SRN-DDR-046: WINEP Wastewater Investigations

Enhancement Cost Evidence Case

28th August 2024
Version 1.0

from Southern Water

Contents

1. Introduction

The purpose of this document is to provide additional information and evidence to support our previous Enhancement Case for the Wider Environmental Enhancement with respect to the investigations planned for AMP8.

The Enhancement Case for the Wider Environmental Enhancement included our investigations programme for AMP8, and other environmental requirements to meet the Eel Regulations and our proposal for Advanced WINEP. This response to the Draft Determination focuses on the investigations.

The AMP8 investigations are a regulatory requirement under the Environment Agency's WINEP with a regulatory completion date of 30 April 2027 (except for one investigation on emerging substances which is required by 31/03/2030).

Ofwat has proposed in the Draft Determination a 30% overall adjustment of our costs for investigations, meaning that our request for £52.188m is reduced to £40.382m. The adjustment is a result of a deep dive and consists of the following reductions:

(a) 10% due to uncertainty of the best option for customers based on incomplete evidence, and
(b) 20% due to concerns whether the investment is efficient, as they were unable to find sufficient and convincing evidence that the proposed costs are efficient.

The Draft Determination is based on our submissions in October 2023 and the updated costs provided in February 2024. There have been changes in the number of investigations required from the discussions with Defra and the EA. The 5 July 2024 version of the WINEP has 345 wastewater investigations for AMP8. There have been clarifications and changes in the complexity of these investigations and hence the spilt between the three categories of 'desk based', 'simple' and 'complex'.

This document sets out the case for a marginal increase in the cost allowance for investigations in AMP8, although this is associated with a reduction in the number of investigations to be delivered. Through working with the Environment Agency (EA) and Natural England (NE), we now have more information about those that remain and have reviewed their categorisation and costs.

This document addresses issues identified by Ofwat in their deep dive.

The main points covered in this document are:

- The total number of investigations now required for AMP8 is 345. This is 114 less than the 459 investigations we had reflected in the February 2024 data table submission. There have been some changes to the number of investigations for specific drivers, but the significant reduction is due to the removal of 114 storm overflow investigations for overflows discharging into shellfish waters. We therefore anticipate that Ofwat's final determination will be a significant change to the draft determination.
- Ofwat identified a significant variation between companies in the classification of investigations. We have re-assessed our categorisation to ensure greater consistency between our classifications and those across the rest of the industry.
- The costs for the investigations proposed for AMP8 have been reassessed and is £39.722m.

This submission makes the case for a final determination of £39.722m for our AMP8 investigations programme. This is £0.66m less than the Ofwat allowance, although the allowance is based on 459

investigations rather than the required 345 statutory investigations. The reasons for the difference in the number of investigations and the costs are explained in this document.

2. Ofwat's Draft Determination

Ofwat's Draft Determination concluded that a modelled approach was not suitable due to the broad range of costs and numbers of schemes submitted in business plans, see Table 2-1.

Table 2-1: Ofwat's Summary of the Cost Model for Investigations

Summary of the model:

To assess enhancement total expenditure (totex) included by companies in their PR24 business plan submissions in Table CWW3 for line EA/NRW environmental programme wastewater (WINEP/NEP) - Wastewater investigations.

We assess the investment for this line using shallow dives and deep dives, informed by how closely companies are to the industry median unit costs for each of the investigation subcategories (desk-based investigations; simple monitoring / modelling investigations; and complex modelling /monitoring / multiple surveys). We asked companies to provide a breakdown of how their costs and number of schemes spread across these three categories so that we could benchmark costs at a more granular level. However, a modelled approach was still not suitable due to the broad range of costs and numbers of schemes submitted in business plans, and potentially some misallocation of schemes between categories. We reconcile information that has been identified within the companies' submissions with the list of schemes in the WINEP/NEP.

Our February 2024 interim submission for investigations is summarised in Table 2-2.

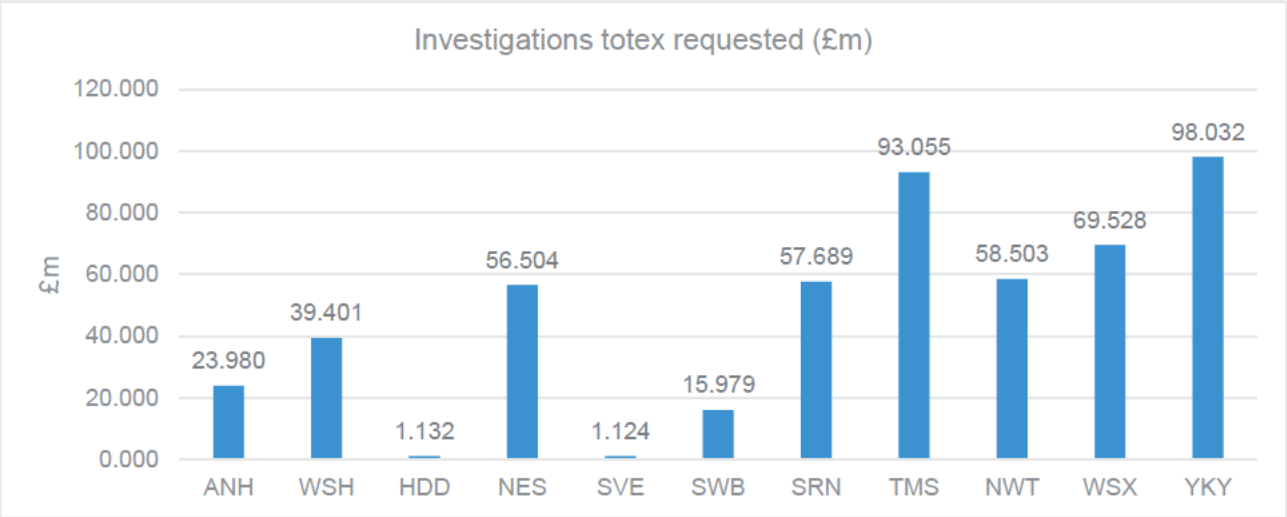
Table 2-2: February 2024 summary for investigations

Item Description	Units	2025-26	2026-27	2027-28	2028-29	2029-2030	PR24 total
Desk-based studies capex - Total	£m	0	0	0	0	0	0
Desk-based studies opex - Total	£m	10.621	10.621	0	0	0	21.242
Desk-based studies totex - Total	£m	10.621	10.621	0	0	0	21.242
Number of Desk-based studies	nr	0	78	0	0	0	78
Survey, monitoring or simple modelling capex - Total	£m	0.281	0	0	0	0	0.281
Survey, monitoring or simple modelling opex - Total	£m	1.108	5.843	1.515	0.225	2.855	11.546
Survey, monitoring or simple modelling totex - Total	£m	1.389	5.843	1.515	0.225	2.855	11.827
Number of survey, monitoring or simple modelling	nr	0	157	0	0	0	157
Multiple surveys, and/or monitoring locations, and/or complex modelling capex - Total	£m	0	0	0	0	0	0
Multiple surveys, and/or monitoring locations, and/or complex modelling opex - Total	£m	2.512	7.084	6.239	0.443	2.841	19.119
Multiple surveys, and/or monitoring locations, and/or complex modelling totex - Total	£m	2.512	7.084	6.239	0.443	2.841	19.119
Number of multiple surveys and/or monitoring locations, and/or complex modelling	nr	0	224	0	0	0	224
Total	**£m**	**14.522**	**23.548**	**7.754**	**0.668**	**5.696**	**52.188**

Ofwat's deep dive found that our costs are above the materiality threshold and above the unit cost benchmark for desk based and simple investigations.

How we compare overall to the other water companies is shown in Figure 1 However, we were found to be a significant outlier on unit cost. With a modelled approach we would receive less than requested.

Figure 1: Ofwat's Summary of Investment Requested for Investigations by company



The Ofwat allowances for our AMP8 investigations, prior to the deep dive challenge, are:

Allowance for desk based investigations (£m)	Allowance for simple investigations (£m)	Allowance for complex investigations (£m)	Combined allowance from three types of investigations (£m)
4.524	7.184	31.872	43.580

The deep dive reduced this allowance further as follows:

Overall adjustment	30%
Totex allowance from deep dive	£40.382m

Ofwat's draft determination concluded that these allowances are subject to a PCD. The allowed totex covered by the PCD (post adjustment & frontier shift) is £39.274m based on 459 investigations.

Ofwat conducted a deep dive into our investigations' costs. The findings are set out in Table 2-3.

Table 2-3: Ofwat Deep Dive into our investigations costs

Enhancement assessment	*Assessment comments*	*Criteria decision*	*% adj*	*Reference*

criteria grouping				
Need for enhancement investment	Pass: The investment meets the criteria for enhancement investment and additional customer funding. The proposed investment is consistent with the company's water industry national environment programme (WINEP) schemes. The requested investment is for investigations across 14 different WINEP drivers that will identify suitable improvement schemes. 42% of investigations are associated with the storm overflows (EnvAct_INV4) driver. For storm overflows, the company confirms that the investigations follow the instructions from the Environment Agency and the Storm Overflow Discharge Reduction Plan.	Pass	0%	SRN Outbound Query Response OFW-OBQ-SRN-115.pdf SRN Outbound Query Response OFW_OBQ-SRN-097.pdf
Best option for customers	Minor concerns: We have minor concerns whether the investment is the best option for customers based on incomplete evidence. The company is yet to complete its initial scoping exercise, meaning that there is uncertainty around the scope of each investigation. Southern Water presents a complexity assessment for a sample of investigations and states that it has assumed a similar scope of work will be required as for those investigations successfully delivered during 2020-25 under the same driver or topic. We could not find any additional evidence to demonstrate this in detail, nor how new driver investigations have been assessed where there has been no previous experience. Investigations are spread across 'desk-based', 'simple' and 'complex', with over half allocated to the 'complex' category. Southern Water states that the complexity of the investigations is driven by the number of assets and interactions between them and the issue under investigation. The company has not provided sufficient and convincing evidence that the options provide the best value for customers, given that the scope of the investigation is yet to be fully defined. It is also unclear from the evidence provided why complex assessments are required for a high proportion of the investigations.	Minor concerns	10%	SRN42 WINEP - Wider Environmental Enhancement.pdf SRN Outbound Query Response OFW-OBQ-SRN-115.pdf SRN Outbound Query Response OFW_OBQ-SRN-097.pdf EA-REG-030.docx
Cost efficiency	Some concerns: We have some concerns whether the investment is efficient. The company does not provide sufficient and convincing evidence that the proposed costs are efficient. The company provides an explanation of its costing methodology for the chosen investment. It states that it has	Some concerns	20%	SRN42 WINEP - Wider Environmental Enhancement.pdf SRN Outbound Query Response

	used a combination of internal outturn data and third-party water industry data, APR outturn data and Ofwat's PR19 benchmark models where appropriate, applying top-down efficiencies to its own costs. The company has only provided limited scope breakdowns and has not provided evidence of cost benchmarking or external assurance of costs to demonstrate that they are efficient.			OFW-OBQ-SRN-115.pdf SRN Outbound Query Response OFW_OBQ-SRN-097.pdf
Customer protection	Some concerns. We have some concerns whether the company's proposal fully protects customers from non-or under delivery. The company proposes an overarching WINEP price control deliverable (PCD) to protect customers from non-delivery of all elements of the WINEP that are not covered by a PC. This appears to include the investigation drivers. However, the company explains that the details of its PCD are subject to the finalisation of WINEP and so may not currently reflect the full programme of actions. The expenditure in this area is material and, due to the scale of the investigation programme dominated by the statutory EnvAct_INV4 storm overflow actions due to be delivered by April 2027, we consider a PCD is required. We set a PCD for draft determination based on the number of investigations completed by the action delivery date. For more information on PCD decisions see the PR24 draft determinations: Expenditure allowances - Price control deliverable appendix.	Some concerns	N/A	SRN42 WINEP - Wider Environmental Enhancement.pdf SRN38 Water Industry National Environment Programme.pdf

Ofwat has proposed a PCD for investigations. Where unit rates are higher for desk/simple than complex, Ofwat have provisionally used an average of the 3 complexity categories, see Table 2-4 below. Ofwat states that all PCDs will be reviewed for final determination. Our response to the proposed PCD is covered below in section 3.5.

Table 2-4: Ofwat's proposed PCD for wastewater WINEP investigations

			Proposal for PCD unit rates for DD		
Unit rate - desktop investigations	Unit rate - simple investigations	Unit rate - complex investigations	Unit rate for desk-based and simple combined	Unit allowance - complex investigations	Unit allowance - average across all investigation types
0.2041	0.0513	0.0683			0.1079

3. Our Response

3.1 Number of Investigations

We have worked with the EA and to ensure our WINEP aligns with the guidance issued or amended since the submission of our original business plan in October 2023. We have updated the number of investigations because of further clarifications by the EA.

The main change from the EA was regarding the storm overflow investigations under the driver EnvAct_INV4. The WINEP guidance for the EnvAct_INV4 investigations for storm overflows requires investigations for shellfish waters. We added the relevant investigations (114 of them) to the WINEP and into the assumptions of costs used for our February 2024 response to Ofwat's query 205. However since the EA has changed its instructions so we have removed these 114 investigations from the WINEP and our DD response costs, as they are no longer required for shellfish waters. The spills target for shellfish waters under the EnvAct is 10 spills or less per annum on average – hence no need for an investigation to demonstrate no harm. Note under the EA guidance for shellfish waters, the spill requirements are for no more than 10 significant spills per annum on average as an agglomeration. This is different to the EA WINEP guidance on storm overflows.

The EA notified us in May 2024 of three newly designated bathing waters in our operating region, and that they will be adding three new actions on the WINEP under the BW_INV2 driver. The three new designated bathing waters are:

(a) Worthing Beach House
(b) Rottingdean Beach
(c) Goring Beach.

These investigations are a statutory requirement for AMP8 so we have added these into our draft determination response proposals at an additional cost of £0.293m.

There have been changes in the number of investigations required across 8 drivers, and the overall change in the number of investigations is a reduction of 6 investigations from 351 to 345, see Table 3-1. This aligns with the EA's WINEP dated 5 July 2024 for wastewater investigations (there are other investigations for Water WINEP).

Three investigations on the WINEP for AMP9 under the driver BW_INV5 were found to have a completion date of 30/04/2027 and hence the costs have been included in our data tables at a value of £0.318m. The completion date should be 30/04/2032 and hence costs included in AMP9. The EA has subsequently made this correction to the WINEP. The number of investigations in our submission is correct, but the costs for these three investigations of £0.318m are included in CWW3.

Table 3-1: Number of Investigations for AMP8 by WINEP driver

WINEP Driver	Complexity	Number of Actions in Submitted Business Plan	Number of Actions in 5 July 2024 WINEP
25YEP_INV	Complex investigation	2	*1*
BW_NDINV	Complex investigation	7	*7*
BW_INV2	Complex investigation	1	*4*
EE_INV	Survey, monitoring, or simple modelling	1	*1*
HD_INV	Complex investigation	13	14
SSSI_INV	Complex investigation	32	*26*
SW_INV	Complex investigation	3	*3*
MCZ_INV	Survey, monitoring, or simple modelling (except 1 complex site)	14	*14*
NERC_INV	Survey, monitoring, or simple modelling	1	*0*
WFD_INV	Complex investigation	43	*37*
WFD_INV_CHEM	Survey, monitoring, or simple modelling	13	*14*
WFD_INV_MP	Complex investigation	0	*3*
WFD_INV_N-Tal	Complex investigation	4	*4*
WFDGW_INV	Complex investigation	7	*7*
EnvAct_INV4	Survey, monitoring, or simple modelling	210	*210*
TOTALS		**351**	***345***

3.2 Categorisation of Investigations

The investigations were categorised on the WINEP and also in accordance with the Ofwat solutions classifications in the October 2023 business plan submission. The categorisations are shown in Table 3-1.

We understand the concerns raised by Ofwat regarding the variation in the categorisation of the storm overflow investigations by water companies. In our October 2023 submission we split the storm overflow investigations between several categories as some of these investigations will not require complex modelling, whilst others will. It is not known at this stage exactly how many will require the more detailed and complex modelling in accordance with the UPM Manual approach. There are four stages to the UPM Manual approach. All overflows will go through stage 1 and 2, but then some will not require stages 3 and 4. We assumed that any overflows that previously had a SOAF or UPM investigation in AMP7 would be a desk-based investigation in AMP8. In response to Ofwat's concern about the variations between water companies in the categorisation of these investigations, we have changed our categorisation of the storm overflow investigations to align with other water companies – they are all now in the simple category.

The basis for our categorisation across all of the investigations by driver is set out in Table 3-2.

Table 3-2: Categorisation of Investigations

Driver	Proposed Categorisation	Justification
EE_INV	Investigation involving a survey, monitoring, or simple modelling	Quite simple work proposed, mostly desk based, but some walkovers, maybe some simple samples. This is a regional investigation to assess all our outfalls for impact on eels and fish. This is not a standard investigation, although categorised as simple.
HD_INV	Complex investigation involving multiple surveys and/or monitoring locations, and/or complex modelling	Lots of sampling and surveys, followed by lots of complex water quality modelling. The aim is to understand SW's impact on a habitats site which can include multiple assets.
SSSI_INV	Complex investigation involving multiple surveys and/or monitoring locations, and/or complex modelling	Lots of sampling and surveys, followed by lots of complex water quality modelling The aim is to understand SW's impact on the condition of a SSSI which can include multiple assets and parameters.
BW_INV2	Complex investigation involving multiple surveys and/or monitoring locations, and/or complex modelling	Lots of sampling and surveys, followed by lots of complex water quality modelling. Ocean modelling requires considerable resource.
SW_INV	Complex investigation involving multiple surveys and/or monitoring locations, and/or complex modelling	Lots of sampling and surveys, followed by lots of complex water quality modelling, in particular to understand the impact of agglomerations.
BW_NDINV	Complex investigation involving multiple surveys and/or monitoring locations, and/or complex modelling	Lots of sampling and surveys, followed by lots of complex water quality modelling. Ocean modelling requires considerable resource.
BW_INV5	Complex investigation involving multiple surveys and/or monitoring locations, and/or complex modelling	Lots of sampling and surveys, followed by lots of complex water quality modelling. Ocean modelling requires considerable resource.
MCZ_INV	Investigation involving a survey, monitoring, or simple modelling (**EXCEPT for Pagham, which is complex**)	We assumed these (except Pagham) were similar to AMP7. Desk based assessment and analysis, with a little model use. Pagham is complex.
WFD_INV_CHEM	Investigation involving a survey, monitoring, or simple modelling	Large sampling programme of complex chemicals often with atypical analytical techniques.
EnvAct_INV4	Investigation involving a survey, monitoring, or simple modelling	EA guidance requires us to complete a UPM study – this will require modelling to determine the UPM FIS and 99 percentile standards
WFD_INV	Complex investigation involving multiple surveys and/or monitoring locations, and/or complex modelling	Lots of sampling and surveys, followed by lots of modelling (most are in for DO or Ammonia), to understand permutations for improving water body status to good.
WFD_INV_MP	Investigation involving a survey, monitoring, or simple modelling	Sector wide-sampling programme and reporting on microplastics. Cost defined by EA, not us.

The number of investigations by each category is set out in Table 3-3.

Table 3-3: Number of investigations by category

Category description	Number of Investigations		
	Oct 2023	Feb 2024	July 2024
Number of WINEP/NEP investigations - desk-based studies only	78	78	0
Number of WINEP/NEP investigations - survey, monitoring or simple modelling	56	157	238
Number of WINEP/NEP investigations - multiple surveys and/or monitoring locations, and/or complex modelling	224	224	107
TOTAL	358	459	345

The EnvAct_INV4 storm overflow investigations were previously spread across all three categories, and for February we included storm overflow investigations for shellfish waters, but it was later clarified by the EA that these shellfish investigations are not required. However, for consistency and transparency, we have moved all these investigations to the survey, monitoring and simple modelling approach.

3.3 Deep Dive Findings

Ofwat completed a deep dive on our proposals for investigations. They raised a few concerns. We address these in this section.

Best Option for Customers - Minor Concerns

Ofwat's minor concerns were on whether the investment is the best option for customers based on incomplete evidence, and raised the concern that we were yet to complete an initial scoping exercise, meaning that there is uncertainty around the scope of each investigation.

The process for developing the WINEP with the EA and Natural England is to identify where investigations are required and include and action and driver in the WINEP. Our expertise and knowledge, and discussions with EA and Natural England on the need for each investigation, means that we have considered the likelihood of any impacts from our assets on the environment, and we have already challenged all investigations that we think our customers should not be funding. We have completed a preliminary investigation as part of assessing the need for an investigation and discussed the need with the EA and Natural England. An example of the information collated and presented in these regulatory discussions is included in Appendix A. From these regulatory discussions, we know enough to be able to determine that the proposed investigation is the best option for customers and to enable us to price the investigation.

We assess the cost for the investigation based on previous investigations of a similar type / driver and using expertise and data from our Cost Intelligence Team.

We have drafted an Action Specification Form (ASF) for each investigation and submitted these to the EA and NE for review and approval. The purposed of the ASF is to agree the objectives, stages of the investigation and timescales. The ASFs are to be signed off with the EA by 31 December 2024. The first stage for the investigation, once funding is secured and the new AMP has commenced, is to complete a scoping stage to determine the extent of environmental monitoring and modelling that is required to achieve the objectives. Given the number of investigations, it is not possible to complete the scoping stage during the Price Review process. This means that all water companies will need to determine the costs for the investigation based on experience and outturn costs from the current AMP. We have based our costs for

each investigation on the scale of the investigation (e.g. regional or site specific), the number of assets involved, and the scale of modelling required to determine the impact on the environment. These factors influence the costs for monitoring and modelling. We have completed many investigations in AMP7 and previous AMPs so we know in sufficient detail what is required for each type of investigation, the finer details of the scope specify the monitoring plan (number of monitors and location etc) and exact modelling requirements.

We presented a complexity assessment for a sample of investigations and assumed a similar scope of work will be required as for those investigations successfully delivered during 2020-25 under the same driver or topic. This enables us to build upon our experience and learning to drive continuous improvement and efficiencies.

Cost Efficiency – Some Concerns

Ofwat also had some concerns whether the investment is efficient, as they were unable to find sufficient and convincing evidence that the proposed costs are efficient.

Ofwat also expressed concern that they could not find any additional evidence to demonstrate how new driver investigations have been assessed where there has been no previous experience. The only new INV driver for AMP8 is the EnvAct_INV4 for storm overflows. However, these investigations follow on from the Storm Overflow Assessment Framework (SOAF) investigations in AMP6 and 7. In these investigations we completed the first two stages of the Urban Pollution Management (UPM) Manual. We also have experience of delivering full UPM studies, having completed these most recently in both AMP6 and AMP7. The EnvAct_INV4 investigations follow the UPM manual and vary in complexity depending upon the findings of each level of UPM investigation, the dilution and the potential for ecological harm from the storm overflow. We have used historic actual costs for the UPM elements of previous investigations to determine a true representative cost for these investigations in AMP8. We have now assessed all EnvAct_INV4s as ‘simple’ which aligns with the industry.

Investigations are spread across 'desk-based', 'simple' and 'complex', with over half allocated to the 'complex' category. We have set out our rationale for our complexity assessment for each of the investigations in section 3.2. Our approach is driven by the number of wastewater assets in the study area and interactions between them and the site/issue under investigation, see example in Appendix B, which is directly related to the extent of monitoring and modelling required. Our complexity assessment also considers the type and scope of surveys and data collection. Of the 114 investigations removed from WINEP following clarification from the EA, these were a mix of desk-based and simple investigations.

We have scaled and applied these costs for future investigations based on our understanding of the type and scope of work that needs to be done from the conversations with regulators. Our Cost Intelligence Team (CIT) have supported us with costing these investigations, and we have also used our long experience of delivering investigation to price the work. We have also discussed the scope of work with our study and investigations framework consultants who have extensive experience carrying out environmental investigations. We believe our costs are a good and efficient basis for our PR24 submission.

We are confident in our costings, and our own efficiency savings applied to the costs will ensure that we can deliver the investigations at the least cost to protect our customers for paying more than necessary. The greatest savings for customers has been where we have been robust with the regulators request for investigations to ensure that we are only investing where there is a likelihood of our operations causing harm – not for sites where harm is being caused by others. We are keen to work in partnership with multiple

sectors and landowners on investigations for designated sites so investigations can be jointly funded. This way actions can be identified for all parties to bring about favourable condition or good ecological status, and then work together to deliver the environmental outcome, rather than continuing with a sector by sector approach.

We have proposed investigations in AMP8 for the three new designated bathing waters at Worthing Beach House, Rottingdean Beach and Goring Beach. These investigations are a statutory requirement for AMP8 so we have added these into our business plan at an additional cost of £0.293m. These costs are based on actual bathing water investigations delivered in AMP7. The direct cost for delivery in AMP7 of our bathing water studies was £3,207,292. This covered 37 sites. This makes an average site cost £86,684 to deliver (at 2022 prices). We have looked at the three new designated bathing waters to assess the number of our assets involved, the extent of the surface water network in the local area, and the monitoring and modelling that will be needed in the investigations. Our costs for these sites are based on these findings and include the adjustment for overhead and our proposed efficiency savings.

There are 14 investigations for marine conservation zones (MCZs) in our WINEP for PR24. We completed a MCZ investigation for Pagham Harbour in AMP7. All but one of the investigations for AMP8 are similar scope and hence cost. The investigation for Pagham Harbour in AMP8 goes much further and it is therefore more complex. Pagham is complex because the AMP7 Pagham INV was effectively scoping work, which was to determine what we needed to investigate further (as per the agreement for this site). The outcome of this work is a very intensive study on the sea grass including really extensive surveys and sampling, which was scoped and agreed with the EA and NE – this was then costed by the consultants to determine the level of direct cost for this work. We have a detailed scope and cost estimate for this complex investigation which has been agreed with our environmental regulators.

3.4 Cost Modelling

Ofwat found that the cost models for investigations did not provide the required outputs, thus resulting in a deep dive of our costs.

Ofwat has proposed in the Draft Determination a 30% overall adjustment of our costs for investigations, meaning that our February 2024 proposal for £52.188m to deliver 457 investigations was reduced to an allowance of £40.382m. The adjustment is a result of the deep dive and consists of the following reductions:

(a) 10% due to uncertainty of the best option for customers based on incomplete evidence, and
(b) 20% due to concerns whether the investment is efficient, as they were unable to find sufficient and convincing evidence that the proposed costs are efficient.

We have set out in this response why we consider the above percentage reductions are inappropriate for our programme of statutory investigations in AMP8. We have challenged the need for investigations with the EA and Natural England where the evidence suggested that our infrastructure and operations were not having an impact on the sites, and we have worked with these organisations to develop Action Specification Forms to clarify the scope of the requirements that we should be funding through our customer bills. These discussions with regulators have enabled us to be certain about the appropriate classification of the investigations into (a) desk based, (b) simple or (c) complex.

We consider the evidence we are providing removes the justification for Ofwat's 10% efficiency challenge due its perception of insufficient evidence we are proposing the best option for customers.

In recognition of Ofwat's concerns about the cost efficiency of our investigations, we have challenged ourselves and propose a 10% efficiency saving in our wastewater investigations programme for AMP8. In the light of our own cost efficiency challenge applied to the costs we are submitting in our draft determination response, we request that Ofwat removes its cost efficiency challenge and makes the full requested allowance. Our revised costs to deliver the investigations programme defined in the 5th July 2024 WINEP (with our efficiency applied) are £39.722m for 345 investigations in AMP8.

4. Our WINEP price control deliverable (PCD)

Ofwat proposes a specific PCD for our WINEP investigations programme. We are requesting that Ofwat reconsiders its approach to customer protection and uses instead our wastewater WINEP PCD, which we set out below. The principles we applied to our PCD proposals are set out in SRN-DDR-052 Price Control Deliverables.

The details of the PCD are subject to our AMP8 WINEP being finalised.

Table 4-1: Wastewater WINEP PCD

Component	Output based on WINEP action completion
Description	Completion of AMP8 WINEP actions as submitted in our business plan (including Delivery Mechanism and DPC), and are within the scope of the WINEP drivers listed in Table 4-2 below. We will return funding to customers on a unit cost basis for non-delivery of AMP8 WINEP actions within the scope of the drivers listed in Table 4-2 below that are not completed by 31st March 2030 because the WINEP need has changed.
Output - WINEP actions	Output: The total number of actions in scope of PCD is 1,419
Total Cost	£2,187 million
Unit cost	£1.464 million per action (total cost / number of actions)
Penalty rate	£1.464 million per action not completed (no cost sharing assumed)
Materiality of future scope alterations	£21.867 million
Output delivery date with current scope	31 March 2030
Gated dates	Assurance of the WINEP being forecast for completion by 31 March 2030 will be provided by 31st of March 2028 to support draft reconciliation for performance during PR29.
Conditions on allowance	Should we receive confirmation from a regulator of a necessary change to the timing or scope of a scheme, or in fact the change of scheme to address the core issue, which either changes the benefit delivered or the solution being more expensive, the implication of this change would be reflected in the PCD. Where this change leads to a material variance greater than 1% of the original enhancement investment, then the PCD would symmetrically account for this change in a reconciliation at the end of the AMP.
Assessment of PCD	In the event of not delivering the output by the end of AMP8 (i.e., by 31 March 2030), but the need is still required, this PCD remains in place until the end of AMP9 (i.e., 31 March 2035). Ofwat will assess the completion of this PCD by 31 March 2035 as part of the PR34 process.
Late penalty	Not required as being late would mean non-compliance with WINEP statutory requirements.
Measurement	Progress and performance will be reported in our annual performance report (APR) We will report progress on number of in scope WINEP actions completed by 31 March each year.

Component	Output based on WINEP action completion
ODIs to be netted off in the event of non-delivery	Storm Overflows Discharge Permit Compliance (part) Operational Greenhouse gases (part)
Assurance	Third party APR assurer will assure that the output and conditions have been met.

The drivers and number of wastewater WINEP actions and business plan costs within scope of the proposed PCD as reported in table ADD15 are listed in Table 4-2

Table 4-2: Scope of the Proposed PCD

WINEP driver	Number of actions	AMP8 totex, £m 2022/23 prices
U_IMP1	8	6.309
U_IMP2	2	0.100
U_IMP3	0	0
25YEP_IMP	0	0
25YEP_INV	1	0.370
WFD_INV_WRHMWB	0	0
WFD_NDINV_WRHMWB	0	0
WFD_ND_WRHMWB	0	0
WFD_IMP_WRHMWB	0	0
BW_IMP1	0	0
BW_IMP2	3	0
BW_IMP3	0	0
BW_IMP4	0	0
BW_INV1	0	0
BW_INV2	4	0.464
BW_INV3	0	0
BW_INV5	0	0.284
BW_ND	4	120.478
BW_NDINV	7	0.545
NERC_INV	0	0
NERC_IMP	0	0
WFD_NDLS_CHEM1	11	0.006
WFD_NDLS_CHEM2	23	3.827
WFD_ND_CHEM3	6	11.213

WINEP driver	Number of actions	AMP8 totex, £m 2022/23 prices
WFD_ND_CHEM4	5	0
WFD_IMP_CHEM	8	3.920
WFD_INV_CHEM	24	2.442
EnvAct_INV1	2	0.150
EnvAct_MON1	0	0
EnvAct_INV2	0	0
EnvAct_MON2	0	0
EnvAct_INV3	0	0
EnvAct_MON3	0	0
EnvAct_MON4	1	43.000
EnvAct_MON5	1	0
DrWPA_INV	0	0
DrWPA_ND	0	0
DrWPA_IMP	0	0
EE_INV	1	0.031
EE_IMP	1	1.836
U_MON6	3	39.707
HD_IMP	11	119.309
HD_ND	0	0
HD_INV	14	3.321
HD_IMP_NN	37	223.355
WFDGW_INV	7	1.910
WFDGW_NDINV	0	0
WFDGW_ND	0	0
WFDGW_IMP	0	0
U_IMP5	0	0
U_IMP6	0	0
INNS_INV	0	0
INNS_ND	0	0
INNS_IMP	0	0
INNS_MON	0	0
MCZ_ND	0	0
MCZ_IMP	0	0
MCZ_INV	14	2.536
WFD_INV_MP	3	0.589
U_MON3	260	8.323
U_MON4	255	69.976
EPR_MON1	0	0

WINEP driver	Number of actions	AMP8 totex, £m 2022/23 prices
WFD_INV_N-Tal	4	3.052
WFD_INV	37	8.212
WFD_IMP	59	227.869
EnvAct_IMP1	5	24.585
WFD_ND	29	73.973
SAFFA_IMP	0	0
SAFFA_INV	0	0
U_IMP7	0	0
SUiAR_IMP	2	51.069
SUiAR_ND	0	0
SW_IMP	6	63.529
SW_ND	56	419.421
SW_INV	3	0.323
SSSI_IMP	18	58.708
SSSI_ND	0	0
SSSI_INV	32	8.588
EnvAct_INV4	210	13.256
EnvAct_IMP2	212	417.122
EnvAct_IMP3	20	83.267
EnvAct_IMP4	6	67.257
EnvAct_IMP5	2	2.086
WFD_INV_MOD	0	0
WFD_IMP_MOD	2	0.548
Totals	**1,419**	**2,186.686**

Note: The cost for the investigations under driver BW_INV5 in this table reflects the values in the Data Tables (CWW3 and ADD15). However, this is incorrect and should be zero. This error was spotted after the cut-off date to make changes to the Data Tables.

5. Business Plan Dependencies

Wastewater investigations were discussed in the Enhancement Business Case SRN42 on Wider Environmental Outcomes – see link in table below.

Chapters	SRN06 Wholesale Wastewater
Business cases	
Technical annexes	SRN38 Water Industry National Environment Programme.
Enhancement cases	SRN42 Wider Environmental Enhancement
Cost adjustment claims	n/a
Ofwat test areas	n/a
Assurance	
Other – please specify	

Data Tables impacted by the representation:

Table/s Impacted	Data Lines Impacted
CWW3	CWW3.103 – CWW3.114
CWW20	CWW20.61 – CWW20.64

All documents and tables referenced above can be found on our website here: Business Plan 2025-30 - Southern Water

Appendix A: Preliminary Investigation for Hedgecourt Lake SSSI

Hedgecourt SSSI

- WINEP_ID – 08SO101039
- Site Description – Hedgecourt is the most important wetland site remaining in south-east Surrey. Situated in the upper Eden Brook Valley on alluvial soils overlying Tunbridge Wells sandstones, the site incorporates a range of habitats including woodland, grassland and fen-marginated open water. Hedgecourt lake itself is an ancient mill pond resulting from the damming of the river.
- The following slides are preliminary scoping and thoughts, and are not final positions, nor commitments at this time.

1

1.3. Hedgecourt SSSI Investigation Site Description

Hedgecourt SSSI is found immediately to the east of Domewood in Sussex, and to the west of Felbridge. The feature covers Hedgecourt Lake and the surrounding area.

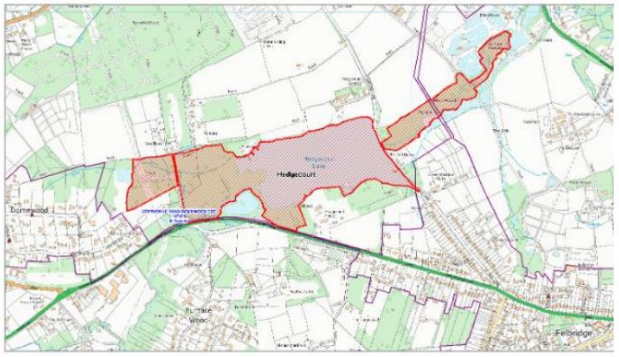


Figure 3 - Hedgecourt SSSI Boundaries

1.1.1. Feature Designations and Status

CSMG Status

Hedgecourt SSSI has been designated by Natural England as being "Unfavourable – No change" status for unit 4, "The Lake". All other units are favourable with "no identified condition threat". This is based on the 2014 assessment. This is found here on the Natural England website.

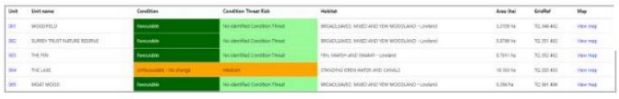


Figure 4 - SSSI Unit Conditions As Per Natural England's Assessments

The adverse condition reason listed for the condition of the feature is "Freshwater – siltation". The study has been requested as it is considered that the spills may contribute to the sediment issues. It should be noted that the Natural England outline:

"*The condition of the lake has been changed to unfavourable no change as a remedy needs to be in place to address the siltation problem. The penstock at the eastern end of the lake will be repaired by the owners of the lake. This may help to increase the natural flow through the lake and remove the silt in suspension, but will probably do little to reduce the level. A remedy for addressing the silt levels will be discussed with the Environment Agency and a Lake Restoration Plan may be produced.*"

Since this feature is failing due to sediment and there is no mention of failure against CSMG water quality standards, this study will focus on apportioning the sediment contributions to the lake only.

WFD Status

Hedgecourt Lake Water Body (water body ID - GB30644023) was classified as "Moderate" in the 2022 Cycle 3 classifications for both Ecology and Water Quality. However, the Reasons for Not Achieving Good (RNAG) do not link performance to Water Company activities.

Reason Type	SWMI	Activity	Category	Classification Element	More information
RNAG	Diffuse source	Poor nutrient management	Agriculture and rural land management	Total Nitrogen	Details
RNAG	Point source	Private Sewage Treatment	Domestic General Public	Total Phosphorus	Details
RNAG	Point source	Private Sewage Treatment	Domestic General Public	Phytoplankton	Details
RNAG	Unknown (pending investigation)	Unknown (pending investigation)	Sector under investigation	Perfluorooctane sulphonate (PFOS)	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Polybrominated diphenyl ethers (PBDE)	Details
RNAG	measures delivered to address reason, awaiting recovery	Not applicable	No sector responsible	Mercury and its Compounds	Details

Figure 5 - RNAGs for Hedgecourt Lake Water Body

1.1.2. Key Upstream Assets

A review of the SWS assets that could impact the SSSI has been made. This is to ensure that the surveys planned capture the key inputs to the feature, and therefore a robust source apportionment can be completed.

Continuous Discharges

There are no continuous discharges located upstream of the SSSI.

Felbridge WTW is located downstream on the eastern boundary of Hedgecourt Lake as shown in Figure X. There is little to no connectivity between the works and the SSSI, and therefore it has been scoped out of the study. The works discharges at the boundary of the SSSI, before flowing northeast away from the feature.

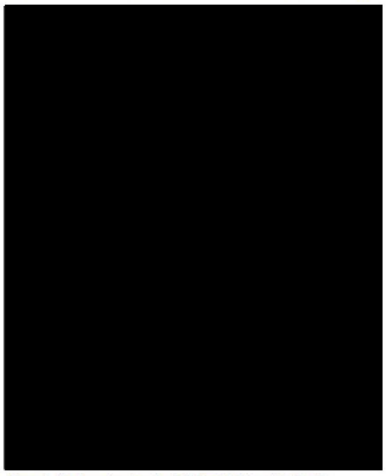


Figure 6 - Discharge Locations For Felbridge WTW From Site Permit

Intermittent Discharges

There are 2 Intermittent discharges located upstream of the SSSI.

Table X – Intermittent discharges Upstream of the SSSI

Asset Name	2022 Spill Count (CSO / EO)	2022 Duration / hours / year	Long Term Average Spill Count (CSO)
Copthorne Road Domewood CEO	21 / 2	181.90	14.3
Fernhill Close Crawley Down Outside 10 CSO	N/A (power failure)	N/A (power failure)	3.3

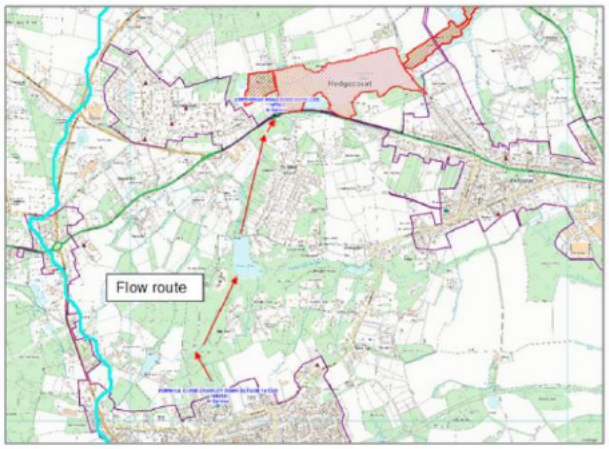
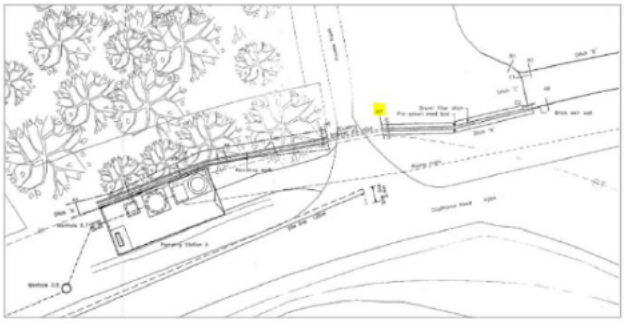


Figure 8 - Locations of Intermittent Discharges Upstream Of the SSSI

Although Fernhill Close Crawley Down Outside 10 CSO is found upstream of the SSSI, this asset will not form part of the investigation. This is for the following reasons, which lead to the conclusion it is highly unlikely that the asset will have any significant contribution to the SSSI:

1) The asset has a very low annual spill count, and therefore has a very low chance of contributing much sediment to the SSSI, even with full connectivity
2) The asset is approximately 3km from the SSSI. The discharge flows through a series of drains which flow through wooded areas, and are expected to be very low flow – this will give sediment lots of opportunity to settle
3) The flow passes through Furnace Pond, which will give additional opportunity for settling of sediment
4) Due to the low spill count, even with full connectivity, there will be no realistic possibility of finding a cost beneficial solution to address the spills

Copthorne Road Domewood CEO discharges to the local ditch via a reedbeds. This may have an impact on the likely amount of TSS reaching the SSSI. This will be assessed during the site walkover, and may lead to other sampling being required. Figure X and Figure Y show a drawing of the compound and discharge location, including the reed and filter bed detail. Since these drawings are from around 1998, these need to ratified via a site visit.



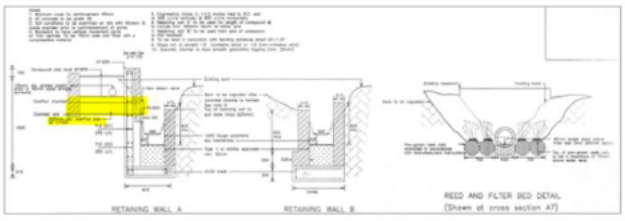


Figure 9 – Copthorne Road Domewood CEO / WPS Drawings

1.1.3. Study Approach

The focus of this study will be on apportioning the sediment load to one SWS asset, Copthorne Road Domewood CEO, and determining how these contribute to the features failure to achieve Favourable status.

This study is not focussed on nutrient loads, and therefore will not include water quality analysis.

SWS will obtain data on the sediment load reaching the lake from Copthorne Road Domewood CEO, and utilise sediment source tracking and turbidity analysis to accurately apportion sources. Wastewater particulates have high turbidity but low mass compared with agricultural load. This approach will limit the risk of over estimating sewage load (as compared to if only turbidity is used). By doing this, SWS will be able to isolate impact of Copthorne Road Domewood CEO from other diffuse source Agriculture / Road Runoff. By determining the apportionment of sediment to the lake and the annual average sediment load from the overflow, SWS will be able to determine an approximate total annual sediment load to the SSSI.

By determining a mass balance of sediment into and out of the lake, SWS will be able to determine an annual sediment reduction into the lake to ensure there is no net deposition.

1.1.4. Sampling

A sample of the effluent from the Copthorne Road Domewood CEO will be sampled and analysed. This will be done either via a sample being taken manually from the overflow chamber, or by installation of an autosampler. These samples will be analysed for Total Suspended Solids. This data will be used alongside the approximate annual spill volumes to determine the annual sediment volume reaching the lake.

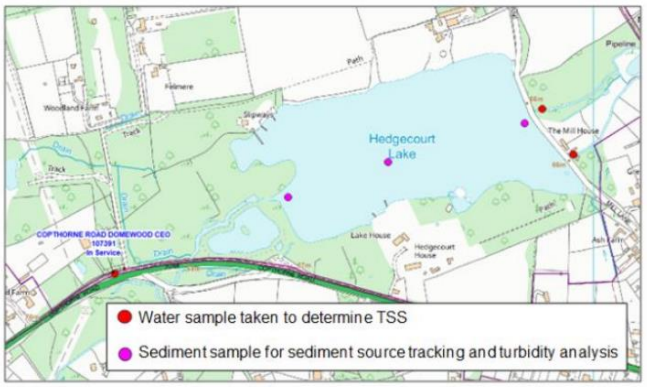


Figure 10 - Indicative Sampling Locations

Flow data on the outlets from the lake will also be collected to allow determination of load leaving the site.

The data to be collected is summarised as below – at this stage no walkover has been completed, and therefore the locations are indicative only:

Sample location	Sampled for	Method	Number of samples / duration	LOD	Justification
Copthorne Road Domewood CEO spill	Total Suspended Solids (TSS)	Autosampler / spot sample	At least 3 samples across 1 spill event	N/A	This data will help determine how much solids are discharged to the SSSI when coupled with spill data (duration or volume)
Sediment at inflow to lake	Sediment source tracking and turbidity analysis	Spot samples	1 sample	N/A	This will help determine the source apportionment of sediment across the lake. This will help conceptualise where sediment across the lake comes from. May require boat access
Sediment in middle of lake					
Sediment at the eastern end of the lake					
Northern outflow from lake	Total Suspended Solids (TSS)	Spot samples	1 summer, 1 winter	N/A	Together this will help determine the volume of sediment leaving the lake
	Flow measurement	Flow monitoring	1 month summer, 1 month winter		
Southern outflow from lake	Total Suspended Solids (TSS)	Spot samples	1 summer, 1 winter	N/A	Together this will help determine the volume of sediment leaving the lake
	Flow measurement	Flow monitoring	1 month summer, 1 month winter		

Note, sediment samples may need to be taken by boat. A site walkover will be conducted, and opportunities to avoid boat use will need to be considered due to the logistical challenges associated with using boats.

1.1.5. AMP8 Obligations

A review of the WINEP4 document shows no schemes or studies linked to any other upstream assets.

Felbridge WTW has a WFD_IMPg driver in AMP7 to bring the P permit to 0.25mg/l (mean), and a U_MON3 driver.

Felbridge CSO has an ENVACT_INV4 associated with it however. This won't impact the findings of the study though and can therefore be disregarded with respect to investigation.

Hedgecourt SSSI

- In principle, it does not seem that there is any particular justification for SWS to investigate here. The only asset that could contribute sediment is Copthorne CSO, but it does not seem there is any real justification for why we think sediment is coming from us, vs anyone else. It's a low(ish) spilling site with low flows, and the site is surrounded by fields which surely are a more logical source of sediment?
- There is also refernce to the sediment being an issue due to penstock control which is outside of SWS remit or control, although mechanisms to better address it could be suggested if we feel appropriately
- The treatment works will be excluded since it is DS of the SSSI

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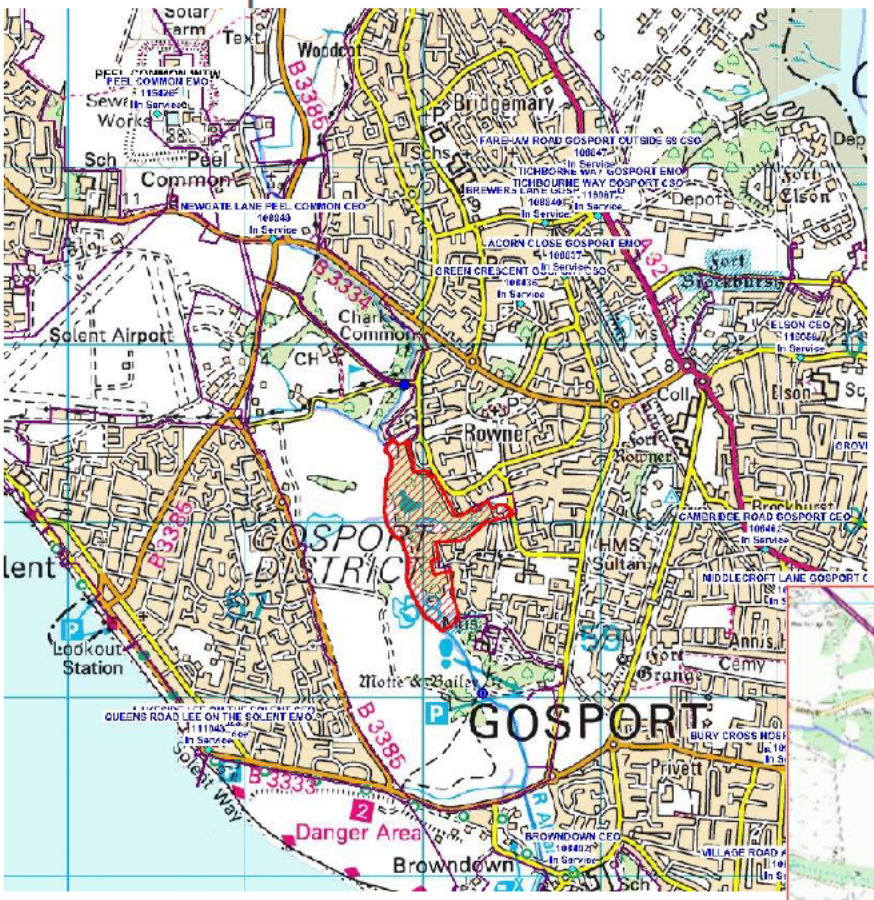
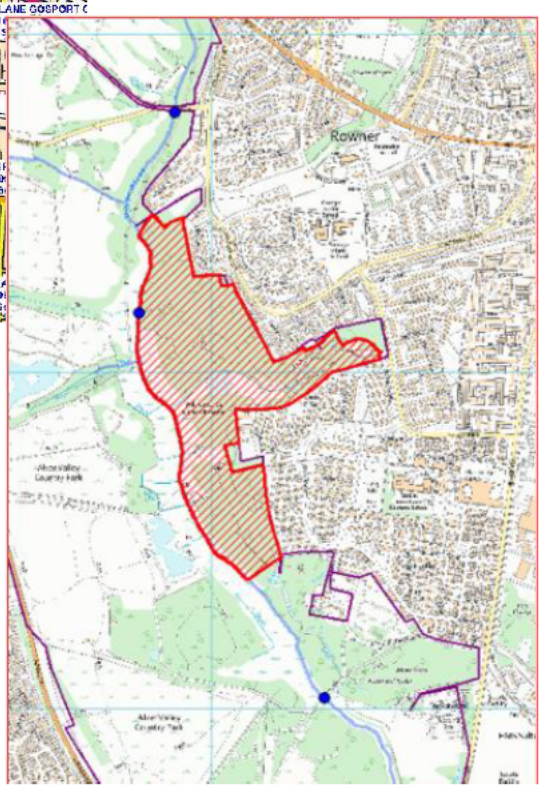
The condition of Hedgecourt Lake SSSI is "unfavourable" due in the main to siltation. As a result, the EA and NE required a SSSI investigation to be added to the WINEP for us to assess the impact of our assets and activities on the siltation of the lake. The information shown above was provided to the EA and NE as we developed the scope of the investigation for our Action Specification Form (ASF) submission. Based on this information and a discussion with the regulators, the EA and NE have now accepted that our assets and activities are not materially impacting the siltation of the SSSI and the investigation has been removed from the WINEP.

Appendix B: Scoping an Investigation

The snapshot below illustrates an example of the GIS analysis that we complete to assess the extent of the site under investigation, the potential number of monitoring locations and proximity of Wastewater assets to the study site. We use this information in the scoping of the investigation and assessment of costs for business planning purposes.

Site Description – Wild Grounds SSSI





Wastewater assets labelled in map above

Potential monitoring locations shown by blue dots on map to the right.