Appendix D

Foul Water Drainage Strategy Review

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1 Introduction

Bishopton Action Group received two foul water drainage strategy reviews. We have included both reviews as part of our response.

2 Foul Water Drainage Strategy Review A

Proposed ROF Redevelopment – Bishopton

Foul Water Drainage Strategy – Review

The Foul Water Drainage Strategy undertaken by the developer has, at least at a high level, taken cognisance of the major issues associated with such a development. The conclusion of the report is to collect the foul only flows from the new development and pump them through a series of satellite pumping stations to a transfer pumping station, which will forward the influent to the recently upgraded Erskine WwTW's. There are however, several aspects of the report, which will require further investigation in order to clarify the validity of the recommended option:

- **Population Equivalent (PE)** – The consultant has used a multiplier of 2.3 to establish the PE of the new development. Without knowing the size of the properties being proposed, I would question whether this figure is correct. A multiplier of 2.4 or 2.5 may be more appropriate, although this will have a minimal effect on the overall scheme.

- **Sustainable Urban Drainage Systems (SUDS) –** The report does make reference to SUDS. This is in relation to the separation of foul and surface water flows. The proposal is to transfer foul only flows to the treatment works whilst using SUDS to deal with all other flows from roofs, roads and hard landscaped areas. This is in line with current practice however, more detail is required on the methods to be employed to store and discharge the flows, what water course(s) it will be discharged to and what impact this discharge will have on the water course/environment, taking into account the potential for contaminants to be present within the discharge and the possibility of flooding.

- **Emergency Outfalls (EO) –** Although still to be considered through the detailed design stage, it should be noted that any spills from any of the EO's at the pumping stations, will by necessity, discharge screened raw sewage to either of the two local water courses, which have already been identified as having limited dilution, low flow

characteristics in summer and one of which is a high quality salmonic river.

- **Commercial Usage –** There appears to be no allowance within the Population Equivalent calculation for the flows, which would be contributed by any Commercial Development within the area.

- **Septicity/Odour –** Although this issue is referred to at high level within the report, the potential for the sewage to turn septic is significant. Considerable detailed design is required in order to establish the storage volumes required over the phased construction of the development, the sizing of the rising main to cope with the pump rate and maintaining the minimum velocity within the pipe and the retention times within both the storage tanks and rising main, to prevent the sewage turning septic.

- **Existing System –** Reference has been made within the report, to the potential to utilise the existing network with Bishopton for the first stages of development. Is there sufficient storage capacity at the existing pumping station or a significant amount of spare capacity within the current sewage network for the emergency storage required to accommodate this increase in population? A Drainage Area Study will be required to assess the impact of the new flows on the current network to determine the viability of discharging to the existing network.

- **Erskine Spare Capacity –** At this stage, Scottish Water have stated that there is spare capacity at Erskine Waste Water Treatment Works to accommodate the additional flows from the new development. However, the proposal of the site is envisaged to be undertaken over a period of 15 years and Scottish Water cannot guarantee that this spare capacity will be available over this period of time. Does the developer have a contingency plan in the event that this spare capacity is taken up by other developments within the area?

- **Cost of Proposal –** There is a high level indication of the cost of constructing the new infrastructure required to transfer the new flows to Erskine, which was produced in 2004. How robust is this figure? Is it purely a construction cost or does it include full design to current Scottish Water Standards and Specifications, stakeholder management, potential for an EIA, land acquisition/agreements, etc? Will the developer bear the cost of the construction regardless of the final cost?

3 Foul Water Drainage Strategy Review B

The recommendations for the Foul Drainage Strategy State:

> Within the development area a foul sewerage network comprising of gravity sewers discharging to local satellite pumping stations will be adopted due to the relatively flat nature of the site.. The satellite pumping stations will either discharge to the main pumping station or provide a local 'lift' within the network to discharge within the gravity system. The number of satellite pumping stations will be minimised.
>
> Whilst discharge directly to Erskine WWTW forms the basis of the foul sewerage strategy in support of the outline planning application, at detailed stages Drainage Impact Studies will be commissioned through Scottish Water to identify whether capacity is available within in the existing local sewerage network or available through local upgrades.

So far so good, but in the following paragraph it is stated:

> Should reasonable capacity be identified as available then this would allow utilisation of the existing network for the first phase(s) of the development, increasing the sustainability of the proposed development through improving the efficient usage of existing sewerage assets and subsequently reducing the size and energy usage of any new sewerage infrastructure to be constructed.

This latter statement would mean discharging into the existing sewer system in Bishopton initially with a potentially significant cost saving to the developer .

Earlier in the Strategy document it is stated:

> During the course of evaluating the strategic options available to service the proposed redevelopment, various discussions and correspondence have been entered into with Scottish Water.
>
> From these discussions it is clear that at this stage in the proposed redevelopment of the site that Drainage Impact Studies into the options for discharging to the existing sewerage network are of limited long term value and are unlikely to provide conficence that identified capacity within the existing sewerage network at this time will be available when development commences or be reserved through the life of the proposed development.

This statement appears to negate the option of connecting to the existing sewers at any time in the project. It would therefore appear that the only feasible foul water drainage strategy is for a **direct connection** to be made to Erskine WWTW. This is Scottish Water's preferred option and should be made a condition of planning consent. The other options involving utilisation of existing drainage facilities involving a degree of storage as well as pumping and runs a high risk of septicity of effluent taking place due to the storage of effluent within the system.

The available capacity figure of 10,000 p.e equating to 4350 residential units based upon the average of 2.3 persons per household is optimistic to say the least. Redrow have advertised the housing element as aspirational. How many people aspire to a 2 bedroom house to accommodate 2.3 people? Take a 4 person average and the 2,500 residential units available would suggest that Erskine WWTW may not be capable of handling the resultant effluent discharge from the development in conjunction with all other developments in the area.

It should also be noted that the Erskine WWTW is designed to accommodate possible future developments in the Johnstone and Linwood areas.

We wish to see evidence that the Erskine WWTW can accommodate the effluent discharge from the housing <u>and</u> industrial developments at Bishopton, the Community Growth Area at Johnstone and any future developments within the catchment area of the Erskine WWTW during the predicted life-time of the Bishopton development (15 years minimum)