

Appendix 1 Extract from Infrastructure Delivery Plan: Chapter 3 - Water

3. Water

Water Evidence Base		
Owner	Document	Date
AW	Consultation Response to Breckland Local Plan – Interim Consultation	2016
BDC	Strategic Flood Risk Assessment	2017
BDC	Water Cycle Study	2017
BDC	Sequential Test	2017

Water Cycle Study

3.1. A detailed Water Cycle Study (WCS) was originally completed for Breckland District Council in 2010 and assessed growth as planned in the Local Development Framework (LDF) for implications on the water environment and water infrastructure provision in the District. With a revision to the growth strategy proposed for the subsequent Local Plan development in 2015, an update to the assessment of water environment and water infrastructure provision was required, taking into account differences in growth targets and locations as well as changes in infrastructure capacity and planning to that assessed in 2010. The update was completed in 2017 following further work to align both the WCS and SFRA with proposals in the submission version of the Local Plan. Extracts from the WCS Executive Summary provide an overview of the key infrastructure constraints and solutions in the District. Additional evidence has been provided from the response to consultations on the Local Plan by Anglian Water (regional water authority).

Wastewater treatment works

3.2. Wastewater treatment in the District is provided by Wastewater Treatment Works (WwTWs) operated by Anglian Water, all of which discharge to surface watercourses. Each WwTW is fed by a network of wastewater pipes (the sewerage system) which drains wastewater generated by each property to the treatment works. Due to the dispersed nature of development within the District (and the costs and energy required to pump wastewater over large distances), most settlements have their own WwTW hence a large number are affected by growth proposals.

3.3. Assessment of the revised growth locations and numbers has demonstrated that additional treatment capacity will be required at four Wastewater Treatment Works (WwTW) serving the District as a result of additional wastewater likely to be generated by the proposed growth. Improvements or new discharge permits are required at these WwTW to ensure that water quality targets, set to meet the requirements of European legislation such as the Water Framework Directive (WFD) and Habitats Directive (HD) are not exceeded within the rivers which will receive the additional treated wastewater flow. This affects growth proposed in Attleborough, Dereham, Garboldisham (Elm Grove) and Watton (described in more detail under area subheadings).

Wastewater network capacity

- 3.4. Policies in the plan for the majority of sites would require at least some upgrades to the piped wastewater network to increase capacity with the exception of Mattishall, Yaxham and Old Buckenham where only a few sites would require upgrades.
- 3.5. It is recommended that Local Plan policies for all sites in identified locations specify that development proposals for sites highlighted with a potential constraint are accompanied by a pre-development enquiry with Anglian Water to demonstrate that sufficient capacity is available to transfer wastewater for treatment and to demonstrate where a developer needs to financially contribute to that provision.

Water resource availability

- 3.6. Raw water availability within the District is currently limited and issuing of licences to abstract water from the District's rivers and underlying aquifers is restricted by the Environment Agency in all conditions except high river flows. As a result, supply of water for additional demand from new development is dependent on strategic management of resources by Anglian Water Services.
- 3.7. Anglian Water has set out how future demand in the District will be met as part of its current Water Resources Management Plan (2015). A twin-track approach is proposed whereby existing demand is managed and new supply sources are provided. Demand would be managed through a reduction of leakage within the supply network and through reductions in consumption via water efficiency measures. The preferred option for additional resources is a winter storage reservoir in the Norfolk Fens in the longer term.
- 3.8. Anglian Water Services has confirmed that the level of growth assessed within the WCS update is factored into the current Water Resources Management Plan which has been approved by the Environment Agency and Defra. The WCS update therefore concludes that a sufficient sustainable water supply is available to meet planned demand without impacting adversely on the environment.

Water efficiency

- 3.9. Water availability within the District is finite and that, to compliment proposals within Anglian Water Service's Water Resources Management Plan, consideration is given towards minimising water use in planned development through the use of development control policy and contributing to management of demand from the existing population within the District. To set out how this could be achieved, the WCS has considered the feasibility of attaining a 'water neutral' position in the District, whereby the District's total demand for water at the end of the plan period is equal to (or less than) current demand levels in 2016. The assessment demonstrated that water neutrality is theoretically attainable by the end of the plan period, but would require new development to be built to the highest efficiency specifications based on technologies (such as greywater recycling) which are not yet widely adopted in the UK. It would also require an extensive and expensive programme of retrofit of water use control measures and systems to existing properties throughout the District, for which a funding source has not been identified.
- 3.10. Although water neutrality is unlikely to be a feasible option for the District, the WCS update has provided a 'pathway' for how the District could move towards a more neutral position,

including requirements for policy, funding and technological requirements and has made a recommendation that consideration is given to a policy for new development being built to the optional Building Regulations standards for water efficiency in some locations, particularly where this could also contribute to a reduction in wastewater treatment pressures, such as Dereham.

Site Specific solutions

3.11. The WCS has assessed growth proposed in the district. This section provides more detailed information for growth locations highlighting the individual solutions required to accommodate proposed development in the Local Plan.

Attleborough

Waste Water Treatment Works

3.12. Attleborough WwTW has some available flow headroom in its existing discharge permit and can accept growth of approximately 1,800 dwellings (from the 4,000 allocated), after which the volumetric discharge permit will be exceeded.

3.13. When considering all growth at the end of the plan period for Attleborough, the WwTW would require the implementation of new and improved treatment technologies to ensure that water quality in the receiving river can continue to meet the required legislative targets.

3.14. Anglian Water Services (in conjunction with water companies nationally) are currently undertaking a programme of treatment trials to test enhanced technology aimed at achieving improved treatment quality on discharge. The outcome of trials to date suggests that treatment quality required to meet in-stream water quality targets will be attainable and that in the next water company investment period (2020 to 2025), these solutions could be implemented. This suggests that a workable solution in the long term can be achieved to ensure that growth proposed for Attleborough is sustainable. In the short to medium term (to 2022), sufficient capacity is available to serve the initial planned phasing of growth proposed in Attleborough.

Ecological Assessment

3.15. A review of hydrologically linked Habitats Directive site has determined that there are no sites downstream of the discharge point that would be affected by water quality changes as a result of the preferred solution.

Flood Risk

3.16. Assessment of the hydraulic capacity of the River Thet to cope with additional flow concluded that the additional flow would have a negligible effect on flood levels and extent for all assessed flood events (up to the 1 in 100 year with an allowance for climate change).

Dereham

Waste Water Treatment Works

- 3.17. The long term solution for Dereham WwTW is for the continued management of treatment headroom through several measures including: reducing water use (and hence wastewater generation) within the existing property in the town; and, monitoring changes in occupancy rate. If headroom is exceeded, enhanced treatment technologies as proposed for Attleborough would be considered to ensure downstream water quality targets are met. The overall solution requires ongoing discussion between Breckland District Council, the Environment Agency and Anglian Water Services. The WCS update recommends that all applications for development proposals in Dereham are accompanied by a pre-development enquiry with Anglian Water Services to demonstrate that sufficient capacity is available to treat wastewater from the proposals.
- 3.18. A number of planning applications for major residential development on sites identified in the Local Plan have been submitted prior to completion of the plan. The favoured solution for waste water treatment in the short term is to link sites using a piped network to the existing Waste Water Treatment Works at Bylaugh which treats Swanton Morley and Bawdeswell as this currently has capacity (as evidenced in the WCS). Negotiations are ongoing as the planning applications have not yet been determined. Anglian Waters latest consultation response to the Local Plan (Oct 16) indicates that it is important that the timing of planned development is understood and if necessary phased in order to serve the proposed growth, dependant on solutions proposed.

Ecological assessment

- 3.19. Wendling Beck is a tributary of the River Wensum SAC which is approximately 8.5km downstream of Dereham WwTW. The Environment Agency RoC process has led to improvements to many of the WwTW's within the River Wensum catchment to reduce phosphate concentrations.
- 3.20. Should the proposed solution for the Dereham WwTW catchment (as detailed above) prove insufficient to supply treatment headroom, it is likely that a scheme similar to that proposed at Attleborough would be required to provide treatment using non-conventional methods, to allow the WwTW to meet a more stringent P permit condition. A combination of these measures should be sufficient to ensure no detriment to the River Wensum SAC. Should the housing targets proposed increase significantly beyond those proposed in the Local Plan, then this position would need to be reviewed.

Flood Risk

- 3.21. Assessment of the hydraulic capacity of the Wendling Beck to cope with additional flow concluded that the additional flow would have a negligible effect on flood levels and extent for all assessed flood events (up to the 1 in 100 year with an allowance for climate change).

Watton

Waste Water

- 3.22. Watton WwWT has available flow headroom in its existing discharge permit for 19 dwellings. Water Quality monitoring has shown that in order to maintain the current WFD status of the Watton Brook with predicted volumes (from new connections), the permit conditions on

discharge quality for BOD and ammonia should be tighter. AWS have confirmed planned investment, including a revised ammonia permit by April 2017 which will require process upgrades at Watton WwTW.

3.23. Improvements required at the WwTW serving Watton are relatively straightforward and readily achievable within the limits of conventional treatment methods and would not present a barrier to growth, nor affect phasing of development for sites in Watton.

Flood Risk

3.24. The physical capacity of Watton Brook is likely to be sufficient to accommodate the additional wastewater discharge generated by the growth in the town, without increasing flood risk downstream.

Snetterton

3.25. In response to the Local Plan Interim consultation, Anglian Water has indicated potential issues with the proposed employment allocations at Snetterton Heath. The foul flows from future growth will have an impact on the existing foul sewerage network and all sites will require a local connection to the existing sewerage network. There is insufficient capacity in the foul sewerage network to accommodate the proposed major employment site allocations; as such substantial off-site infrastructure will be required. The solution is to ensure developers liaise with Anglian Water to ensure they can make timely improvements in order to meet the additional demand. If necessary, this may affect the phasing of development.

Local Service Centres

3.26. Anglian Waters latest consultation response to the Local Plan (Oct 16) indicates that Ashill is also served by the Watton Water Recycling Centre and that it is important that the timing of planned development is understood and if necessary phased in order to serve the proposed growth.

Garboldisham (Elm Grove)

3.27. Waste Water

3.28. Garboldisham (Elm Grove WwTW has no available headroom in its discharge permit. Water quality modelling in the WCS show that in order to maintain the current water framework directive status of the Little Ouse with predicted discharge volumes (from new connections), a new permit condition should be set at 3.0mg/l mean limit for phosphate. Improvements required at the WwTW serving Garboldisham (Elm Grove) are readily achievable within the limits of conventional treatment methods and would not present a barrier to growth, nor affect phasing of development in this location.

East Harling

3.29. Anglian Water has an encroachment policy that sets out a risk based approach to developments that are in close proximity to any assets. They indicated that the proposed allocation in East Harling for Land off Kenninghall Road is in close proximity to an existing pumping station. The policy for the site will dictate that the layout of the site should be adjusted so as not to encroach on the protection zone. Development should be located a minimum of 15 metres from Pumping Stations.

Summary Table

3.30. The table below is taken from the Water Cycle Study Report which provides a red, amber, green (RAG) assessment of the WwTWs within the Breckland study area. Note the red rating for Great Hockham is due to discharge running to Watton WwTWs and does not relate to growth proposed in Great Hockham village in the Local Plan.

Figure 1 Summary of the RAG assessment of the WwTWs within the Breckland WCS study area, Breckland District Council Water Cycle Study Update, AECOM (March 2017)

WwTW	Is Headroom Available for all planned growth to 2036?	Is there a flood risk concern with additional discharge?	Is a quality permit update possible within LCT?	Solution Available?
Attleborough	No	No	No	Yes – with significant new investment
Bylaugh - near church	Yes	No	N/A	
Dereham	No	No	No	Yes - with significant new investment
East Harling	Yes	No	N/A	
Garboldisham -Elm Grove	Limited	No	Yes	Yes – with minor process upgrades
Great Ellingham	Yes	No	N/A	
Great Hockham LT Hockham Rd	No	No	Yes	Yes – with minor process upgrades
Hockering - by A47	Yes	No	N/A	
Litcham	Yes	No	N/A	
Mattishall	Yes	No	N/A	
Mundford	Yes	No	N/A	
Narborough	Yes	No	N/A	
Necton	Yes	No	N/A	
North Elmham	Yes	No	N/A	
Old Buckenham STW	Yes	No	N/A	
Shipdham - Carbrooks Road	Yes	No	N/A	
Swaffham	Yes	No	N/A	
Thetford	Yes	No	N/A	
Watton	No	No	Yes	Yes – with minor process upgrades
Weeting	Yes	No	N/A	