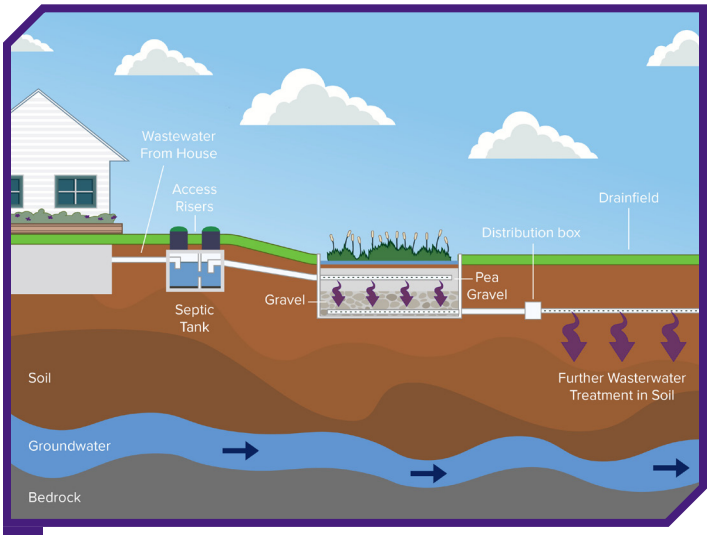
Wastewater Installers
Rock-Plant Filter Bed

A rock-plant filter bed is a type of effluent reduction system that can follow a mechanical plant of high effluent volume. The size of the effluent reduction system installed has to correspond with the recommended size of the sewerage system. These systems use plants and microbes to improve water quality and reduce the volume of water from domestic wastewater treatment.



Constructed Wetland Septic System

Design

Plans to build this alternative effluent reduction bed must be submitted to the regional director for approval before building. Pumping stations can be used if there is not sufficient grade for gravity flow to the discharge point, but all electrical must be accounted for in the plans by licensed individuals. A polyethylene liner in multiple layers is required when the groundwater level is within 24 inches of the bottom of the trench. The liner must achieve 16 mm in width to satisfy the code. Landscape fabric is highly recommended to prevent weed intrusion when liners aren't required. The bottom of the bed must be level and depth less than 14 inches with 10-12 inches providing the best results. The gravel must be 2-3 inches in diameter and laid to a depth of 12 inches. An 8-inch water level must be maintained in the rock-bed filter during the treatment processes. To prevent erosion, the gravel layer can be filled higher to protect the filter bed.

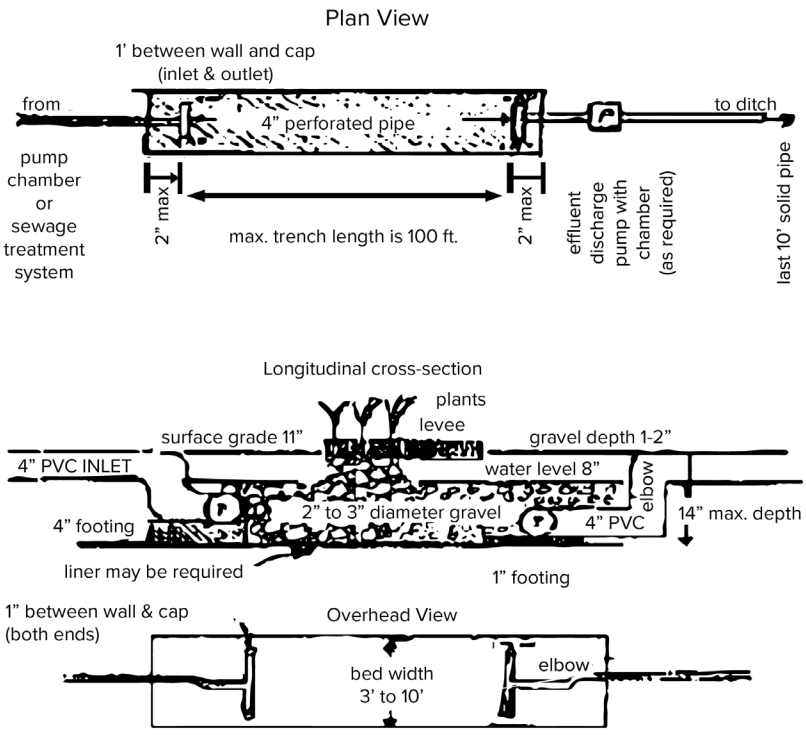
Dimension Requirements

All rock-plant filters must be a minimum of 5 feet wide to a maximum of 10 feet wide. Only a standard-shape bed may be installed with a minimum width of 5 feet and of such length as to provide the required square footage. The table below shows the required square footage for the estimated gallons per day (GPD) of effluent.

Treatment Capacity of Sewerage System	Rock-Plant Filter Bed Size
500 GPD or less	150 square feet
501-750 GPD	225 square feet
751-1,000 GPD	300 square feet
1,001-1,500 GPD	450 square feet

Specification for Piping

A noncorrosive material (concrete or treated timber) should support the minimum 4-inch perforated pipe inlet to the rock-plant filter bed. The inlet should extend no more than 2 feet into the bed and be no



Piping schematic for a rock-plant filter.

closer than 4 inches from the bottom. At the end of the inlet, a tee with end caps should extend the width of the bed within 1 foot of each sidewall to promote equal distribution of the effluent. The outlet pipe should be built to the same specifications as the inlet piping. Do not allow plants to grow within 3 feet of the inlet and outlet piping. Plant growth in these areas could cause roots to damage the pipes and clog perforated holes. A backwater valve must be provided at the end of the field lines whenever the discharge pipe is less than 12 inches above the ditch flow line.

Additional Requirements

- The location of the filter bed shall comply with minimum distance requirements from water wells, water lines, etc., as contained in Part XII of the Public Health – Sanitary Code. This includes being located no less than 10 feet from the property line.
- The filter bed must be appropriately protected from surface runoff water. A surrounding levee support system should be built to exclude additional runoff or flood waters. Make sure all gutter, downspouts or paved surfaces drain away from the rock-plant filter bed to avoid saturation.

References

- https://www.doa.la.gov/media/j3hnpfdy/51.pdf
- https://ldh.la.gov/page/wastewater
- https://ldh.la.gov/assets/oph/Center-EH/sanitarian/onsitewastewater/141.pdf

Authors

M.P. Hayes, Assistant Professor in the School of Plant,
Environmental and Soil Science and Louisiana Sea Grant

Richard Grabert, Sanitarian Program Specialist for the Louisiana Department of Health

Paula Guient, Assistant Program Administrator, Onsite Wastewater and Compliance
for the Louisiana Department of Health

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