



Specialized Systems

Backwash Reclaim for Water Conservation

Application:

GreensandPlus Filtration
Backwash Reclaim

System Design:

- Flat Bottom Storage Tank
- Skid Mounted Reclaim Pump System
- Level Transmitter
- Water Distribution & Collection Piping
- Sludge Removal Piping

www.Hungerfordterry.com

Date: 2023

Earth's most precious resource, water, has long been taken for granted as being unlimited. As populations are expanding into areas where water is scarce, the need to conserve water is becoming paramount.

Hungerford & Terry's Backwash Reclaim systems can easily recycle approximately 95% or more of the amount of water used to backwash a media filter.

An economical and low maintenance reclaim system that allows backwash waste and rinse water to be returned to the raw water influent lines of a filtration system rather than dumping to sewer or settling basin.

Operational Design Example:

- In the backwash level control cycle, the water level travels between L2 & L3.
- After it settles and is ready to reclaim, the water level will drop from L3 down to L2 and stops.
- Next backwash cycle moves the level back up from L2 to L3.
- This level change repeats on every backwash/reclaim cycle.
- The L2 – L1 volume only changes when sludge is removed from the system.

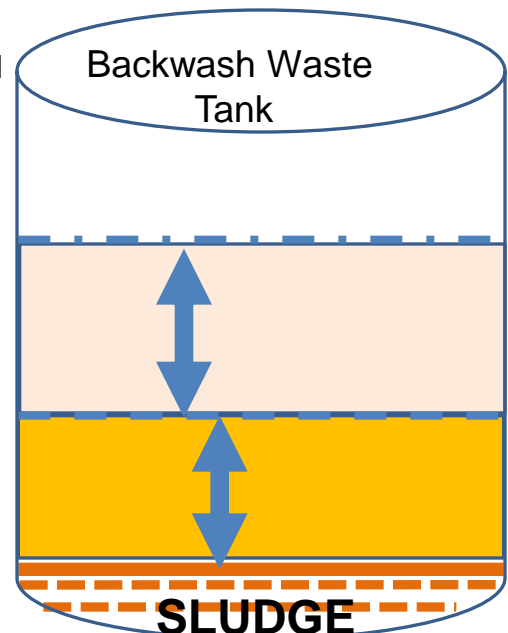
Sludge is removed as needed and only at this time is there an actual volume of water wasted.

Depending on solids content and backwash frequency the sludge may only need to be removed once per month or per quarter.

High Level After Backwash L3-

Minimum Level "Water Cushion" L2-

Sludge Layer Space L1-





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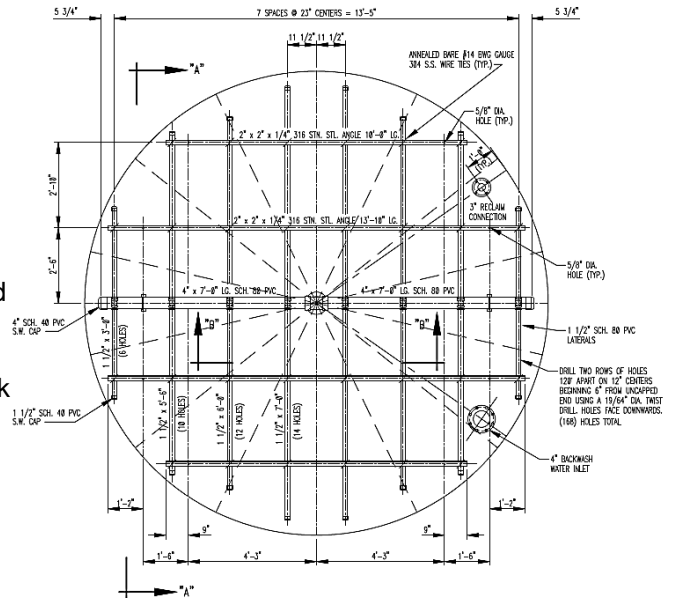
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System Requirements:

The equipment required for a backwash reclaim system comprises of a properly sized flat bottom holding tank, with internal distributor piping for the backwash waste, reclaim collection of supernatant and sludge removal as well as tank level transmitter.

Sludge collection is a simple header-lateral piping design supported from the tank floor. Discharge connection can be side shell or tank bottom design.



The backwash reclaim pump system with redundancy, associated valves and piping can all be skid mounted for easy installation.

Accurate ratio control of reclaim flow to raw water flow is important and will be part of the Main Filter Control system.

Backwash Waste storage tank will be sized with consideration to backwash waste volume, reclaim flow rate and time required to blend the supernatant back into the raw water at the inlet of the filtration system.

Sludge removal can be via a sludge pump to sewer, settling pond, or process connection suitable for Waste Vacuum-Truck disposal.

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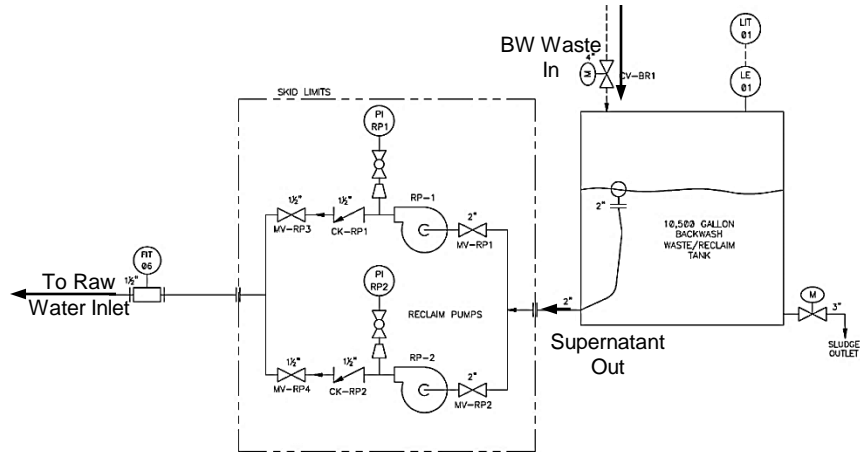
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Backwash Waste storage tanks can be built into the concrete foundation of a building below the filter level, or if job site space will allow, an above ground bolt together storage tank can be assembled on site with properly engineered footings.

Typical Reclaim System P&ID



Typical Backwash Waste Water Storage Tank

- Properly Sized Capacity
- Epoxy or Glass Fusion Lined
- Bolt together panels
- Assembled on site
- *Small systems may use Poly Tanks

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Since 1909 Hungerford & Terry Inc. has set industry standards in engineering, design and manufacture of innovative and efficient water treatment systems. Systems include removal of Iron, Manganese, Arsenic, and Radium; High-efficiency / low-waste Nitrate removal; PFOS/PFAS, Color removal, Chrome-6 removal, Perchlorate removal, Forced Draft & Vacuum Degasifiers, Condensate Polishers and complete Demineralizers for Boiler Feed water applications.