



**Comments on
North Norfolk District Council
Local Development Framework
Site Specific Proposals and Draft Plan
Submission Document
Water Infrastructure Statement
on behalf of Gresham School**

Contents

Introduction

Population Data

Flows

Conclusion

Comments on
North Norfolk District Council
Local Development Framework
Site Specific Proposals and Draft Plan
Submission Document
Water Infrastructure Statement
on behalf of Gresham School

1 **Introduction**

- 1.1 North Norfolk District Council have prepared a water infrastructure statement for submission to the site specific enquiry as part of the LDF process. The document indicates that it is based on the latest data from Anglian Water and the Environment Agency.
- 1.2 Michael Thomas Consultancy LLP have been asked to provide comment on the Water Infrastructure Statement and these comments were prepared by M. F. Thomas B.Sc., (Civ. Eng) C. Eng., C.W.E.M., M.I.C.E., M.C.I.W.E.M..
- 1.3 These comments solely relate to the proposed development at Holt.
- 1.4 The first point which appears to be missing from the report is a statement of how all sewage treatment works extensions to cater for new development are funded.
- 1.5 Since the Water Act 1989 Sewerage Undertaker's have levied an Infrastructure Charge on all new properties built which are connected to the public sewerage system. The purpose of the infrastructure charge is to cover the additional capital expenditure costs incurred by undertakers in extending the network of reservoirs, mains, sewers and treatment works, and developing other resources, to provide capacity for new customers.
- 1.6 It should be borne in mind that Anglian Water Services Ltd is a limited company and forms part of a larger private company called Anglian Water Group whose operations are intended to provide a profit for their shareholders.

2 **Population Data**

- 2.1 In 1991 the average household size in North Norfolk was 2.34 persons per house.
- 2.2 By 2001 the average household size and North Norfolk had dropped 2.2 persons per unit.
- 2.3 The District Council's report indicates that the average household size is now 2.1 persons per unit.
- 2.4 Simply to maintain the population in Holt and the surrounding villages which are connected to the existing sewage treatment works at its 2001 level would have required that 107 houses were constructed.
- 2.5 Between 2001 and 2007 the population of Holt is indicated to have increased from 3550 people to 3631 people and during that period 171 dwellings were completed. This would indicate that each new dwelling constructed in Holt only increased the population connected to the sewage treatment works by half a person. This is due to the fact that additional development is required just to maintain the existing population particularly in North Norfolk where the housing occupation figures are dropping significantly.

3 Flows

- 3.1 The measured dry weather flow at Holt sewage treatment works is given as 813 m³ per day. The connected population is not given, but the actual population of the connected villages if added to the population in Holt gives a connected population of 5105 based on the 2007 population estimates. This does not include any commercial load (Trade Effluent), but does include all the unconnected properties. This would suggest a flow per person to the treatment works of approximate 160 L per day.
- 3.2 The report indicates that Anglian Waters Holt STW has a spare capacity of 168 m³ per day which based on the current discharge per person of 160 L per day indicates that the sewage treatment plant has a capacity to accept an increase in population of 1050 people.
- 3.3 The indications are, using the increase in population for each house constructed over the last 10 years, that to increase the population of Holt by over 1000 people would require 2000 houses to be built not the 562 proposed.
- 3.4 It is disingenuous of Anglian Water to suggest that the construction of new houses in the North Norfolk area increases the flow to their sewage treatment works by 330 L per dwelling because this ignores the decrease in flow from the reduction in the population in the existing housing stock and the gradual reduction in water consumption and sewage flow from the existing housing stock.
- 3.5 The housing proposals according to Anglian Water would generate 185 cubic metres of sewage per day and the 3.5 ha of employment land would generate 248 cubic metres per day of sewage.
- 3.6 The employment land is therefore judged to produce 71.1 m³ of foul sewage per hectare. It is extremely unlikely that any employment uses which generated a significant trade effluent would be constructed within the catchment of the Holt sewage treatment works as Anglian Water would refuse to issue it with the trade effluent license.
- 3.7 This means that the flow that Anglian Water are taking for the employment land is only the domestic effluent from the employees. The stated figure for flow from the employment land is 0.75 L per second per hectare. Based on a normal employment operating period of between 10 and 12 hours per working day this would indicate that

a hectare of employment land would produce 27 m³ per day or 94.5 m³ a day for the whole of the allocated employment land.

- 3.8 Anglian Water has used the design flows for a sewerage system on an industrial estate recommended in Sewers for Adoption Six Edition and applied it to the dry weather flow of the sewage works in addition to assuming this occurs for 24 hours a day. This is unrealistic as very few sectors of the economy operate on a 24-hour basis. As indicated above most employment operates on a maximum 10 to 12 hour day. This reduces the flow from the employment land from 248 m³ per day to less than 100 m³ a day based on the peak flow rates in the sewerage system. These peak flow rates would normally be divided by 6 to get a dry weather flow which would reduce the employment land allocation dry weather sewage flow to 15.75 m³ per day.
- 3.9 Anglian Water has actually taken into account the domestic element of the employment land in the figures for the housing so there is a significant element of double counting.
- 3.10 The data given at the bottom of the table indicates that a water consumption figure of 150 L per head of population has been used to calculate the dry weather flow of which 130 litres per head is for the residential population and 20 litres per head is for the non household domestic type uses, i.e. the water used by employees at work.
- 3.11 All the figures actually given above should be reduced by 5% because it would appear that Anglian Water has used the water consumption figures as opposed to the sewage flow figures which are 5% less than the water supplied to households to cover such things as leakage, garden watering, car washing etc.
- 3.12 Taking a more realistic view of the flows to the sewage works likely to be generated by the 562 houses proposed would suggest that the increase in flow from the residential element would be 40 m³ per day and from the commercial element zero as the domestic part has already been counted in the residential flows. Even if the industry standard figure of half a litre per second per hectare allowance the trade effluent used in a sewer design is used this would only give a trade effluent flow of 12 cubic metres per day.

4 **Conclusion**

- 4.1 These figures are well within the capacity that Anglian Water have indicated is available at Holt STW and there is no justification for any housing or employment allocation to be opposed by Anglian Water at Holt.