

Buxton Sewage Treatment Works

demolition of decommissioned STW & land reinstatement

by
Catherine Hitchen BSc (Hons), MSc, AIEMA

Severn Trent's Buxton Sewage Treatment Works Project included the construction of a new MBR Plant, upgrading of the inlet works, sludge holding tanks and the conversion of PSTs to storm tanks. As part of this scheme, Biwater were requested to demolish and reinstate the decommissioned section of the works. The site of the old Buxton STW is owned by Sever Trend Water (STW) with the River Wye, which ran in a culvert through the works, owned by Chatsworth Estate and leased to the water company. The 99 years lease expired in 2003 and a clause in the lease was that the STW were to return the river channel to its original condition upon cessation of sewage treatment on the site. The scope of the works included demolition of two longitudinal filter beds, four humus tanks and removal of the existing pre-cast concrete culvert roof. The gravity sewer connecting the decommissioned site to the existing works ran alongside the River Wye and within the scheme, sections of this pipeline were to be removed.



View of original site alongside River Wye

Photo courtesy Biwater Treatment Ltd

Project

Buxton Phase 2 site is situated south east of Buxton Town Centre and access is via the A6 Buxton to Bakewell Trunk Road. The site, in question, is a linear area which is located at the base of a steep-sided wooded valley and was decommissioned in 2004. The River Wye was contained within a culvert which lay underneath the longitudinal filter beds. The River Wye is a river of ecological importance and downstream of the works is a Special Area of Conservation. Due to the environmental risks involved with the demolition, close consultation with the Environment Agency was necessary.

Prior to commencement on site STW commissioned surveys on the significant environmental aspects including; Protected Species Surveys, Detailed Flood Risk Assessments and Culvert Condition Surveys. Before starting work the Environment Agency attended a

meeting on site with Biwater to discuss the appropriate measures required for the scope of works. Due to the sensitive nature of the site and the close proximity to the River Wye, three Flood Defence Consents were obtained.

The first Flood Defence Consent was required for the removal and grouting of specific sections of the pipeline transferring settled sewage from the Phase 1 site to the Phase 2 site for secondary treatment. This sewer pipeline is part buried and part above ground, immediately adjacent to the River Wye. The original scope involved grouting this pipework but after a reappraisal, taking the environmental issues into consideration, it was decided that sealing the ends of the disturbed sections of pipework was sufficient. This eliminated the risk of grout entering the river and having a detrimental impact on the local environment.

It was originally envisaged that to remove sections of the pipeline machinery would have to be tracked up the river bed, it was presumed that suitable lifting equipment to be used from roadside could not be found, however, the sub-contractor sourced equipment that was used without full road closures being necessary. This, combined with working at night reduced the inconvenience to local motorists.

The filter beds extended over the River Wye, contained within a culvert. The river was to be returned to an open channel flow, unimpeded by the existing development, and the site was to be reinstated to a more natural landscape.

The other EA consents were related to the opening of the culvert to restore the river to its original condition. Consent was required for the temporary works, with scaffolding within/adjacent to the river and the actual removal and demolition of the culvert roof.

The Consents highlighted the fact that the River Wye was affected by crayfish plague, carried and spread by the alien species Signal Crayfish, and has already eliminated many of the UK's native crayfish populations. Works within the watercourse had to comply with the Environment Agency guidelines to prevent the spread of the crayfish plague.

As a precautionary measure, prior to the removal of the culvert roof, a bat emergence survey was completed by an ecological consultant. However, it was stated that because the River Wye frequently floods the potential for Bat habitation was considered to be low. As a precaution, site staff were informed of the possible presence of bats and were made aware that they are a legally protected species.

The area of the site between the A6 and the River Wye culvert was

contaminated with Japanese Knotweed. Severn Trent Water, The Environment Agency and Biwater worked together to find a solution. The contaminated ground was excavated, placed in the abandoned humus tanks, covered in an impervious membrane, sealed with a reinforced concrete slab and landscaped over. The area from which the Knotweed was excavated was lined with geotextile and covered with six hundred millimetres of topsoil. Toolbox Talks and a Detailed Method Statement were completed to ensure that site personnel were informed about the invasive nature of the Knotweed and how to prevent its spread.

To minimise vehicle movements and prevent disposal of re-usable waste, virtually all the filter media and inert demolition arisings were incorporated into the landscape profile of the site. These arisings were utilised as fill for the decommissioned humus tanks following a successful application for a waste management licence exemption. These works formed part of the overall Planning Consent for Buxton Sewage Treatment Works, therefore specific details of the site's finished visual aspect and ground levels had to be identified at a very early stage in the project.

Communication with the Derbyshire County Council Planning Department continued throughout the scheme. Additional to the original scope of works, as requested by the planners, the retaining wall marking the site boundary adjacent to the River was reduced in height by 1,5 metres. This made the site less visually obtrusive and the Planners were very happy with the result. The project was completed successfully within programme, planning and budget and no environmental or health and safety RIDDOR incidents occurred.■

Note: *The author of this article, Catherine Hitchen, is the Environmental Advisor for Biwater Treatment Limited.*



Job completed and beauty restored

Photo courtesy Biwater Treatment Ltd