8. Water Quality

8.1 Introduction

An increase in the discharge of effluent from Wastewater Treatment Works (WwTW) as a result of development and growth in the area in which they serve can lead to a negative impact on the quality of the receiving watercourse. Under the Water Framework Directive (WFD), a watercourse is not allowed to deteriorate from its current WFD classification (either as an overall watercourse or for individual elements assessed).

It is Environment Agency (EA) policy to model the impact of increasing effluent volumes on the receiving watercourses. Where the scale of development is such that a deterioration is predicted, a variation to the Environmental Permit (EP) may be required for the WwTW to improve the quality of the final effluent, so that the increased pollution load will not result in a deterioration in the water quality of the watercourse. This is known as "no deterioration" or "load standstill". The need to meet river quality targets is also taken into consideration when setting or varying a permit.

The Environment Agency operational instructions on water quality planning and no-deterioration are currently being reviewed. Previous operational instructions[3] (now withdrawn but with no published replacement) set out a hierarchy for how the no-deterioration requirements of the WFD should be implemented on inland waters. The potential impact of development should be assessed in relation to the following objectives:

- **Could the development cause a greater than 10% deterioration in water quality?** This objective is to ensure that all the environmental capacity is not taken up by one stage of development and there is sufficient capacity for future growth.
- **Could the development cause a deterioration in WFD class of any element assessed?** This is a requirement of the Water Framework Directive to prevent a deterioration in class of individual contaminants. The "Weser Ruling"[4] by the European Court of Justice in 2015 specified that individual projects should not be permitted where they may cause a deterioration of the status of a water body. The Environment Agency's operational instructions on water quality planning and no-deterioration[5] (now withdrawn but with no published replacement) set out a

3 Water Quality Planning: no deterioration and the Water Framework Directive, Environment Agency (2012). Accessed online at: http://www.fwr.org/WQreg/Appendices/No_deterioration_and_the_WFD_50_12.pdf on: 10/02/2023.

4 PRESS RELEASE No 74/15, European Court of Justice (2015). Accessed online at: https://curia.europa.eu/jcms/upload/docs/application/pdf/2015-07/cp150074en.pdf on: 10/02/2023.

5 Water Quality Planning: no deterioration and the Water Framework Directive, Environment Agency (2012). Accessed online at:

hierarchy for how the no-deterioration requirements of the WFD should be implemented on inland waters.

8.2 The South Leicestershire Partner Authorities area in the Wider Catchment

This section provides an understanding of how the South Leicestershire Partner Authorities area fits into the wider catchment. By knowing the current South Leicestershire Partner Authorities position, shown in Figure 8.1, it can help in understanding where changes need to be made.

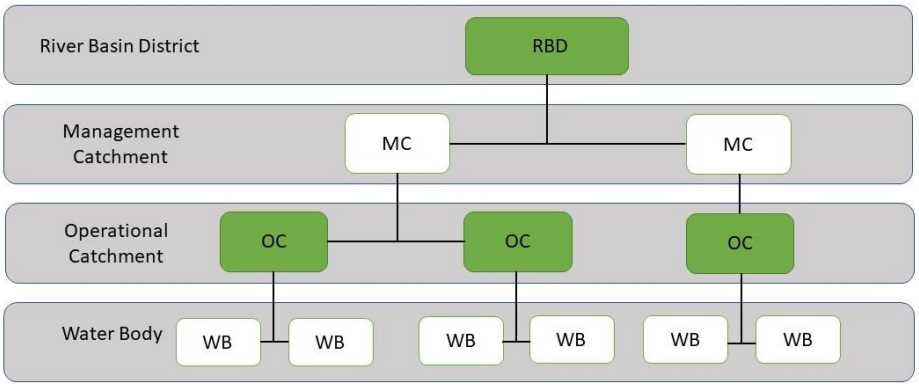


Figure 8.1 Catchment hierarchy (adapted from EA diagram)

The Humber River Basin District (RBD), with 18 management catchments (MC), where the Soar MC, with the Soar River and Wreake River Operation Catchments (OC) and Tame Anker and Mease MC, with the Sence Anker and Bourne Rivers and Lakes OC coving most of the study area. The rest of the study area is in a different district, Anglian. In the Anglian RBD, the study area is covered by the Welland MC, with the Welland Upper OC.

A qualitative assessment was conducted using available data on WFD Cycle 3 status for the receiving watercourse, forecast growth for each WwTW and existing water quality assessments conducted on each WwTW where available.

8.3 Methodology

8.3.1 General approach

In the Stage 1 WCS, a sensitivity analysis was undertaken of the water bodies in the South Leicestershire Partner Authorities area, to changes in the volume of treated effluent. It is proposed that a detailed modelling study form part of the Stage 2 WCS.

8.3.2 Water quality sensitivity assessment

SIMCAT is used by the Environment Agency to model water bodies and identify where permit changes are needed to prevent deterioration or improve water quality as well as

http://www.fwr.org/WQreg/Appendices/No_deterioration_and_the_WFD_50_12.pdf on: 10/02/2023.

supporting decision making to guide development to locations where environmental deterioration will be reduced. SIMCAT is a 1-Dimensional model which represents inputs from both point-source effluent discharges (i.e. the point at which the WwTW discharges into the watercourse) and diffuse sources (for example pollution from runoff which enters the river over a length of the river), and the behaviour of solutes in the river.

SIMCAT can simulate inputs of discharge and water quality data and statistically distribute them from multiple effluent sources along the river reach. It uses the Monte Carlo method for distribution that randomly models up to 2,500 boundary conditions. The simulation calculates the resultant water quality as the calculations cascade further downstream.

The study area is covered by the Severn, Trent, and Wash SIMCAT models.

Within SIMCAT, the determinands examined in this study were Biochemical Oxygen Demand (BOD), Ammonia (NH_4) and Phosphate (P). In fresh waterbodies, Phosphorus is usually the limiting nutrient for algal growth.

The following methodology was used:

- Run SIMCAT with current flow data and extract water quality outputs for ammonia, biochemical oxygen demand (BOD) and phosphate.
- Increase effluent flows at WwTWs by 20% to account for potential future development.
- Re-run SIMCAT with higher effluent flows and extract relevant river water quality data.
- Compare the two model runs for all three water quality indicators and categorise the percentage change.

Where water quality downstream of a WwTW in any given determinand deteriorates by 10% or more in response to a 20% increase in effluent flow, the sewer catchment can be said to be “more sensitive” to changes in effluent flow, and therefore growth. It should be noted that this assessment takes the existing SIMCAT model based on 2014-2020 data and increases flow by a consistent figure across the whole model. In some cases, a WwTW may be able to accommodate a higher flow, in other cases, a 20% increase may not be likely or feasible. This assessment therefore just highlights the relative risk of deterioration.

This analysis also does not consider planned changes in permits at WwTWs beyond 2025 that would have the effect of improving water quality.

8.4 Results

8.4.1 Water Framework Directive Overview

The Water Framework Directive (WFD) aims to ensure "no deterioration" in the environmental status of rivers and sets objectives to improve rivers to meet "good" status. LPAs must have regard to the WFD and associated statutory objectives as implemented in the EA's River Basin Management Plans (RBMPs). At the time of writing, the WFD Cycle 3 has been conducted but results not fully published, thus Cycle 2 has been used.

Figure 8.2 shows the overall WFD Status of the waterbodies in and around the South Leicestershire Partner Authorities area and Table 8.1 shows the number of waterbodies for each status that exist in the study are or border it. This is usually assessed in WCSs for each of the waterbodies that are predicted to receive additional effluent from growth during the plan period. Several of the WwTWs discharge to small watercourses which do not have a WFD classifications.

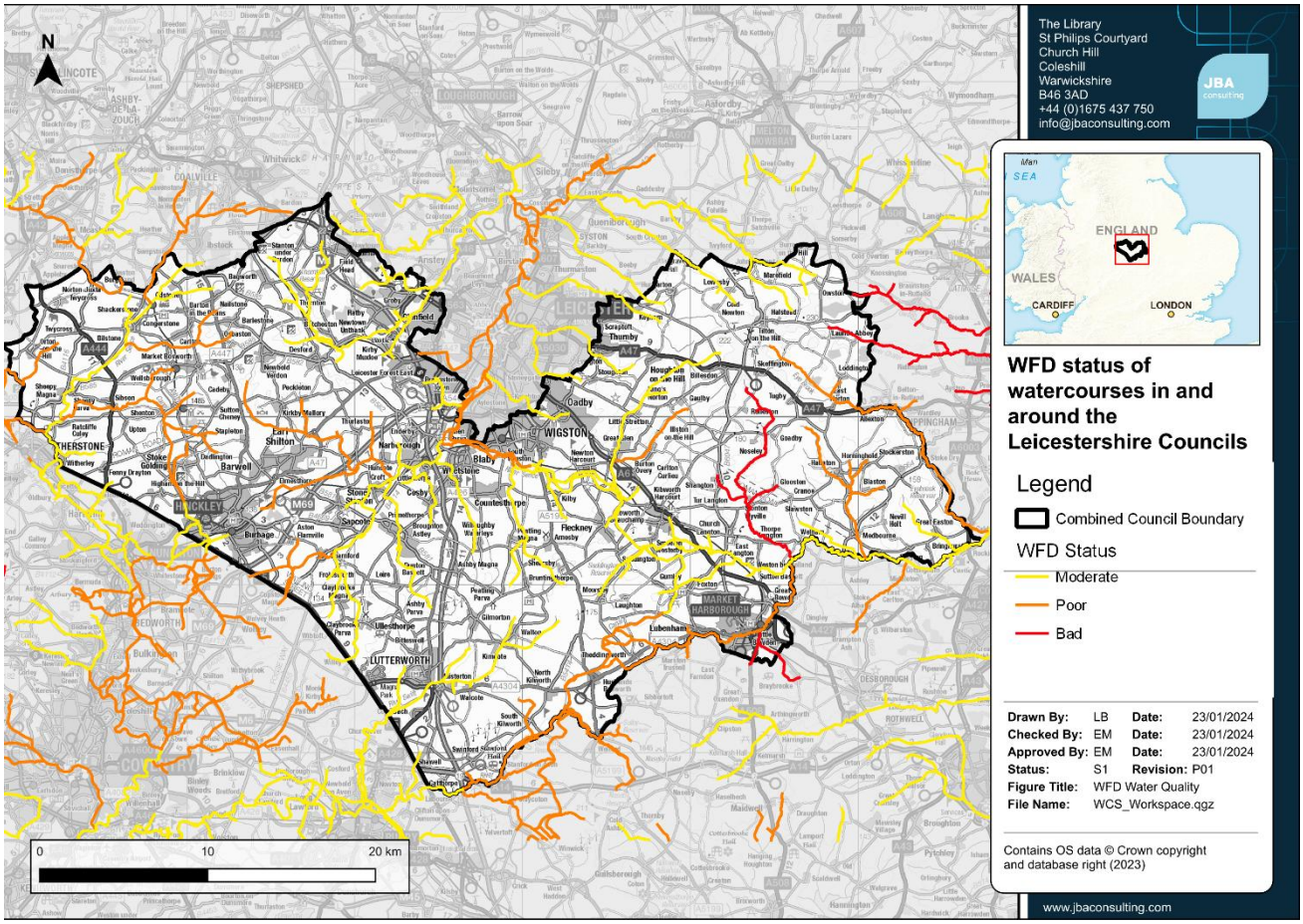


Figure 8.2 Overall WFD status of watercourses in the study area

Table 8.1 Overall WFD status of watercourses in the study area

Status	Bad	Poor	Moderate	Good	High
Number of waterbodies	6	23	38	0	0

All waterbodies are natural rivers, canals, and surface water transfers, and fail the chemical status for surface water under the WFD classification. Figure 8.3 and Table 8.2 shows an overview of the catchment's ecological status, Figure 8.4 shows an overview of the WFD status of fish, and Figure 8.5 shows the WFD status of invertebrates.

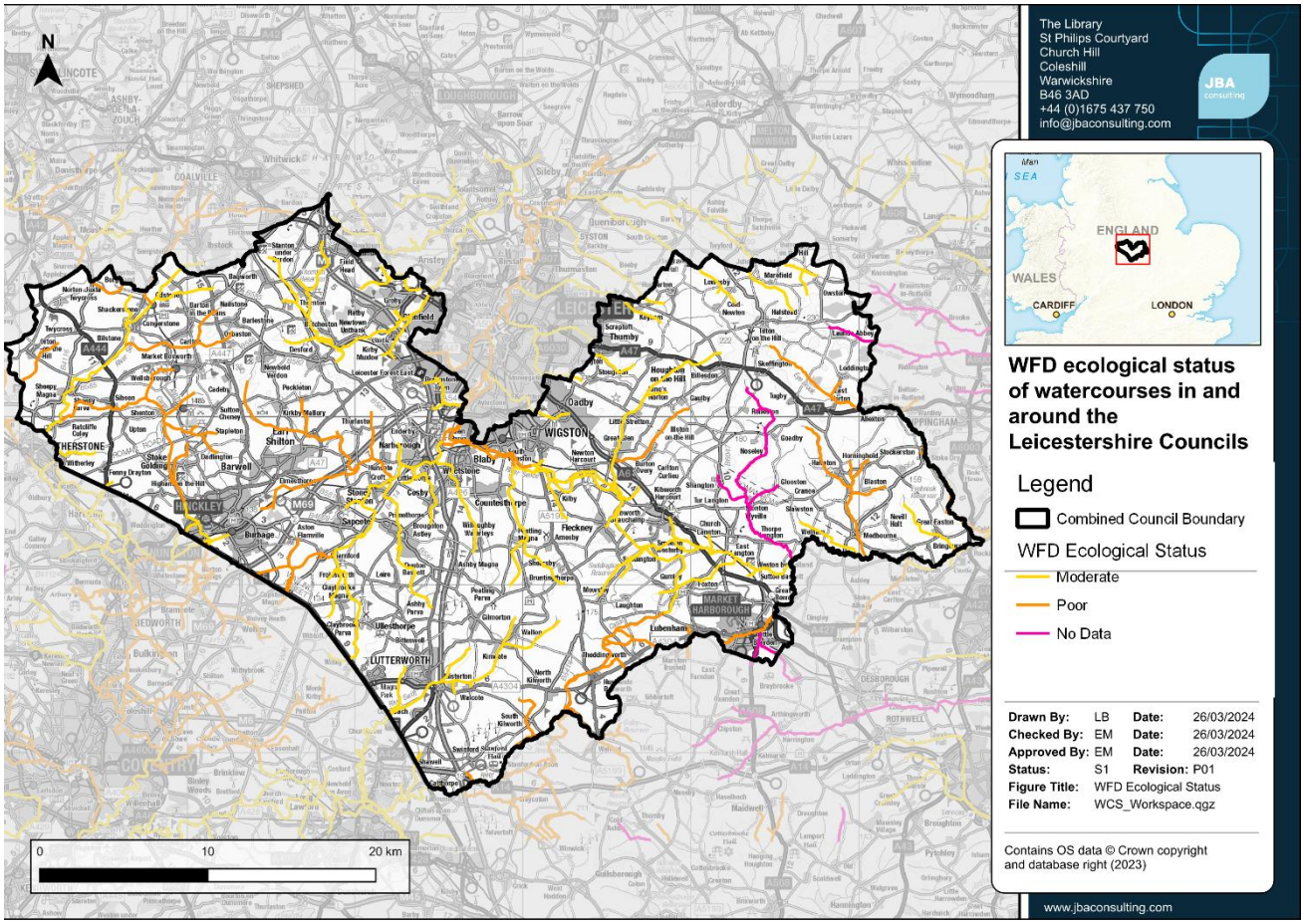


Figure 8.3 WFD ecological status of watercourses in the study area

Table 8.2 WFD ecological status for watercourses in the study area

Ecological status or potential	Bad	Poor	Moderate	Good	High
Number of waterbodies	6	23	37	1	0

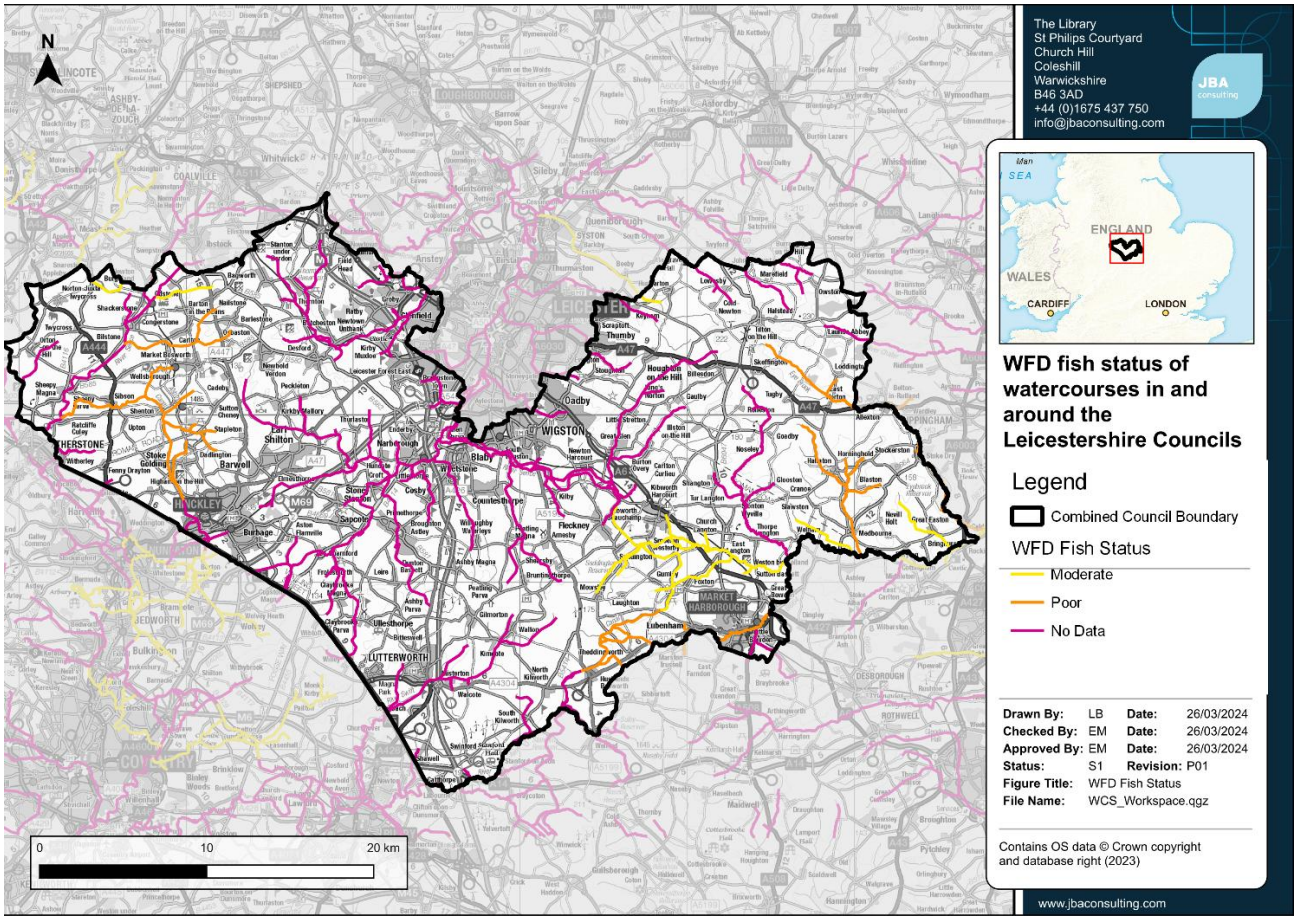


Figure 8.4 WFD fish status for watercourses in the study area

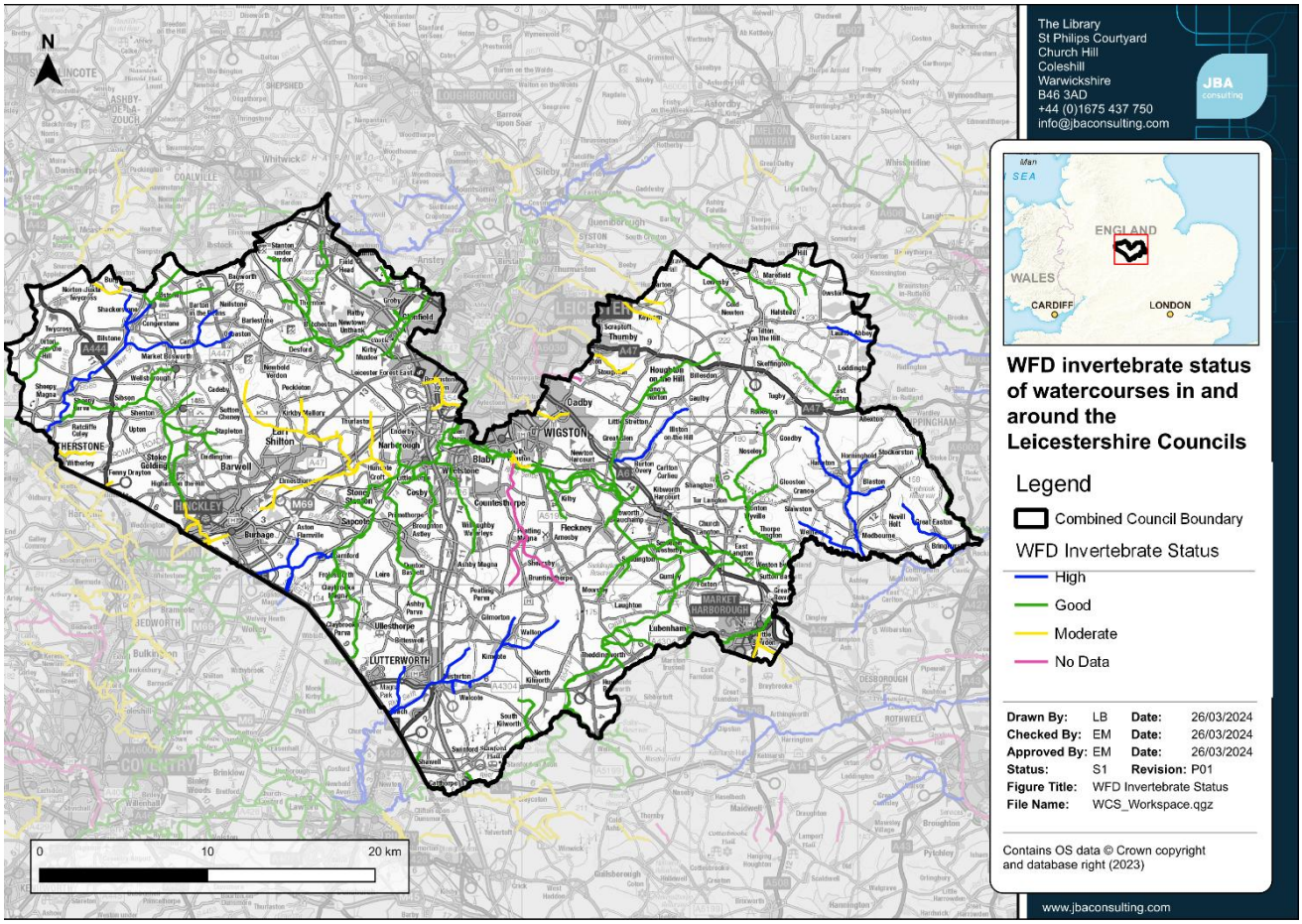


Figure 8.5 WFD invertebrate status for watercourses in the study area

When considering chemical status in Cycle 3 from the EAs assessment of English waterbodies, all waterbodies have the status of 'does not require assessment'. This is because reflecting on the Cycle 3, 2019 data collected for chemical status all waterbodies in England failed because of a high level of four groups of global pollutants, also known as ubiquitous, persistent, bio-accumulative, and toxic substances (uPBTs). The four groups are:

- Polybrominated diphenyl ethers (PBDEs- a group of brominated flame retardants)
- Mercury
- Certain Polycyclic aromatic hydrocarbons (PAHs)
- Per- and polyfluoroalkyl substances (PFAs)

Within the EAs Catchment Data Explorer, there is a map available showing the chemical status of waterbodies without the uPBTs being assessed. Within the Councils study area, all waterbodies pass chemical status with the omission of the uPBTs, apart from Yazor Brook which also fails on Nickel (Environment Agency m, 2022).

8.4.2 Reasons for not achieving Good (RNAG)

The 2019 WFD assessment data shows that most watercourses in the South Leicestershire Partner Authorities area have “moderate” and "poor" status, and six watercourses (The River Chater, River Jordan and an unnamed main watercourse and its tributaries (flows

north to south through Harborough into the Langton Brook) have a classification of "bad". The EA reasons for not achieving good (RNAG) dataset indicates that the main reasons for the failure are:

- Pollution from wastewater from continuous discharge (Water industry)
- Pollution from towns, cities, and transport (Mixed drainage, defuse sewerage discharge, and trading/industrial estate)
- Pollution from livestock and arable runoff (Agriculture and rural land management)

Additional reasons for not achieving good for specific WFD status include:

- Inclusions of barriers that prevent fish migration
- Water body bank poaching
- Other reasons (unlisted by the EA)

8.4.3 SIMCAT Results

The sensitivity analysis was conducted using the EA's SIMCAT models and full results are presented in Appendix C. The modelling results suggest changes in the volume of treated wastewater in the South Leicestershire Partner Authorities area cause a significant response in the concentration of Ammonia, BOD, and Phosphate.

For ammonia, most waterbodies are highly sensitive with a greater than 10% deterioration in response to a 20% increase in the discharged volume of treated effluent, with higher sensitivity concentrated across the centre and south of the study area. Generally, sensitivity of ammonia across the waterbodies in the South Leicestershire Partner Authorities area is greater than 10%. A deterioration of greater than 3% is observed at five WwTWs which are at "Bad" WFD status for ammonia. These are Kibworth, Norton Juxta, Billesdon, Fleckney, and Earl Shilton. A deterioration in class is predicted at seven WwTWs. These are Goadby, and Market Harborough (Good to Moderate), and East Langton, South Kilworth, Market Bosworth, Thorpe Langton, and Arnesby & Shearsby (High to Good).

For BOD, most waterbodies are moderately sensitive with a 0% to 10% deterioration. A deterioration of greater than 3% is predicted at Kibworth which is already at "Bad" WFD status for BOD. A deterioration in class is predicted at three WwTWs. These are Kibworth (Poor to Bad), and Norton Juxta, and Fleckney (Good to Moderate).

For phosphate, most waterbodies are moderately sensitive with a less than 10% predicted deterioration, with higher sensitivity concentrated at the edges of the study area. A deterioration of greater than 3% is observed at six WwTWs which are at "Bad" WFD status for Phosphate. These are Oadby, Gaulby, Great Glen, Fleckney, Newbold Verdon, and Houghton-on-the-Hill. A deterioration in class is predicted at Owston (Moderate to Poor).

The waterbodies downstream of the following WwTWs are predicted to deteriorate by greater than 10% as a result of a 20% increase in flow.

Table 8.3: WwTWs with a significant downstream deterioration (>10%)

WwTW	Ammonia Deterioration	BOD Deterioration	Phosphate Deterioration
ARNESBY & SHEARSBY STW	15%	N/A	13%
BARLESTONE STW	12%	N/A	N/A
BELTON STW	10%	N/A	N/A
BILSTONE STW	10%	N/A	11%
CLAYBROOKE MAGNA STW	11%	N/A	N/A
COUNTESTHORPE STW	12%	N/A	N/A
CRANOE	11%	N/A	N/A
EAST LANGTON STW	17%	N/A	N/A
FOXTON(LEICS) STW	15%	N/A	N/A
GLOOSTON	14%	N/A	N/A
GOADBY STW	18%	N/A	N/A
GRANGE FARM	13%	N/A	16%
GREAT EASTON (LEICS)	11%	N/A	N/A
HALLATON STW	15%	N/A	16%
HORNINGHOLD	15%	N/A	16%
HOUGHTON ON THE HILL	12%	N/A	12%
IBSTOCK STW	10%	N/A	N/A
KIBWORTH STW	N/A	10%	N/A
KIMCOTE & WALTON STW	N/A	N/A	13%
KIRKBY MALLORY STW	14%	N/A	11%
LITTLE STRET	15%	N/A	N/A
MARKET BOSWORTH STW	12%	N/A	N/A
MEDBOURNE STW	14%	N/A	17%
NORTON JUXTA	14%	N/A	N/A
ORTON ON THE HILL STW	N/A	N/A	10%
OWSTON STW	10%	N/A	11%
ROCKINGHAM	13%	N/A	N/A
SHAWELL (WRW)	N/A	N/A	13%
SIBSON & SHENTON STW	10%	N/A	N/A
SKEFFINGTON	16%	N/A	12%
SOUTH KILWORTH STW	17%	N/A	16%
STONEY STANTON STW	15%	N/A	N/A
SWINFORD STW	14%	N/A	16%
THORPE LANGTON STW	14%	N/A	N/A
TILTON ON THE HILL STW	14%	N/A	12%

WwTW	Ammonia Deterioration	BOD Deterioration	Phosphate Deterioration
TUGBY STW FE	18%	N/A	N/A
TWYCROSS STW	N/A	N/A	10%
Welham	11%	N/A	N/A
WHETSTONE STW	10%	N/A	N/A
WIGSTON STW	10%	N/A	N/A
WISTOW (WRW)	15%	N/A	N/A

The waterbodies downstream of the following WwTWs are presently at Bad WFD status and deteriorate by greater than 3% as a result of a 20% increase in flow.

Table 8.4: WwTWs discharging to watercourse at 'Bad' status with >3% deterioration

WwTW	Ammonia Deterioration	BOD Deterioration	Phosphate Deterioration
KIBWORTH STW	9%	10%	N/A
BILLESDON STW	8%	N/A	N/A
EARL SHILTON STW	5%	N/A	N/A
FLECKNEY STW	10%	N/A	4%
GAULBY STW	N/A	N/A	5%
GREAT GLEN STW	N/A	N/A	9%
HOUGHTONONTHEHILL	12%	N/A	12%
NEWBOLD VERDON STW	10%	N/A	9%
NORTONJUXTA	14%	N/A	N/A
OADBY STW	N/A	N/A	3%

8.4.4 Priority Substances

As well as the physico-chemical water quality elements (BOD, Ammonia, Phosphate etc.) addressed above, a watercourse can fail to achieve Good Ecological Status due to exceeding permissible concentrations of hazardous substances. Currently 33 substances are defined as hazardous or priority hazardous substances, with others under review. Such substances may pose risks both to humans (when contained in drinking water) and to aquatic life and animals feeding in aquatic life. These substances are managed by a range of different approaches, including EU and international bans on manufacturing and use, targeted bans, selection of safer alternatives and end-of-pipe treatment solutions. There is considerable concern within the UK water industry that regulation of these substances by setting permit values which require their removal at wastewater treatment works will place a huge cost burden upon the industry and its customers, and that this approach would be out of keeping with the "polluter pays" principle.

Consideration should be given to how the planning system might be used to manage priority substances:

- Industrial sources – whilst this report covers potential employment sites, it doesn't consider the type of industry and therefore likely sources of priority substances are unknown. It is recommended that developers should discuss potential uses which may be sources of priority substances from planned industrial facilities at an early stage with the EA and, where they are seeking a trade effluent consent, with the sewerage undertaker.
- Agricultural sources - There is limited scope for the planning system to change or regulate agricultural practices. UK water companies are involved in a range of "Catchment-based Approach" schemes aimed at reducing diffuse sources of pollutants, including agricultural pesticides.
- Surface water runoff sources - some priority substances e.g., heavy metals, are present in urban surface water runoff. It is recommended that future developments would manage these sources by using SuDS that provide water quality treatment, designed following the CIRIA SuDS Manual. This is covered in more detail in section 10.5.4.
- Domestic wastewater sources - some priority substances are found in domestic wastewater because of domestic cleaning chemicals, detergents, pharmaceuticals, pesticides or materials used within the home. Whilst an increase in the population due to housing growth could increase the total volumes of such substances being discharged to the environment, it would be more appropriate to manage these substances through regulation at source, rather than through restricting housing growth through the planning system.

No further analysis of priority substances will be undertaken as part of this study.

8.5 WINEP

The actions from the Water Industry National Environment Programme that relate to water quality are set out in Appendix D and show that most WwTWs in the study area have an action against them. In most cases these include monitoring of storm overflows and the volume of sewage being treated. In many, a permit condition to limit the concentration of phosphorus and ammonia in the treated effluent is being applied to improve downstream water quality.

8.6 Conclusions

- The EA "reasons for not achieving good" (RNAG) dataset indicates that the water industry (sewage discharges) and agriculture and rural land management (livestock and arable) are the main reasons for watercourses not achieving good status in this area.
- Growth during the local plan period will also increase the discharge of treated wastewater from WwTWs in the study area. There is a potential for this to cause a deterioration in water quality in the receiving watercourses and this must be

carefully considered. A significant deterioration in water quality is not acceptable under the Water Framework Directive, and large-scale investment in treating effluent to higher standards may therefore be required.

- The sensitivity analysis suggests that watercourses within the study area may be sensitive to increases in the discharge of treated wastewater. Further modelling should be undertaken in the Stage 2 WCS.

8.7 Recommendations

Table 8.5 Recommendations for water quality

Action	Responsibility	Timescale
Provide annual monitoring reports to STW and AW detailing projected housing growth in the Local Authority	South Leicestershire Partner Authorities	Ongoing
When preferred options for growth are identified, undertake water quality impact modelling as part of a Stage 2 WCS.	South Leicestershire Partner Authorities	Ongoing
Consider the full volume of growth (from the councils and neighbouring authorities) within the catchment when considering WINEP schemes or upgrades at WwTW	STW and AW	Ongoing

9. Nutrient Management

9.1 Nutrient Neutrality in the Mease Overview

In March 2022 Natural England (NE) wrote to 42 Local Planning Authorities (LPAs) advising them "as the Competent Authority under the Habitats Regulations, to carefully consider the nutrients impacts of any new plans and projects (including new development proposals) on habitats sites and whether those impacts may have an adverse effect on the integrity of a habitats site that requires mitigation, including through nutrient neutrality."

Catchments containing a designated site such as a Special Area of Conservation (SAC), Special Protection Area (SPA) or Ramsar site, where an adverse impact from additional nutrients (from growth) cannot be ruled out have been defined by NE (Natural England b, Natural England, 2023).

The guidance covers all overnight accommodation, including new homes, student accommodation, care homes, tourism attractions and tourist accommodation and permitted development which gives rise to new overnight accommodation.

Across England, 42 LPAs, including Hinckley and Bosworth, are required to demonstrate nutrient neutrality in at least part of their area when permitting new developments. Nutrient neutrality is a means of ensuring that a plan or project does not add to existing nutrient burdens so there is no overall increase in nutrients. Nutrient neutrality needs to be demonstrated before the plan or project in question is carried out.

The River Mease is protected because it is a meandering lowland river with an array of wildlife such as Spined loach (Cobitis taenia) and Bullhead (Cottus gobio). Both species have a restricted distribution in England, which is why the River Mease has been designated a SSSI and SAC (River Mease Partnership, 2023). As such, nutrient management throughout the catchment is critical to maintain the health and quality of the River Mease.

NE and Ricardo have developed a nutrient budget calculator for the river Mease catchment to assess the relationship between new developments and additional nutrients. The Mease catchment calculator comes in the form of Excel spreadsheets and can be accessed online. The calculator looks at the current land use, WwTW phosphate discharge, and proposed land use in addition to other factors that impact drainage, such as soil and rainfall.

In the case of the River Mease, phosphate is the nutrient that is considered the greatest risk to protected site health. The total phosphate that needs to be mitigated can be found through a catchment specific calculator.

NE has also published standing advice for the River Mease SAC in January 2022 to help LPAs with planning applications within the Mease catchment (NWLDC, 2022). This should be consulted by LPAs and developers' pre-development of sites within the River Mease catchment.

A small area of Hinckley and Bosworth overlaps with the catchment of an SAC and SSSI site, the River Mease, in the western area the study area, shown in Figure 9.1.

Subsequently, mitigation of additional nutrients will need to take place if any proposed developments fall within the river catchment.

In January 2024, the Secretary of State for the Environment, Food and Rural Affairs designated "16 sensitive catchments, including the River Mease catchment, in which water companies are required to upgrade wastewater treatment works before April 1 2030. Further information can be found on the Government website (GOV.UK).

None of the development sites so far assessed in this report (which in Stage 1 only includes adopted allocations and commitments) fall within the River Mease catchment. In the Stage 2 WCS, the impact on proposed allocations will be examined.

All development sites (that fall under the guidance) within the catchment must achieve nutrient neutrality. However, this is also a situation where a development may be outside of the catchment but be served by a wastewater treatment works (WwTW) inside the catchment. Conversely, there may also be a situation where a development site is within the catchment but served by a WwTW outside, reducing its potential impact on the River Mease SAC.

Advice contained in the FAQs of the Planning Advisory Service website confirms that where development is within the catchment but drains to a WwTW outside the catchment, only the surface water component should be considered. Where a development site is outside the catchment but is served by a WwTW discharging within the catchment, "…a habitats regulations assessment will be required. This also applies to surface water drainage." We have interpreted this as meaning that the assessment must address the nutrient load from wastewater generated by the development, but that phosphates from surface water runoff from the site would not need to be offset if the assessment can demonstrate that they won't be discharged or otherwise enter the designated catchments.

Figure 9.1 shows the wastewater catchments within and overlapping the River Mease catchment. Development in a small part of North of Hinckley and Bosworth would need to consider the nutrient impact of surface water drainage. There is one WwTW present that serves an area in Hinckley and Bosworth and discharges within the River Mease catchment (Norton Juxta WwTW). As noted in 7.4, flow from this WwTW is due to be transferred to Snarestone WwTW to the north. This WwTW still discharges within the nutrient neutrality area.

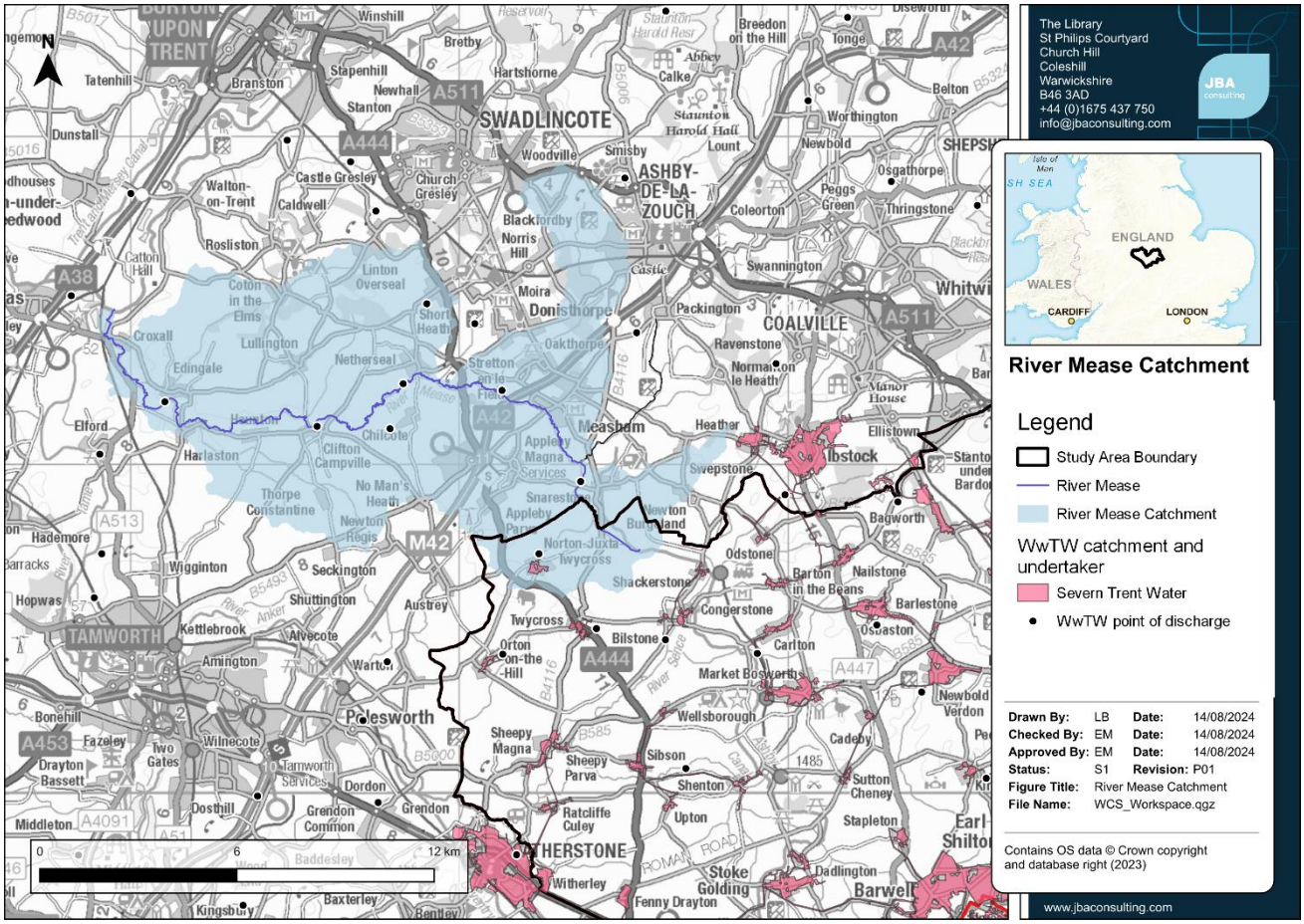


Figure 9.1: Mease Catchment within the study area

9.2 Farm Nutrient Management

The River Mease Partnership is a group of farmers, agencies and local authorities which are working together to conserve the River Mease which is a SSSI and a SAC. One of the actions used to help conserve the river is the reduction of nutrients.

Project like Catchment Sensitive Farming, and schemes such as Rural Payment Schemes can help landowners fund and work towards managing their nutrient management. Although this is not in the power of the local plan, it is beneficial to be aware of to advise landowners in the sub-region.

9.3 Nutrient Trading

The Mease Developer Contribution Scheme (DCS) is mentioned as an action to help reduce the nutrients in the catchment. DCS is where a monetary contribution is made from developers or landowners to ensure that where planning permission is granted for proposed developments, any impact on the environment is in line with appropriate regulatory obligations such as nutrient neutrality. This could include funding for land mitigation measures or phosphate credits. DCS has previously had two rounds: DCS1 and DCS2.

A third DCS is being developed collaboratively by the Trent Rivers Trust, South Derbyshire District Council (SDDC) and North West Leicestershire District Council (NWLDC). Until this

scheme is in place, developments will only be permitted if there is an appropriate bespoke mitigation solution integrated into the application.

10. Environmental Opportunities and Constraints

10.1 Introduction

Development has the potential to cause an adverse impact on the environment through several routes, such as worsening of air quality, pollution to the aquatic environment or disturbance to wildlife. In the context of a Water Cycle Study, the impact of development on the aquatic environment is assessed.

A source-pathway-receptor approach can be taken to investigate the risk and identify where further assessment or action is required.

10.2 Impact of abstraction

Abstraction of water within a catchment, either from groundwater or surface water sources, is necessary to provide a public water supply, for industrial processes and for agriculture. When the volume of water being abstracted becomes too high, it can cause environmental damage by reducing river flow or lowering the water table.

Changes in river flow can impact sensitive ecosystems, for example Trout require a clean gravel bed to lay their eggs. A reduction in river flow can cause sediment to build up, blocking the spaces the fish require to lay their eggs impacting their reproductive cycle. Changes in groundwater levels can also affect the flow regime in rivers and can cause drying of wetland sites.

Chalk stream catchments are particularly sensitive to changes in groundwater levels.

The precise location of abstraction points for public water supply in England is not available for reasons of national security. Furthermore, water demand within a WRZ can be met by anywhere within that WRZ, or from a neighbouring WRZ if the transfer between WRZs is used to provide some of the water available for use. It is therefore not possible to trace an impact of an individual development site back to a particular water abstraction and therefore to an environmental impact. Rather there is a general risk to all designated sites sensitive to changes in water levels or flow that are within groundwater bodies containing abstraction points or surface water bodies with abstraction upstream.

The impact of water company abstraction has been taken into account in the Strategic Environmental Assessment (SEA) within the WRMP24, which is been reviewed and approved by the EA, NE, Defra and Ofwat. This plan contains a forecast of growth, resulting in a water demand, and how this will be met while meeting the water company's environmental objectives, including reductions in certain abstractions for sustainability.

Section 4.4.5 showed that the growth plans of Blaby, Harborough and Oadby and Wigston and the higher growth scenarios for Hinckley and Bosworth are above the predicted percentage increase in the number of households for STW's Strategic Grid WRZ outlined in their rdWRMP24. It is therefore recommended that the difference between the rdWRMP24 and the growth plans is investigated in a Stage 2 WCS to ensure that delivery of the South

Leicestershire Partner Authorities's growth plans is within the growth expectations of STW and does not lead to an unsustainable increase in abstraction.

10.3 Sources of Pollution

Water pollution is usually categorised as either diffuse or point source. Point source sources come from a single well-defined point, an example being the discharge from a WwTW.

Diffuse pollution is defined as “unplanned and unlicensed pollution from farming, old mine workings, homes and roads. It includes urban and rural activity and arises from industry, commerce, agriculture and civil functions and the way we live our lives.”

Examples of diffuse sources of water pollution include:

- Contaminated runoff from roads – this can include metals and chemicals
- Drainage from housing estates
- Misconnected sewers (foul drains to surface water drains)
- Accidental chemical/oil spills from commercial sites
- Surplus nutrients, pesticides and eroded soils from farmland
- Septic tanks and non-mains sewer systems

The most likely sources of diffuse pollution from new developments include drainage from housing estates, runoff from roads and discharges from commercial and industrial premises. The pollution risk posed by a site will depend on the sensitivity of the receiving environment, the pathway between the source of the runoff and the receiving waters, and the level of dilution available. After or during heavy rainfall, the first flush of water carrying accumulated dust and dirt is often highly polluting.

Whilst the threat posed by an individual site may be low, several sites together may pose a cumulative impact within the catchment.

Runoff from development sites should be managed by a suitably designed SuDS scheme, more information on SuDS can be found in sections 10.5.4 through to 10.5.6. Potential impacts on receiving surface waters include the blanketing of riverbeds with sediment, a reduction in light penetration from suspended solids, and a reduction in natural oxygen levels, all of which can lead to a loss in biodiversity.

10.4 Pathways

Pollutants can take several different pathways from their source to a “receptor” – a habitat or species that can be impacted. This could be overland via surface water flow paths, via the river system, or via groundwater or a combination of all three.

10.5 Receptors

A receptor in this case is a habitat or species that is adversely impacted by a pollutant. Both the rivers and groundwater as well as being pathways, can also be receptors.

Within the study area and downstream are many sites with environmental designations such as:

- Special Areas of Conservation (SAC)
- Special Protection Areas (SPA)
- Sites of Special Scientific Interest (SSSI)
- Ramsar sites (Wetlands of International Importance)
- Priority Habitats and Priority Headwaters

A description of these, and the relevant legislation that defines and protects them, can be found in Section 3.7.

To identify protected sites that may be at risk, Flood Zone 2 from the Risk of Flooding from Rivers and the Sea mapping was used to define an area that was either adjacent to a river or could be reasonably expected to receive surface water from a river. Where a WwTW was present in the catchment upstream of the protected site, it was considered that there was a risk of deterioration in water quality due to growth during the local plan period, all upstream WwTWs must also be considered in future analysis. Where there were no WwTWs serving growth upstream, risk of deterioration is considered to be low, and would not be shown by water quality modelling. However, in these cases the overall catchment water quality should be considered where for example they are designated for migratory fish species that may spend part of their lifecycle elsewhere in the catchment.

Priority Habitats are available to view on the DEFRA Magic Map website, which can be accessed on the Defra website (GOV.UK).

Multiple watercourses run through and around the study area, and a number play host to SSSIs or other protected sites. The statutory watercourses that have SSSIs are: the Rivers Soar, Swift, and Avon, the Thurlaston Brook, Eye Brook, Laughton brook, and the Grand Union Canal. There are 50 SSSIs that are close to rivers within or downstream of the study area that have a WwTWs serving growth within the study area. SSSIs within or close to the study are shown in Figure 10.1. These sites are listed in Appendix B. There are no SACs within the South Leicestershire Partner Authorities boundaries, however the River Mease SAC is to the north of the study area and is significant from a nutrient neutrality perspective (shown in Figure 10.2). The Humber Estuary, Severn Estuary and the Wash are all classified as SACs, SPAs and Ramsar sites and are downstream of the study area.

Natural England publish Impact Risk Zones (IRZs) for SSSIs. This is a tool development by NE to make a rapid initial assessment of the potential risks to terrestrial SSSIs posed by development proposals. They define zones around each SSSI which reflect the sensitivities of the features for which the site is notified and indicates the types of development which could potentially have adverse impacts and need further consideration. In certain locations they also include NE's statutory advice for certain development types. The SSSI IRZs also cover the interest features and sensitivities of those European Sites (habitats sites) that are underpinned by a terrestrial SSSI designation and include a number of "Compensation Sites", which have been secured as compensation for impacts on European Sites (habitats sites).

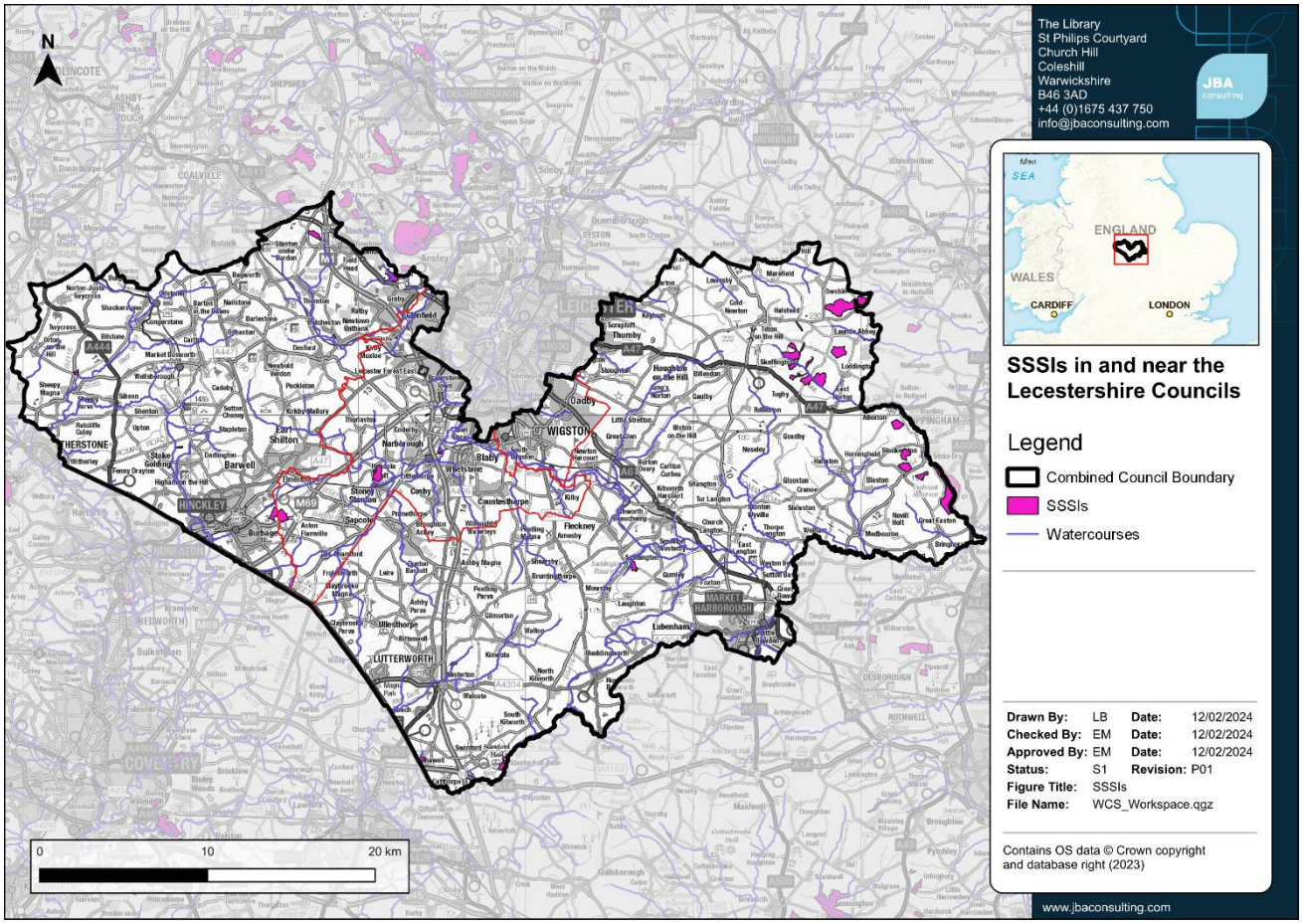


Figure 10.1: SSSIs in South Leicestershire Partner Authorities area

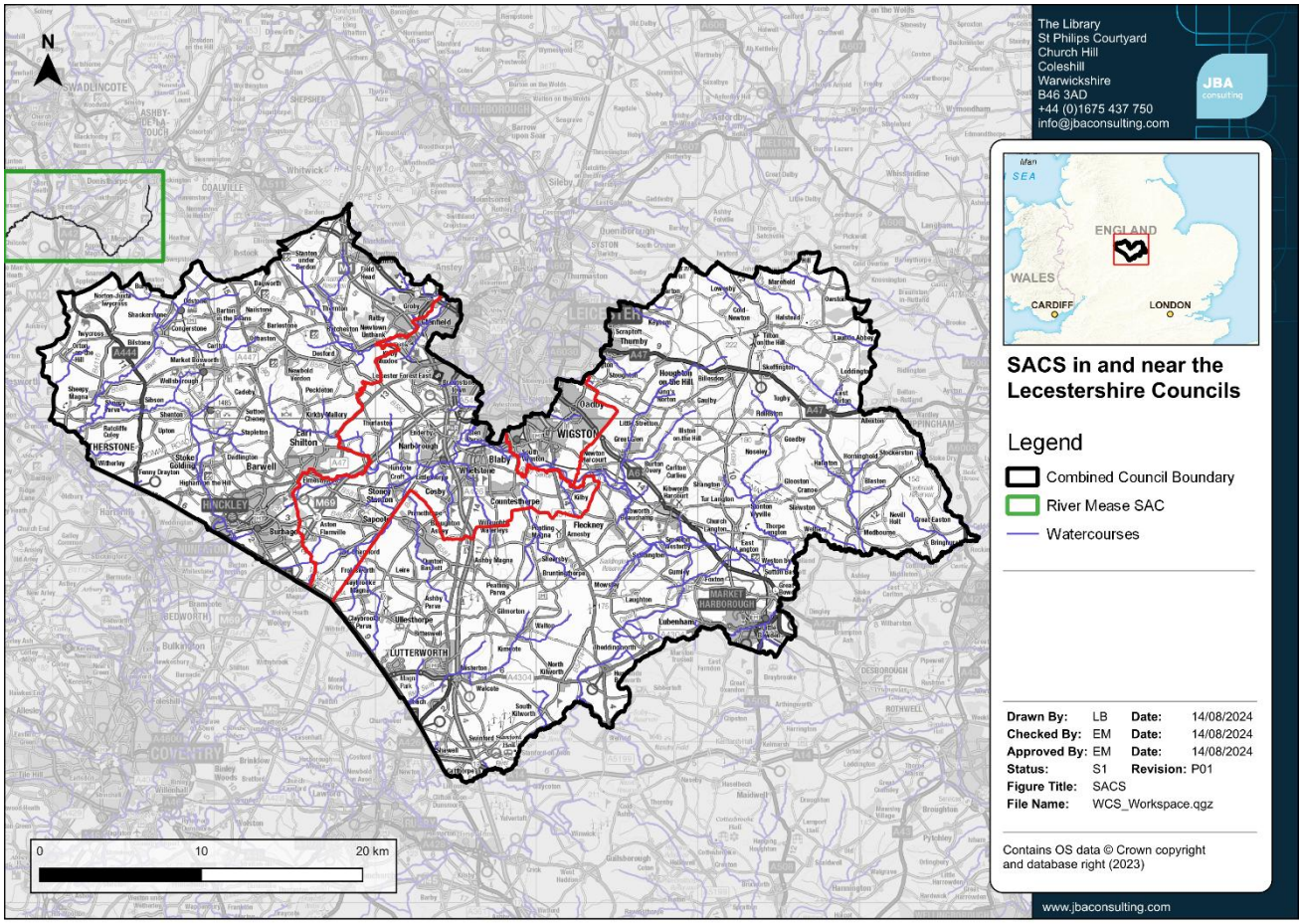


Figure 10.2: SAC close to the South Leicestershire Partner Authorities area

10.6 Protection and Mitigation

10.6.1 Agriculture Management

The Environment Agency's 'Reason for Not Achieving Good' database indicates that one of the reasons for some of the watercourses in the study area are not meeting 'Good' WFD standards can be related to agriculture and rural land use. The cause of this includes pollution from fertilisers, manures, pesticides, and soils washing into streams when it rains or percolating into the groundwater. Other pressures from agriculture include deepening, widening or re-routing of streams for land drainage, gravel removal and bankside erosion.

There is a big potential to improve water quality by interventions aimed at agricultural sources, especially considering the measures already taken by the water companies to reduce their contribution to phosphate load.

Potential schemes could include:

- Buffer strips
- Cross slope tree planting
- Runoff retention basins
- Contour ploughing

- Cover crops

There is considerable overlap with NFM measures, and the challenges are also very similar. Exact impacts are difficult to measure, although modelling tools such as Farmscoper exist to help with this (ADAS, 2023). Once a scheme is implemented it relies on the landowner to continue to maintain it to maintain the mitigation benefit.

Funding for agricultural interventions could come from Catchment Sensitive Farming or a Payment for Ecosystem Services approach.

10.6.1.1 Case Study – Wessex Water - EnTrade

Wessex Water catchment team used EnTrade to invite farmers to bid to grow cover crops over winter to reduce the nitrogen leaching into the watercourse.

This avoided the need to upgrade Dorchester WwTW to provide the same nitrogen removal capacity.

A trial auction was held in 2015, and two further auctions have since taken place attracting 557 bids from 63 farmers to save 153 tonnes of nitrogen.

“Using EnTrade to create a market in measures to deliver reductions in nitrogen has delivered a 30% saving for Wessex Water compared to traditional catchment approaches.”

Ruth Barden, Director of Environmental Strategy, Wessex Water

10.6.2 Diffuse Sources of Water Pollution

The most likely sources of diffuse pollution from new developments include drainage from housing estates, runoff from roads and discharges from commercial and industrial premises. Sites within the South Leicestershire Partner Authorities area that could be considered as sources of additional runoff, and receptors in the form of sites with environmental designations are summarised in Appendix B. The pollution risk posed by a site will depend on the sensitivity of the receiving environment, the pathway between the source of the runoff and the receiving waters, and the level of dilution available. A probable impact score of low, medium or high was applied to each site to provide an indication of the likely impact prior to any mitigation being applied. It should be noted that this is a desk-based assessment to highlight risk and should not replace the appropriate level

assessment on a site-by-site basis. Other development sites not identified in the table, may still contribute to a cumulative impact within the catchment and so management of water quality of surface runoff from these sites should still be considered.

10.6.3 Groundwater Protection

Groundwater is an important source of water in England and Wales.

The Environment Agency is responsible for the protection of “controlled waters” from pollution under the Water Resources Act 1991. These controlled waters include all watercourses and groundwater contained in underground strata.

The zones are based on an estimate of the time it would take for a pollutant which enters the saturated zone of an aquifer to reach the source of abstraction or discharge point (Zone 1 = 50 days, Zone 2 = 400 days, Zone 3 is the total catchment area). The Environment Agency will use SPZs (alongside other datasets such as the Drinking Water Protected Areas (DrWPAs) and aquifer designations as a screening tool to show:

- Areas where the EA would object in principle to certain potentially polluting activities, or other activities that could damage groundwater,
- Areas where additional controls or restrictions on activities may be needed to protect water intended for human consumption,
- How it prioritises responses to incidents.

The EA have published a position paper outlining its approach to groundwater protection which includes direct discharges to groundwater, discharges of effluents to ground and surface water runoff. This is of relevance to this water cycle study where a development may manage surface water through SuDS.

10.6.3.1 Sewerage and Trade Effluent

Discharge of treated sewage of 2m^3 per day or less to ground are called small sewage discharges (SSDs). Most SSDs do not require an environmental permit if they comply with certain qualifying conditions. A permit will be required for all SSDs in source protection zone 1 (SPZ1).

For treated sewage effluent discharges, the EA requires the use of shallow infiltration systems, which maximise the attenuation within the drainage blanket and the underlying unsaturated zone. Whilst some sewage effluent discharges may not pose a risk to groundwater quality individually, the cumulative risk of pollution from aggregations of discharges can be significant. Improvement or pre-operational conditions may be imposed before granting an environmental permit. The EA will only agree to developments where the addition of new sewage effluent discharges to ground in an area of existing discharges is unlikely to lead to an unacceptable cumulative impact.

Generally, the Environment Agency will only agree to developments involving release of sewage effluent, trade effluent or other contaminated discharges to ground if it is satisfied that it is not reasonable to make a connection to the public foul sewer. The EA would normally expect to only permit new private discharges where the distance to connect to the nearest public sewer exceeds the number of dwellings multiplied by 30m. So, for example,

a development of 100 dwellings would need to be more than 3km from a public sewer. The developer would have to provide evidence of why the proposed development cannot connect to the foul sewer in the planning application. This position will not normally apply to surface water run-off via sustainable drainage systems and discharges from sewage treatment works operated by sewerage undertakers with appropriate treatment and discharge controls.

Deep infiltration systems (such as boreholes and shafts) are not generally accepted by the EA for discharge of sewage effluent as they bypass soil layers and reduce the opportunity for attenuation of pollutants.

10.6.3.2 Discharge of Clean Water

"Clean water" discharges such as runoff from roofs or from roads, may not require a permit. However, they are still a potential source of groundwater pollution if they are not appropriately designed and maintained.

Where infiltration SuDS schemes are proposed to manage surface runoff they should:

- Be suitably designed
- Meet Government non-statutory technical standards for sustainable drainage systems – these should be used in conjunction with the NPPF and PPG
- Use a SuDS management treatment train

A hydrogeological risk assessment is required where infiltration SuDS is proposed for anything other than clean roof drainage in a SPZ1.

10.6.3.3 Source Protection Zones within the Study Area

Source protection zones (SPZs) form a key part of the Environment Agency's approach to controlling the risk to groundwater supplies from potentially polluting activities and accidental releases of pollutants.

The SPZ present in the South Leicestershire Partner Authorities area are shown in Figure 10.3.There is a small area of one Groundwater Source Protection Zone 3 on the North West edge of Hinckley and Bosworth District. The impact of future development on groundwater should be investigated in Stage 2 once potential allocations are available.

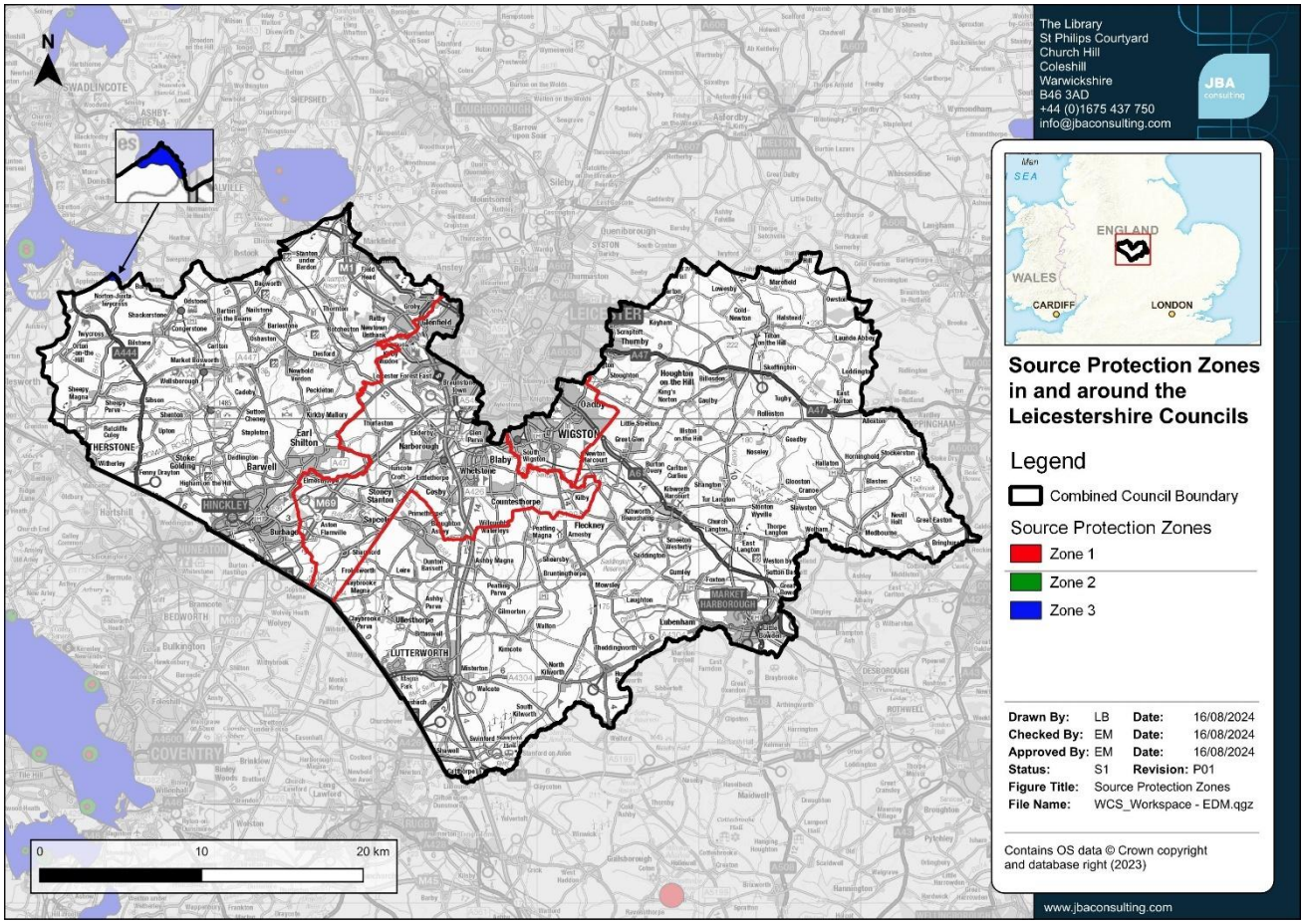


Figure 10.3: Source Protection Zones

Note - inset box shows edge of a zone 3 which slightly overlaps the South Leicestershire Partner Authorities' area.

The Environment Agency's approach to groundwater protection is a position statement which sets out a tiered, risk-based approach to protecting groundwater.

Proposed development locations within or close to Source Protection Zones, should be assessed in relation to the Environment Agency guidance, which identifies some forms of development that they will object to within specific SPZs. For residential development, this specifically relates to:

- Sewage effluent discharges inside SPZ1 (not likely to be an issue in the South Leicestershire Partner Authorities boundary where all development is likely to be served by the public sewerage systems and a small area within a SPZ).
- Infiltration SuDS in SPZ1 (except where these serve only roof water).
- For employment sites the specific guidance related to proposed uses should be followed.

There are no adopted allocations that fall within an SPZ in the South Leicestershire Partner Authorities area.

10.6.4 Surface Water Drainage and SuDS

Since April 2015, management of the rate and volume of surface water has been a requirement for all major development sites, through the use of Sustainable Drainage Systems (SuDS).

Lead Local Flood Authorities (LLFAs) are the statutory consultees to the planning system for surface water management within major development, which covers the following development scenarios:

- 10 or more dwellings
- a site larger than 0.5 hectares, where the number of dwellings is unknown
- a building greater than 1,000 square metres
- a site larger than 1 hectare

SuDS are drainage features which attempt to replicate natural drainage patterns, through capturing rainwater at source, and releasing it slowly into the ground or a water body. They can help to manage flooding through controlling the quantity of surface water generated by a development and improve water quality by treating urban runoff. SuDS can also deliver multiple benefits, through creating habitats for wildlife and green spaces for the community. SuDS also have the advantage of providing effective Blue and Green infrastructure and ecological and public amenity benefits when designed and maintained properly.

National standards on the management of surface water are outlined within the Defra Non-statutory Standards for Sustainable Drainage Systems. The CIRIA C753 SuDS Manual The CIRIA C753 SuDS Manual and Guidance for the Construction of SuDS provide the industry best practice guidance for design and management of SuDS.

Local guidance, provided by the Lead Local Flood Authorities covering the study area, is detailed below:

- Leicestershire County Council is the Lead Local Flood Authority providing the necessary advice for the council areas.

10.6.5 Benefits of SuDS

10.6.5.1 Flood Risk

The Strategic Flood Risk Assessments for the individual councils contains recommendations for SuDS to manage surface water on development sites, with the primary aim of reducing flood risk.

SuDS are most effective at reducing flood risk for relatively high intensity, short and medium duration events, and are particularly important in mitigating potential increases in surface water flooding, sewer flooding and flooding from small and medium sized watercourses resulting from development.

10.6.5.2 Water Resources

A central principle of SuDS is the use of surface water as a resource. Traditionally, surface water drainage involved the rapid disposal of rainwater, by conveying it directly into a sewer or wastewater treatment works.

SuDS techniques such as rainwater harvesting, allow rainwater to be collected and re-used as non-potable water supply within homes and gardens, reducing the demand on water resources and supply infrastructure.

10.6.5.3 Climate Resilience

Climate projections for the UK suggest that winters may become milder and wetter and summers may become warmer, but with more frequent higher intensity rainfall events, particularly in the southeast. This would be expected to increase the volume of runoff, and therefore the risk of flooding from surface water, and diffuse pollution, and reduce water availability.

SuDS offer a more adaptable way of draining surfaces, controlling the rate and volume of runoff leaving urban areas during high intensity rainfall, and reducing flood risk to downstream communities through storage and controlled release of rainwater from development sites.

Through allowing rainwater to soak into the ground, SuDS are effective at retaining soil moisture and groundwater levels, which allows the recharge of the watercourses and underlying aquifers. This is particularly important where water resource availability is limited, and likely to become increasingly scarce under future drier climates.

10.6.5.4 Biodiversity

The water within a SuDS component is an essential resource for the growth and development of plants and animals, and biodiversity benefits can be delivered even by very small, isolated schemes. The greatest value can be achieved where SuDS are planned as part of a wider green landscape, providing important habitat, and wildlife connectivity. With careful design, SuDS can provide shelter, food, foraging and breeding opportunities for a variety of species including plants, amphibians, invertebrates, birds, bats and other animals.

10.6.5.5 Amenity

Designs using surface water management systems to help structure the urban landscape can enrich its aesthetic and recreational value, promoting health and well-being and supporting green infrastructure. Water managed on the surface rather than underground can help reduce summer temperatures, provide habitat for flora and fauna and act a resource for local environmental education programmes and working groups and directly influence the sense of community in an area.

10.6.6 Suitable SuDS Techniques

The hydraulic and geological characteristics of each property development site across the South Leicestershire Partner Authorities should be assessed to identify the most appropriate forms of surface water management and any constraining factors to the utilisation of SuDS. These assessments are designed to inform the early-stage site planning process and should be followed up the site-specific detailed drainage assessments.

Appropriate SuDS techniques have been categorised into five main groups, as shown in Table 10.1. Further site-specific investigation should be conducted to determine what SuDS techniques could be used on a particular development, informed by detailed ground investigations.

Table 10.1: Summary of SuDS categories

SuDS Type	Technique
Source Controls	Green roofs, rainwater harvesting, pervious pavements, rain gardens
Infiltration	Infiltration trench, infiltration basin, soakaway
Detention	Ponds, wetlands, subsurface storage, shallow wetlands, pocket wetlands, submerged gravel wetlands, wetland channels, detention basins
Filtration	Surface sand filters, subsurface sand filters, perimeter sand filters, bioretention, filter strips, filter trenches
Conveyance	Dry swales, under-drained swales, wet swales

10.6.7 Natural Flood Management

Natural Flood Management (NFM) is used to protect, restore, and re-naturalise the function of catchments and rivers to reduce flood risk. A wide range of techniques can be used that aim to reduce flooding by working with natural features and processes to store or slow down flood waters before they can damage flood risk receptors (e.g., people, property, infrastructure, etc.). NFM involves taking action to manage flood and coastal erosion risk by protecting, restoring, and emulating the natural regulating functions of catchments, rivers, floodplains, and coasts. Techniques and measures, which could be applied in Birmingham include:

- Offline storage areas
- Re-meandering streams
- Targeted woodland planting
- Reconnection and restoration of functional floodplains
- Restoration of rivers and removal of redundant structures
- Installation or retainment of large woody material in river channels
- Creation of rural and urban SuDS

In 2017, the Environment Agency published on online evidence base to support the implementation of NFM and with JBA produced maps showing locations with the potential for NFM measures. These maps are intended to be used alongside the evidence directory

to help practitioners think about the types of measure that may work in a catchment and the best places in which to locate them. There are limitations with the maps; however, it is a useful tool to help start dialogue with key partners.

10.6.8 Multiple Benefits of NFM

In addition to flood risk benefits, there are also significant benefits in other areas such as habitat provision, air quality, climate regulation and water quality.

Many NFM measures can reduce nutrient and sediment sources by reducing surface runoff flows from higher ground, reducing soil erosion, trapping sediment at the edge of agricultural land, or encouraging deposition of sediments behind natural dams upstream in watercourses.

Suitable techniques may include:

- Leaky dams
- Woodland planting
- Buffer strips
- Runoff retention ponds
- Land management techniques (soil aeration, cover crops etc.)

10.6.9 Integrated Constructed Wetland Management

An integrated constructed wetland (ICW) is an artificial wetland created for the purpose of treating polluted water, whether this is municipal wastewater, grey water from residential properties, or agricultural runoff. ICWs are usually unlined, free surface flow wetlands, designed to contain and treat influents within emergent vegetated areas.

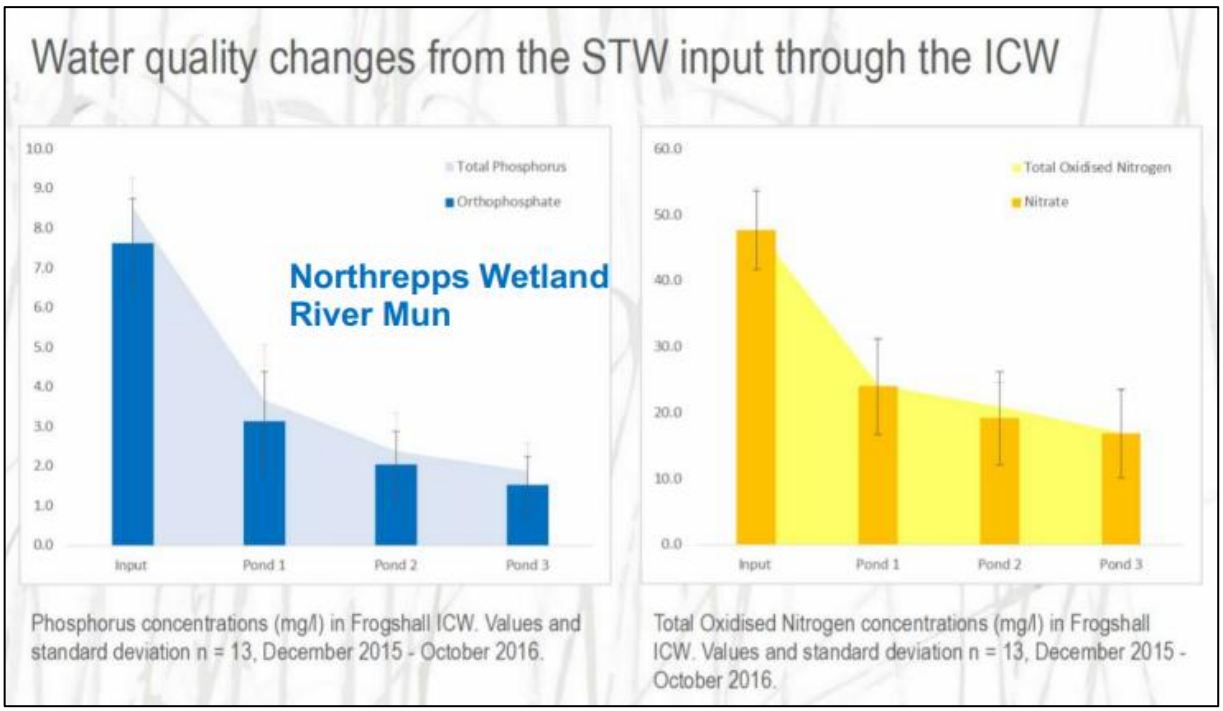
Defra carried out a systematic review of the effectiveness of various wetland types, including ICWs for mitigating agricultural pollution such as phosphate and nitrate. The overall conclusion was that all wetland types are very effective at reducing major nutrients and suspended sediments, except for nitrite in ICWs. Nitrate is only reduced when passing through overland buffer strips and through constructed wetlands with vegetation, where the systematic review showed a mean reduction of 29% across the evidence included in the study. The mean reduction in Total Phosphorus across the evidence base was 78%.

10.6.9.1 Case Study – Frogshall ICW

The Upper River Mun in Norfolk was experiencing chronic pollution, and a loss in biodiversity in the river. Investigation found that nutrients from a Sewage Treatment Works upstream were contributing to this issue.

A pilot ICW was created consisting of three shallow ponds, filled with 18,000 emergent aquatic plants, and the outfall from the treatment works was diverted to pass through the wetland.

Early monitoring has shown that 90% of the phosphate is being removed by the wetland, and a large increase in biodiversity downstream observed.



Reproduced from “Stripping the Phosphate” a presentation by the Norfolk Rivers Trust (2018) (Norfolk Rivers Trust, 2018).

10.6.10 Barriers

Whilst there are many benefits to implementing NFM and constructed wetlands, the impact of these techniques is hard to quantify, and relies on ongoing maintenance to maintain that benefit. Where a potential scheme is not on a development site it will also require permission and support of the landowner. It may not be possible to influence this through planning policy.

10.7 Conclusions

- The potential impact of development on several protected sites such as SAC and SSSIs within, or downstream of the study area should be carefully considered in future plan making.
- Water quality modelling should be undertaken in a Stage 2 WCS to identify potential deterioration in water quality in waterbodies adjacent to protected sites.
- The growth forecasts of the South Leicestershire Partner Authorities are higher than the percentage growth predicted within STW's Strategic Grid WRZ. It is therefore recommended that the difference between the rdWRMP24 and the growth plans is investigated in a Stage 2 WCS to ensure that delivery of the South Leicestershire Partner Authorities growth plans is within the growth expectations of STW and does not lead to an unsustainable increase in abstraction.
- There is one Groundwater Source Protection Zone in the study area (North West edge of Hinckley and Bosworth District). The impact of future development on

groundwater should be investigated in Stage 2 once potential allocations are available.

- Development sites within the study area could be sources of diffuse pollution from surface runoff.
- SuDS are required on all development sites. Their design should consider both water quantity and water quality and site level investigations should be undertaken to define the most appropriate SuDS types for each specific development. Opportunities exist for these SuDS schemes to offer multiple benefits of flood risk reduction, amenity value and biodiversity.
- The South Leicestershire Partner Authorities should be consulted at an early stage of development to ensure that SuDS are implemented and designed in response to site characteristics and policy factors.
- In the wider area, opportunities exist to implement natural flood management techniques to achieve multiple benefits of flood risk, water quality and habitat creation.

10.8 Recommendations

Table 10.2 Recommendations for environmental impact

Action		
The Local Plan should include policies that require all development proposals with the potential to impact on areas with environmental designations to be considered in line with the relevant legislation and where stated, in consultation with Natural England (for national and international designations and priority habitats).	HDC, BDC, HBBC, OWBC	Ongoing
In partnership, identify opportunities for incorporating SuDS into open spaces and green infrastructure, to deliver strategic flood risk management and meet WFD water quality targets.	HDC, BDC, HBBC, OWBC, EA, STW, AW	Ongoing

Action	Responsibility	Timescale
of SuDS at an early stage to maximise the benefits of the scheme.		
Opportunities for Natural Flood Management that include schemes aimed at reducing / managing runoff should be considered to reduce nutrient and sediment pollution within the South Leicestershire Partner Authorities area.	HDC, BDC, HBBC, OWBC, EA, NE	Ongoing

11. Summary and Overall Conclusions

11.1 Conclusions

Table 11.1 Summary of conclusions

Assessment	Conclusion
Water resources	• Most of the study area receives its water from Severn Trent Water from their Strategic Grid WRZ (and a small area from their Rutland WRZ) with an area in the east of Harborough served by Anglian Water (from their Ruthamford North WRZ). • A comparison was made between predicted growth contained in STW's rdWRMP24 and the housing needs of the LPAs. Across the Strategic Grid, a 19% increase in the number of properties is predicted by STW. This is in line with the lower growth estimates (based on the Standard Method), for Hinckley and Bosworth, but is significantly less than the housing need for Blaby, Harborough and Oadby and Wigston and the higher growth scenarios for Hinckley and Bosworth. This should be investigated further in a Stage 2 WCS once the final WRMP24 has been published. • The Water Industry National Environment Programme (WINEP) is a set of actions that the EA have requested all 20 water companies operating in England to complete in a particular Asset Management Period (AMP) as part of their environmental commitments. Several investigations are planned or underway to ensure that abstraction of water from both groundwater and rivers, is not leading to unsustainable reductions in flow. Development and population growth can increase abstraction, and so the South Leicestershire Partner Authorities have an opportunity to contribute to these actions indirectly by pursuing policies that promote water efficiency in new development. • It is important that new development does not result in an unsustainable increase in water abstraction. This can be done in several ways from reducing the water demand from new houses through to achieving “water neutrality” in a region by offsetting a new developments water demand by improving efficiency in existing buildings. • Water resources in the UK are under considerable pressure. The Environment Agency have stated that "the scale of the challenge we face increases with time, and, by 2050, we are looking at a shortfall of nearly 5 billion litres of water per day

Assessment	Conclusion
	between the sustainable water supplied available and the expected demand." • The National Water Resources Framework sets the objective to reduce the average per capita consumption in the UK to 110l/p/d by 2050. This is now part of the Environmental Improvement Plan and water companies WRMPs. Within Defra's Plan for Water is the commitment to review Building Regulations and a target of 100l/p/d in water stress areas is suggested. • The Future Homes Hub, who are supporting Defra to produce a roadmap to greater water efficiency propose a stages reduction in PCC, with a target of 100l/p/d in water stressed areas in place from 2025, and a reduced target of 90l/p/d in place by 2030 (depending on market conditions and customer acceptance). • This study recommends that as a minimum the proposed new Building Regulations target of 100l/p/d outlined in Defra's Plan for Water be adopted across the study area. This should be achieved using a fittings-based approach. • This should be supported by the requirement for non-household development to achieve three credits in the assessment category WAT01 of the BREEAM UK New Construction Standard. • The Local Plan should allow for a future reduction in the Building Regulations target to 90l/p/d in 2030.

Assessment	Conclusion
Wastewater network	• Development in areas where there is limited wastewater network capacity will increase pressure on the network, increasing the risk of a detrimental impact on customers, and increasing the likelihood of storm overflow operation. Early engagement with developers, Severn Trent Water and Anglian Water is required, and further modelling of the network may be required in the Stage 2 WCS and at the planning application stage. • The Environment Act now requires water companies to report and monitor storm overflows as well as reduce the harm caused to the rivers they discharge to. There are 201 storm overflows in recorded in the study area, 161 on the network, and 40 at WwTWs. • The SOAF set a threshold of 60 operations in a year (based on 1 years' data, 50 if based on 2 years data, and 40 if based on 3 years), above which a storm overflow should be investigated. 13 of the storm overflows were operating above this threshold between 2021 and 2023. The Storm Overflow Reduction Plan which was published in 2022 sets an objective that "storm overflows will not be permitted to discharge above an average of 10 rainfall events per year by 2050". A further 60 storm overflows are operating on average above 10 times per year so may require action to meet the long-term target. • There are opportunities through the planning system to ease pressure on the wastewater network, when development sites are on previously developed land, by separating foul and storm flow in existing combined systems, and not allowing new surface water connections. Surface water can also be better managed by retrofitting SuDS in existing residential areas, and in new development, ensuring SuDS are incorporated into designs at the master planning stage to maximise the potential benefits • Early engagement between developers, the councils involved and Leicestershire County Council, and Severn Trent Water and Anglian Water is recommended to allow time for the strategic infrastructure required to serve these developments to be planned.
Wastewater treatment	• A headroom assessment was carried out comparing the current flow from each WwTW, making allowance for growth already planned, with the permit limit. This provides an

Assessment	Conclusion
	estimate of the spare capacity in wastewater treatment infrastructure in the study area. • Evaluation of the STW and AW Drainage and Wastewater Management Plans indicated a lack of capacity at many WwTWs expected to serve growth in the study area. AW plans had less detail available at the time of writing, however they identified Market Harborough and Tilton on the Hill as requiring increased capacity in the future. • The JBA headroom assessment identified 22 WwTWs that are expected to be close to or exceeding their permit during the Local Plan period. An increase in the permit limit, and upgrades to treatment capacity may be required at these WwTW to accommodate further growth. • Seven AW WwTW had no mention of capacity upgrades. All 13 of the STW WwTW within this group of 22 had comments related to capacity, these were either; Monitoring of headroom, capacity headroom limited. Investment options to be investigated or scheme planned or in progress to accommodate future growth. • Consideration should be given where possible to using capacity in existing permits as this provides a lower carbon cost than upgrading capacity at existing WwTW or building new treatment works. This may however not always be feasible due to other Local Plan considerations. • There are several poorly performing storm tank overflows at WwTWs in the study area. Growth within these catchments could result in an increase in the operations of these overflows contributing to a worsening of water quality in the area. Action should be taken by the water companies to address these overflows prior to an increase in wastewater demand being generated by new development.

Assessment	Conclusion
Water quality	• The EA "reasons for not achieving good" (RNAG) dataset indicates that the water industry (sewage discharges) and agriculture and rural land management (livestock and arable) are the main reasons for watercourses not achieving good status in this area. • Growth during the local plan period will also increase the discharge of treated wastewater from WwTWs in the study area. There is a potential for this to cause a deterioration in water quality in the receiving watercourses and this must be carefully considered. A significant deterioration in water quality is not acceptable under the Water Framework Directive, and large-scale investment in treating effluent to higher standards may therefore be required. • The sensitivity analysis suggests that watercourses within the study area may be sensitive to increases in the discharge of treated wastewater. Further modelling should be undertaken in the Stage 2 WCS.
Environmental impact	• The potential impact of development on several protected sites such as SAC and SSSIs within, or downstream of the study area should be carefully considered in future plan making. • Water quality modelling should be undertaken in a Stage 2 WCS to identify potential deterioration in water quality in waterbodies adjacent to protected sites. • The growth forecasts of the South Leicestershire Partner Authorities are higher than the percentage growth predicted within STW's Strategic Grid WRZ. It is therefore recommended that the difference between the rdWRMP24 and the growth plans is investigated in a Stage 2 WCS to ensure that delivery of the South Leicestershire Partner Authorities growth plans is within the growth expectations of STW and does not lead to an unsustainable increase in abstraction. • There is one Groundwater Source Protection Zone in the study area (North West edge of Hinckley and Bosworth District). The impact of future development on groundwater should be investigated in Stage 2 once potential allocations are available. • Development sites within the study area could be sources of diffuse pollution from surface runoff. • SuDS are required on all development sites. Their design should consider both water quantity and water quality and site

Assessment	Conclusion
	level investigations should be undertaken to define the most appropriate SuDS types for each specific development. Opportunities exist for these SuDS schemes to offer multiple benefits of flood risk reduction, amenity value and biodiversity. • The South Leicestershire Partner Authorities should be consulted at an early stage of development to ensure that SuDS are implemented and designed in response to site characteristics and policy factors. • In the wider area, opportunities exist to implement natural flood management techniques to achieve multiple benefits of flood risk, water quality and habitat creation.

11.2 Recommendations

Table 11.2 Summary of recommendations

Aspect	Action	Responsibility	Timescale
Water resources	Continue to regularly review forecast and actual household growth across the supply region through WRMP Annual Update reports, and where significant change is predicted, engage with Local Planning Authorities.	STW and AW	Ongoing
Water resources	Provide yearly profiles of projected housing growth to water companies to inform the WRMP update.	BDC, HDC, HBBC, OWBC	Ongoing
Water resources	The council should consider a domestic water efficiency target of 100l/p/d for all new homes, and work with water suppliers to incentivise even lower consumption. This should be achieved using a fittings-based approach. target.	BDC, HDC, HBBC, OWBC	In Council specific LPs
Water resources	Use planning policy to require new build non-residential development to achieve at least 3 credits in the Wat01 Measure for water in the BREEAM New Construction standard.	BDC, HDC, HBBC, OWBC	In Council specific LP
Water resources	The concept of water neutrality or water positive development has the potential to provide a benefit in improving resilience to climate change and enabling all waterbodies to be brought up to "Good" status. Explore further with the water companies and the Environment Agency how the Council's planning and climate change policies can encourage this approach. This approach could have application in strategic sites and new settlements	BDC. HDC, HBBC, OWBC, STW, AW and EA	In LP and Climate Change Action Plan

Aspect	Action	Responsibility	Timescale
Water resources	Larger residential developments (including new settlements), and commercial developments should consider incorporating greywater recycling and/or rainwater harvesting into development at the master planning stage to reduce water demand.	BDC, HDC, HBBC, OWBC, STW and AW	In Council specific LP
Water resources	Water companies should advise the Councils of any strategic water resource infrastructure developments within the study, where these may require safeguarding of land to prevent other type of development occurring.	BDC, HDC, HBBC, OWBC, STW and AW	Part of Councils LP process
Water resources	Review this section of the WCS following publication of Severn Trent and Anglian Waters final Water Resource Management Plan 2024.	BDC, HDC, HBBC, OWBC	Stage 2 WCS
Water supply	The Councils and Developers should engage early with water companies to ensure supply infrastructure is in place prior to occupation.	BDC, HDC, HBBC, OWBC, AW, STW, developers	Ongoing
Water supply	Developers should engage early with water companies to ensure that the capacity of distribution systems is adequate prior to development coming forward	AW, STW, developers	Ongoing
Wastewater collection	Early engagement between the involved councils, Severn Trent Water, and Anglian Water is required to ensure that where strategic infrastructure is required, it can be planned in by Severn Trent Water and Anglian Water and will not lead to any increase in discharges from sewer overflows.	BDC, HDC, HBBC, OWBC, STW, AW	Ongoing
Wastewater collection	Consider wastewater infrastructure constraints in phasing development in partnership with the sewerage undertaker.	BDC, HDC, HBBC, OWBC, STW, AW	Ongoing

Aspect	Action	Responsibility	Timescale
Wastewater collection	Developers will be expected to work with the sewerage undertaker closely and early in the planning promotion process to develop an Outline Drainage Strategy for sites. The Outline Drainage strategy should demonstrate the wastewater assets required, their locations including points of connection to the public foul sewerage, whether the site drainage will be adopted by the water company and if any sewer requisitions will be required.	BDC, HDC, HBBC, OWBC, STW, AW and developers	Ongoing
Wastewater collection	Developers will be expected to demonstrate to the Lead Local Flood Authority (LLFA) that surface water from a site will be disposed using a sustainable drainage system (SuDS) with connection to surface water sewers seen as the last option. New connections for surface water to foul sewers will be resisted by the LLFA, STW and AW.	Leicestershire County Council as LLFA, and developers	Ongoing
Wastewater treatment	Provide Annual Monitoring Reports to STW & AW detailing projected housing growth.	HDC, BDC, HBBC, OWBC	Ongoing
Wastewater treatment	Early engagement with STW and AW (ideally within a stage 2 WCS) is required to ensure that provision of WwTW capacity is aligned with delivery of development.	HDC, BDC, HBBC, OWBC, STW, AW	Ongoing / During a stage 2 WCS
Wastewater treatment	STW & AW to assess growth demands as part of their wastewater asset planning activities and feedback to the Council if concerns arise – ideally within the timeframe of the stage 2 WCS.	STW & AW	When this stage 1 WCS is published
Water quality	Provide annual monitoring reports to STW and AW detailing projected housing growth in the Local Authority	South Leicestershire Partner Authorities	Ongoing
Water quality	When preferred options for growth are identified, undertake water	South Leicestershire	Ongoing

Aspect	Action	Responsibility	Timescale
	quality impact modelling as part of a Stage 2 WCS.	Partner Authorities	
Water quality	Consider the full volume of growth (from the councils and neighbouring authorities) within the catchment when considering WINEP schemes or upgrades at WwTW	STW and AW	Ongoing
Environmental impact	Consider the environmental impact of development on protected sites downstream of receiving wastewater treatment works in the Habitats Regulations Assessment	HDC, BDC, HBBC, OWBC	Local Plan Developme nt
Environmental impact	The Local Plan should include policies that require all development proposals with the potential to impact on areas with environmental designations to be considered in line with the relevant legislation and where stated, in consultation with Natural England (for national and international designations and priority habitats).	HDC, BDC, HBBC, OWBC	Ongoing
Environmental impact	The Local Plan should include policies that require development sites to adopt SuDS to manage water quality of surface runoff.	HDC, BDC, HBBC, OWBC	Ongoing
Environmental impact	In partnership, identify opportunities for incorporating SuDS into open spaces and green infrastructure, to deliver strategic flood risk management and meet WFD water quality targets.	HDC, BDC, HBBC, OWBC, EA, STW, AW	Ongoing
Environmental impact	Developers should include the design of SuDS at an early stage to maximise the benefits of the scheme.	Developers	Ongoing
Environmental impact	Opportunities for Natural Flood Management that include schemes aimed at reducing / managing runoff should be considered to reduce nutrient and sediment pollution within the South Leicestershire Partner Authorities area.	HDC, BDC, HBBC, OWBC, EA, NE	Ongoing

12. References

ADAS, A. D. (2023, January). *Farmscoper.* Retrieved from ADAS: https://adas.co.uk/services/farmscoper/

Anglian Water c. (2023, January). *Water Resource Managment Plan*. Retrieved from Anglian Water: https://www.anglianwater.co.uk/about-us/our-strategies-and-plans/water-resources-management-plan/

Anglian Water h. (2023, August). *Statement of Response.* Retrieved from Anglian Water: https://www.anglianwater.co.uk/siteassets/household/about-us/wrmp/draft-wrmp24-statement-of-response-v2.pdf

BRE. (2018b). *BREEAM*. Retrieved from bregroup.com: https://files.bregroup.com/breeam/technicalmanuals/NC2018/

BRE. (2023a, January). *BRE*. Retrieved from homequalitymark.com: https://www.homequalitymark.com/professionals/standard/

British Gas. (2023, 09 27). *What's the average gas and electricity bill in Great Britain?* Retrieved from British Gas: https://www.britishgas.co.uk/energy/guides/average-bill.html

Committee on Climate Change. (2019). Retrieved from https://www.theccc.org.uk/wp-content/uploads/2019/02/UK-housing-Fit-for-the-future-CCC-2019.pdf

Defra. (2024). *Addressing water scarcity in Greater Cambridge: update on government measures*. Retrieved from Gov.uk: https://www.gov.uk/government/publications/addressing-water-scarcity-in-greater-cambridge-update-on-government-measures/addressing-water-scarcity-in-greater-cambridge-update-on-government-measures

Department for Energy Security and Net Zero. (2022, September 29). *Energy Consumption in the UK 2022.* Retrieved from https://www.gov.uk/government/statistics/energy-consumption-in-the-uk-2022

Department for Environment, Food & Rural Affairs. (2023, April 04). *Policy paper: Plan for Water: our integrated plan for delivering clean and plentiful water*. Retrieved from gov.uk: https://www.gov.uk/government/publications/plan-for-water-our-integrated-plan-for-delivering-clean-and-plentiful-water/plan-for-water-our-integrated-plan-for-delivering-clean-and-plentiful-water#chapter-3-securing-a-plentiful-supply-of-water

Department for Environment, Food & Rural Affairs. (2023, September 23). *Storm overflows discharge reduction plan.* Retrieved from gov.uk: https://www.gov.uk/government/publications/storm-overflows-discharge-reduction-plan

Department for Levelling Up, Housing and Communities. (2023, 09 05). *National Planning Policy Framework.* Retrieved from gov.uk: https://www.gov.uk/government/publications/national-planning-policy-framework--2

Department for the Environment, Food and Rural Affairs. (2023, July 03). *Designate a bathing water: guidance on how to apply*. Retrieved from gov.uk: https://www.gov.uk/government/publications/bathing-waters-apply-to-designate-or-de-designate/designate-a-bathing-water-guidance-on-how-to-apply

EC Harris. (2014, September). *Housing Standards Review.* Retrieved from Gov.UK: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/353387/021c_Cost_Report_11th_Sept_2014_FINAL.pdf

Environment Agency. (2018). *The Environment Agency's approach to groundwater protection.* Retrieved from gov.uk:

https://assets.publishing.service.gov.uk/media/5ab38864e5274a3dc898e29b/Environment-Agency-approach-to-groundwater-protection.pdf
Environment Agency. (2022, February 01). *Discharges to surface water and groundwater: environmental permits*. Retrieved from gov.uk: https://www.gov.uk/guidance/discharges-to-surface-water-and-groundwater-environmental-permits
Environment Agency. (2023a, September 29). *Catchment Data Explorer*. Retrieved from gov.uk: https://environment.data.gov.uk/catchment-planning/help/usage#chemical-status
Environment Agency. (2023b, September 09). *Draft river basin management plan: maps*. Retrieved from https://environment.maps.arcgis.com/: https://environment.maps.arcgis.com/apps/MapSeries/index.html?appid=14f7bcac038a4898866aa461b48e305d&entry=2
Environment Agency. (2024). *A summary of England's revised draft regional and water resources management plans*. Retrieved from Environment Agency: https://www.gov.uk/government/publications/a-review-of-englands-draft-regional-and-water-resources-management-plans/a-summary-of-englands-draft-regional-and-water-resources-management-plans
Environment Agency m. (2022). *Draft river basin management plan: maps.* Retrieved from Environment Agency: https://environment.maps.arcgis.com/apps/MapSeries/index.html?appid=14f7bcac038a4898866aa461b48e305d&entry=2
Eustice, G. (2022, July). *Statement on improving water quality and tackling nutrient pollution*. Retrieved from UK Parliament : https://questions-statements.parliament.uk/written-statements/detail/2022-07-20/HCWS258#:~:text=Natural%20England%2C%20in%20its%20statutory%20role%20as%20an,are%20in%20unfavourable%20condition%20due%20to%20excess%20nutrients.
Gov.UK a. (2019). *Water supply, wastewater and water quality*. Retrieved from Gov.uk: https://www.gov.uk/guidance/water-supply-wastewater-and-water-quality
Herefordshire County Council a. (2022, July). *Drainage fields position statement.* Retrieved from Herefordshire Council: https://www.herefordshire.gov.uk/downloads/file/24018/drainage-fields-position-statement-1-july-2022
Herefordshire County Council c. (2022). *Progress on journey to nutrient neutrality.* Retrieved from Herefordshire.Gov: https://www.herefordshire.gov.uk/news/article/1360/progress-on-journey-to-nutrient-neutrality
Herefordshire County Council e. (2023). *HC_PTP_Guidance_*. Retrieved from Herefordshire Council: file:///N:/2023/Projects/2023s0024%20-%20Herefordshire%20Council%20-%20Water%20Cycle%20Study/2_Shared/_Incoming/Herefordshire/River%20Lugg%

20catchment%20development%20docs/HC_PTP_Guidance_V2_17.3.2023_for_release_2023_03_20.pdf
HM Government. (1981). *Wildlife and Countryside Act*. Retrieved from legislation.gov: https://www.legislation.gov.uk/ukpga/1981/69/section/28G
HM Government. (2010). *Flood and Water Management Act.* Retrieved from legislation.gov.uk: https://www.legislation.gov.uk/ukpga/2010/29/contents
HM Government. (2011). *Localism Act 2011.* Retrieved from legislation.gov.uk: https://www.legislation.gov.uk/ukpga/2011/20/introduction/enacted
HM Government. (2015a, March). *Housing: optional technical standards.* Retrieved from Gov.UK: https://www.gov.uk/guidance/housing-optional-technical-standards
HM Government. (2015b, October). *Sanitation, hot water safety and water efficiency.* Retrieved from Gov.UK: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/504207/BR_PDF_AD_G_2015_with_2016_amendments.pdf
HM Government. (2015c, March). *Sustainable drainage systems: non-statutory technical standards.* Retrieved from Gov.uk: https://www.gov.uk/government/publications/sustainable-drainage-systems-non-statutory-technical-standards
HM Government. (2016). *The Environmental Permitting (England and Wales) Regulations 2016.* Retrieved from legislation.gov.uk: https://www.legislation.gov.uk/uksi/2016/1154/contents/made
HM Government. (2017). *The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.* Retrieved from legislation.gov.uk: https://www.legislation.gov.uk/uksi/2017/407/contents/made
HM Government. (2019, July 22). *Water supply, wastewater and water quality.* Retrieved from Gov.uk: https://www.gov.uk/guidance/water-supply-wastewater-and-water-quality
HM Government. (2021). *Environment Act,*. Retrieved from legislation.gov: https://www.legislation.gov.uk/ukpga/2021/30/part/5/enacted
HM Government. (2022, August 25). *Flood risk and coastal change.* Retrieved from Gov.uk: https://www.gov.uk/guidance/flood-risk-and-coastal-change
JBA Consulting. (2022, December). *Sussex North Water Neutrality Strategy: Part C - Mitigation.* Retrieved from Crawley Council: https://crawley.gov.uk/sites/default/files/2022-12/Part%20C%20-%20water%20neutrality%20assessment.pdf
Natural England a. (2022). *Natural England Water Quality and Nutrient Neutrality Advice (16 March 2022) (NE785).* Retrieved from Natural: https://publications.naturalengland.org.uk/publication/4792131352002560
Natural England b. (2022, April). *Natural England.* Retrieved from Nutrient Neutrality Principles: https://publications.naturalengland.org.uk/publication/5031421117988864
Natural England b. (2022, April). *Natural England.* Retrieved from Nutrient Neutrality Principles:

file:///C:/Users/jessicacreber/Downloads/D2022%2000135724%20%20TIN186%20-%20Nutrient%20Neutrality%20Principles%20[FINAL]-V2PL%20(1).pdf
Natural England b. (2023, July). *Natural England.* Retrieved from Nutrient Neutrality Principles: https://publications.naturalengland.org.uk/publication/5031421117988864
Natural England d. (2022, November). *Natural England*. Retrieved from Nutrient Neutrality Generic Methodology (NECR459): https://publications.naturalengland.org.uk/publication/5143927928913920
Neethling et al., J. M. (2007). *Phosphorus Speciation Provides Direction to Produce 10 µ g/L.* Oxford: Access Water. Retrieved from https://www.semanticscholar.org/paper/Phosphorus-Speciation-Provides-Direction-to-Produce-Neethling-Benisch/d4f21d549084b2b6cf61fc206fccb405a607e2fa
Norfolk Rivers Trust. (2018). *Norfolk Rivers Trust.* Retrieved from Stripping the phosphate: https://www.theriverstrust.org/media/2018/08/2.-Stripping-the-phosphate-David-Diggens-Norfolk-Rivers-Trust.pdf
NWLDC, N. W. (2022, January). *River Mease Special Area of Conservation.* Retrieved from North West Leicestershire District Council: https://www.nwleics.gov.uk/files/documents/river_mease_standing_advice_advice_to_local_planning_authorities_natural_england_january_2022/River%20Mease%20standing%20advice%20Jan%202022%20Final.pdf
OfWAT. (2020, April). *Charging Rules for New Connection Services.* Retrieved from OfWAT: https://www.ofwat.gov.uk/wp-content/uploads/2018/07/19-07-22-Charging-Rules-for-New-Connection-Services-English-Undertakers-from-April-2020.pdf
Pickles, E. (2014, December). *Sustainable drainage systems*. Retrieved from Parliament.uk: https://questions-statements.parliament.uk/written-statements/detail/2014-12-18/HCWS161
Ramsar Convention Secretariat. (2010). *Wise use of wetlands.* Retrieved from ramsar.org: https://www.ramsar.org/sites/default/files/documents/library/hbk4-01.pdf
River Mease Partnership. (2023). *Wildlife*. Retrieved from River Mease Partnership: https://www.rivermease.co.uk/river-mease/wildlife/#:~:text=The%20River%20Mease%20and%20Lower%20Gilwiskaw%

20Brook%20were,lowland%20river%2C%20which%20supports%20characteristic%20habitats%20and%20species.
Severn Trent. (2022, November). *Draft Water Resource Management Plan 2024*. Retrieved from Severn Trent: https://www.severntrent.com/content/dam/dwrmp24-st/STdWRMP24-Main-Narrative.pdf
Severn Trent c. (2023). *Document Library, DWMP.* Retrieved from Severn Trent: https://www.severntrent.com/about-us/our-plans/drainage-wastewater-management-plan/document-library/
Severn Trent Water a, S. (2023). *Upper Derwent Valley Reservoir Expansion*. Retrieved from Severn Trent Water, STW: https://www.severntrent.com/about-us/our-plans/strategic-resource-options/upper-derwent-valley-reservoir-expansion/
Severn Trent Water b, S. (2023). *Minworth*. Retrieved from Severn Trent Water, STW: https://www.severntrent.com/about-us/our-plans/strategic-resource-options/minworth/
Severn Trent Water c, S. (2023). *Grand Union Canal*. Retrieved from Severn Trent Water, STW: https://www.severntrent.com/about-us/our-plans/strategic-resource-options/the-grand-union-canal/
UKWIR, U. W. (2018). *The National Chemical Investigation Programme 2015- 2020.* Retrieved from UKWIR: https://ukwir.org/the-national-chemical-investigations-programme-2015-2020-volume-3-wastewater-treatment-technology-trials
Water Resource West b. (2022). *Tomorows Water. Today's water challenges*. Retrieved from Water Resource West: https://waterresourceswest.co.uk/
Water Resources West a. (2022). *Publications.* Retrieved from Water Resources West,: https://static1.squarespace.com/static/5e67889204d86850e1fdcece/t/61e5a4e237970d62de92fa10/1642439906757/WRW+Emerging+Regional+Plan+Executive+Summary.pdf
Water Resources West c. (2023, April). *Regional Planning for the Future*. Retrieved from Water Resources West: https://static1.squarespace.com/static/5e67889204d86850e1fdcece/t/6453f8b2e6bcb049a86955c8/1683224757001/Regional+planning+for+the+future+-+WRW+-+April+2023.pdf
Water Resources West d. (2021, July). *Publications.* Retrieved from Water Resource West.: https://static1.squarespace.com/static/5e67889204d86850e1fdcece/t/632da51bb4740c5fe9b1bb85/1663935774842/WRW+Problem+Characterisation+Report+v3.0+July+2021.pdf
Water UK. (2018, September). *A framework for the production of Drainage and Wastewater Managment Plans.* Retrieved from Water UK: https://www.water.org.uk/wp-content/uploads/2018/12/Water-UK-DWMP-Framework-Report-Main-Document.pdf
Water UK. (2024). *Storm Overflow Reduction Plan.* Retrieved from Water UK: https://www.water.org.uk/overflows-plan
Waterwise. (2009, November). *Water Efficiency Retrofitting: A Best Practice.* Retrieved from Waterwise: https://www.waterwise.org.uk/wp-

content/uploads/2018/01/Waterwise-2009_Water-efficiency-Retrofitting_Best-practice.pdf
WTE Ltd. (2023). *Phosphorous Removal - The Future For Wastewater Treatment Plants*. Retrieved from WTE seweage Treatment Systems: https://www.wte-ltd.co.uk/phosphate-reduction-in-sewage-treatment-plants.html
WUF. (2022). *Wye Usk Foundation*. Retrieved from Farm managment: https://www.wyeuskfoundation.org/nutrient-management
WUF b. (2023). *Farm Yard Infrastructure*. Retrieved from Wye Usk Foundation: https://www.wyeuskfoundation.org/farm-yard-infrastructure

13. Appendices

13.1 Appendix A: Storm overflow assessment results

Table 13.1 Storm overflow assessment results

Overflow Name	Permit Reference	2021	2022	2023	Mean	RAG
ALBERT ROAD	TBC	0	ND	ND	0	GREEN
AMY STREET 14 BRAUNSTONE CSO	T/52/01648/O	4	1	6	4	GREEN
AMY STREET PS /STORM SETT TANKS	T/52/00460/O	10	7	43	20	AMBER
ARBOR ROAD CSO	T/50/12388/O	55	48	50	51	RED
ASHBY MAGNA PS - STM & EMERG O/F	T/50/00802/O	16	21	31	23	AMBER
SAPCOTE-ASTON FIRS PUMPING STATION	T/50/40071/O	2	4	2	3	GREEN
ATHERSTONE SEWAGE TREATMENT WORKS	T/19/35541/R	80	60	83	74	RED
ATHERSTONE SEWAGE TREATMENT WORKS	T/19/35541/R	112	76	110	99	RED
AUBURN ROAD COMBINED SEWER OVERFLOW	EPRKB3592NQ	16	14	28	19	AMBER
BAGWORTH	TBC	0	ND	ND	0	GREEN
BAGWORTH MAIN SPS	NPSWQD006539	0	24	27	17	AMBER
BANKY MEADOW CSO	T/50/12279/O	10	3	6	6	GREEN
BARWELL - FARM ROAD (SSO)	EPRJB3997AL	3	0	12	5	GREEN
BARWELL - THE COMMON PUMPING STN	T/50/03182/O	33	38	34	35	AMBER
BATTLEFLAT - WEST LANE SPS	T/20/01553/O	18	10	14	14	AMBER
BEECHWOOD AVENUE PUMPING STATION	T/52/40157/O	1	0	0	0	GREEN

Overflow Name	Permit Reference	2021	2022	2023	Mean	RAG
BELL LANE	DT/8041	1	2	5	3	GREEN
BELL LANE SSO	AW5NF1866	0	0	0	0	GREEN
BILLESDON STW	T/51/45517/R	259	123	83	155	RED
BLABY - SYCAMORE STREET (CSO)	EPR/HB3993WE	2	1	2	2	GREEN
BLABY - WEST STREET STORM TANKS (CSO)	TBC	0	0	0	0	GREEN
BOSWORTH PARK SPS	T/20/03106/O	5	2	5	4	GREEN
BRANTING HILL CSO	T/56/45416/O	14	9	11	11	AMBER
BRAUNSTONE - COLBERT DRIVE (SSO)	TBC	2	3	12	6	GREEN
BRODICK ROAD CSO	T/19/30299/O	19	27	23	23	AMBER
BROOKSIDE CSO	T/20/35410/O	9	8	16	11	AMBER
BROOKSIDE HINCKLEY CSO	T/19/09205/O	13	15	4	11	AMBER
BULLFURLONG LANE CSO	T/50/45424/O	12	8	11	10	AMBER
BURBAGE - HORSEPOOL (CSO)	TBC	1	0	0	0	GREEN
BURBAGE - LYCHGATE LANE (2) (CSO)	EPRJB3599AQ	7	6	7	7	GREEN
BURBAGE - LYCHGATE LANE SPS	T/50/09330/O	4	14	8	9	GREEN
BURBAGE - LYCHGATE/WOODSTOCK CL CSO	T/50/08892/O	21	29	26	25	AMBER
BURBAGE - SAPCOTE ROAD CSO	T/50/40061/O	27	37	47	37	AMBER
BURBAGE - WOODLAND AVE (CSO)	TBC	6	0	0	2	GREEN
CALDECOTT SPS	AW5NF1792	0	0	9	3	GREEN
CAPTAINS LANE SCO	T/56/45446/O	19	27	36	27	AMBER

Overflow Name	Permit Reference	2021	2022	2023	Mean	RAG
CATTHORPE SEWAGE PUMPING STATION	S/10/25578/O	2	0	3	2	GREEN
CLAYBROOKE MAGNA - HIGH CROSS ROAD (SSO)	TBC	0	0	3	1	GREEN
CLAYBROOKE ROAD - STORM OVERFLOW	T/50/08859/O	8	6	0	5	GREEN
CONDOR CLOSE CSO	T/50/07567/O	19	5	8	11	AMBER
CONGERSTONE PUMPING STATION	T/20/30033/O	18	3	21	14	AMBER
COSBY ROAD SPS CSO	T/50/01009/O	41	7	13	20	AMBER
COURT CLOSE CSO	T/56/03828/O	6	3	4	4	GREEN
COVENTRY ROAD	DT/8039	0	0	0	0	GREEN
COVENTRY ROAD - NUTTS LANE CSO	T/19/35416/O	23	35	10	23	AMBER
CROFT - BROUGHTON ROAD (CSO)	TBC	1	2	0	1	GREEN
CSO AT LITTLE GLEN ROAD SPS	T/52/03045/O	24	15	0	13	AMBER
CSO AT STAPLETON SPS	T/20/30311/O	3	3	15	7	GREEN
DESFORD - LEICESTER LANE (SSO)	TBC	22	14	16	17	AMBER
DESFORD ROAD - STORM OVERFLOW	T/50/02176/O	0	0	0	0	GREEN
DRAYTON	AW5NF2117	0	0	7	2	GREEN
EARL SHILTON SEWAGE TREATMENT WORKS	T/50/45319/R	68	25	0	31	AMBER
EJECTOR STATION	DT/8054	28	11	0	13	AMBER
ENDERBY - BLABY ROAD CSO	DT/8037	0	4	8	4	GREEN
FENNY DRAYTON SEWAGE PS	T/19/12086/O	47	20	30	32	AMBER

Overflow Name	Permit Reference	2021	2022	2023	Mean	RAG
FOREST ROAD CSO	T/19/30143/O	14	41	61	39	AMBER
FOREST ROAD CSO	T/50/40087/O	54	56	79	63	RED
FROLESWORTH SEWAGE TREATMENT WORKS	T/50/45550/R	10	12	35	19	AMBER
GLEN PARVA - SOUTHFIELD CLOSE (SSO)	EPR/KB3596VE	ND	ND	19	19	AMBER
GLENFIELD/KIRBY MUXLOE PS/STM/SWS	EPR/KB3595ED	ND	ND	1	1	GREEN
GLENFIELD/KIRBY MUXLOE PS/STM/SWS	EPR/KB3595VZ	ND	ND	5	5	GREEN
GLENFIELD/KIRBY MUXLOE PS/STM/SWS	EPR/KB3595WN	ND	ND	27	27	AMBER
GLENFIELD/KIRBY MUXLOE PS/STM/SWS	EPR/KB3596AA	ND	ND	40	40	AMBER
GLENFIELD/KIRBY MUXLOE PS/STM/SWS	EPR/KB3596NG	ND	ND	1	1	GREEN
GLENFIELD/KIRBY MUXLOE PS/STM/SWS	EPR/KB3596RF	ND	ND	4	4	GREEN
GLENFIELD/KIRBY MUXLOE PS/STM/SWS	T/56/02605/O	61	47	107	72	RED
GLOOSTON WATER RECYCLING CENTRE	AW5NF425	0	0	14	5	GREEN
GREAT GLEN - THE NOOK TPS	T/51/01368/O	0	2	17	6	GREEN
HALLATON STW	AWNNF1287	103	113	162	126	RED

Overflow Name	Permit Reference	2021	2022	2023	Mean	RAG
HAWLEY ROAD / SOUTHFIELD ROAD CSO	T/19/00793/O	13	1	1	5	GREEN
HIGHAM-ON-THE-HILL PUMPING STATION	T/20/30310/O	14	6	15	12	AMBER
HINCKLEY - HARROWBROOK ROAD CSO	T/19/35414/O	19	0	2	7	GREEN
HINCKLEY - HAWLEY RD/STATION RD (CSO)	TBC	12	0	1	4	GREEN
HINCKLEY - HOLLYCROFT/STANLEY RD (CSO)	EPRJB3399DJ	0	2	2	1	GREEN
HINCKLEY SEWAGE TREATMENT WORKS	T/19/36495/R	38	27	46	37	AMBER
HUNCOTE	DT/8047	0	0	0	0	GREEN
IBSTOCK SEWAGE TREATMENT WORKS	T/20/36246/R	33	36	46	38	AMBER
KIBWORTH HARBOROUGH ROAD CSO	AWNNF13411	0	0	1	0	GREEN
KIBWORTH STW	AW5NF803	0	0	2	1	GREEN
KILBY PUMPING STATION	T/51/40041/O	3	1	7	4	GREEN
KINGS NORTON SPS & GAULBY STW	T/51/03218/O	3	0	10	4	GREEN
KINGSWAY COMBINED SEWER OVERFLOW	T/52/21090/O	3	0	8	4	GREEN
LEICESTER FOREST EAST - SOMERFIELD WAY (CSO)	TBC	0	0	0	0	GREEN
LEICESTER ROAD	T/50/21104/O	3	1	1	2	GREEN
LEICESTER ROAD PS - STM/EMEG O/F	T/51/03504/O	ND	0	1	1	GREEN
LITTLE GLEN ROAD SPS	EPRKB3596WV	0	ND	ND	0	GREEN

Overflow Name	Permit Reference	2021	2022	2023	Mean	RAG
LITTLE STRETTON STW	T/51/46383/R	38	14	1	18	AMBER
LITTLETHORPE	DT/8043	8	2	19	10	GREEN
LITTLETHORPE-NARBOROUGH ROAD (CSO)	TBC	3	1	13	6	GREEN
LUBENHAM SPS	AW5NF1773	0	0	9	3	GREEN
LUTTERWORTH - FOX INN CSO	S/10/26166/O	26	7	3	12	AMBER
MARKET HARBOROUGH SOUTH CSO	EPRRB3094WT	10	24	31	22	AMBER
MARKET HARBOROUGH-RIVERSIDE ROAD	AW5NF1798	4	7	10	7	GREEN
MARKFIELD ROAD PUMPING STATION	T/56/40158/O	15	0	4	6	GREEN
MARSH AVENUE SSO	AW5NF1871	0	0	0	0	GREEN
MEADOWBROOK ROAD SSO	AW5NF1870	0	0	0	0	GREEN
MEDBOURNE STW	AW5NF416	0	0	3	1	GREEN
MERRY LEES PUMPING STATION	TBC	0	ND	ND	0	GREEN
MIDLAND COTTAGES CSO	T/51/40058/O	10	2	11	8	GREEN
NAILSTONE TERMINAL PUMPING STATION	T/20/30309/O	3	2	23	9	GREEN
NARBOROUGH COVENTRY ROAD MELAS SPS	T/50/01625/O	0	0	0	0	GREEN
NARBOROUGH ROAD	DT/8044	0	0	1	0	GREEN
NARBORUGH - STEWART AVENUE CSO	DT/8038	30	44	45	40	AMBER
NEWBOLD VERNON 2 CSO	T/50/45425/O	8	8	0	5	GREEN
NEWTON HARCOURT PUMPING	T/51/40031/O	0	47	80	42	RED

Overflow Name	Permit Reference	2021	2022	2023	Mean	RAG
STATION						
NOCK VERGES PS - STORM & EMERG O/F	TBC	0	ND	ND	0	GREEN
NORTH KILWORTH - CRANMER LANE (SSO)	TBC	46	23	53	41	RED
ODSTONE SEWAGE PUMPING STATION	T/20/00916/O	40	7	2	16	AMBER
ORTON-ON-THE-HILL STW	T/21/35938/R	20	9	19	16	AMBER
OSBASTON HOLLOW PUMPING STATION	T/20/02941/O	0	ND	ND	0	GREEN
PECKLETON	T/50/01060/O	4	0	3	2	GREEN
PECKLETON LANE PUMPING STATION	T/56/03521/O	1	0	2	1	GREEN
PS AND CSO - COUNTESTHORPE	T/51/02170/O	11	9	10	10	AMBER
PS AND CSO - COUNTESTHORPE	T/51/02170/O	0	0	8	3	GREEN
PS AND CSO - COUNTESTHORPE	TSC38	2	0	1	1	GREEN
RAILWAY BRIDGE COMBINED SEWER OVERF	AW5NF1869	12	9	33	18	AMBER
RATBY PS & VILLAGE/STM/EMG/SWS	T/56/02657/O	4	1	0	2	GREEN
RATCLIFFE CULEY - MAIN ROAD CSO	T/20/21463/O	19	9	16	15	AMBER
ROSEWAY STREET CSO	T/20/03817/O	40	40	22	34	AMBER
SAPCOTE ROAD CSO	EPR/HB3991RX	1	1	1	1	GREEN
SAPCOTE ROAD CSO	EPR/HB3991VH	29	2	2	11	AMBER
SAPCOTE ROAD CSO	T/50/07734/O	2	23	16	14	AMBER
SHARNFORD - LEICESTER ROAD (SSO)	TBC	0	0	4	1	GREEN

Overflow Name	Permit Reference	2021	2022	2023	Mean	RAG
SHEEPY PUMPING STATION	T/20/00779/O	19	18	34	24	AMBER
SHENTON SEWAGE PUMPING STATION	T/20/02399/O	36	15	59	37	AMBER
SLAWSTON SEWAGE PUMPING STATION	AW5NF1775	0	0	8	3	GREEN
SOUTHFIELD ROAD STORM OVERFLOW	T/19/22033/O	40	35	35	37	AMBER
SPRINGFIELD CRESCENT SSO	AW5NF1872	0	18	72	30	AMBER
SSO COVENTRY RD	AW5NF1820	0	0	0	0	GREEN
ST GILES CHURCH SSO	AW5NF1839	0	0	1	0	GREEN
STANTON UNDER BARDON SPS	T/56/40256/O	77	40	90	69	RED
STAPLETON LANE SEWAGE PUMPING ST.	T/20/35907/O	12	15	24	17	AMBER
STATION ROAD	DT/8040	10	6	10	9	GREEN
STOKE GOLDING SEWAGE PUMPING STN	T/20/03180/O	28	12	28	23	AMBER
STOKE ROAD HINKLEY	TBC	0	ND	ND	0	GREEN
SUNNYSIDE CSO 1	T/20/02145/O	10	9	5	8	GREEN
THORNHILL SPS	T/50/07064/O	13	2	52	22	AMBER
THORNHILL SPS & FOXHUNTER CSO	T/50/07645/O	0	4	0	1	GREEN
TUGBY STW	AW5NF762	8	46	66	40	AMBER
TUR LANGTON SPS	AWNNF354	0	0	14	5	GREEN
VARIOUS PS'S & CSOS-STONEY STANTON	T/50/03632/O	18	27	24	23	AMBER

Overflow Name	Permit Reference	2021	2022	2023	Mean	RAG
VARIOUS PS'S & CSOS-STONEY STANTON	T/50/03632/O	13	9	15	12	AMBER
VARIOUS PS'S & CSOS-STONEY STANTON	T/50/03632/O	8	9	14	10	AMBER
VARIOUS PS'S & CSOS-STONEY STANTON	T/50/03632/O	45	33	58	45	RED
VICARAGE LANE PUMPING STATION	T/51/40070/O	0	ND	ND	0	GREEN
WANLIP SEWAGE TREATMENT WORKS	T/53/46354/R	28	23	46	32	AMBER
WELHAM	AW5NF2033	0	0	0	0	GREEN
WEST STREET PS - STORM OVERFLOW	T/56/07427/O	0	0	2	1	GREEN
WESTFIELD AVENUE CSO	T/51/40060/O	11	11	17	13	AMBER
WESTOVER ROAD CSO	T/52/00990/O	41	42	60	48	RED
WESTRAY DRIVE CSO	T/19/20313/O	3	0	2	2	GREEN
WESTSIDE SSO	AW5NF1873	1	2	0	1	GREEN
WHETSTONE - THE DICKEN (SSO)	2171V-3	8	77	11	32	AMBER
WIGSTON - BLABY RD (CSO)	TB3798VK	42	37	50	43	RED
WIGSTON - COUNTESTHORPE ROAD CSO	HB3993RH	25	25	27	26	AMBER
WIGSTON - COUNTESTHORPE ROAD CSO	T/83/02690/O	3	1	3	2	GREEN
WIGSTON - CROW MILLS PS (CSO)	T/51/12328/R	4	0	0	1	GREEN
WIGSTON FIELDS CSO	T/83/01666/O	3	0	2	2	GREEN
WIGSTON GAS LANE CSO	EPRQB3395EJ	31	34	47	37	AMBER

Overflow Name	Permit Reference	2021	2022	2023	Mean	RAG
WIGSTON PARVA STW	T/50/45544/R	8	0	0	3	GREEN
WOODYARD LANE CSO	T/51/21105/O	10	10	14	11	AMBER

Table 13.2 Complete WwTW storm tank overflow assessment results

Overflow Name	Permit Reference	2021	2022	2023	Mean	RAG
ARNESBY SEWAGE TREATMENT WORKS	T/51/45648/R	255	73	94	141	RED
BARLESTONE STW	T/20/35726/R	52	42	71	55	RED
BROUGHTON ASTLEY STW	T/50/45321/R	44	39	59	47	RED
COUNTESTHORPE STW	T/51/45760/R	106	64	107	92	RED
EARL SHILTON SEWAGE TREATMENT WORKS	T/50/45319/R	4	4	0	3	GREEN
EAST LANGTON STW	AW5NF5216	79	50	133	87	RED
FLECKNEY SEWAGE TREATMENT WORKS	T/51/45576/R	52	30	64	49	RED
FOXTON(LEICS) STW	AW5NF758	0	25	79	35	AMBER
GAULBY STW	T/51/45532/R	99	65	177	114	RED
GREAT EASTON(LEICS) STW	AW5NF768	143	81	99	108	RED
GREAT GLEN SEWAGE TREATMENT WORKS	T/51/45910/R	68	66	114	83	RED
HALLATON STW	AWNNF1287	103	113	62	93	RED

Overflow Name	Permit Reference	2021	2022	2023	Mean	RAG
HINCKLEY SEWAGE TREATMENT WORKS	T/19/36495/R	189	47	77	104	RED
HOUGHTON ON THE HILL STW	T/53/12089/R	71	53	102	75	RED
HUNGARTON STW	T/55/45462/R	39	55	55	50	RED
IBSTOCK SEWAGE TREATMENT WORKS	T/20/36246/R	40	56	77	58	RED
KEYHAM STW	T/53/45549/R	ND	3	0	2	GREEN
KIBWORTH STW	AW5NF803	0	24	101	42	RED
KIMCOTE SEWAGE TREATMENT WORKS	S/10/26413/R	135	113	205	151	RED
KIRKBY MALLORY STW	T/50/46001/R	16	27	79	41	RED
LUTTERWORTH SEWAGE TREATMENT WORKS	S/10/26704/R	64	77	85	75	RED
MARKET BOSWORTH STW	T/20/35543/R	80	50	74	68	RED
MARKET HARBOROUGH-RIVERSIDE ROAD	AW5NF739A	70	50	76	65	RED
NEWBOLD VERDON STW	T/50/45372/R	0	25	61	29	AMBER
OADBY STW	T/52/45772/R	14	12	0	9	GREEN
OWSTON STW	T/55/45843/R	ND	56	0	28	AMBER
RUGBY NEWBOLD STW	S/10/26528/R	3	1	10	5	GREEN
RUGBY NEWBOLD STW	S/10/26528/R	24	8	21	18	AMBER
SHAWELL SEWAGE TREAMENT WORKS	S/10/26120/R	91	84	8	61	RED

Overflow Name	Permit Reference	2021	2022	2023	Mean	RAG
SHENTON SEWAGE PUMPING STATION	T/20/02399/O	32	1	3	12	AMBER
STONEY STANTON STW	T/50/46146/R	56	48	83	62	RED
SWINFORD STW	S/10/26596/R	ND	80	0	40	AMBER
TILTON ON THE HILL STW	AW5NF5249	1	9	40	17	AMBER
TUGBY STW	AW5NF762	8	46		27	AMBER
WANLIP SEWAGE TREATMENT WORKS	T/53/46354/R	56	35	64	52	RED
WANLIP SEWAGE TREATMENT WORKS	T/53/46354/R	43	26	50	40	AMBER
WELFORD SEWAGE TREATMENT WORKS	S/10/26433/R	9	3	6	6	GREEN
WESTON BY WELLAND STW	AW5NF5224	7	ND	ND	7	GREEN
WHETSTONE WASTEWATER TREATMENT WRKS	T/50/45829/R	48	29	55	44	RED
WIGSTON CROW MILLS SPS	T/51/12328/O	4	0	13	6	GREEN

13.2 Appendix B: Study area protected sites

Protected sites have been screened in when they are downstream of a WwTW in the study area and overlap flood zone 2. The rivers have been examined as far as the coast.

13.2.1 Sites of special scientific interest

Table 13.3 SSSIs downstream of study area

SSSI_NAME	REFERENCE
Alvecote Pools	SK255044
Attenborough Gravel Pits	SK521342
Besthorpe Meadows	SK817642
Birches Barn Meadows	SK281020
Bosworth Mill Meadow	SP628822
Brandon Marsh	SP386754
Cotes Grassland	SK553208
Cowbit Wash	TF240191
Coombe Hill Canal	SO867268
Croft Pasture	SP509958
Crowle Borrow Pits	SE790106
Kilby - Foxton Canal	SP652959
Deeping Gravel Pits	TF178081
Eye Brook Reservoir	SP852955
Upham Meadow and Summer Leasow	SO915375
Barrow Gravel Pits	SK568166
Saddington Reservoir	SP663910
Ashby Canal	SK364073
River Mease	SK264113
Innsworth Meadow	SO850215
Laughton Common	SK837967
Wainlode Cliff	SO845257
Lea Marsh	SK817869
Holme Pit	SK536345
Leighfield Forest	SK773021
Besthorpe Warren	SK829654
Lockington Marshes	SK489299
Mother Drain, Misterton	SK776952
Narborough Bog	SP549978

SSSI_NAME	REFERENCE
Chaceley Meadow	SO857305
Eastoft Meadow	SE786142
Racecourse Meadow	SP185536
Severn Ham, Tewkesbury	SO885325
Old River Severn, Upper Lode	SO880330
Guy's Cliffe	SP293667
Garden Cliff	SO718127
Stanford Park	SP586792
Spalford Warren	SK832680
Welford Field	SP139528
Seaton Meadows	SP915979
Tuetoes Hills	SE844014
Tiddesley Wood	SO929452
Sheepy Fields	SK332025
Humber Estuary	TA232155
Rectory Farm Meadows	SO921382
Ashleworth Ham	SO832262
Loughborough Meadows	SK538216
Hatfield Chase Ditches	SE766103
Severn Estuary	ST529870
Upper Severn Estuary	SO716063

13.2.2 Special Areas of Conservation (SAC)

Table 13.4 SACs downstream of study area

SAC NAME	REFERENCE
Humber Estuary	UK0030170
River Mease	UK0030258
Severn Estuary	UK0013030
The Wash and North Norfolk Coast	UK0017075

13.2.3 Special Protection Area (SPA)

Table 13.5 SPAs downstream of study area

SPA NAME	REFERENCE
Humber Estuary	UK9006111
Severn Estuary	UK9015022
Greater Wash	UK9020329

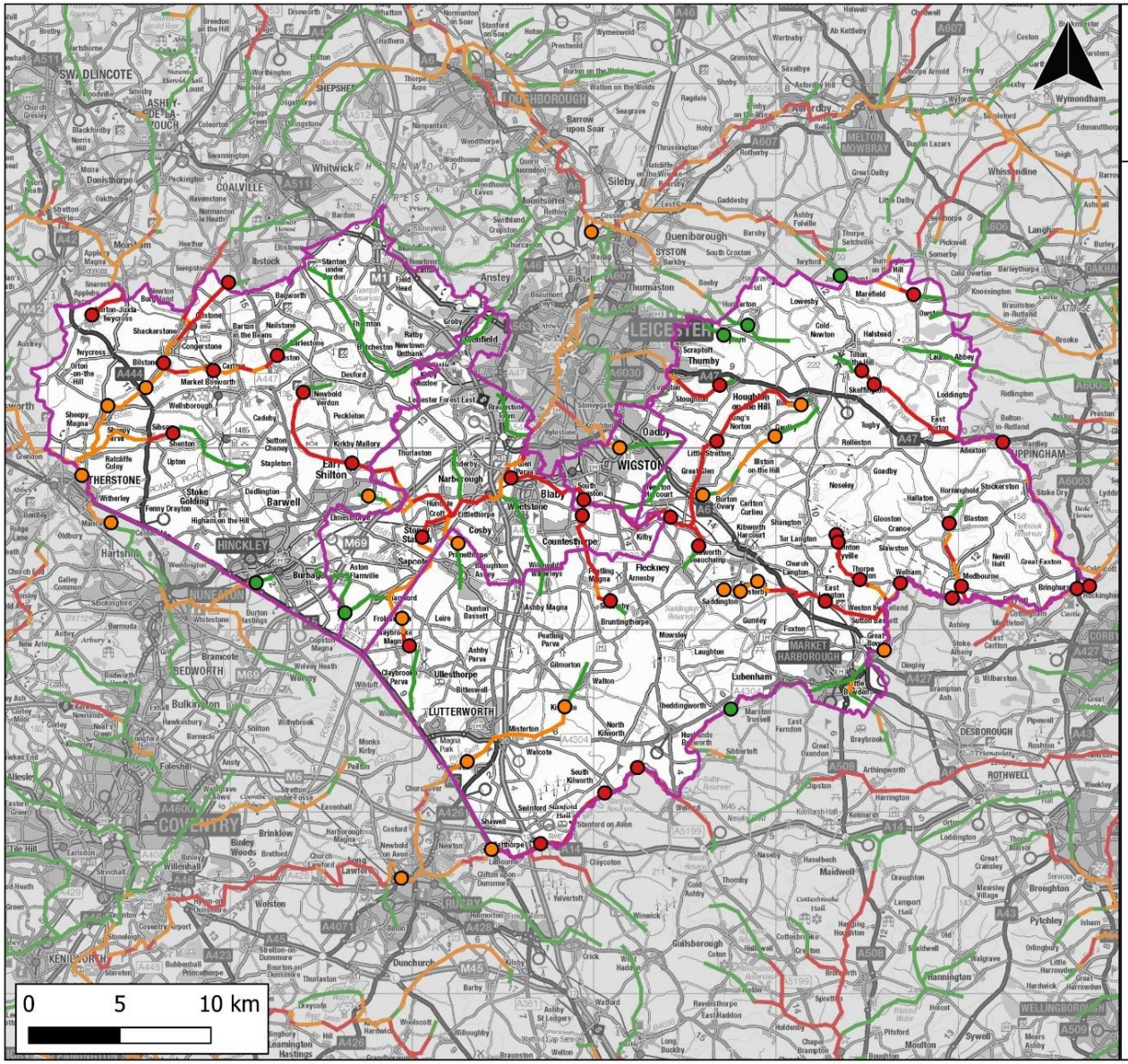
13.2.4 Ramsar sites

Table 13.6 Ramsar sites downstream of study area

Ramsar NAME	REFERENCE
Humber Estuary	UK11031
Severn Estuary	UK11081
The Wash	UK11072

13.3 Appendix C: Water quality modelling

13.3.1 Water Quality Mapping



Ammonia Deterioration

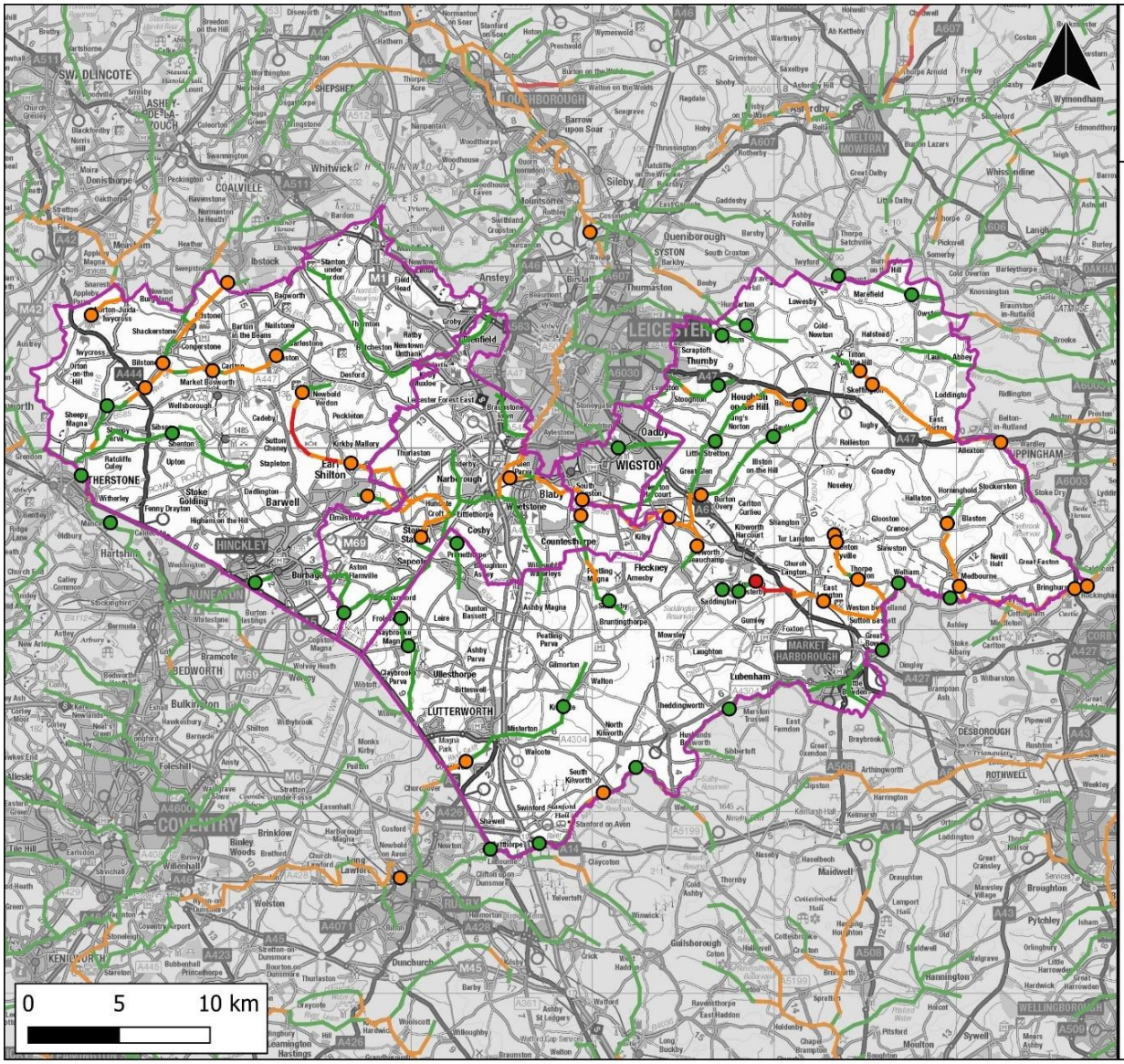
Study Area

Deterioration at WwTW Outfall
- No Deterioration
- Deterioration <10%
- Deterioration >10%

Deterioration in Watercourse
- No Deterioration
- Deterioration <10%
- Deterioration >10%

Contains Ordnance Survey data © Crown copyright and database right 2024. Contains public sector information licenced under the Open Government Licence v3.0

Source:
LKD-JBAU-XX-XX-MX-EN-0001-S0-P01 Ammonia_Deterioration
Date Created: 15.07.2024



BOD
Deterioration

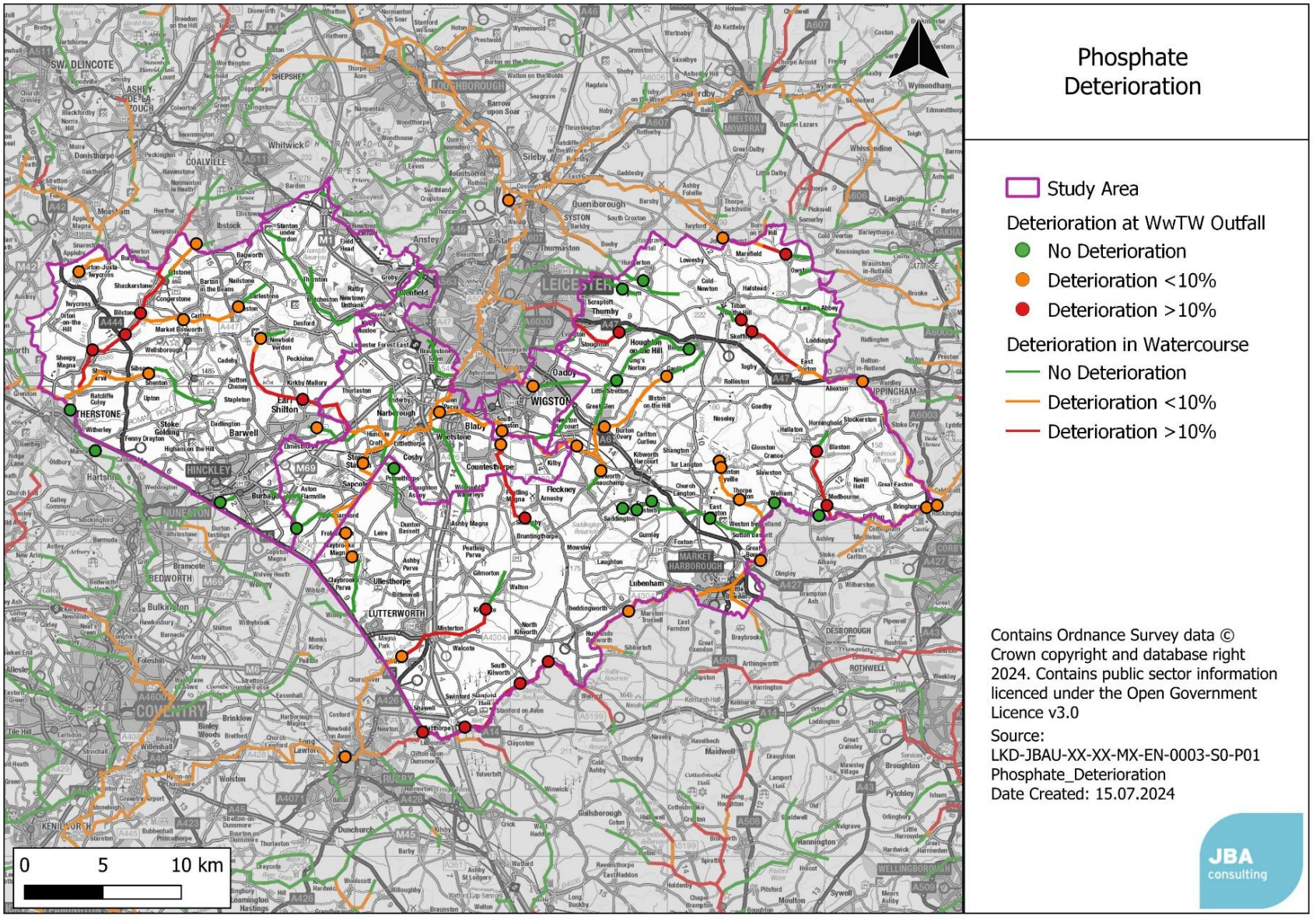
Study Area

Deterioration at WwTW Outfall
- No Deterioration
- Deterioration <10%
- Deterioration >10%

Deterioration in Watercourse
- No Deterioration
- Deterioration <10%
- Deterioration >10%

Contains Ordnance Survey data © Crown copyright and database right 2024. Contains public sector information licenced under the Open Government Licence v3.0

Source:
LKD-JBAU-XX-XX-MX-EN-0002-S0-P01
BOD_Deterioration
Date Created: 15.07.2024


Phosphate Deterioration
Study Area
Deterioration at WwTW Outfall
No Deterioration
Deterioration <10%
Deterioration >10%
Deterioration in Watercourse
No Deterioration
Deterioration <10%
Deterioration >10%
Contains Ordnance Survey data © Crown copyright and database right 2024. Contains public sector information licenced under the Open Government Licence v3.0
Source:
LKD-JBAU-XX-XX-MX-EN-0003-S0-P01 Phosphate_Deterioration
Date Created: 15.07.2024
0
5
10 km

13.4 WwTW Deterioration

13.4.1 Ammonia

Table 13.7 WQ sensitivity results for ammonia

WwTW (SIMCAT name)	Baseline concentration (mg/l)	Future concentration (mg/l)	Percentage deterioration (%)	Baseline Class	Future Class
ARNESBY & SHEARSBY S	0.2640	0.3033	15%	HIGH	GOOD
ATHERSTONE STW	0.3845	0.4000	4%	GOOD	GOOD
BARLESTONE STW	0.3845	0.4309	12%	GOOD	GOOD
BELTON STW	0.0751	0.0829	10%	HIGH	HIGH
BILLESDON STW	4.5764	4.9323	8%	BAD	BAD
BILSTONE STW	0.0730	0.0801	10%	HIGH	HIGH
BROUGHTON ASTLEY STW	0.6686	0.6848	2%	MODERATE	MODERATE
CLAYBROOKE MAGNA STW	0.1251	0.1388	11%	HIGH	HIGH
COUNTESTHORPE STW	1.6694	1.8643	12%	POOR	POOR
Cranoe	0.1452	0.1608	11%	HIGH	HIGH
EARL SHILTON STW	2.7763	2.9168	5%	BAD	BAD
EAST LANGTON STW	0.2817	0.3283	17%	HIGH	GOOD
FLECKNEY STW	2.7750	3.0493	10%	BAD	BAD
FOXTON(LEICS) STW	0.4257	0.4890	15%	GOOD	GOOD

WwTW (SIMCAT name)	Baseline concentration (mg/l)	Future concentration (mg/l)	Percentage deterioration (%)	Baseline Class	Future Class
FROLESWORTH	0.1189	0.1244	5%	HIGH	HIGH
GAULBY STW	0.2217	0.2383	7%	HIGH	HIGH
Glooston	0.4396	0.5014	14%	GOOD	GOOD
GOADBY STW	0.5625	0.6635	18%	GOOD	MODERATE
GRANGE FARM	0.0943	0.1061	13%	HIGH	HIGH
GREAT EASTON(LEICS)	0.1103	0.1224	11%	HIGH	HIGH
GREAT GLEN STW	0.3747	0.4063	8%	GOOD	GOOD
Gumley	0.0605	0.0638	5%	HIGH	HIGH
HALLATON STW	0.3439	0.3968	15%	GOOD	GOOD
HINCKLEY (STW)	0.9166	0.9184	0%	MODERATE	MODERATE
Horninghold	0.3466	0.4000	15%	GOOD	GOOD
HOUGHTONONTHEHILL	0.2019	0.2269	12%	HIGH	HIGH
HUNGARTON (W	0.3575	0.3575	0%	GOOD	GOOD
IBSTOCK STW	0.6120	0.6737	10%	MODERATE	MODERATE
KEYHAM (WRW)	0.2373	0.2373	0%	HIGH	HIGH
KIBWORTH STW	3.8914	4.2502	9%	BAD	BAD
KIMCOTE & WALTON STW	0.2613	0.2801	7%	HIGH	HIGH
KIRKBY MALLORY STW	0.0607	0.0695	14%	HIGH	HIGH
LITTLE STRET	0.2145	0.2464	15%	HIGH	HIGH
LOWESBY (STW	0.0963	0.0963	0%	HIGH	HIGH

WwTW (SIMCAT name)	Baseline concentration (mg/l)	Future concentration (mg/l)	Percentage deterioration (%)	Baseline Class	Future Class
LUTTERWORTH STW	0.3771	0.4014	6%	GOOD	GOOD
MARKET BOSWORTH STW	0.2919	0.3257	12%	HIGH	GOOD
MARKET HARBOROUGH ST	0.5722	0.6169	8%	GOOD	MODERATE
MEDBOURNE STW	0.2219	0.2538	14%	HIGH	HIGH
MOWSLEY STW	0.0962	0.1017	6%	HIGH	HIGH
NEWBOLD VERDON STW	1.7086	1.8755	10%	POOR	POOR
NORTONJUXTA	6.5405	7.4806	14%	BAD	BAD
NUNEATON (HARTSHILL)	0.5734	0.5999	5%	GOOD	GOOD
OADBY STW	0.7899	0.8366	6%	MODERATE	MODERATE
ORTON ON THE HILL STW	0.1520	0.1571	3%	HIGH	HIGH
OWSTON STW	0.1198	0.1322	10%	HIGH	HIGH
Rockingham	0.1043	0.1180	13%	HIGH	HIGH
RUGBY NEWBOLD STW	0.5061	0.5500	9%	GOOD	GOOD
Saddingtom	0.0675	0.0678	1%	HIGH	HIGH
Shangton	0.1854	0.1856	0%	HIGH	HIGH
SHAWELL (WRW	0.0772	0.0840	9%	HIGH	HIGH
SIBSON & SHENTON	0.1081	0.1192	10%	HIGH	HIGH

WwTW (SIMCAT name)	Baseline concentration (mg/l)	Future concentration (mg/l)	Percentage deterioration (%)	Baseline Class	Future Class
STW					
Skeffington	0.4529	0.5251	16%	GOOD	GOOD
SOUTH KILWORTH STW	0.2940	0.3437	17%	HIGH	GOOD
STONEY STANTON STW	0.6313	0.7283	15%	MODERATE	MODERATE
SWINFORD STW	0.1294	0.1475	14%	HIGH	HIGH
Theddingworth	0.1269	0.1272	0%	HIGH	HIGH
THORPE LANGTON STW	0.2655	0.3023	14%	HIGH	GOOD
TILTON ON THE HILL S	0.7952	0.9056	14%	MODERATE	MODERATE
TUGBY STW FE	0.4466	0.5253	18%	GOOD	GOOD
TWYCROSS STW	0.1052	0.1119	6%	HIGH	HIGH
WANLIP STW	1.5030	1.6216	8%	POOR	POOR
Welham	0.1980	0.2193	11%	HIGH	HIGH
WHETSTONE STW	0.3376	0.3718	10%	GOOD	GOOD
WIGSTON PARV	0.0605	0.0605	0%	HIGH	HIGH
WIGSTON STW	0.4373	0.4819	10%	GOOD	GOOD
WISTOW (WRW)	0.3054	0.3525	15%	GOOD	GOOD

13.4.2 BOD

Table 13.8 WQ sensitivity results for BOD

WwTW (SIMCAT name)	Baseline concentration (mg/l)	Future concentration (mg/l)	Percentage deterioration (%)	Baseline Class	Future Class
ARNESBY & SHEARSBY S	3.6293	3.6090	-1%	HIGH	HIGH
ATHERSTONE STW	2.6080	2.5818	-1%	HIGH	HIGH
BARLESTONE STW	4.3500	4.4089	1%	GOOD	GOOD
BELTON STW	2.0841	2.1093	1%	HIGH	HIGH
BILLESDON STW	4.0874	4.2687	4%	GOOD	GOOD
BILSTONE STW	2.6691	2.7052	1%	HIGH	HIGH
BROUGHTON ASTLEY STW	4.6362	4.6573	0%	GOOD	GOOD
CLAYBROOKE MAGNA STW	1.6110	1.6072	0%	HIGH	HIGH
COUNTESTHORPE STW	4.3972	4.7755	9%	GOOD	GOOD
Cranoe	2.7635	2.7565	0%	HIGH	HIGH
EARL SHILTON STW	5.3935	5.4835	2%	MODERATE	MODERATE
EAST LANGTON STW	3.5799	3.6855	3%	HIGH	HIGH
FLECKNEY STW	4.6797	5.0188	7%	GOOD	MODERATE
FOXTON(LEICS) STW	3.6296	3.7027	2%	HIGH	HIGH
FROLESWORTH	1.6182	1.6143	0%	HIGH	HIGH
GAULBY STW	2.7518	2.7275	-1%	HIGH	HIGH
Glooston	1.7605	1.8066	3%	HIGH	HIGH

WwTW (SIMCAT name)	Baseline concentration (mg/l)	Future concentration (mg/l)	Percentage deterioration (%)	Baseline Class	Future Class
GOADBY STW	1.8567	1.9071	3%	HIGH	HIGH
GRANGE FARM	2.5434	2.5459	0%	HIGH	HIGH
GREAT EASTON(LEICS)	2.4533	2.4861	1%	HIGH	HIGH
GREAT GLEN STW	3.4833	3.6568	5%	HIGH	HIGH
Gumley	2.3165	2.3174	0%	HIGH	HIGH
HALLATON STW	1.5197	1.5952	5%	HIGH	HIGH
HINCKLEY (STW)	5.3511	5.1853	-3%	MODERATE	MODERATE
Horninghold	1.5221	1.5969	5%	HIGH	HIGH
HOUGHTONONTHEHILL	2.4275	2.3621	-3%	HIGH	HIGH
HUNGARTON (W	3.8787	3.8787	0%	HIGH	HIGH
IBSTOCK STW	4.0679	4.3881	8%	GOOD	GOOD
KEYHAM (WRW)	2.3795	2.3795	0%	HIGH	HIGH
KIBWORTH STW	8.8281	9.7006	10%	POOR	BAD
KIMCOTE & WALTON STW	2.2526	2.2497	0%	HIGH	HIGH
KIRKBY MALLORY STW	1.3153	1.4051	7%	HIGH	HIGH
LITTLE STRET	2.5585	2.5556	0%	HIGH	HIGH
LOWESBY (STW	2.0673	2.0656	0%	HIGH	HIGH
LUTTERWORTH STW	2.2730	2.3809	5%	HIGH	HIGH
MARKET BOSWORTH STW	3.4337	3.4595	1%	HIGH	HIGH
MARKET HARBOROUGH	3.4525	3.4420	0%	HIGH	HIGH

WwTW (SIMCAT name)	Baseline concentration (mg/l)	Future concentration (mg/l)	Percentage deterioration (%)	Baseline Class	Future Class
ST					
MEDBOURNE STW	1.5369	1.6565	8%	HIGH	HIGH
MOWSLEY STW	2.6382	2.6385	0%	HIGH	HIGH
NEWBOLD VERDON STW	4.0960	4.3998	7%	GOOD	GOOD
NORTONJUXTA	4.9130	5.0080	2%	GOOD	MODERATE
NUNEATON (HARTSHILL)	2.3562	2.3474	0%	HIGH	HIGH
OADBY STW	6.6365	6.6543	0%	POOR	POOR
ORTON ON THE HILL STW	2.5896	2.5881	0%	HIGH	HIGH
OWSTON STW	2.7636	2.7633	0%	HIGH	HIGH
Rockingham	2.4373	2.4695	1%	HIGH	HIGH
RUGBY NEWBOLD STW	3.0825	3.1176	1%	HIGH	HIGH
Saddingtom	2.6333	2.6341	0%	HIGH	HIGH
Shangton	1.6540	1.6542	0%	HIGH	HIGH
SHAWELL (WRW	2.1382	2.1387	0%	HIGH	HIGH
SIBSON & SHENTON STW	3.8079	3.8039	0%	HIGH	HIGH
Skeffington	3.0357	3.0818	2%	HIGH	HIGH
SOUTH KILWORTH STW	2.4748	2.5046	1%	HIGH	HIGH
STONEY STANTON STW	2.7104	2.8667	6%	HIGH	HIGH
SWINFORD STW	2.2427	2.2419	0%	HIGH	HIGH
Theddingworth	5.1867	5.1773	0%	MODERATE	MODERATE

WwTW (SIMCAT name)	Baseline concentration (mg/l)	Future concentration (mg/l)	Percentage deterioration (%)	Baseline Class	Future Class
THORPE LANGTON STW	1.5747	1.6086	2%	HIGH	HIGH
TILTON ON THE HILL S	3.3988	3.5453	4%	HIGH	HIGH
TUGBY STW FE	1.7312	1.7418	1%	HIGH	HIGH
TWYCROSS STW	2.6588	2.6771	1%	HIGH	HIGH
WANLIP STW	4.1669	4.2871	3%	GOOD	GOOD
Welham	2.7840	2.7861	0%	HIGH	HIGH
WHETSTONE STW	3.3643	3.4312	2%	HIGH	HIGH
WIGSTON PARV	3.8731	3.8731	0%	HIGH	HIGH
WIGSTON STW	2.6104	2.7650	6%	HIGH	HIGH
WISTOW (WRW)	2.5694	2.6460	3%	HIGH	HIGH

13.4.3 Phosphate

Table 13.9 WQ sensitivity results for phosphate

WwTW (SIMCAT name)	Baseline concentration (mg/l)	Future concentration (mg/l)	Percentage deterioration (%)	Baseline Class	Future Class
ARNESBY & SHEARSBY S	0.8495	0.9591	13%	POOR	POOR
ATHERSTONE STW	0.2401	0.2361	-2%	POOR	POOR
BARLESTONE STW	0.1508	0.1540	2%	MODERATE	MODERATE
BELTON STW	0.1653	0.1782	8%	MODERATE	MODERATE
BILLESDON STW	0.6886	0.6538	-5%	POOR	POOR
BILSTONE STW	0.2023	0.2240	11%	POOR	POOR
BROUGHTON ASTLEY STW	0.8088	0.7986	-1%	POOR	POOR
CLAYBROOKE MAGNA STW	0.9308	0.9915	7%	POOR	POOR
COUNTESTHORPE STW	0.3945	0.4315	9%	POOR	POOR
Cranoe	0.5095	0.5072	0%	MODERATE	MODERATE
EARL SHILTON STW	0.7662	0.7730	1%	POOR	POOR
EAST LANGTON STW	1.5396	1.4553	-5%	POOR	POOR
FLECKNEY STW	3.6665	3.8019	4%	BAD	BAD
FOXTON(LEICS) STW	1.6855	1.6341	-3%	POOR	POOR
FROLESWORTH	0.8628	0.9110	6%	POOR	POOR
GAULBY STW	1.2382	1.2983	5%	BAD	BAD
Glooston	0.4640	0.4759	3%	MODERATE	MODERATE

WwTW (SIMCAT name)	Baseline concentration (mg/l)	Future concentration (mg/l)	Percentage deterioration (%)	Baseline Class	Future Class
GOADBY STW	0.5330	0.5451	2%	MODERATE	MODERATE
GRANGE FARM	0.2344	0.2723	16%	POOR	POOR
GREAT EASTON(LEICS)	0.3979	0.4110	3%	MODERATE	MODERATE
GREAT GLEN STW	1.8441	2.0059	9%	BAD	BAD
Gumley	1.3678	1.3688	0%	POOR	POOR
HALLATON STW	0.4657	0.5401	16%	MODERATE	MODERATE
HINCKLEY (STW)	0.1083	0.1072	-1%	MODERATE	MODERATE
Horninghold	0.4662	0.5408	16%	MODERATE	MODERATE
HOUGHTONONTHEHILL	2.0551	2.3114	12%	BAD	BAD
HUNGARTON (W	0.2142	0.2142	0%	POOR	POOR
IBSTOCK STW	0.2357	0.2394	2%	POOR	POOR
KEYHAM (WRW)	0.2950	0.2950	0%	POOR	POOR
KIBWORTH STW	0.4896	0.4585	-6%	MODERATE	MODERATE
KIMCOTE & WALTON STW	0.7352	0.8286	13%	POOR	POOR
KIRKBY MALLORY STW	0.8196	0.9087	11%	POOR	POOR
LITTLE STRET	1.3075	1.2780	-2%	BAD	BAD
LOWESBY (STW	0.2306	0.2382	3%	POOR	POOR
LUTTERWORTH STW	0.3657	0.3960	8%	POOR	POOR
MARKET BOSWORTH STW	0.2226	0.2380	7%	POOR	POOR

WwTW (SIMCAT name)	Baseline concentration (mg/l)	Future concentration (mg/l)	Percentage deterioration (%)	Baseline Class	Future Class
MARKET HARBOROUGH ST	0.2245	0.2265	1%	MODERATE	MODERATE
MEDBOURNE STW	0.3204	0.3744	17%	MODERATE	MODERATE
MOWSLEY STW	1.9635	1.9648	0%	POOR	POOR
NEWBOLD VERDON STW	2.3394	2.5585	9%	BAD	BAD
NORTONJUXTA	0.3674	0.3761	2%	POOR	POOR
NUNEATON (HARTSHILL)	0.2222	0.2178	-2%	POOR	POOR
OADBY STW	3.2338	3.3346	3%	BAD	BAD
ORTON ON THE HILL STW	0.1888	0.2078	10%	POOR	POOR
OWSTON STW	0.1645	0.1834	11%	MODERATE	POOR
Rockingham	0.3897	0.4029	3%	MODERATE	MODERATE
RUGBY NEWBOLD STW	0.3181	0.3273	3%	POOR	POOR
Saddingtom	1.9594	1.9595	0%	POOR	POOR
Shangton	0.4717	0.4718	0%	MODERATE	MODERATE
SHAWELL (WRW	0.1928	0.2183	13%	POOR	POOR
SIBSON & SHENTON STW	0.1525	0.1563	2%	MODERATE	MODERATE
Skeffington	0.6028	0.6752	12%	MODERATE	MODERATE
SOUTH KILWORTH	0.2774	0.3223	16%	POOR	POOR

WwTW (SIMCAT name)	Baseline concentration (mg/l)	Future concentration (mg/l)	Percentage deterioration (%)	Baseline Class	Future Class
STW					
STONEY STANTON STW	0.3887	0.4177	7%	POOR	POOR
SWINFORD STW	0.1910	0.2218	16%	POOR	POOR
Theddingworth	0.3769	0.3832	2%	MODERATE	MODERATE
THORPE LANGTON STW	0.3127	0.3257	4%	MODERATE	MODERATE
TILTON ON THE HILL S	0.8763	0.9848	12%	MODERATE	MODERATE
TUGBY STW FE	0.5181	0.5273	2%	MODERATE	MODERATE
TWYCROSS STW	0.2003	0.2205	10%	POOR	POOR
WANLIP STW	0.4154	0.4247	2%	POOR	POOR
Welham	0.6576	0.6454	-2%	MODERATE	MODERATE
WHETSTONE STW	0.6962	0.7022	1%	POOR	POOR
WIGSTON PARV	0.1714	0.1714	0%	MODERATE	MODERATE
WIGSTON STW	1.0090	1.0152	1%	POOR	POOR
WISTOW (WRW)	2.2105	2.2603	2%	BAD	BAD

13.5 Appendix D WINEP Measures

The tables below contain many acronyms that are part of the original Environment Agency database. These have been retained for accuracy, but definitions are included below.

Table 13.10 WINEP actions in the study area

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
Countesthorpe Brook from Source to Sence	EMD00250 EMD00413 EMD00575	ARNESBY (STW)	U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record FFT at WwTW where the existing DWF MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with U_IMP5 - The WwTW FFT must be increased to 3PG + IMAX + 3E .	31/03/2025 31/03/2022 31/03/2023
Anker from Wem Brook to River Sence	WMD00591 WMD00849 WMD01112	ATHERSTONE (STW)	U_INV2 – Investigation to confirm if any existing front end flow monitor or the back end MCERTS flow monitor can be used to measure PFF to full treatment at a WwTW. Existing front end monitors must be considered first and where they can be MCERTS certified to measure PFF they should be used to provide data	31/03/2022 31/03/2021 31/03/2025

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			within AMP7. Where there is no front end monitor or it cannot be MCERTS certified investigate whether the back end flow monitor can be MCERTS certified to measure PFF. If it can, then use it to provide data within AMP7. If neither can be MCERTS certified then a new inlet MCERTS flow monitor will be required under a PR24 driver. U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with U_IMP5 – The WwTW FFT must be increased to 3PG + IMAX + 3E .	
Carlton Brook from Source to River Sence	WMD00595 WMD00853 WMD01274	BARLESTONE (STW)	U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record FFT at WwTW where the existing DWF MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where	31/03/2021 31/03/2022 22/12/2024

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			existing monitors cannot be used to be confident that the permitted FFT setting is being complied with WFD_IMPg – Measures to reduce ammonia, phosphorus, BOD or nitrogen at STWs in order to meet WFD standards in rivers, transitional or coastal waters. Measure to meet a Good standard for the element. There may also be situations where a WFD biological element fails its water body objective due ammonia and/or dissolved oxygen (i.e. reason for not achieving good status (RNAG) is confirmed as ammonia and/or dissolved oxygen), but the ammonia and/or dissolved oxygen element at the designated monitoring location achieved good status. This may be due to circumstances such as different monitoring sites used for chemistry and biology. There must be a confirmed link between the water company asset and the observed effect for measures to improve biology. A phosphorous permit of 0.25mg/l is proposed.	
Sence from Source to Burton Brook	EMD00261 EMD00424	BILLESDON (STW)	U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record FFT at WwTW where the existing DWF	31/03/2025 31/03/2022

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with	
Soar from Soar Brook to Thurlaston Brook	EMD00269 EMD00432	BROUGHTON ASTLEY (STW)	U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record FFT at WwTW where the existing DWF MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with	31/03/2021 31/03/2022
Countesthorpe Brook from Source to Sence	EMD00282 EMD00445 EMD00794	COUNTESTHORPE (STW)	U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record	31/03/2021 31/03/2022 22/12/2024

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			FFT at WwTW where the existing DWF MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with WFD_IMPm – Measures to reduce ammonia, phosphorus, BOD or nitrogen at STWs in order to meet WFD standards in rivers, transitional or coastal waters. Measures to meet a Moderate standard. A phosphorous permit of 0.8mg/l is proposed.	
Thurlaston Brook Catchment (trib of Soar)	EMD00290 EMD00453 EMD00951	EARL SHILTON (STW)	U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record FFT at WwTW where the existing DWF MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates U_MON3 -	31/03/2021 31/03/2022 31/03/2025

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with WFD_ND – Scheme to meet requirement s to prevent deterioration in BOD. A BOD permit of 12mg/l is proposed.	
Langton Brook	EAN01149 EAN01150	EAST LANGTON STW	U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with U_INV2 – Investigation to confirm if any existing front end flow monitor or the back end MCERTS flow monitor can be used to measure PFF to full treatment at a WwTW. Existing front end monitors must be considered first and where they can be MCERTS certified to measure PFF they should be used to provide data within AMP7. Where there is no front end monitor or it cannot be MCERTS certified investigate whether the back end flow monitor can be MCERTS certified to measure PFF. If it can, then use it to provide data within AMP7. If	31/03/2021 31/03/2022

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			neither can be MCERTS certified then a new inlet MCERTS flow monitor will be required under a PR24 driver.	
Sence from Burton Brook to Countesthorpe Brook	EMD00304 EMD00467 EMD00806 EMD00807	FLECKNEY (STW)	U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record FFT at WwTW where the existing DWF MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with WFD_ND – Scheme to meet requirement s to prevent deterioration in ammonia. A ammonia permit of 6.5mg/l is proposed. WFD_IMPg – Measures to reduce ammonia, phosphorus, BOD or nitrogen at STWs in order to meet WFD standards in rivers, transitional or coastal waters. Measure to meet a Good standard for the element. There may also be situations where a WFD biological	31/03/2021 31/03/2022 31/03/2025 22/12/2024

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			element fails its water body objective due ammonia and/or dissolved oxygen (i.e. reason for not achieving good status (RNAG) is confirmed as ammonia and/or dissolved oxygen), but the ammonia and/or dissolved oxygen element at the designated monitoring location achieved good status. This may be due to circumstances such as different monitoring sites used for chemistry and biology. There must be a confirmed link between the water company asset and the observed effect for measures to improve biology. A BOD permit of 10mg/l is proposed	
Langton Brook	EAN01231 EAN01232	FOXTON STW (LEICS)	U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record FFT at WwTW where the existing DWF MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates	31/03/2024 31/03/2024

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
Burton Brook from Source to Sence	EMD00308 EMD00471	GAULBY (STW)	U_INV2 – Investigation to confirm if any existing front end flow monitor or the back end MCERTS flow monitor can be used to measure PFF to full treatment at a WwTW. Existing front end monitors must be considered first and where they can be MCERTS certified to measure PFF they should be used to provide data within AMP7. Where there is no front end monitor or it cannot be MCERTS certified investigate whether the back end flow monitor can be MCERTS certified to measure PFF. If it can, then use it to provide data within AMP7. If neither can be MCERTS certified then a new inlet MCERTS flow monitor will be required under a PR24 driver. U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with	31/03/2022 31/03/2021
Welland - conf Langton Bk to conf Gwash	EAN01310 EAN01311 EAN01313	GREAT EASTON STW (LEICS)	U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with	31/03/2024 31/03/2024 31/03/2024

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record FFT at WwTW where the existing DWF MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates U_IMP6 – The WwTW storm tank capacity must be increased to 68 litres/head or to 2 hours at max flow through the tanks.	
Burton Brook from Source to Sence	EMD00311 EMD00474 EMD00952	GREAT GLEN (STW)	U_INV2 – Investigation to confirm if any existing front end flow monitor or the back end MCERTS flow monitor can be used to measure PFF to full treatment at a WwTW. Existing front end monitors must be considered first and where they can be MCERTS certified to measure PFF they should be used to provide data within AMP7. Where there is no front end monitor or it cannot be MCERTS certified investigate whether the back end flow monitor can be MCERTS certified to measure PFF. If it can, then use it to provide data within AMP7. If neither can be MCERTS certified then a new inlet MCERTS flow monitor will be	31/03/2022 31/03/2021 31/03/2025

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			required under a PR24 driver. U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with WFD_ND – Scheme to meet requirement s to prevent deterioration in BOD. A BOD permit of 20mg/l is proposed	
Medbourne Brook	EAN01372 EAN01373	HALLATON STW	U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with U_INV2 - Investigation to confirm if any existing front end flow monitor or the back end MCERTS flow monitor can be used to measure PFF to full treatment at a WwTW. Existing front end monitors must be considered first and where they can be MCERTS certified to measure PFF they should be used to provide data within AMP7. Where there is no front end monitor or it cannot be MCERTS certified investigate whether the back end flow monitor can be MCERTS certified to measure PFF. If it can, then	31/03/2021 31/03/2022

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			use it to provide data within AMP7. If neither can be MCERTS certified then a new inlet MCERTS flow monitor will be required under a PR24 driver.	
Sketchley Brook from Source to River Anker	WMD00694 WMD00952 WMD01329 WMD01330 WMD01331 WMD01332	HINCKLEY (STW)	U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record FFT at WwTW where the existing DWF MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with WFD_IMPg – Measures to reduce ammonia, phosphorus, BOD or nitrogen at STWs in order to meet WFD standards in rivers, transitional or coastal waters. Measure to meet a Good standard for the element. There may also be situations where a WFD biological element fails its water body objective due ammonia and/or dissolved oxygen (i.e. reason for not achieving good status	31/03/2021 31/03/2022 22/12/2024 22/12/2024 31/03/2025 22/12/2024

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			(RNAG) is confirmed as ammonia and/or dissolved oxygen), but the ammonia and/or dissolved oxygen element at the designated monitoring location achieved good status. This may be due to circumstances such as different monitoring sites used for chemistry and biology. There must be a confirmed link between the water company asset and the observed effect for measures to improve biology. A phosphorous permit of 0.1mg/l is proposed. WFD_IMPg – As above, a ammonia permit of 1mg/l is proposed WFD_ND – Scheme to meet requirement s to prevent deterioration in ammonia. A ammonia permit of 2.4mg/l is proposed WFD_IMPg – As above, a BOD permit of 7.5mg/l is proposed	
Willow Brook Catchment (trib of Soar)	EMD00224 EMD00322 EMD00485	HOUGHTON ON THE HILL (STW)	U_IMP6 – The WwTW storm tank capacity must be increased to 68 litres/head or to 2 hours at max flow through the tanks. U_INV2 - Investigation to confirm if any existing front end flow monitor or the back end	31/03/2024 31/03/2022 31/03/2021

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			MCERTS flow monitor can be used to measure PFF to full treatment at a WwTW. Existing front end monitors must be considered first and where they can be MCERTS certified to measure PFF they should be used to provide data within AMP7. Where there is no front end monitor or it cannot be MCERTS certified investigate whether the back end flow monitor can be MCERTS certified to measure PFF. If it can, then use it to provide data within AMP7. If neither can be MCERTS certified then a new inlet MCERTS flow monitor will be required under a PR24 driver. U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with	
Ibstock Brook from Source to River Sence	WMD00703 WMD00961 WMD01345 WMD01539	IBSTOCK (STW)	U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record FFT at WwTW where the existing DWF MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates	31/03/2021 31/03/2022 22/12/2024 31/03/2025

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with WFD_IMPm – Measures to reduce ammonia, phosphorus, BOD or nitrogen at STWs in order to meet WFD standards in rivers, transitional or coastal waters. Measures to meet a Moderate standard. A phosphorous permit of 0.3 is proposed. WFD_ND – Scheme to meet requirement s to prevent deterioration in ammonia. A ammonia permit of 6.5mg/l is proposed.	
Langton Brook	EAN01502 EAN01503 EAN01505 LNA00215 LNA00381	KIBWORTH STW	U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record FFT at WwTW where the existing DWF MCERTS flow monitoring, or other	31/03/2024 31/03/2024 31/03/2024 22/12/2024 31/03/2025

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates U_IMP6 – The WwTW storm tank capacity must be increased to 68 litres/head or to 2 hours at max flow through the tanks. WFD_IMPm - Measures to reduce ammonia, phosphorus, BOD or nitrogen at STWs in order to meet WFD standards in rivers, transitional or coastal waters. Measures to meet a Moderate standard. A phosphorous permit of 0.25mg/l is proposed. WFD_ND – Scheme to meet requirement s to prevent deterioration in phosphorous. A phosphorous permit of 4.8mg/l is proposed	
Swift source to conf Avon	WMD00710 WMD00968	KIMCOTE (STW)	U_INV2 – Investigation to confirm if any existing front end flow monitor or the back end MCERTS flow monitor can be used to measure PFF to full treatment at a WwTW. Existing front end monitors must be considered first and where they can be MCERTS certified to measure PFF they should be used to provide data	31/03/2022 31/03/2021

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			within AMP7. Where there is no front end monitor or it cannot be MCERTS certified investigate whether the back end flow monitor can be MCERTS certified to measure PFF. If it can, then use it to provide data within AMP7. If neither can be MCERTS certified then a new inlet MCERTS flow monitor will be required under a PR24 driver. U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with	
Thurlaston Brook Catchment (trib of Soar)	EMD00333 EMD00496	KIRKBY MALLORY (STW)	U_INV2 - Investigation to confirm if any existing front end flow monitor or the back end MCERTS flow monitor can be used to measure PFF to full treatment at a WwTW. Existing front end monitors must be considered first and where they can be MCERTS certified to measure PFF they should be used to provide data within AMP7. Where there is no front end monitor or it cannot be MCERTS certified investigate whether the back end flow monitor can be MCERTS certified to measure PFF. If it can, then use it to provide data within AMP7. If	31/03/2022 31/03/2021

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			neither can be MCERTS certified then a new inlet MCERTS flow monitor will be required under a PR24 driver. U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with	
Swift source to conf Avon	WMD00727 WMD00985	LUTTERWORTH (STW)	U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record FFT at WwTW where the existing DWF MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with	31/03/2025 31/03/2022
Welland - conf Jordan to conf Langton Bk	EAN01632 EAN01633 EAN01634 LNA00219 LNA00382	MARKET HARBOROUGH STW	U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting	31/03/2022 31/03/2021 31/03/2025 22/12/2024 31/03/2025

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			is being complied with U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record FFT at WwTW where the existing DWF MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates U_IMP6 – The WwTW storm tank capacity must be increased to 68 litres/head or to 2 hours at max flow through the tanks. WFD_IMPm – Measures to reduce ammonia, phosphorus, BOD or nitrogen at STWs in order to meet WFD standards in rivers, transitional or coastal waters. Measures to meet a Moderate standard. A phosphorous permit of 0.25mg/l is proposed. WFD_ND – Scheme to meet requirement s to prevent deterioration in phosphorous. A phosphorous permit of 0.8mg/l is proposed	
Stoke Golding Brook from Source to R Sence	WMD00732 WMD00990	MARKET BOSWORTH (STW)	U_MON4 - Install MCERTS flow monitoring as close	31/03/2021 31/03/2022

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
	WMD01369		to the overflow as practicable to record FFT at WwTW where the existing DWF MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with WFD_IMPg – Measures to reduce ammonia, phosphorus, BOD or nitrogen at STWs in order to meet WFD standards in rivers, transitional or coastal waters. Measure to meet a Good standard for the element. There may also be situations where a WFD biological element fails its water body objective due ammonia and/or dissolved oxygen (i.e. reason for not achieving good status (RNAG) is confirmed as ammonia and/or dissolved oxygen), but the ammonia and/or dissolved oxygen element at the designated monitoring location achieved good status. This may be due to circumstances such as different	22/12/2024

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			monitoring sites used for chemistry and biology. There must be a confirmed link between the water company asset and the observed effect for measures to improve biology. A phosphorous permit of 0.3mg/l is proposed.	
Thurlaston Brook from Source to River Soar	EMD00351 EMD00514	NEWBOLD VERDON (STW)	U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record FFT at WwTW where the existing DWF MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with	31/03/2021 31/03/2022
Anker from Wem Brook to River Sence	WMD01393 WMD01548	NUNEATON-HARTSHILL (STW)	WFD_IMPm – Measures to reduce ammonia, phosphorus, BOD or nitrogen at STWs in order to meet WFD standards in rivers, transitional or coastal waters. Measures to meet a Moderate standard. A phosphorous permit of 0.2mg/l is proposed.	22/12/2024 31/03/2025

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			WFD_ND – Scheme to meet requirement s to prevent deterioration in ammonia. A ammonia permit of 3mg/l is proposed	
Wash Brook Catchment (trib of Soar)	EMD00354 EMD00517 EMD00855 EMD00856	OADBY (STW)	U_INV2 – Investigation to confirm if any existing front end flow monitor or the back end MCERTS flow monitor can be used to measure PFF to full treatment at a WwTW. Existing front end monitors must be considered first and where they can be MCERTS certified to measure PFF they should be used to provide data within AMP7. Where there is no front end monitor or it cannot be MCERTS certified investigate whether the back end flow monitor can be MCERTS certified to measure PFF. If it can, then use it to provide data within AMP7. If neither can be MCERTS certified then a new inlet MCERTS flow monitor will be required under a PR24 driver. U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with WFD_IMPm – Measures to reduce ammonia,	31/03/2022 31/03/2021 22/12/2024 31/03/2025

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			phosphorus, BOD or nitrogen at STWs in order to meet WFD standards in rivers, transitional or coastal waters. Measures to meet a Moderate standard. A phosphorous permit of 0.2mg/l is proposed. WFD_ND – Scheme to meet requirement s to prevent deterioration in ammonia. A ammonia permit of 4mg/l is proposed	
Avon - Claycoton Yelvertoft Bk to conf R Sowe	WMD00775 WMD01033 WMD01558	RUGBY NEWBOLD (STW)	U_INV2 – Investigation to confirm if any existing front end flow monitor or the back end MCERTS flow monitor can be used to measure PFF to full treatment at a WwTW. Existing front end monitors must be considered first and where they can be MCERTS certified to measure PFF they should be used to provide data within AMP7. Where there is no front end monitor or it cannot be MCERTS certified investigate whether the back end flow monitor can be MCERTS certified to measure PFF. If it can, then use it to provide data within AMP7. If neither can be MCERTS certified then a new inlet MCERTS flow monitor will be required under a PR24 driver. U_MON3 - Install EDM on WwTW overflows to	31/03/2022 31/03/2021 31/03/2025

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with WFD_ND – Scheme to meet requirement s to prevent deterioration in ammonia. A ammonia permit of 4mg/l is proposed	
Stoke Golding Brook from Source to R Sence	WMD01417	SIBSON (STW)	WFD_IMPg – Measures to reduce ammonia, phosphorus, BOD or nitrogen at STWs in order to meet WFD standards in rivers, transitional or coastal waters. Measure to meet a Good standard for the element. There may also be situations where a WFD biological element fails its water body objective due ammonia and/or dissolved oxygen (i.e. reason for not achieving good status (RNAG) is confirmed as ammonia and/or dissolved oxygen), but the ammonia and/or dissolved oxygen element at the designated monitoring location achieved good status. This may be due to circumstances such as different monitoring sites used for chemistry and biology. There must be a confirmed link between the water company asset and the observed effect for measures to	22/12/2024

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			improve biology. A phosphorous permit of 1.3mg/l is proposed	
Soar from Soar Brook to Thurlaston Brook	EMD00379 EMD00542	STONEY STANTON (STW)	U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record FFT at WwTW where the existing DWF MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with	31/03/2021 31/03/2022
Eye Brook	EAN02121 EAN02122 EAN02123	TILTON ON THE HILL STW	U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with U_INV2 – Investigation to confirm if any existing front end flow monitor or the back end MCERTS flow monitor can be used to measure PFF to full treatment at a WwTW. Existing front end monitors must be considered first and where they can	31/03/2021 31/03/2022 31/03/2023

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			be MCERTS certified to measure PFF they should be used to provide data within AMP7. Where there is no front end monitor or it cannot be MCERTS certified investigate whether the back end flow monitor can be MCERTS certified to measure PFF. If it can, then use it to provide data within AMP7. If neither can be MCERTS certified then a new inlet MCERTS flow monitor will be required under a PR24 driver. U_IMP6 – The WwTW storm tank capacity must be increased to 68 litres/head or to 2 hours at max flow through the tanks.	
Stonton Brook	EAN02153 EAN02154	TUGBY STW	U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with U_INV2 – Investigation to confirm if any existing front end flow monitor or the back end MCERTS flow monitor can be used to measure PFF to full treatment at a WwTW. Existing front end monitors must be considered first and where they can be MCERTS certified to measure PFF they should be used to provide data	31/03/2021 31/03/2022

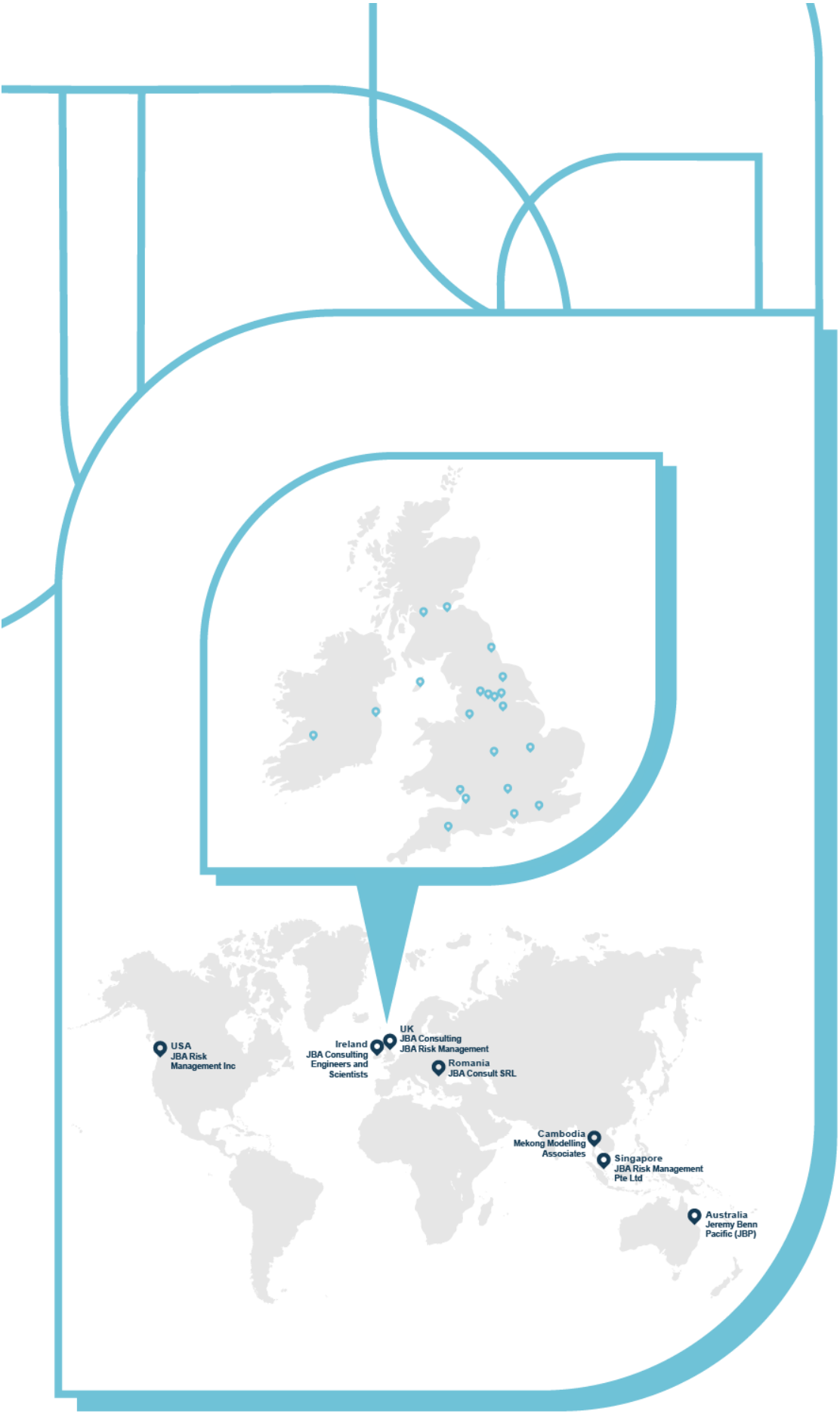
Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			within AMP7. Where there is no front end monitor or it cannot be MCERTS certified investigate whether the back end flow monitor can be MCERTS certified to measure PFF. If it can, then use it to provide data within AMP7. If neither can be MCERTS certified then a new inlet MCERTS flow monitor will be required under a PR24 driver.	
Soar from Sence to Rothley Brook	EMD00393 EMD00556	WANLIP (STW)	U_INV2 – Investigation to confirm if any existing front end flow monitor or the back end MCERTS flow monitor can be used to measure PFF to full treatment at a WwTW. Existing front end monitors must be considered first and where they can be MCERTS certified to measure PFF they should be used to provide data within AMP7. Where there is no front end monitor or it cannot be MCERTS certified investigate whether the back end flow monitor can be MCERTS certified to measure PFF. If it can, then use it to provide data within AMP7. If neither can be MCERTS certified then a new inlet MCERTS flow monitor will be required under a PR24 driver. U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where	31/03/2022 31/03/2021

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			existing monitors cannot be used to be confident that the permitted FFT setting is being complied with	
Sence from Countesthorpe Brook to Soar	EMD00398 EMD00561 EMD00904 EMD00905	WHETSTONE (STW)	U_MON4 - Install MCERTS flow monitoring as close to the overflow as practicable to record FFT at WwTW where the existing DWF MCERTS flow monitoring, or other installed flow monitoring, cannot be readily used to confirm the permitted FFT setting is being complied with when the overflow to storm tanks operates U_MON3 - Install EDM on WwTW overflows to storm tanks at those WwTW where existing monitors cannot be used to be confident that the permitted FFT setting is being complied with WFD_IMPm – Measures to reduce ammonia, phosphorus, BOD or nitrogen at STWs in order to meet WFD standards in rivers, transitional or coastal waters. Measures to meet a Moderate standard. A phosphorous permit of 0.3mg/l is proposed. WFD_IMPg – Measures to reduce ammonia, phosphorus, BOD or nitrogen at STWs in order to meet WFD standards in	31/03/2021 31/03/2022 22/12/2024 22/12/2024

Waterbody Name	WINEP ID	Scheme Name(s)	Type of scheme/notes	Completion date
			rivers, transitional or coastal waters. Measure to meet a Good standard for the element. There may also be situations where a WFD biological element fails its water body objective due ammonia and/or dissolved oxygen (i.e. reason for not achieving good status (RNAG) is confirmed as ammonia and/or dissolved oxygen), but the ammonia and/or dissolved oxygen element at the designated monitoring location achieved good status. This may be due to circumstances such as different monitoring sites used for chemistry and biology. There must be a confirmed link between the water company asset and the observed effect for measures to improve biology. A BOD permit of 15mg/l is proposed.	
Sence from Countesthorpe Brook to Soar	EMD00909	WIGSTON (STW)	WFD_IMPm – Measures to reduce ammonia, phosphorus, BOD or nitrogen at STWs in order to meet WFD standards in rivers, transitional or coastal waters. Measures to meet a Moderate standard. A phosphorous permit of 0.3mg/l is proposed.	22/12/2024

Table 13.11 Abbreviations used in WINEP table

Abbreviation	Definition
MON i.e., U_MON3, U_MON4, U_MON5	Long-term monitoring
INV i.e., U_INV2	Investigation
IMP i.e., U_IMP6,	Action (to improve)
WFD_IMP i.e., WFD_IMPg and WFD_IMPm	Measure to reduce ammonia, phosphorus, BOD or nitrogen at WwTWs in order to meet WFD standards in rivers, transitional or coastal waters. The letters after 'WFD_IMP' correspond to indicate what target the measure is aimed at achieving: h- measure to meet High status for the element g- measure to meet Good status for the element p- measure to meet Poor status for the element m- measure to meet Moderate status for the element
WFD_NDLS_Chem2	Measures related to load standstill requirements for chemicals (below Environmental Quality Standards (EQS)). These are set where a wastewater treatment works is discharging significant concentrations of a chemical, but the EQS is not threatened. Targets are set to ensure that current effluent quality does not deteriorate.



JBA consulting

Offices at

Bristol
Coleshill
Doncaster
Dublin
Edinburgh
Exeter
Glasgow
Haywards Heath
Isle of Man
Leeds
Limerick
Newcastle upon Tyne
Newport
Peterborough
Portsmouth
Saltaire
Skipton
Tadcaster
Thirsk
Wallingford
Warrington

Registered Office
1 Broughton Park
Old Lane North
Broughton
SKIPTON
North Yorkshire
BD23 3FD
United Kingdom

+44(0)1756 799919
info@jbaconsulting.com
www.jbaconsulting.com
Follow us:

Jeremy Benn Associates Limited

Registered in England 3246693

JBA Group Ltd is certified to:
ISO 9001:2015
ISO 14001:2015
ISO 27001:2013
ISO 45001:2018

CHAS Accredited Contractor CHAS.co.uk
IEMA
CYBER ESSENTIALS CERTIFIED
CIEEM REGISTERED
MEMBER OF The 5% Club