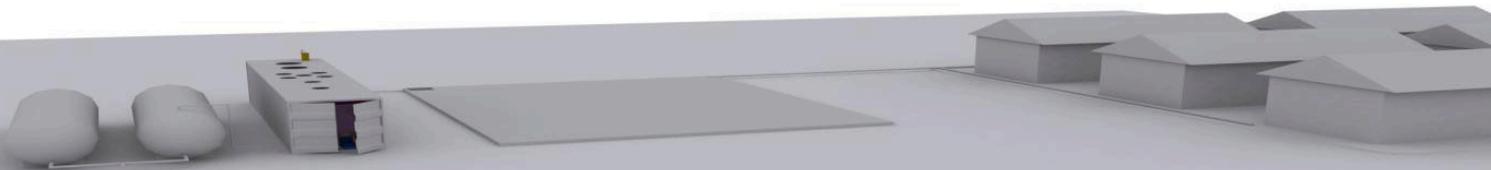


Afghan National Army Hospital Case Study

Green Innovation in Wastewater Treatment



Expansion of ANA Hospital Wastewater Treatment Plant
(IHFD subcontract awarded by US Army Corp of Engineers)
Bioshaft T-MBBR System Technology



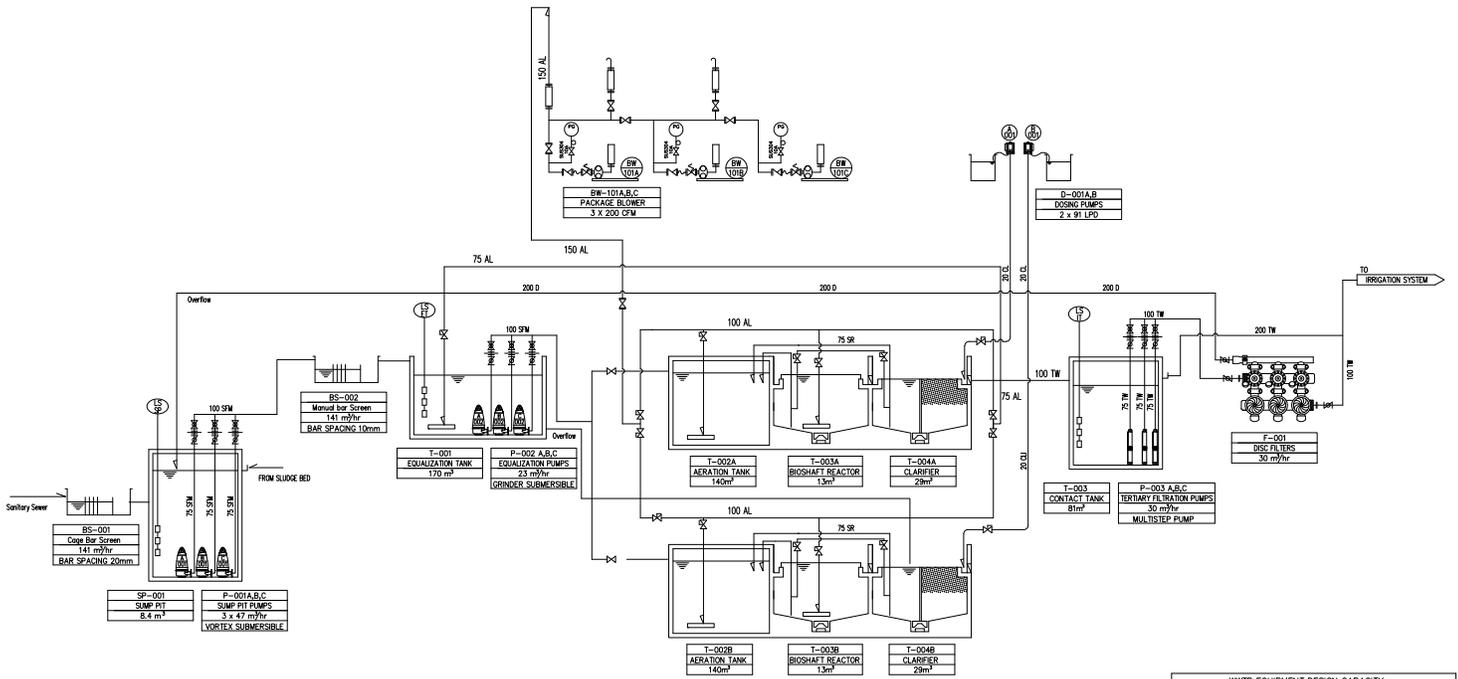
Executive Summary

Bioshaft was awarded a contract by International Home Finance & Development, LLC (IHFD) in 2011 to provide a Bioshaft Secondary Biological Treatment System. IHFD, based in Denver, Colorado exclusively operates in emerging markets, with strong emphasis on Afghanistan and other countries of South and Central Asia. IHFD provides Design, Partial Manufacturing, Installation as well as Operation & maintenance services.

The Scope of the Project consisted of Design, Supply Ex-Works Bioshaft T-MBBR System. IHFD was awarded the contract from the Army Corp of Engineers to expand the capacity of the wastewater treatment facility at Afghan National Army Hospital. According to IHFD President & CEO, Mr. Rafaat Ludin, "this will potentially open a completely new era in how wastewater is treated in Afghanistan and can have enormous implications for improved sanitary conditions in the country leading to a healthier population."

Bioshaft scope of Supply included all electromechanical components and controls needed to operate the system starting from the Lift Station inlet to the tertiary Filter outlet. Designed flow is 150,000 gpd, discharge limits are 30 mg/l BOD & TSS.

The Bioshaft Turbo MBBR has demonstrated the ability to provide a high quality effluent (see BOD data) and dramatically reduce the volume of bio-solids as compared to a municipal wastewater treatment facility. The process is unique due to its patented technology, small footprint, low cost of operation and capability to consistently eliminate nearly all bio-solids production. The T-MBBR process consistently eliminated more than 95% of the volatile suspended solids (organic matter) in the treated waste activated sludge. One of the key features of the T-MBBR is its ability to handle influent upsets and within a short time, process wastewater. This short recovery time is a significant advantage over other biological technologies, which can have upsets that last for several days or longer.



WWTP EQUIPMENT DESIGN CAPACITY			
No.	DESCRIPTION	SIZE / CAPACITY	NO.
1	Sump Pili Pumps	47 m ³ /hr	3
2	Automatic Screen	141 m ³ /hr	1
3	Equip. Tank Pumps	23 m ³ /hr	3
4	Package Blower	200 CFM	3
5	Filtration Pumps	30 m ³ /hr	3
6	Downing Pumps	91 LPO	2

- NOTES:
- 1.-USE FULL PORT VALVES OR BUTTERFLY VALVES FOR BLOWER SYSTEM.
 - 2.-TANKS COMPARTMENTS CAN BE DRAINED WITH PORTABLE SUBMERSIBLE PUMPS DISCHARGE CAN BE ROUTED TO MP NEAR SLUDGE BEDS OR THE EQUALIZATION TANK