

# Trefor WwTW

## new £1.2 million WwTW

**T**refor, a picturesque village, located on the Llyn Peninsula between Pwllheli and Caernarfon has a population of 743, which increases during the summer months due to the proximity to tourist attractions and areas of outstanding natural beauty. In a scheme which is set to bring extensive environmental improvements to the local coastal waters, Dwr Cymru Welsh Water (DCWW) has commissioned a new wastewater treatment works to meet tighter EU constraints on effluent discharges. Working with its partners, the North Wales team Asset Management Alliance (AMA), DCWW has designed a new works that is set to deliver huge benefits to the area and extensive environmental improvements to the local coastal waters.



Trefor WwTW: New wastewater works will improve coastal environment

*courtesy Dwr Cymru Welsh Water*

The £1.2 million scheme was part of the AMP 4, year 1 programme and provides primary and secondary treatment of sewage that was previously flowing untreated into the sea.

Prior to construction the team worked with the local community to ensure that everyone was aware of the scheme and the impact of work being carried out. Letters were hand delivered to residents and local businesses by the public relations team, which continued to communicate with local people and councillors throughout the scheme.

This was invaluable, as it ensured a direct point of contact for further queries during construction. In addition to the letter drops, arrangements were made to visit the local primary school to create awareness of the dangers of construction sites and WwTWs to the pupils. The school was provided with water-based educational resources and a competition was run for pupils to design their own construction, health and safety posters.

### Summary of the works

Plant and equipment was selected on the basis of achieving the closest possible match between the specified rated duty point and the optimum performance of the plant and equipment. The main treatment process is an RBC package plant.

The new works has been designed for a population equivalent of 823 and Flow to Full Treatment (FFT) of 6.61 l/s. The discharge consent for the works is 40 mg/l BOD: 60mg/l SS.

The following process elements have been selected as the most effective way of improving the current system.

- \* diversion chamber;
- \* storm/balance tank;
- \* primary settlement tank (PST);
- \* rotary biological contactor (RBC);
- \* final settlement tank (FST)
- \* control kiosk;
- \* associated equipment & civil structures.

### Sewage Diversion Chamber

All incoming flows are intercepted by this chamber and re-directed to the storm/ balance tank.

### Storm/Balance tank

A tank has been provided to receive flows from the new diversion chamber. This acts as a storm/balance tank and has a storage capacity of two hours at 3DWF (Dry Weather Flow). This contains the FFT pumps which pump the flow forward and measures it via a flowmeter before entering the primary settlement tank.



Trefor:: New works under construction *courtesy Dwr Cymru Welsh Water*

A tank cleaning pump is also located within the storm/balance tank. A powered 6mm 'up-flow' storm screen is located at the outlet of the storm/balance tank to screen storm spills before they are discharged to the outfall pipeline which discharges into the sea.

**RBC Package Plant**

The RBC Package Plant consists of a primary settlement tank, RBC unit and final settlement tank.

The PST is a two-stage cylindrical settlement tank designed to provide two hours retention at maximum flow (FFT), plus thirty days sludge storage.

The tank is manually desludged regularly using the desludging pipes evenly distributed throughout its length. Settled sludge is taken to Treborth WwTW for further treatment.

**Sludge return pumping system**

Humus sludge is hydrostatically drawn from the humus settlement tanks and pumped to the inlet of the primary settlement tank on a timed basis. A manual de-scum unit has also been incorporated.

**Final effluent sample chamber**

Final effluent flows from the final settlement tank to the sample chamber where it is redirected back into the outfall pipeline.

The new treatment works, to be completed in August 2006, has been situated in what was previously a green field site.

The new site has been designed to provide up to two hours of storm storage as well as having the capacity to accommodate a possible network modification.

**The scheme has benefited from the expertise and collaboration of the North Wales AMA delivery team. ■**

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