G.4 Storm Water Overflows

1.1 Programme of Improvements - Galway Main Drainage Stage 3 Project

There are currently nine CSO's in the Galway network, which spill at seven storm water overflow discharge points. The operating regimes and construction details of these CSO's are outlined in Attachment C1.

The **Volume D1** Preliminary Report for the Galway Main Drainage Stage 3 Project, is a very large body of work, detailing the development of the Galway Main Drainage system, the various surveys and load measurements, which have characterised its behaviour in wet and dry weather, and the resultant modelling of its expected behaviour under future loads. It identifies areas where sewer rehabilitation is required to redress issues of structural collapse, heavy infiltration, chronic siltation and all the factors that impact on sewer classification. It examines the multiplicity of CSOs on the system, together with operation of the Pumping Stations on the network. Again, the overall strategic perspective is maintained, in that some interim transfers to Mutton Island must be accommodated from Oranmore and part of Ardaun, in a manner that permits longer-term redirection to a different focal point and a different WWTP. A sum of €51m has been provided in the Water Services Investment Programme 2007-2009 for funding the Galway Main Drainage Stage 3 Project. €40m of this sum has been assigned to Volume D1 of the Preliminary Report.

The Main Drainage network, draining to Mutton Island WWTP and its extended peripheral catchments, has been modelled with representative time series rainfall, and under extreme rainfall conditions. The model outputs have been compared with existing observed conditions in the drainage system, and the model itself has been adjusted based on the comparison. At present, the inlet pumping arrangements and probe settings at Mutton Island are such that the Inlet 1800mm diameter pipe is always partly full. The modelling work has identified however that this results in significant surcharging of trunk sewers in the approaches to the causeway sewers, and it also results in losses at upstream backwatered Combined Sewer Overflows.

These model runs have been used to study the Combined Sewer Overflow statistics, not only on the existing system as it is currently configured, but also on the existing system with adaptation of the Mutton Island pump settings to use stormwater pumping capacity to maintain a generally more free flowing lower network, and to reflect the changed conditions when the second barrel of the two-pipe siphon across the Corrib Estuary is opened, which is not the case at present.

Model runs have also been used to study how the system will operate in both the medium and long term. The medium term scenario looks at operating with the second barrel of the siphon across the River Corrib Estuary open, but with revised controls to the Inlet Pumps at

Mutton Island, and a third siphon included. Improvements to the network and storage, both in-sewer and at pumping stations, were assessed in the model and it was determined that it would be possible to decommission some of the CSOs, and greatly reduce spills from the remainder, without major downstream impacts on trunk sewer capacity.

To address the environmental impact on the watercourses in the Galway catchment, a 1 in 1 year storm was utilised as the design criteria for rationalising the overflows. A total of four overflows are to be abandoned and the remaining CSOs should not spill on a 1 in 1 year storm.

The following are the recommended programme of works.

1.1.1 General Measures

Revise controls at the Inlet Screw Pumps at Mutton Island WWTP.

1.1.2 Kingston CSO (SWO 01)

The weir level of this overflow should be raised to the crown of the incoming pipe in order to remove spills from the overflow on a 1 in1 year design storm.

1.1.3 Grattan Road CSO (SWO 02)

Revised controls at Gentian Hill Pumping Station to utilise storage tanks in order to reduce flows in the Salthill trunk sewer. Introduce a flap valve on the outfall pipe from the Grattan Road CSO to prevent tidal inflow. It is estimated that these measures will remove spills from this overflow on a 1 in 1 year design storm.

1.1.4 Long Walk CSO (SWO 03)

The weir level at Long Walk CSO should be raised to the crown of the incoming pipe and a flap valve introduced on the overflow pipe to prevent tidal inflow. A third 750mm diameter siphon will be required, in parallel to the existing two siphons which cross the River Corrib Estuary, to ensure sufficient capacity downstream of the overflow.

1.1.5 Newtownsmith CSO (SWO 04)

The weir level at Newtownsmith CSO should be raised to the soffit of the incoming pipe. Impermeable areas in Woodquay should be separated, to outfall via a 300mm diameter storm sewer to the River Corrib, so the flows do not enter the combined system.

1.1.6 Renmore Park and Dublin Road CSOs (SWO 05)

Flows from the Dublin Road and Renmore Park CSOs are to be divderted to the proposed storage tank at Lough Atalia Pumping Station. A new CSO is to be constructed on the shore of Lough Atalia on the existing overflow line from these CSOs. This will be utilised in the event that the storage at Lough Atalia pumping station is full. The existing 225mm overflow pipe requires upsizing to 375mm. A new 300mm diameter overflow pipe should be constructed from the new CSO to the outfall. A new 450mm diameter continuation sewer should be constructed from the new CSO to the proposed storage tank at Lough Atalia pumping station.

Renmore Park and Dublin Road CSOs will no longer be acting as overflows, but as bifurcations.

1.1.7 Moneenageisha CSO (SWO 06)

The level of the relief pipe between the existing 900mm combined pipe and Moneenageisha School CSO should be raised to above the crown of the 900mm sewer. In addition, the overflow weir should be raised to 500mm above the crown of the incoming pipe.

1.1.8 Michael Collins Road and Beach Avenue CSOs (SWO 07)

The weir level at Michael Collins Road CSO should be raised to the crown of the incoming pipe. Beach Avenue CSO is to be abandoned and 461m of 300mm diameter pipeline constructed from its location to the Fuschia Pumping Station. In addition, a 120m^3 storage tank is proposed at the pumping station.