

# Feasibility Study of a Rock-Plant Filter Wastewater Treatment System for DOTD

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## Problem

The extended aeration sewage plants presently in use at the rest areas in Louisiana are inadequate. Because of the varying waste flow typical of rest areas, legal discharge standards are often exceeded. In addition, the present sewage systems require extensive ongoing maintenance.

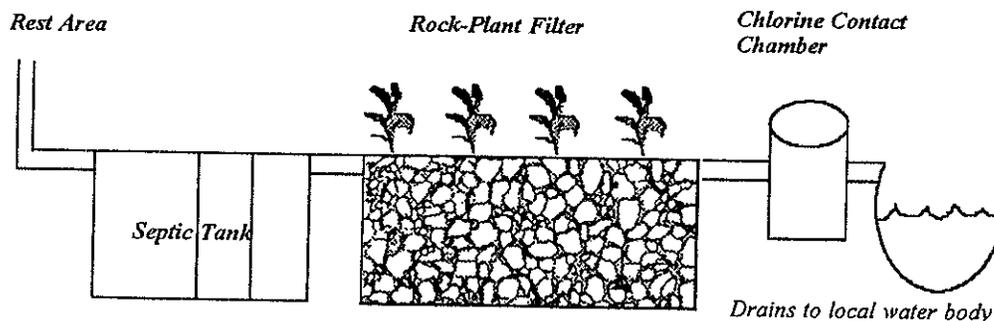
This research will assess the feasibility of a rock-plant system for treating rest area wastewater and recommend size criteria for rest area applications.

## Objectives

- Determine the optimum length to width ratio for the design of the rock-plant filter bed.
- Make a comparative cost/benefit analysis between the proposed rock-plant filter system and extended aeration systems.
- Compare the operation and maintenance activities associated with a rest area rock-plant filter system to those associated with existing extended aeration treatment facilities.

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## Rock-Plant Filter Sewage System



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- Compare the target water quality performance and compliance monitoring responsibilities of a rock-plant filter system to those of extended aeration systems.

## Description

As an alternative to the extended aeration sewage system, a rock-plant filter system is being studied. The system consists of septic tanks, filter beds of Louisiana irises planted in rocks, and a chlorine contact chamber; the treated discharge ultimately drains to a local body of water.

Rock-plant filter systems are biological treatment systems more suited to handle fluctuating sewage loads. They are designed to use natural purification processes while reducing dependence upon mechanical components and trained wastewater personnel.

The project will assess the feasibility of using a rock-plant filter system for treating rest area wastewater, establish a recommended design, outline operation and maintenance guidelines, and estimate cost. DOTD has designed and is constructing a full-scale rock-plant filter wastewater treatment system as part of the rest area project at Grand Prairie, La.

## Implementation Potential

Use of this natural system may reduce manpower and maintenance requirements at rest areas. The feasibility analysis will indicate whether other rest areas should implement this new wastewater treatment technology. In addition, the study will establish a basis for accurate prediction of effluent quality as it relates to filter size, construction costs and land requirements.