INNOVATIVE WATER TECHNOLOGIES

A Leader In Responsible Waste Water Treatment

02

FBTec® PACKAGED STP

A Patented Technology Empaneled by Jal Shakti Ministry

Jal Shakti Ministry Recognition

W-11042/69/2020-JJM-IV-DDWS-Part (3)
Government of India
Ministry of Jal Shakti
Department of Drinking Water and Sanitation
(National Jal Jeevan Mission)
****

4th Floor, Pt. Deendayal Antyodaya Bhavan,
CGO Complex, Lodhi Road,
New Delhi-110003
Dated: 25th November, 2020

To
M/s. Nixie Engineering Pvt. Ltd,
Office no 5, Chinali Apartments, above Hotel Sweekar,
Erandwane, Pune-411004.
Email: lbajare@nixieengineers.com

Subject: Empanelment of FBTec® Technology (Application no. S-000041) as innovative technology for use under Jal Jeevan Mission/ Swachh Bharat Mission- regarding.

Madam/ Sir,

The undersigned is directed to refer to your application number S-000041 for empanelment of FBTec® technology as innovative technology under Jal Jeevan Mission/ Swachh Bharat Mission. The matter was examined by the Technical Committee, chaired by the Principal Scientific Adviser, Government of India in its meeting held on 29.9.2020, wherein your representative made a presentation.

2. Based on the details provided in the application, appraisal carried out by the Committee and the presentation made, it has been decided to

i.) recommend FBTec® Technology as innovative technology to be included under the list of recommended innovative technologies of the Department of Drinking Water & Sanitation's innovation portal; and
ii.) take up residential and community level pilots in rural areas and data to be presented to National Jal Jeevan Mission".

3. You are requested to kindly take necessary action to comply with the para 2(ii.) above and details of the same may also be reported to the National Jal Jeevan Mission.

Yours faithfully,

(A. Muralidharan)
Deputy Advisor
email.: amdharan@gov.in

Copy to,
Staff Officer to Principal Scientific Adviser/ Sr. PPS to Secretary, (DWS)/ PS to AS & Mission Director (JJM)/ PS to AS (SBM)- for information please.

Ministry of Jal Shakti

Innovative Technology infusion for better implementation of Jal Jeevan Mission

Multi-Disciplinary Technical Committee of Ministry of Jal Shakti recommends Five Innovative Technologies in Drinking Water & Sanitation to provide Field Level Solutions to States/UTs

Posted On: 22 NOV 2020 4:49PM by PIB Delhi

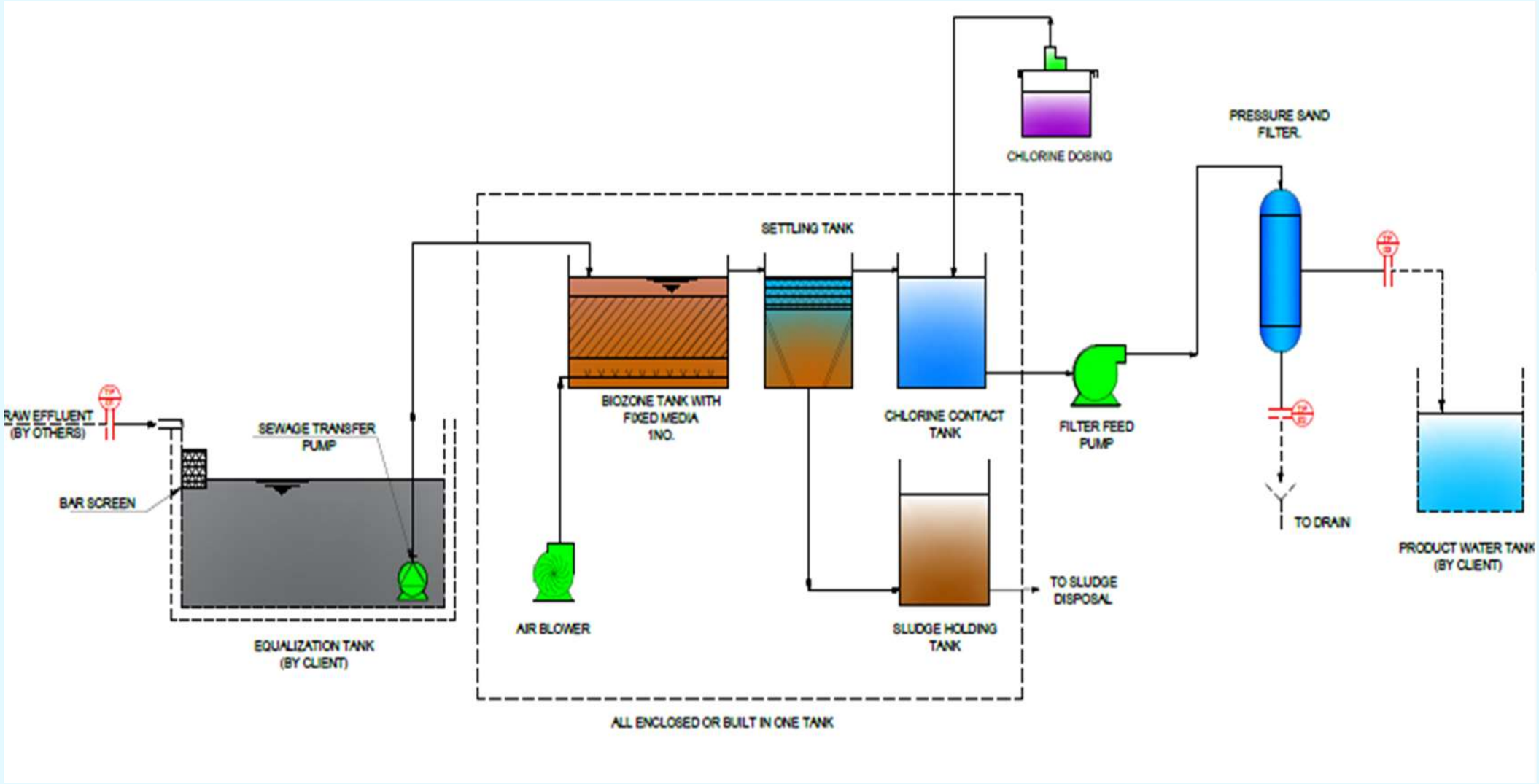
A multi-disciplinary Technical Committee in the Department of Drinking Water and Sanitation, Ministry of Jal Shakti has recommended five technologies specifically three technologies for drinking water and two technologies for sanitation as innovative technologies out of the ten technologies considered by it and these technologies would now be listed in the innovation portal of the Department. The recommendation by the Committee would help the States/ UTs so that they can use these technologies depending on their requirement and suitability.These technologies were appraised at different levels before consideration and recommendation by the Technical Committee.

The Ministry of Jal Shakti gives primacy to the infusion and deployment of innovative technological solutions to realize the ambitious objective of the Jal Jeevan Mission to provide Functional Household Tap Connection to every rural home by 2024 with speed & scale while tackling the diverse challenges encountered during implementation. Under the Mission, innovative proposals are sought online for assisting the States/UTs to adopt innovative technologies to deliver drinking water services to rural communities of adequate quantity and prescribed quality. Various challenges being faced during implementationof the Mission include variations in regional endowment of water resources& levels of service provision, water quality challenges, convergence with sanitation sector and dealing with grey water/ sludge issues, etc.

To address these challenges and to consider and recommend innovative 'field level solution' technologies, a multi-disciplinary Technical Committee, chaired by the Principal Scientific Adviser to the Government of India with members from NITI Aayog, Department of Science and Technology, Department of Bio-Technology, CSIR, DRDO, NEERI, IIT, National Institute of Ocean Technology, States, etc,was constituted. The Committeefocussed on application of Science and Technology (S&T) for providing field level solutions, which would be helpful to the implementing agencies in the States/ UTs.

A two stage screening process was carried out for short listing the applicants. Out of the 87 applications received, initial short listing was done by the Technical Unit based on online submissions of technology, as per the ASSURED matrix framework (Affordability, Scalability, Sustainability, Universality, Rapid, Excellence and Distinctive - a term coined by Dr R. A. Mashelkar, former Director General, CSIR). In the second stage, response was sought as a questionnaire followed by a detailed online presentation by shortlisted

FBTec® Technology



FBTec® Design Philosophy

- Heart of the system has all the zones namely aerobic, anaerobic and anoxic.
- Air calculation caters for BOD load (0.6 kg O2/kg), Nitrification (4.5 kg O2/kg NH4), Water levels and Bacteria survival. Other processes considers only the BOD loads.
- Anoxic Zone: NH4 - (Air does Nitrification) - NO3 - (Anoxic Zone uses 02 for denitrification). This reduces BOD and eliminates smell.

$$NO_3^- + 1.08CH_3OH + H^+ \rightarrow 0.065C_5H_7NO_2 + 0.47N_2 + 0.76CO_2 + 2.44H_2O$$

$$2NH_4^+ + 3O_2 \rightarrow 2NO_2^- + 4H^+ + 2H_2O \quad (Nitrosomonas)$$
$$2NO_2^- + O_2 \rightarrow 2NO_3^- \quad (Nitrobacter)$$

- Anoxic Zone: NH4 - (Air does Nitrification) - NO3 - (Anoxic Zone uses 02 for denitrification). This reduces BOD and eliminates smell.

Why FBTec®

- Less Space Required
- Lower Power Consumption
- Modular & Movable Design
- Minimum Site Work
- Fixed Media-No Media Replacement Required
- Extended Service Intervals
- Minimum Downtime
- Reliable Design
- Lower Operating Cost
- Works on Single Phase Upto 40KLD

FBTec® is Applicable

Railway / Bus Stations

Residential/Commercial Towers

Educational Institutions

Places of Worship

Hospitals

Government Establishments

Military Establishments

Nullahs/ Open drains

Public Toilets

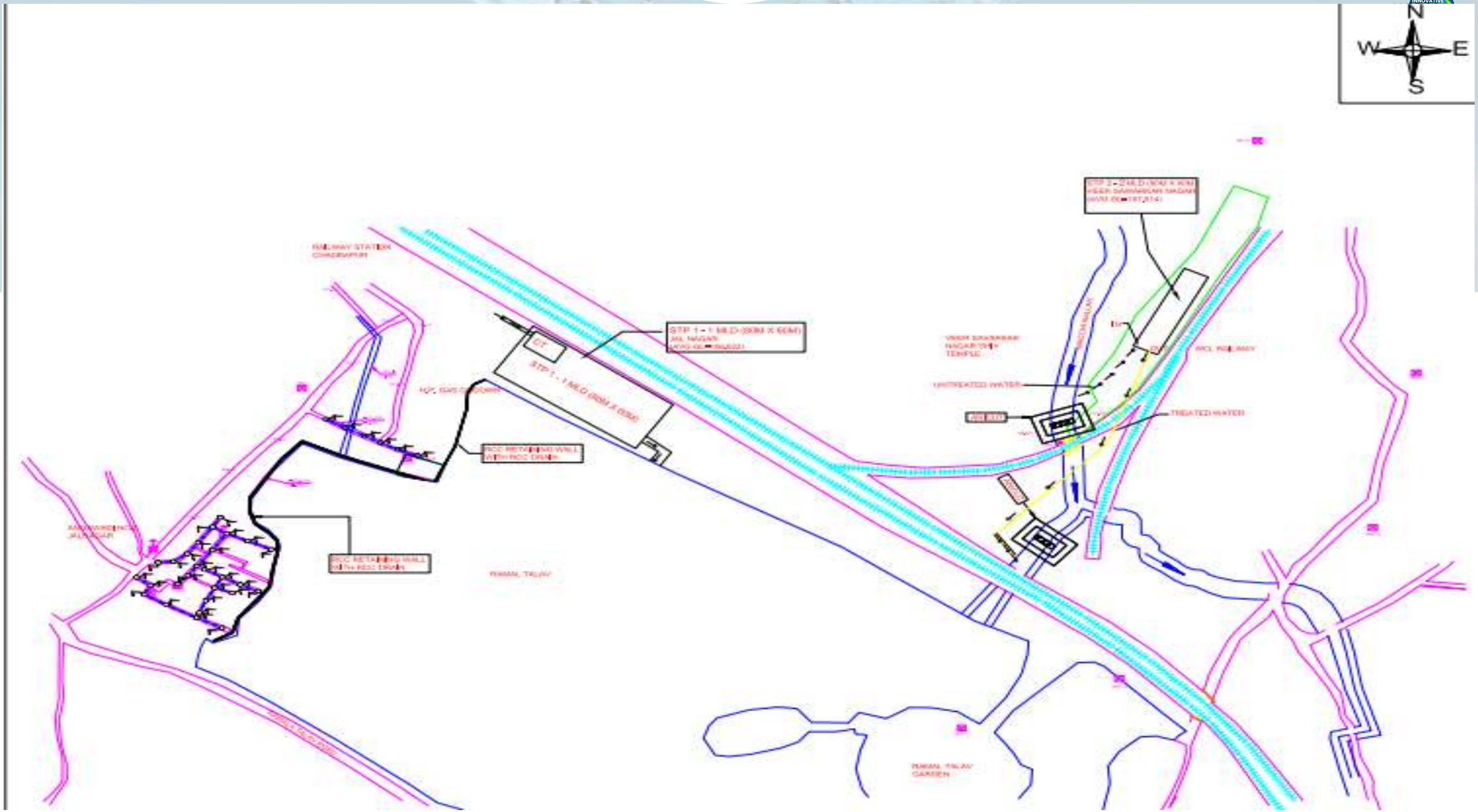
FBTec® on Nullah or Nala

In Order to avoid fresh water contamination, the nullahs or nalas are intercepted before it mixes with the water body like river or lake, the waste-water is treated using “FBTec” and the treated water then gets into the water body.

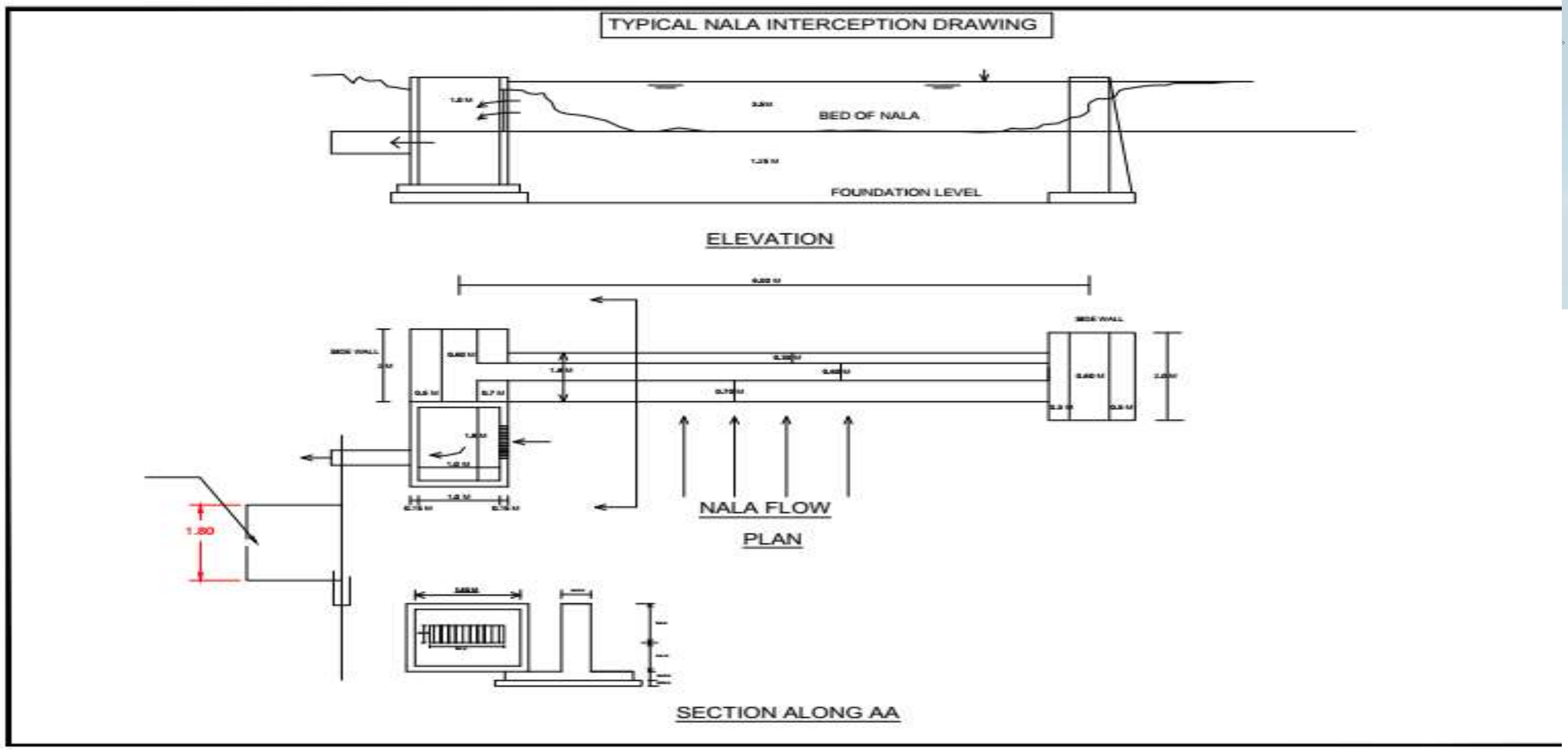
Key Considerations for Nullah (Nala) Interception

1. Average water Levels in the Nullah (Nala) in summer and winter based on population is studied.
2. An interception wall with the height just more than the level mentioned above is built across the Nullah (Nala)
3. The interception wall height is kept such that the rainwater will overflow it.
4. From the bottom of the Nullah (Nala), a drain line is made to get the flow into a small sump.
5. Pre-treatment like Bar Screen is provided at the inlet of the sump.
6. Screened wastewater is now pumped into the FBTec unit installed just beside the sump.

An Example of FBTec installation on Nullah ...1 MLD at Chandrapur

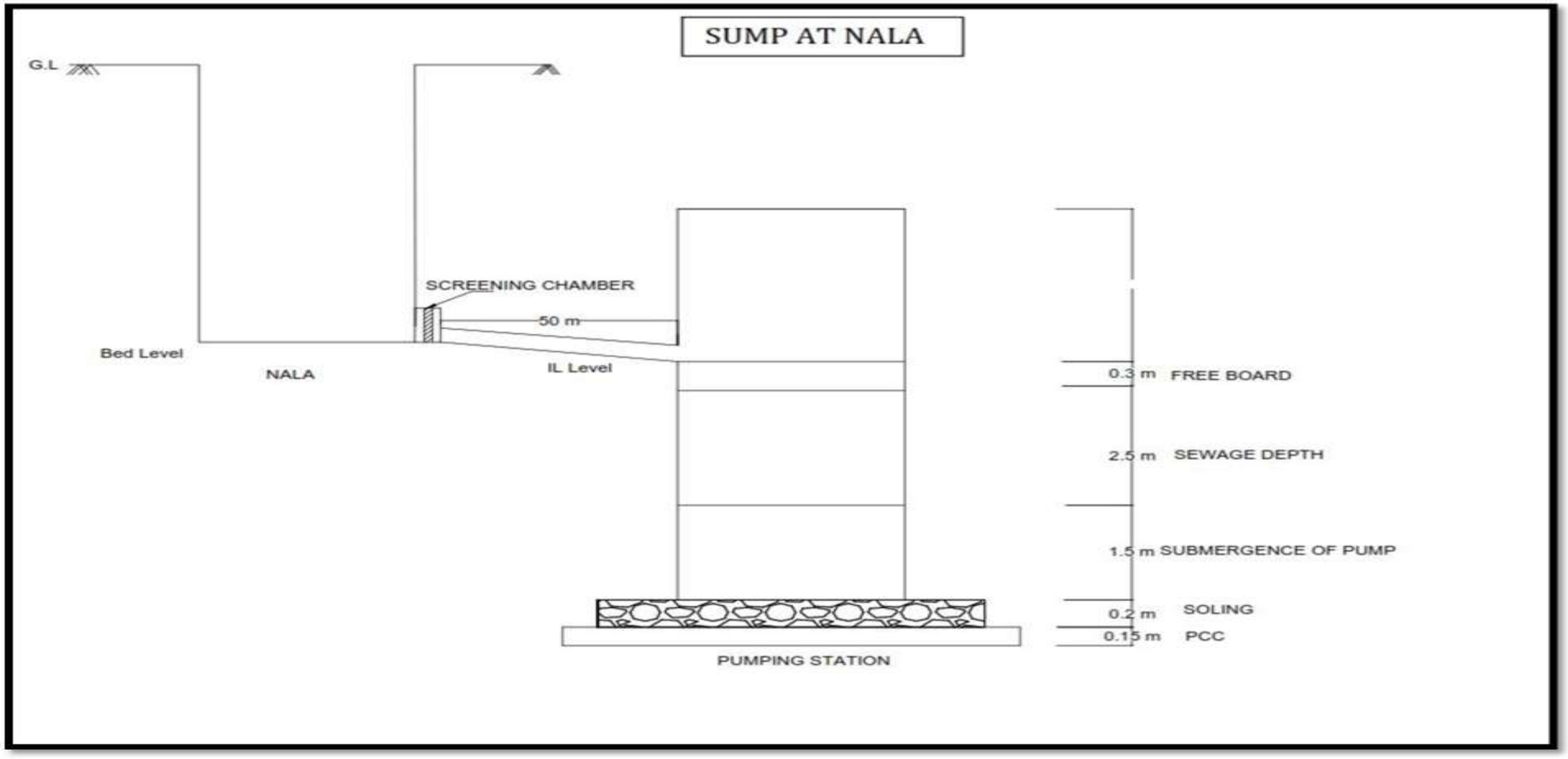


Nullah or Nala Interception



Typical Sump at Nullah (Nala) interception to pump wastewater to FBTec

Typical Layout of RCC sump of STP



Cases where FBTec installation on Nullah (Nala) is going on / will start soon

Following are the locations where FBTec installation on a Nullah (Nala) is going on Or it will start soon with the Technical Sanction in place.

- Chandrapur – 1 MLD
- Chandrapur – 2 MLD
- Jejuri - 1.7 MLD
- Khalapur - 0.6 MLD
- Akola - 0.05 MLD
- Bhandara - 0.1 MLD

https://www.iwtech.in
+91 98225 77328 / +91 93729 20096
info@iwtech.in

INNOVATIVE WATER TECHNOLOGIES

EVERY DROP COUNTS

THANK YOU