

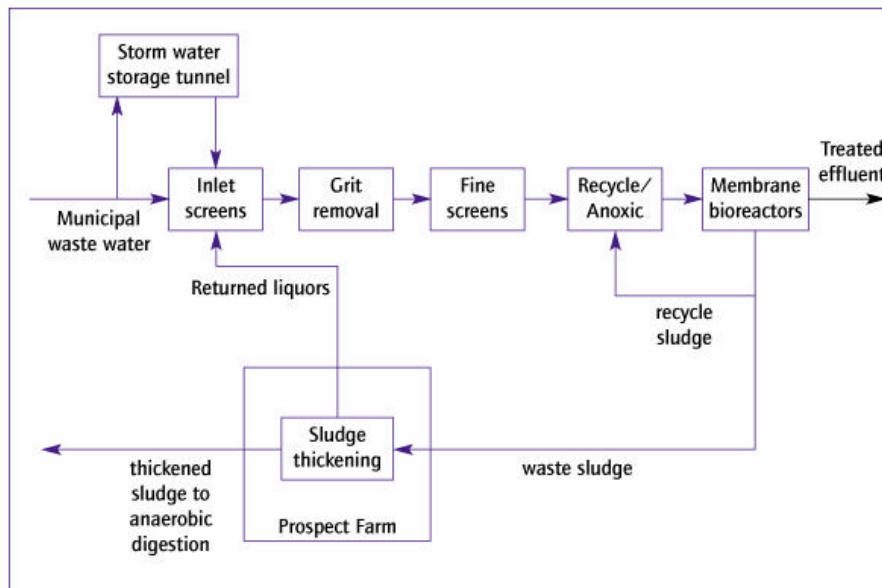
Swanage Wastewater Treatment Works



- **Largest submerged membrane bioreactor plant of its type in the world**
- **Designed to treat effluent from a summer population of 28,000**
- **An Environmentally sensitive area located in a picturesque bay, with nearby bathing beach**
- **Achieved a 2003 Civic Trust Award, presented by HRH The Prince of Wales in respect of a project that has reached the highest standard in terms of both architectural design and contribution to the environment**
- **12,700m³/d flow to full treatment**

Current Status:	Commissioned June 2000
Client:	Wessex Water Services Limited
Population served:	28,000
Consent:	40:60 BOD:SS (Alarm level at 30ntu/Turbidity)
Performance:	5:5:5 BOD:SS:Ammonia
Brief Description:	Complete underground works comprising preliminary works and submerged membrane bioreactor treatment plant

Swanage Wastewater Treatment Works



Process Description

Preliminary treatment is carried out by 6mm drum screens and grit removal in Grit King® separators. The flow is then pumped through 2mm fine screens to a central flow split tank and on to full secondary treatment.

Submerged membrane filtration process within an activated sludge aeration tank carries out the compact secondary treatment.

The aeration provided serves to oxidise BOD and ammonia, and also produces a cross flow effect across the membrane surfaces to minimise membrane fouling.

Since the process requires no primary or secondary settlement stage a high activated sludge strength is possible and space requirements are considerably reduced.

The fully disinfected effluent is eventually pumped to a sea outfall.

Surplus sludge can be removed from the process at up to 2% dry solids. This is pumped to a remote site where it is thickened by centrifuge to 6% before being sent by road tanker for anaerobic digestion.

Foul air from the process buildings (arising from the screenings handling area) are passed through a two stage packed tower scrubber system using sodium hydroxide and sodium hypochlorite reagents.

Project Status

Commissioned	June 2000
Operated by	Wessex Water

Design data

Design Horizon	2016
Flow to full treatment	12,700m ³ /d
BOD load	1,524kg/d
Ammonia load	200kg/d

Plant data

Aeration tank volume	1,260m ³
MLSS	12,000-18,000mg/l
No of membrane units	132 x 150 panels
Membrane surface area	15,840m ²



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