

Linlithgow Drainage Area Study Scottish Water



Providing a verified hydraulic model to determine the hydraulic, structural and operational needs of the sewer system within the catchment

Entec was commissioned by Scottish Water (formerly East of Scotland Water) to undertake a drainage area study for the Linlithgow catchment in 2000. This is one of several sewerage investment and operational procedure studies (SIOP) that Entec has undertaken for Scottish Water (SW) over the past four years. The main driver of this commission was to provide a verified hydraulic model to determine the hydraulic, structural and operational needs of the sewer system within the catchment.

Linlithgow is a catchment of approximately 29km², with a population of 13,300 and is situated to the north west of Edinburgh towards Falkirk. The drainage system comprises of a total length of 116km of foul, combined and surface water sewers, of which 22km are critical. Five pumping stations exist within the catchment and five combined sewer overflows.

A manhole survey was undertaken consisting of full man entry and cover level measurement at some 200 manholes. CCTV surveys of the critical sewers were also carried out. Following this, a hydraulic model was built and verified in HydroWorks by Entec, and a short-term flow survey was carried out comprising of 22 monitors.

The catchment needs were identified by Entec following the verification of the model and all the survey work. This involved in-depth discussions and liaison throughout the study with the client in order to verify the hydraulic model with historical problem areas. At this point in time, Entec has completed the verification stage and is currently in the process of identifying the catchment needs. Some six hydraulic needs are being considered and these comprise of a mixture of water quality problems concerning CSOs as well

as flooding issues. Seven structural grade five sewers and 58 structural grade four pipes have been identified from the CCTV survey. This, together with the verification procedure also highlighted the operational problems within the catchment such as silt, debris and grease, which are of a transitional nature.

Following the confirmation and agreement with SW of the needs in Linlithgow, various options will be considered at a later stage to solve these problems.

This project is being carried out utilising SW SIOP procedure. This is a paperless format specification comprising of reports, drawings and associated catchment database. Standard formats of tables used for the MapInfo drawings, reporting templates and also costing database were provided by SW at the start of the project.

