

Project Case Study

Trent Valley - Rural SuDS - Scotch Brook

29th February 2016

Rural Sustainable Drainage Systems (RSuDS) within the Scotch Brook catchment. An innovative project to improve water quality, tackle flooding and help wildlife.

Culvert, Flooding, Drainage, Ponds, Rural, Sediment, Silt, Sustainable, SuDS, Systems, Wildlife.

Partners	Contribution (£)
Staffordshire Wildlife Trust (lead)	£10,000
Environment Agency	£40,000
Natural England	£7,100
Staffordshire Highways Authority	£45,000
Private Landowner	£3,000
Total Project Value	£105,100

Background:

The project has arisen as a result of co-operation from landowners and collaboration between the Environment Agency, Staffordshire Wildlife Trust and Natural England.

Objectives:

The Scotch Brook was failing to meet the requirements of the Water Framework Directive (WFD) due to increased phosphate levels, mainly due to diffuse pollution from farming practices. The market town of Stone, in Staffordshire, has also suffered from a number of flood events over the years, the worst incident occurring in 1987, when the collapse of one of the culverts in the town centre resulted in 80 properties being flooded.

The main aims of the project were to improve water quality and contribute to flood storage in

the Scotch Brook catchment. Each year a large amount of sediment was being washed into the Scotch Brook and depositing in the centre of Stone. In order to clean out the trapped sediment and debris from the two culverts, it has cost the Environment Agency approximately £125,000 every 18 to 24 months. All works have restored and created wetland habitats providing opportunities for a range of wetland wildlife

The schemes were implemented at various locations across two different landholdings, both of which are currently in Higher Level Stewardship schemes.

Case Study 1 - Moddershall

A tributary of the Scotch Brook flows through this dairy farm, however due to its position within the farm and particularly during times of high rainfall, farmyard and road run-off containing pollutants easily enter the watercourse contributing to the increased phosphate levels.



Before (November 2014)



After (February 2016): A series of filtration ponds.

The project created five interconnected filtration ponds, adjacent to a tributary of the Scotch Brook. The first two wetland ponds will be planted with emergent vegetation to aid the treatment of surface water and farmyard run-off by enhancing sediment removal. The following three ponds differ in size and allow for further sediment settlement and water treatment before flowing into the watercourse. Each pond is contoured so that there are deeper and shallower areas which are beneficial for freshwater wildlife.

We installed large logs/woody debris, along the watercourse, to act as flow deflectors. The intention is to impede flows so that water backs-up in the channel and is a natural way of trapping sediment in the watercourse.

In addition to this, the Highways Authority carried out road drainage improvement works, which should help alleviate some of the flooding issues around the farm buildings.

Case Study 2 - Cotwalton

At Cotwalton, our work consisted of creating two on-line retention pools in the natural flood basin. The pools are holding back large volumes of water but they will be especially useful in periods of high rainfall. They will also help to slow down the flow of water in order to allow sediments to drop out of the water column.



Before (January 2015)



After (June 2015): A large retention pool.

Outcomes and Lessons

Learnt:

We have completed the project to a high standard using experienced contractors to carry out the works. Although we have delivered and achieved the main aims of the project, each scheme was in effect a pilot project for this area, therefore the RSuDS schemes created will have to be monitored over the coming months/years to ensure that they are working effectively.

Time was a limiting factor with this project as there was only a small time frame within which we had to complete the contracting work, however we did manage to complete the project on time and to a high standard. Furthermore, the fact that the work had to be completed during the winter months was an issue due to contracting works being put on hold during wet weather conditions. Having a later deadline in Spring/Summer would be more advantageous due to generally drier weather conditions so that contracting works can be carried out more quickly and efficiently.

Contact

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Appendix:

Additional photographs of the works completed.

Moddershall dairy farm:



Before (November 2014)



After (February 2016): A series of filtration ponds.

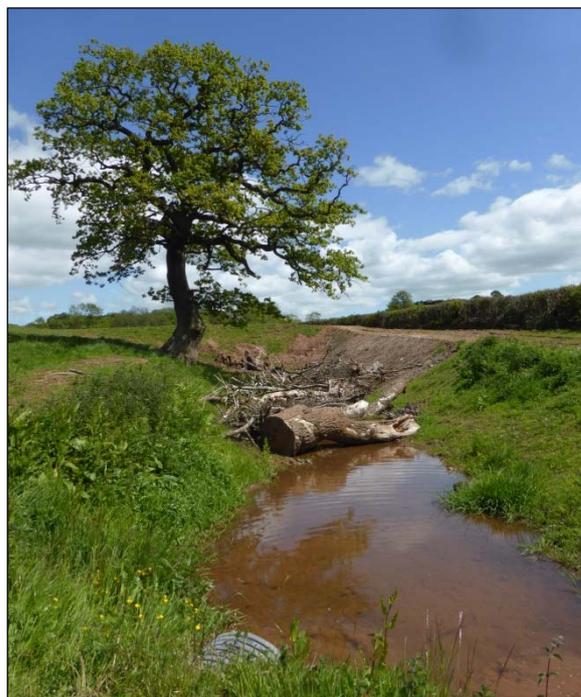


Before (March 2015)



After (June 2015): On-line settlement ponds.

Cotwalton arable farm:



After (June 2015): A shallow pool was created with a large area of woody debris.