

## Settlement Ponds & Constructed Wetlands

Settlement ponds and constructed wetlands placed strategically in water courses will have the following water quality related benefits:

- Catch and contain water containing silt and nutrients leaving the land.
- Provide an area for the silt to settle out before the water is discharged into a water course.
- Native filtering species such as reeds can be planted to further increase ability remove nutrients from the water and silt.

**Other benefits include:**

- Can become a habitat for flora and fauna, boosting biodiversity.



## Installing Settlement Ponds & Constructed Wetlands

	Guidance
Where	<ul style="list-style-type: none"> <li>• Generally heavy clay soils having undergone a permeability test, act best to retain pools</li> <li>• Chose an area that can naturally accommodate an area of flood water during times of spate</li> <li>• The bottom of a slope that is at risk of unavoidable run-off presents opportunities for wetlands, built yard areas may accommodate adjacent constructed wetlands to manage clean excess rainwater</li> <li>• The area should be able to capture run-off before it reaches a water course</li> <li>• It should be able to drain/connect to a watercourse once the water has settled out over time</li> </ul>
What	<p><b>Settlement ponds</b></p> <ul style="list-style-type: none"> <li>• Ponds are small to medium scale runoff attenuation features that can provide localised slowing of surface flood water and, used across a catchment, can accumulate to result in a reduction in flood peaks downstream</li> <li>• In addition, these features can benefit water quality by retaining soils and nutrients, effectively minimising the ability of faecal bacteria and fertilisers from reaching the watercourses through runoff</li> <li>• The features themselves can take many forms, but normally comprise an excavation located on a surface runoff pathway or are created making use of the natural topography of the landscape</li> <li>• Runoff is retained in the depression for a short period by a mechanism such as an earth bund, sluice or leaky dam which allows the slow release of the water. This allows the sediment to settle out while the water in the trap drains down over a period of 24 to 48 hrs</li> <li>• Soils and nutrients retained in the traps require periodic removal to maintain the storage capacity</li> <li>• See settlement pond example (Image 1 below)</li> </ul>

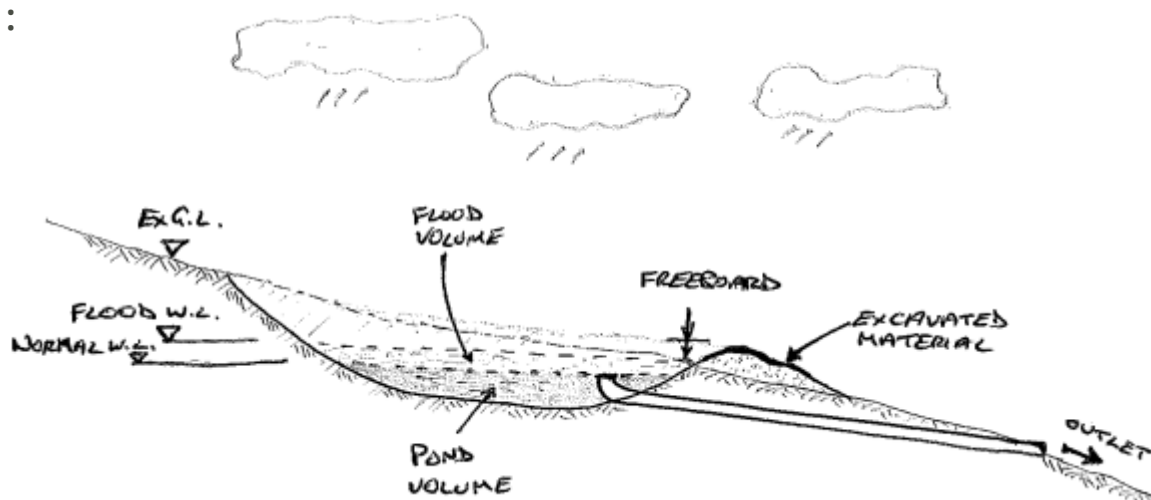
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## Settlement Ponds & Constructed Wetlands

<b>Wetlands</b>	<ul style="list-style-type: none"> <li>• Wetlands are normally shallow ponds and marshy areas covered almost entirely in vegetation</li> <li>• Wetlands will hold some water all year round to support the plants and species found in these habitats and are designed to hold extra water in a flood event</li> <li>• They are designed to accept water run-off that might otherwise discharge into a watercourse and to hold it for long enough to allow sediments to settle and for pollutants to be removed through plant uptake and breakdown in the soil</li> <li>• Wetlands also provide significant biodiversity benefits</li> <li>• Designs for wetlands vary widely and can range from a simple wet area to systems with multiple stages and habitats</li> </ul>
<b>How</b>	<ul style="list-style-type: none"> <li>• Most ponds or constructed wetlands will require a mechanical excavation</li> <li>• If located in impermeable clay soil, you may need an overflow to allow the water to leave once it is full – consider connectivity to watercourses</li> <li>• Suitable plants can be planted to aid filtration and nutrient capture</li> </ul>
<b>When</b>	<ul style="list-style-type: none"> <li>• Install during the seasons when the soil is dry and trafficable.</li> </ul>

Image 1:



### Management for Water Quality and your farm business

Constructed Wetlands and settlement ponds are designed to treat non-hazardous, polluting solutions. Examples include lightly fouled yard water, effluent from field drains or the accumulated surface run-off from fields or feed areas. These wetlands are not a substitute for best practice. Make every effort to contain nutrients, sediments and other water contaminants by reducing the amount of contaminants at source or by using as a resource to grow crops.

The principal of a constructed wetland is that any suspended or solid contaminants entering the system are impeded, and broken down by the biological, ultraviolet and bio-chemical processes as the water passes through the ponds prior to the naturally treated water entering the main river network. Constructed wetlands and settlement ponds can be used to treat mildly polluting solutions, not nutrient loaded yard run-off. As such, they reduce the liability of legal action as a result of field run-off entering water courses.

### Consents and Licences

It may be necessary to consult with the Environment Agency and/or Natural England when conducting works that directly affect a water course.