be corrugated type & shall facilitate cross flow for better air distribution. The media shall be duly glued as per manufacturer's recommendations.

4. Tube Settler Tank

- a. The sewage after bio-oxidation shall enter the hopper bottom sedimentation tank, where the sludge effectively settles to the tank bottom.
- b. The activated sludge collected in the sludge tank shall be returned to the FMBR tank for further oxidation of the incoming organic matter. Excessive sludge shall be wasted in the sludge holding tank.
- c. PVC tube deck media is to be installed in the Tube Settler Tank. The media shall be installed at 60° angle with the horizontal, and the total vertical height when installed should be 750 mm. The media shall be duly glued using recommended material and shall be installed as per the drawing to be given by the vendor as per manufacturer's recommendation.

5. Chlorine Contact Tank

- a. The effluent shall be retained in the baffle-walled cleared water tank for half an hour to three hours for effective disinfection prior to discharge.

6. Sludge Holding Tank

- a. Excessive sludge shall be stored in the sludge holding tank for final dewatering and disposal.

7. Treated Water Tank

- a. To hold and store finally STP-treated water for process use.

STANDARD EQUIPMENT DETAILS:

The following gives the minimum requirements of the different components of the system.

All equipment and components of the system shall be of top-quality construction and shall be corrosion resistant.

1. Fine Screening Equipment

The bar screen shall be of MS/SS construction. Drip trays shall be provided for holding and draining the screenings. A manual bypass screen with a 5 to 10 mm opening with a drip tray shall be provided.

2. Air blowers

Air blowers shall be provided with a standby arrangement. Blowers shall be either positive displacement or centrifugal, with a motor, base plate, inlet filter, non-return valve, V-belt system, or direct drive coupling. The casing rotor shall be of cast iron construction. Bearings and gears shall be grease lubricated. Motor speed shall be 1500 rpm.

The size and performance of the air blower shall be so selected that it provides a suitable airflow rate and maintain a minimum of 2.0mg/ dissolved oxygen in the aeration tanks in operation.

3. Air Diffusers

Air diffusers shall be made of an elastomeric rubber membrane to provide a uniform distribution of fine bubble air release performance in the system.

4. Pumps

Working and standby pumps for raw sewage/sludge re-circulation and filter feed pumps shall be provided.

Pumps may be submersible / surface in CI / SS with a complete set of accessories.

5. Settling Tank

Settling tanks shall include baffles to prevent short-circuiting along with tube media.

6. Tertiary Treatment

This tertiary treatment shall be provided for the effluent used for the irrigation and flushing of the tower make-up water tank/flushing system.

The tertiary treatment plant shall comprise pressure sand filters and activated carbon filters. It shall be sized to accommodate 100% of the effluent discharge flow rate and shall achieve the performance as outlined and described in the Design Criteria.

After passing water through filters (Sand Filter and Activated Carbon Filter), it is passed through the UF Module for membrane filtration in the Sewage Treatment Plant.

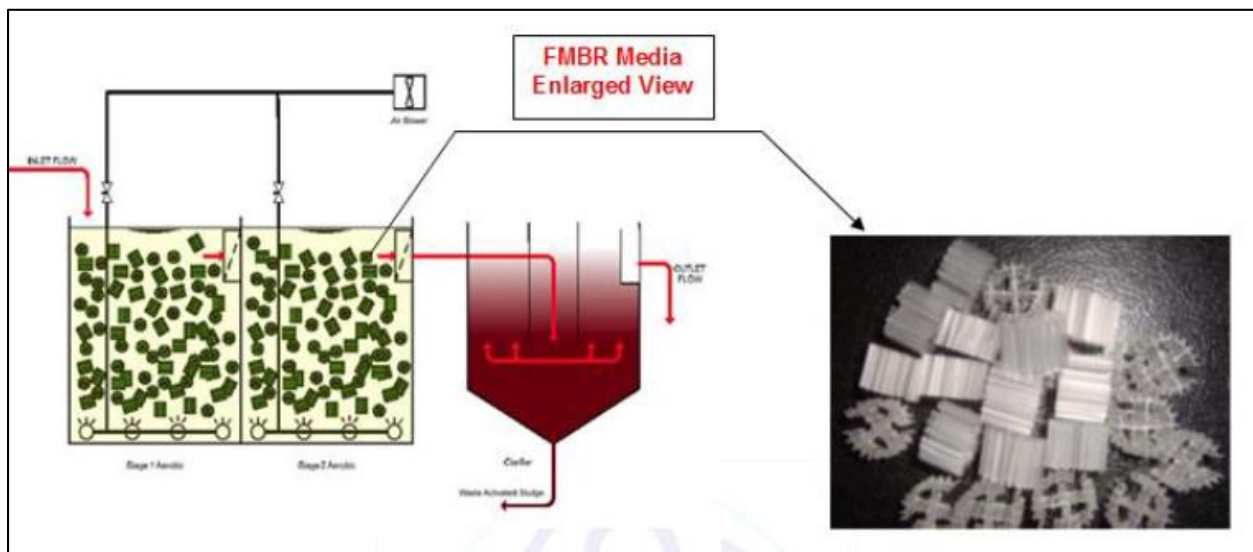
7. Electrical Control

A completely assembled and pre-wired control panel consisting of a weatherproof cabinet shall be furnished. The control panel shall contain all metering and status indicators, motor starters, program timers, on-off-auto change-over switches and duty selectors for equipment.

8. Other Miscellaneous Items

This covers a broad scope of interconnecting piping and fitting work, as well as various valves, cables, supports, and necessary instrumentation.

SPECIAL NOTE ON MBBR MEDIA USED IN AERATION TANK:



Bio-media are Inert Plastic materials that support the attached growth of microbes that effectively degrade/oxidise organic solids in wastewater. In the system, where polymeric inert media are used, Biofilm gets deposited on the surface of the media. This film is formed as microorganisms stick to the surface and coagulate to form high-concentration colonies of biomass. The thickness of this film is affected by several factors, viz, the turbulence within, the food availability to sustain the bacteria, and the ability of the innermost layer of bacteria to draw all life-sustaining inputs.

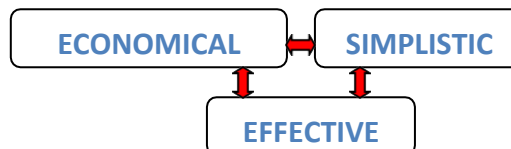
In practice, the tank capacity and media volume will vary depending on wastewater BOD as well as other factors, which can affect the thickness and activity of biomass biofilm. These factors need to be given due consideration when designing to ensure safe and effective plant design.

Features of Bio Media: -

- ✓ Better life cycle and more resistance to breakage and chipping. This prevents triggered clogging of pipelines.
- ✓ Higher void age with more surface area & greater biomass reactive zones.

WHY MBBR???

- Very Good Effluent Quality.
- Low Capital Cost.
- Simple, Robust Design.
- Energy Efficient.
- Ease of Installation and Operation.
- The capacity of existing works can be quickly and easily increased.
- Low Operating Cost.
- Small Footprint for New Works.
- Upgrade of Existing Works—Simultaneously Increase Capacity and Improve Effluent Quality.



1.9 STORM WATER MANAGEMENT

The annual rainwater harvesting potential of the proposed project is estimated to be approximately **14047.57 m³/year**. The entire quantity of harvested rainwater is proposed to be utilized for groundwater recharge through properly designed rainwater harvesting and recharge structures. The natural filtration and adsorption process during percolation through soil strata shall further improve the quality of water before reaching the groundwater table.

Each building shall be provided with garland drains along with plinth protection arrangements. Rainwater collected from rooftop areas shall be conveyed through rainwater down-take pipes into the garland drains. The garland drains shall further be connected to the storm water drainage network and recharge pits proposed within the site premises.

The runoff available from the site annually after project development has been calculated and is presented in **Table 10**. The design calculations for rainwater harvesting pits are presented in **Table 11** below.

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Proposed Ram Sakhi Devi Medical College and Hospital, At – Sripalpur, Punpun, Patna, Bihar

Table 9: Available Run-off from Site

S. No.	Catchment	Area (sq m)	Run-off Coefficient	Average Annual Rainfall (m)	Runoff Annually (m3)	Peak Hourly Rainfall (m3)	Runoff (m3/hr)
1.	Roof top	13613.44	0.9	1.10	13477.31	0.01	136.13
2.	Green	1528.00	0.1	1.10	168.08	0.01	1.53
3.	Paved Areas	522.31	0.7	1.10	402.18	0.01	5.22
Total Run-off					14047.57 m³/year		142.88 m³

Table 10: Calculation for RWH Pits

Total Run-off (m ³ /hr)	142.88 m ³
Length and breadth and depth of the RWH pit m ³	4*3*4
Nos. of Pits Required	2.98 or 3

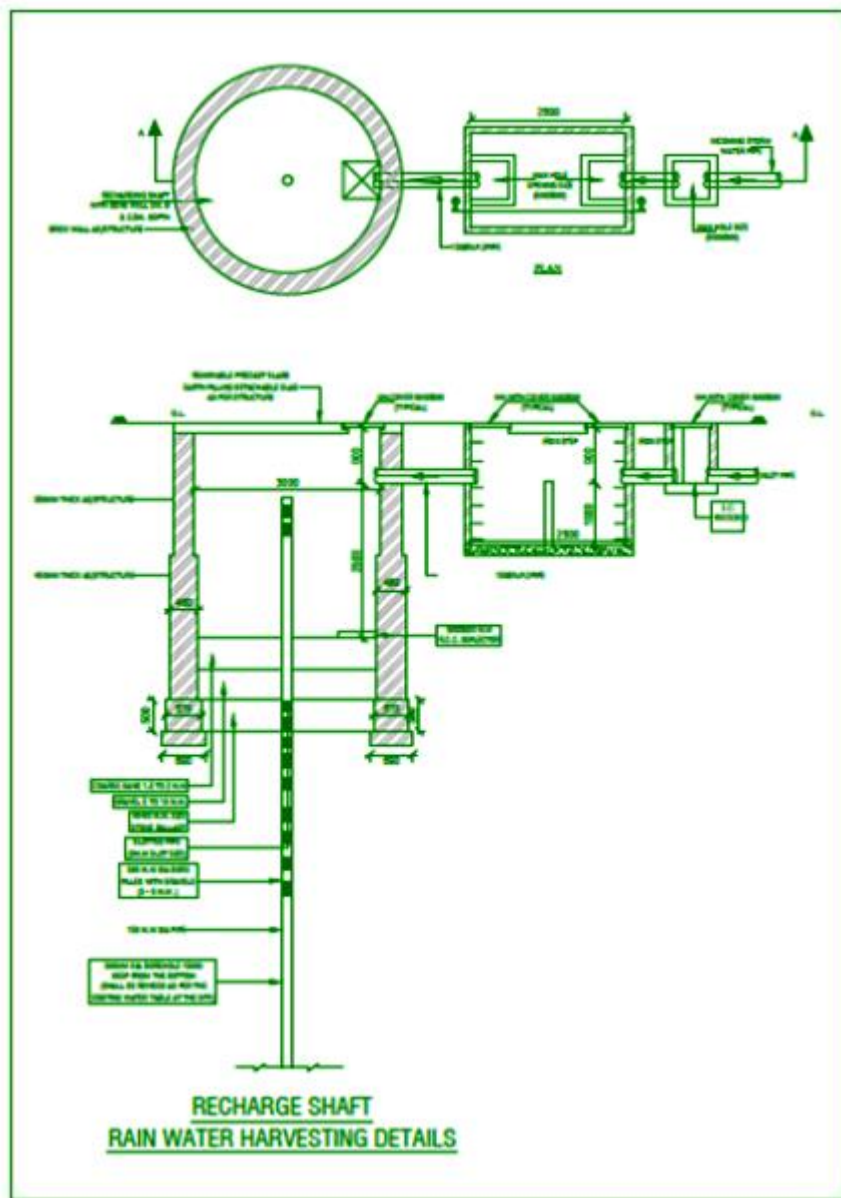


Figure 4: Schematic Diagram of RWH Pit

1.10 VEHICLE PARKING FACILITIES

Adequate parking area of approximately **2040 sq. meters** shall be provided in the open parking area to accommodate the expected vehicular load during the operation phase of the project, in accordance with the applicable Local Building Bye-Laws and planning norms.

1.11 POWER REQUIREMENT

The maximum power demand for the project during the operation phase is estimated to be approximately **5000 kVA**. The power supply for the project will be sourced from the State Electricity Board.

Additionally, **01 no. of DG Set of 70 kVA capacity** will be provided as power backup during emergency power failure conditions.

1.12 SOLID WASTE GENERATION AND MANAGEMENT

Construction Phase

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

- Construction yards are proposed for the storage of construction materials.
- The remaining soil shall be utilized for refilling, road work, raising the site level at locations, selling to an outside agency for road construction, etc.

Table 11: Solid waste management during the construction phase

S. No.	Solid waste	Solid waste management
1.	Waste materials like MS Rods, bricks, concrete, broken tiles, wood pieces, cement bags etc.	Construction waste will be segregated into recyclable/reusable and discarded material. Recyclable material will be sold to authorize dealers. Re-usable material will be stored under covered conditions at site and reject will be disposed off at the designated locations by MC. Waste will be transported in covered vehicles only.
2.	Excavated Soil	Top soil will be stripped off and stored in covered condition. Top soil will be used for landscaping within the project site. Remaining excavated soil will be used within the site for filling and leveling and construction of roads. Excess muck will be disposed off through authorized vendors.
3.	Domestic Waste	Domestic waste generated by labor at the site will be disposed off through local agencies in the area on daily basis.



Figure-5: Solid Waste Management Scheme (Construction Phase)

Operation phase

The total municipal solid waste generated during the operation phase of the project shall be approximately **1200 kg/day** comprising waste generated from IPD patients (@ 0.5 kg/bed/day), attendants of IPD patients (@ 0.25 kg/capita/day), residential staff and students (@ 0.5 kg/capita/day), non-residential staff including doctors, nurses, security and housekeeping staff (@ 0.25 kg/capita/day), OPD visitors (@ 0.15 kg/capita/day) and landscape waste generated from horticultural activities.

Further, the total bio-medical waste generated from the hospital premises shall be approximately **650 kg/day** (@ 1 kg/bed/day).

The following waste management arrangements shall be implemented at the site in accordance with the provisions of the Solid Waste Management Rules, 2026 and Bio-Medical Waste Management Rules, 2016. The detailed waste management plan is presented in **Tables 12 and 13** below.

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Table 12: Calculation of Solid Waste Generation

S. No .	Description	Occupancy/Area	Waste Generation Rate	Total Solid Waste Generation (kg/day)	Biodegradable / Recyclable Waste (60%) (kg/day)	Non-Biodegradable / Non-Recyclable Waste (40%) (kg/day)
1	Outdoor Patients	1050	@ 0.15 kg/capita/day	157.50	94.50	63.00
2	Indoor Patients	650	@ 0.50 kg/capita/day	325.00	195.00	130.00
3	Attendants with IPD Patients	650	@ 0.25 kg/capita/day	162.50	97.50	65.00
4	Residential Staff	130	@ 0.50 kg/capita/day	65.00	39.00	26.00
5	Students	825	@ 0.50 kg/capita/day	412.50	247.50	165.00
6	Non-Residential Staff	250	@ 0.25 kg/capita/day	62.50	37.50	25.00
7	Landscape Waste	1528 Sq.m	—	15.28	15.28	—
	Total Municipal Solid Waste			1200 kg/day	726 kg/day	474.00 kg/day
8	Bio-Medical Waste	650 Beds	@ 1 kg/bed/day	650 kg/day	—	—

(Source: For Waste Collection, Chapter 3, Table 3.6, Page no. 49, of Central Public Health & Environment Engineering Organization, Ministry of Urban Development, (Government of India, May 2000))

Table 13: Calculation of Solid Waste Generation-Total

S.No	Description	Total Solid Waste Generation
1	Total Municipal Waste	1200 kg/day
2	STP Sludge	25 kg/day
3	ETP Sludge	15 kg/day
Total Solid Waste		1240 kg/day
Bio-Medical waste		650 kg/day

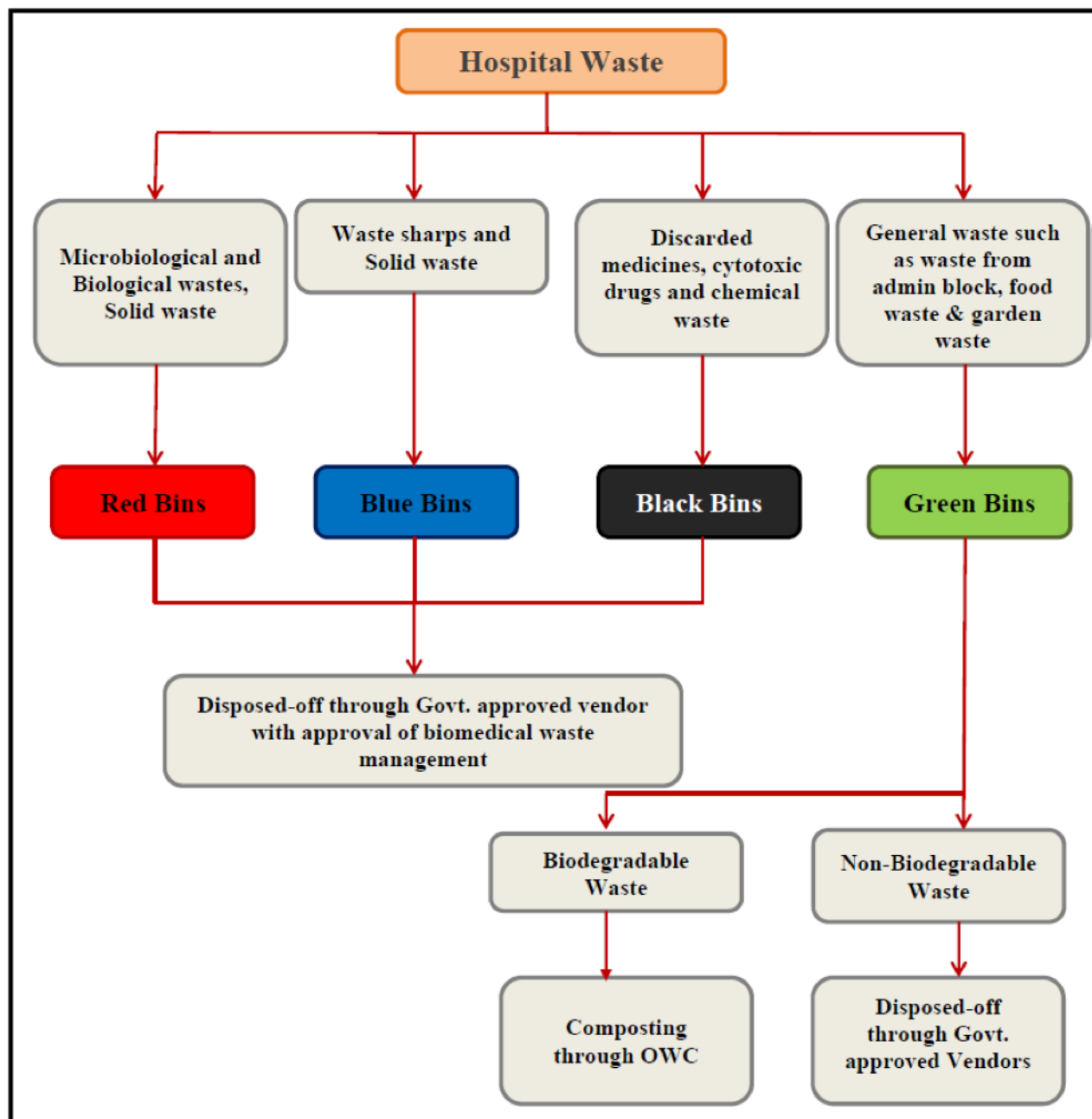


Figure-6: Solid Waste Management Scheme (Operation Phase)

Collection and Segregation of Waste

- ❖ For Hospital waste collection, adequate numbers of colored bins (Red, Yellow, Black, Blue and dark blue bins) are proposed to be provided at the strategic locations of the Hospital area.
- ❖ Red bins: These are for disposing of IV tubings, plastic bottles, syringes without needles, drainage tubes, catheters, and locally autoclaved microbiological waste.

- ❖ Yellow bins: For the disposal of anatomical parts, amputated body parts, and placenta, as well as items contaminated with blood and body fluids, including cotton, dressings, soiled plaster casts, lines, bedding, and other material contaminated with blood.
- ❖ Black bins: For the discard of paper, wrappers, tissue and other general items.
- ❖ Blue bins: These are for disposing of glass bottles, ampoules, broken glass, vials, and other glass items.
- ❖ Dark Blue bins: For the disposal of sharps. Does not contain disinfectant. Includes needles, stylet, lancets and blades.
- ❖ **Treatment of waste**
 - Bio-Degradable waste:
 1. Bio-degradable Waste will be disposed of through the Govt. approved vendor for decomposition.
 2. STP sludge is proposed to be used for horticultural purposes as manure.
 3. ETP sludge is proposed to be sold out through Govt. vendors.
 4. Horticultural waste is proposed to be composted and used for gardening purposes.
 - Recyclable waste:
 1. Grass Recycling—The cropped grass will be spread on the green area. After decomposition, it will act as manure.
 2. Recyclable waste like paper, plastic, metals, etc., will be sold off to local recyclers.
- ❖ Recyclable and non-recyclable waste will be disposed of through a local, approved agency as per the Municipal Solid Waste (Management and Handling) Rules, 2026. Biomedical waste will be disposed of through a government-approved vendor.

1.13 Radioactive Waste Management Plan

Disposal of Solid Radioactive Waste — An AERB-certified, trained, and authorised person may dispose of solid radioactive waste by burial into pits prepared in an exclusive burial ground, provided:

- (a) The burial ground is located in an isolated site owned by the said person.
- (b) The site is duly fenced off to prevent unauthorized entry.
- (c) The site is duly approved by the competent authority for burial of radioactive waste, the approval being governed by factors such as the nature of environment including topographical and geological characteristics of the burial site, usage of ground and surface waters in the general area around the site, with a view to minimize the assessed anticipated risk of accidental dispersal of the waste to potentially affected locations or back to the environment;
- (d) The depth of the burial pit is so chosen that the wastes have a top layer of compact earth of a minimum 120 cm thickness when the pit head is closed;
- (e) Successive burial pits are separated by a distance of at least 180 cm.

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- (f) Not more than 12 burials are made in any one year.
- (g) The burial area is treated as a restricted area and subjected to periodic environmental surveillance by the Radiological Safety Officer to ensure that the appropriate disposal limits and operational limits are not exceeded.
- (h) A logbook is maintained.
- (i) Incineration of Radioactive Waste — An AERB-certified, trained, and authorized person may undertake incineration of radioactive wastes, including incineration of radioactive animal carcasses, provided
 1. The design of the incinerator is suitable for the intended operations, providing for the retention of solid and liquid combustion/scrubbing by-products and the controlled discharge of liquid and gaseous effluents.
 2. The incineration operations will not result in airborne radioactive contamination in excess of the operational limits prescribed under the Radiation Protection Rules, 1971, for unrestricted areas.
 3. The solid and liquid radioactive wastes arising from incineration operations will be duly collected and disposed of in accordance with these rules.
 4. Adequate environmental surveillance, including air monitoring where necessary, will be provided to ensure that the operational limits are not exceeded.
 5. The incineration operations are undertaken under the direct supervision of the radiological safety officer.

1.14 GREEN AREA

The total green area provided at the site measures 1528 sq.m, which will include a green belt/area under tree plantation and lawn within the project site. The following is the list of species proposed to be planted.

Number of trees as per MoEF&CC norms (1 tree per 80 sqm of plot area).

Evergreen native and ornamental tree species will be planted at the site. **Table 14** indicates various suggested species for greenbelt development.

Table 14: List of plants to be proposed for planting

S.NO	Scientific Name	Local Name
1.	<i>Mimusops elengi</i>	Moulshri
2.	<i>Caryota</i>	Fishtail Palm
3.	<i>Verbena officinal is</i>	Verbena
4.	<i>Verbena officinal is</i>	Verbena Mix
5.	<i>Lagerstroemia speciosa</i>	Pride of India
6.	<i>Cassia fistula</i>	Amaltas
6.	<i>Delonix regia</i>	Gulmohar

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7.	<i>Rubiaceae</i>	Kadam
8.	<i>Hamelia patens</i>	Hamela
9.	<i>Cassia javanica</i>	Cassia javanica
10.	<i>Jacarandaeae</i>	Jacaranda
11.	<i>Bougainvillea</i>	Bougainvillea
12.	<i>Plumeria rubra</i>	Pink Plumeria
13.	<i>Salix Babylonia</i>	Weeping willow
14.	<i>Ficus retusa</i>	Ficus panda
15.	<i>Duranta dombeyana</i>	Golden Duranta
16.	<i>Ficus benamina</i>	Weeping fig

1.15 CONSTRUCTION MATERIAL

Detail of different types of construction material used in the site is given in **Table 15**, and with their U values are given in **Table 16**. List of machinery which will be used for construction is given below.

Table 15: Construction materials List

S.No	Description
1.	Cement
2.	Sand
3.	Metal 20 mm
4.	Stock Bricks
5.	MS/RTS Rods
6.	Ceramic Tiles
7.	Country wood scantlings up to 4m length
8.	UPVC Windows
9.	Solid Core Flush Doors
10.	PVC Door Shutters

Table 16: U values Construction materials

Type of Construction	U values (in W/m ² °C)
Walls	
<i>Brick:</i>	
Plastered both sides	3.24
Solid unplastered	2.67
Plastered both sides	2.24
<i>Concrete, ordinary, Dense:</i>	
-152 mm	3.58
-203 mm	3.18
<i>Concrete block:</i>	
CLC Fly ash block	1.19
<i>Hollow Concrete block, 220 mm, single skin, outside rendered, inside plastered</i>	
CLC Fly ash block	1.70
Roofs Flat:	
Reinforced concrete slab, 100mm, screed 63-12 mm, 3 layers bituminous felt	3.35
Floors:	
Concrete on ground or hardcore fill	1.13
+ Grano, Terrazze or tile finish	1.13
+ Wood block finish	0.85
Exposure South Sheltered:	
Single glazing	3.97
Double glazing 6 mm space	2.67

1.16 LIST OF MACHINERY USED DURING CONSTRUCTION

- Dumper
- Concrete mixer with hopper
- Excavator
- Concrete Batching Plant
- Cranes
- Road roller
- Bulldozer
- Tower Cranes
- Hoist
- Labor Lifts
- Concrete pressure pumps
- Mobile transit mixer