

## Sewage and Petrol Station Runoff

### Contaminated Water Solutions Case Study



The BP development at Raunds is believed to be the most environmentally friendly service station in the UK! Oceans-ESU Ltd designed a reed bed system that treats all the foul drainage and hydrocarbon-contaminated surface run-off, while ensuring safe operation of the facilities in terms of odour and contamination risk. The treated water is discharged into a stream.

Overview			
Type of Effluent	Area	Load	Notes
Secondary sewage treatment and hydrocarbons.	900m <sup>2</sup>	Removal of BOD, suspended solids and ammonia. Removal of DROs and PROs.	Discharge of treated waste under Environment Agency Discharge Consent to surface water.



The foul drainage enters a settling tank, where the flow is settled for a period of 1.5 to 4 days. The settled sewage is then pumped into two reed beds. Good design and correct operation of these systems ensures that water flow is entirely sub-surface thus preventing any odour issues.

Hydrocarbon contaminated run-off from the forecourt is treated in a containerised reed bed (RIB™) which removes the requirement for an interceptor. Storm flow that exceeds the capacity of the reed-tub is diverted through a by-pass chamber and then through a shallow gravel based reed bed. This reed bed serves the secondary function of catching hydrocarbons in the unlikely event of a tanker spill from the petrol filling station, and is therefore fitted with a valve so the area can be closed off and pumped out. Uncontaminated surface water run-off is directed straight to the balancing pond, which polishes the final effluent and adds to the wildlife and aesthetic value of the site.



The reed bed treatment system was chosen because it was the most economic and effective treatment technology on the market. It saved the costs of connection and discharge to mains sewage. It also out-competed package treatment plants on price and offered a more robust and reliable treatment method. The containerised reed bed breaks down hydrocarbons into harmless carbon dioxide and water, thus saving the recurring costs of emptying petrol interceptors.