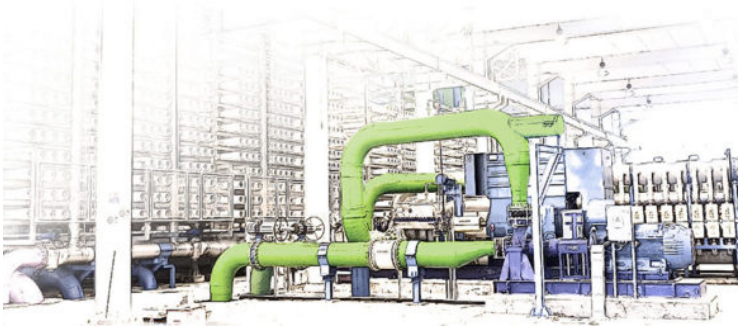
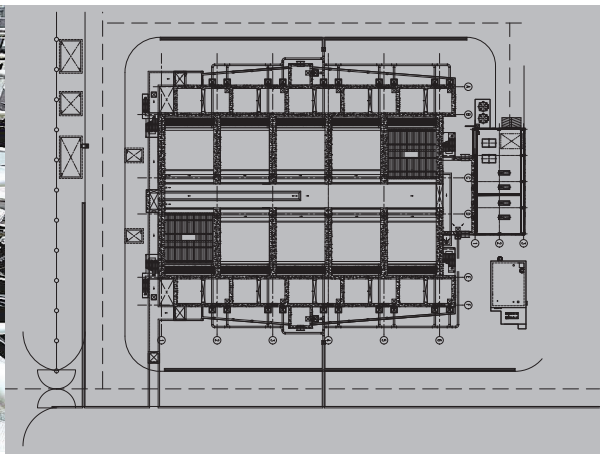
PRE TREATMENT SOUTIONS



DAF is the process of removing suspended solids, oils and other contaminants via the use of air bubble flotation. Air is dissolved into water, mixed with the waste stream and released from solution while in intimate contact with the contaminants. Air bubbles form, attach to the solids, increase their buoyancy and float the solids to the water's surface where they are mechanically skimmed and removed from the tank. A percentage of the clean effluent is recycled and super-saturated with air, mixed with the wastewater influent and injected into the DAF separation chamber. Air is injected under pressure into a recycle stream of clarified DAF effluent. This recycle stream is then combined and mixed with incoming wastewater in an internal contact chamber where dissolved air comes out of solution in the form of very fine bubbles that attach to the contaminants. The bubbles and the contaminants rise to the surface and form a floating bed of material that is removed by a surface skimmer into an internal hopper for further handling.

DISSOLVED AIR FLOATATION



DAF with mechanical sludge scraper

DAFF with hydraulic sludge decanting

Mechanical scrapper - the floated sludge is removed by a carbon steel-rubber lined mechanical scrapper running at low rpm. The scrapper has twin spiral wound blades along the shaft that will scoop the sludge on a special design beach plate profile towards the sludge channel. This concrete filled high impact polystyrene profile beach plate will also ensure that sludge being scooped is not in fine floated form that is likely to break off which often occurs when traveling bridge scrapper is used.

The scrapper is driven by a VSD motor to provide adjustment to the rotational speed and can operates intermittently or continuously to suit optimum sludge removal operation. Sludge with 1.0% to as high as 4 % dry solids content can be expected with a mechanical scrapper.

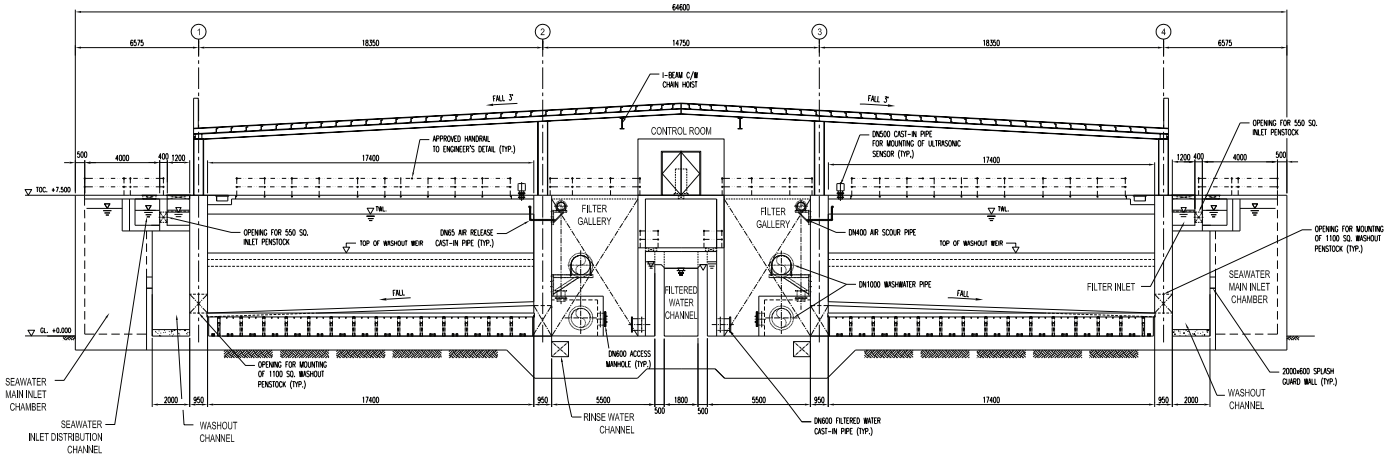
DUAL MEDIA FILTER

A dual media filter/multi-media filter is primarily used for the removal of turbidity and suspended solids as low as 10-20 microns. Dual media filters provide very efficient particle removal under the conditions of high filtration rate. Inside a sand-anthracite filter is a layered bed of filter media. The bed is graded from bottom to top as follows:

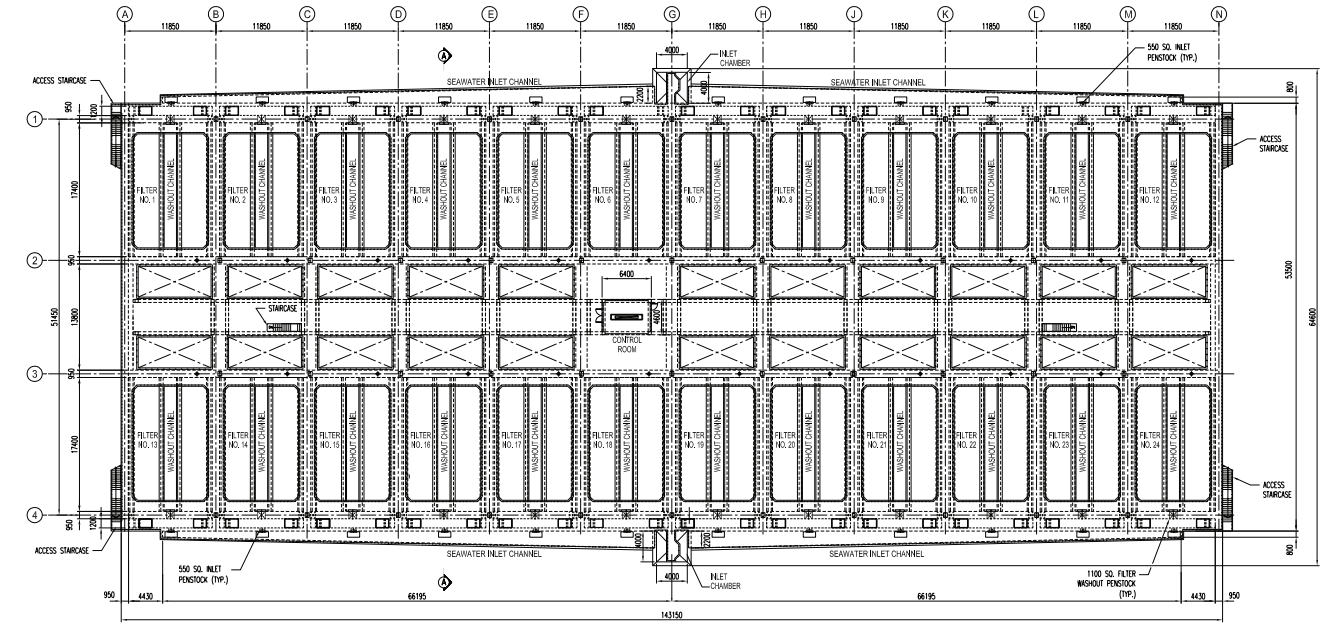
Having the filter media graded this way enables the sand anthracite Filter to run for longer times before a backwash is necessary. A sand anthracite filter or multi-media filter consists of 2 main parts:

- A composite pressure vessel with Multiport Valve.
- Graded beds of sand and anthracite.

Internally, the dual media filter is fitted with an inlet distributor and a bottom Colleting system. Externally, the system is fitted with frontal pipe work and isolation valves. Sand is used to remove the suspended particles and anthracite is used to remove the odor and color etc. to make the water fit for different applications. Gravels and pebbles are provided to support to both the media. Periodically, the sand-anthracite filter will backwash, which changes the water flow through the sand-anthracite filter.



DUAL MEDIA FILTERS SECTION



DUAL MEDIA FILTERS PLAN

H+S Commitment To Quality and Excellence

Our goals are to achieve total customer satisfaction by delivering the greatest value to our customers at the most competitive cost. We focus on on-time delivery, customer-satisfying products, and services. We are committed to maintaining and constantly improving the quality of our products and services so that customer requirements are consistently met.

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