Sewerage (Wessex Water) –

Infrastructure Delivery Plan Topic Paper

1.0 Introduction

1.1 This topic paper considers sewerage infrastructure. It will specifically set out the delivery mechanisms for mains sewerage (networks and treatment) in South Gloucestershire.

1.2 Wessex Water is the wholesale provider of mains sewerage in South Gloucestershire. Wessex Water operates a sewer network conveying wastewater from homes and businesses for treatment at Wastewater Recycling Centres (WRC). The extent of WRC catchments in South Gloucestershire can be viewed through the Drainage and Wastewater Management Plan (DWMP) Portal[1].

1.3 There are areas (principally the more rural locations) of South Gloucestershire not connected to the mains sewer network, these areas have alternative provision such as septic tanks or package treatment works.

1.4 New development may also be serviced by an alternative provider under the New Appointments and Variations (NAV) mechanism. The NAV market enables developers to choose their water and sewerage undertaker with new sewers owned and maintained by the NAV connecting downstream to Wessex Water's public sewer network. Ofwat keep and update a register of sites served by NAVs and this can be viewed on their website[2].

2.0 Planning & Funding

2.1 Wastewater infrastructure is funded and delivered through a combination of investment made through the business planning process and through developer connection charges to the foul sewer network.

2.2 Water and sewerage companies, including Wessex Water prepare business plans on a 5-year investment cycle. The current business plan runs from 2020-2025. As part of the business plan process Wessex Water has accounted for growth in the adopted South Gloucestershire Core Strategy and foreseeable additional growth in the principal urban areas (see section 4).

2.3 Wessex Water produce a Drainage and Wastewater Management Plan (DWMP). The DWMP is a strategic plan which considers the long-term investment needs of the wastewater part of the business. The DWMP sets out how Wessex Water aim to deliver resilient drainage and wastewater infrastructure over a 25-year timeframe and informs the business plan investment cycle.

[1] Wessex Water Drainage and Wastewater Management Plan (arcgis.com)

[2] Register of new appointments and variations granted to date - Ofwat

2.4 Wessex Water is in the process of preparing the next Business Plan for 2025 – 2030. Improvement works to Wastewater Recycling Centres (WRC) are identified and funded through the Business Plan mechanism. Programme timescales may need to incorporate lead in times to complete environmental studies and obtain planning consent.

2.5 Sewer network capacity improvement to support new development is funded through the infrastructure charge. The charge is payable per dwelling and the gross infrastructure charge will recover the cost of network reinforcement for new development. Necessary improvements, funded through the infrastructure charge are managed and prioritised by Wessex Water.

2.6 The connection charge is payable for off-site works to connect the development to the main sewer network. Each development will have its own requirements and the cost to connect will vary by site. For example, distance to point of connection and whether works are required in the highway will influence the final cost. Wessex Water produce a charges calculator which enables costs to be predicted. Charging arrangements are set annually.

2.7 The developer can choose to have connections and sewers laid by Wessex Water or by a suitably qualified third party. Should a third party be used to lay pipes these may then be adopted by Wessex Water if they are of a suitable standard. Adoption means the transfer of ownership and responsibility for maintenance.

2.8 If a NAV is appointed, the pipework within the development site will remain the responsibility of the NAV with bulk sewerage services being purchased from Wessex Water.

3.0 Current Infrastructure Assets, Programmes & Issues

3.1 The recently delivered North Bristol Relief Sewer is a new 6.5km pipeline which connects Bristol's existing trunk sewer in Lawrence Weston to the Frome Valley Relief Sewer near Cribbs Causeway. Its purpose is to direct wastewater more efficiently around North Bristol to Avonmouth WRC.



3.2 Avonmouth WRC is the largest waste treatment facility operated by Wessex Water. It is located outside of South Gloucestershire, but sewage is taken to Avonmouth for treatment from the north and east fringe of Bristol, Yate and Chipping Sodbury. Sewage is transported by strategic sewers.

3.3 Wessex Water identified the expansion of the WRC in its business plan for 2020-2025. The multimillion-pound scheme involves the construction of large storage facilities to provide additional treatment capacity[3].

3.4 Planning consent has been granted for the improvement works which involve an extension to the existing site. Pre-commencement planning conditions are in the process of being discharged. Construction will take approximately 5 years to be complete[4].

3.5 The 2020-2025 business plan also proposed a number of phosphorous removal schemes including at Charfield and Wickwar.

3.6 The phosphorous removal schemes at Charfield and Wickwar were agreed with Wessex Water's environmental regulators prior to Natural England's requirement for development affecting sensitive sites to be "nutrient neutral". Sensitive areas in Wessex Water's region are the Somerset Levels and Moors, Hampshire Avon and

[3] AECOM (2023) *Planning, Design and Access Statement. Proposed extension to Bristol's Water Recycling Centre at Avonmouth*

[4] Wessex Water (no date) *Increasing Capacity Bristol's Water Recycling Centre at Avonmouth* [Leaflet]

Poole Harbour and Fleet. Development within South Glos will not impact on these sensitive areas and no current nutrient neutrality restrictions apply on development within the South Glos region.

3.7 The Water Industry National Environment Programme (2020-2025) consequently includes schemes to reduce phosphorus concentration in the final effluent from Charfield and Wickwar water recycling centres to 1mg/l (protection of Ozleworth Brook). The regulatory date for compliance is December 2024. There are several smaller WRCs within South Gloucester (listed below):

- Alveston
- Aust
- Charfield
- Cromhall
- Great Badmington
- Leyhill
- Redwick
- Thornbury
- Tockington
- Wickwar

3.8 A significant programme of work is also underway as part of Wessex Water's Storm Overflows Improvement Plan covering the period 2022 – 2050. Further details are available in Wessex Water's 2023 update5. Schemes planned (in the short term) within South Gloucestershire include:

- Reed bed treatment of settled storm overflows at Great Badminton WRC. Proposed for delivery by Spring 2025.
- Sewer sealing works in Cromhall to minimise groundwater entering the foul sewer network. Proposed for delivery by Spring 2024.
- New storm water attenuation storage tanks at Frampton Cotterell, Winterbourne & Doynton WRC.

3.9 Several sewage catchments within the South Glos area have high levels of groundwater close to the surface during certain weather conditions. These include areas around Oldbury on Severn, Cromhall, Tytherington, Bagstone and Rangeworthy. When levels are high groundwater can enter both private lateral and public main sewers and, in some cases, lead to sewer flooding and overflow spills. Wessex Water seek to reduce the risk of this occurring by undertaking a programme of relining sewers with an epoxy resin to seal cracks.

3.10 Occasionally, during prolonged periods of wet weather sewer networks can become completely overwhelmed. When groundwater reaches a certain level in the catchment Wessex Water will implement an Operational Mitigation Action Plan to relieve the network by tankering excess flows away or pumping dilute flows to local watercourse. These measures are to protect homes from restricted toilet use and sewer flooding. These measures are agreed with the Environment Agency.

[5] Wessex Water (2023) storm-overflows-improvement-plan-2023.pdf (wessexwater.co.uk)

3.11 New development in these areas must prove to have watertight networks and external sewerage ventilation to mitigate against restricted toilet use. Relining works have been / are due to be undertaken in these catchments as follows:

Date	Area	Works
2021 & 2023	Oldbury on Severn	Manholes sealed against groundwater ingress
2023	Cromhall	Sewer relining scheme completed
2024/25	Tytherington	Sewer relining works planned
TBC	Bagstone	Sewer relining works expected but not yet planned
2024/25	Rangeworthy	Sewer relining works planned

3.12 Moving forward; WW do not foresee any major capacity issues in respect of the expected level of growth in South Gloucestershire, particularly considering the recently completed North Bristol Relief Sewer and improvements works currently in planning at Avonmouth RC. There may however be some local issues depending on proposed areas of growth still to be determined.