Consortium for DEWATS Dissemination Society

FOR VIJAY BHOOMI INTERNATIONAL SCHOOL, JAMRUNG, KARJAT, MAHARASHTRA

PROJECT BRIEF

Spread over 20 acres of idyllic natural beauty, Vijay Bhoomi International School has a unique setting – breath-taking greenery and rushing waterfalls, away from the hustle and bustle of Mumbai and Pune. VBIS is implementing sustainable technologies for conservation recycle & reuse of treated water.

PROJECT OUTCOMES

- To meet Maharashtra Pollution Control Board's (MPCB) regulatory norms regarding wastewater treatment and reuse
- To protect the environment from direct discharge
- To treat the wastewater and reuse it for landscaping and gardening, and toilet flushing

SYSTEM IN BRIEF

The wastewater from sources is conveyed to treatment unit through sewer network. Treatment system consists of 4 modules:

- Settler - a sedimentation tank for retaining articles by settling, over a specific time frame
- The Anaerobic Baffle Reactor - ensures anaerobic degradation of suspended and dissolved solids by mixing fresh wastewater with an active sludge blanket
- The Anaerobic Filter - comprises of filter bed for treatment of dissolved organic matter. Wastewater comes in contact with active bacterial mass which grows on filter material.
- Planted Gravel Filter: is used as tertiary treatment unit where aerobic and facultative degradation of dissolved organic occurs.

SALIENT FEATURES

Source: Domestic wastewater from the kitchen, basins and toilets in the school & residential hostel
Design capacity: 20m3
No of users: 500
Peak flow: 8 hrs
Influent quality: BOD: 350 mgl/l
COD: 700 mgl/l
Effluent Quality: BOD: 30 mgl /l
COD: 60 mgl/l
Efficiency: BOD – 91.4% (Expected)
COD – 91.4% (Expected)

PROJECT SPECIFICATIONS

Funding Agency: Vijay Bhoomi International School
Implementing Agency: Bhumiputra Architect Bangalore
Supporting Agency: CDD Regional Office, Nagpur
Construction Period : 8 months
Construction start date: April 2018
Construction end date: November 2018
Current status: Construction completed, not commissioned
Construction Cost: Rs. 14.22 lac
Operation Cost: Rs. 40,000 p.a.

MODULES ADOPTED

Settler (1 compartment)
Volume: 34.87 m3
Area of construction: 11.70 m2
Anaerobic Baffle Reactor
Volume: 42.35 m3
Area of construction: 12.10 m2
No. of chambers: 3
Anaerobic Filter
Volume: 30.8 m3
Area of construction : 8.8 m2
No. of chambers : 2
Planted Gravel Filter
Volume: 271.8 m3
Area of construction : 120 m2
Collection Tank
Volume: 90.055 m3
Area of construction: 23.21 m2

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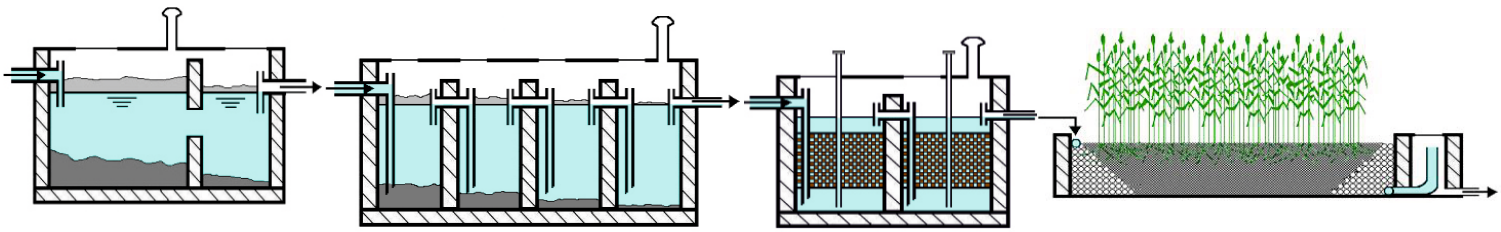
PROCESS FLOW DIAGRAM



Settler **Anaerobic Baffled Reactor + Anaerobic Filter (ABR+AF)** **Planted Gravel Filter (PGF)**

OPERATION AND MAINTENANCE

- O&M cost is Rs 70,000 per month, including salary of the part-time caretaker and electrical charges for the pump for reuse purposes
- The wastewater treatment plant will be operated and maintained by trained team of sanitary staff of school.
- A regular schedule is followed for maintenance, like periodic check, removal of sludge in Settler & Baffle Reactor.
- In the Planted Gravel Filter, regular harvesting of plants is done and the filter media is washed once in 4-5 years

REUSE OPTIONS

Post treatment in the Planted Gravel Filter (PGF), the treated water will be reused for irrigating the landscape and the garden, and for toilet flushing.

For toilet flushing, the treated water from outlet of PGF is connected to Carbon Sand filter from sand filter it goes to collection tank from their it is supplied for flushing.

LEARNINGS

- The site is located in Hill terrain at very remote location in Karjat , designing DEWATS and placing system as per topography was challenge .
- Well experienced construction team & effective supervision ensures timely completion of construction work.

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