

SRN45 First time sewerage (S101A) Enhancement Business Case

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from
**Southern
Water** 

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Glossary

Acronym	Term
EA	Environment Agency
ALP	Asset Lifecycle Process
R&V	Risk and Value

Executive Summary

The First Time Sewerage scheme is the existing mechanism for customers to apply to us to extend our wastewater systems to cover more remote properties. These represent new connections and treatment requirements hence require enhancement investment. Our proposed investment is based on a triangulation of:

- Our assessment of Ofwat’s econometric modelling allowance
- An assessment of historic S101A programme investment
- An assessment of applications to date which are not showing a need for atypically large or complex schemes in AMP8

Summary of Enhancement Case	
Name of Enhancement Case	First time sewerage (S101A)
Summary of Case	<p>Southern Water has a legal duty to assess the most economical and practical way to provide effective drainage where environmental or amenity problems exist or are likely to arise from their existing drainage system. We must ensure that we have appropriate capacity in our drainage and treatment network to support the delivery of first-time connections, minimising any impact on existing customers.</p> <p>We are proposing an investment of £5.6m based on an assessment of Ofwat’s econometric funding allowances and historic programme costs.</p>
Expected Benefits	<ul style="list-style-type: none"> • Delivery of a statutory requirement • Provision of first-time sewerage to reduce the reliance on previous systems such as cesspits, therefore reducing the potential for private pollution incidents. • A proactive approach to drainage systems that are currently under performing.
Associated Price Control	Wastewater Network plus
Enhancement TOTEX	£5.6m
Enhancement OPEX	n/a
Enhancement CAPEX	£5.6 million

Is this enhancement proposed for a direct procurement for customer (DPC)?	no
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1. Introduction and Background

Southern Water¹ has a legal duty to assess the most economical and practical way to provide effective drainage where environmental or amenity problems exist or are likely to arise from existing drainage system. This is a legal obligation under S101A of the Water Industry Act 1991 which came into effect on 1 April 1996.

We are submitting a business case for S101A, which is first time sewage. This expenditure represents the provision of service to new customers who are not currently connected to our drainage system.

The First Time Sewerage scheme is the existing mechanism for customers to apply to us to extend our wastewater systems to cover more remote properties. Any works conducted under S101A applications would not fall within the remit of capital expenditure/ BOTEX as S101A applications look to remove the reliance on private ineffective drainage systems and provide new connections to the sewer network and not invest into the current assets. Therefore, we are submitting this as an Enhancement case, which is in line with the PR19 Submission. As this is an enhancement, it will not be funded through the BOTEX models or any other base cost. The treatment of these costs is consistent with the approach taken at PR19.

Applications¹ have a number of assessments completed before being considered by Southern Water as the complexity level is varied per application. For example, the S101A enhancement scheme for Three Oaks village has required large investment in the sewer network & treatment works spanning over multiple AMPs, whereas smaller applications can be completed within a single AMP.

Our plan for first time sewerage is based on:

- Our assessment of expected allowances as informed by econometric modelling
- A cross check against historical investment, excluding atypical investment requirements

Both approaches support our proposed investment need of £5.6 million to deliver 83 units.

As part of the process, the below information is reported yearly as part of the OFWAT Compliance Framework. These also feed into lines CWW6.1 & CWW6.2 in the data tables.

Table 1-1: The Data Lines submitted to OFWAT Yearly

Connectable properties served by S101A schemes completed in the report year
Number of S101A schemes delivered in the report year

The reportable figures combined with past financial investment in AMP6&7 form the basis for forecasting volumes into AMP8, given the ad hoc nature of applications.

1.1. Primary driver

Southern Water has an obligation to consider S101A applications under S101A of the Water Industry Act 1991. These applications are reviewed to determine if the current drainage system is fit for purpose with economic considerations. Due to the nature of the applications new infrastructure are provided as an enhancement on the previous system (e.g., cesspits) or to connect the properties for the first time to the sewer network.

1.2. Secondary Drivers

Environmental Impact - by reviewing these as enhancement cases, we have the ability to improve the surrounding environment and reduce the potential for pollution incidents.

Customer Impact – By installing a more suitable drainage system the potential impact of a pollution event is greatly reduced for the individual.

Regulator involvement- The EA is in full support of more robust drainage systems and pushes to reduce the reliance on potentially damaging drainage systems.

S101A applications are submitted by individual parties if there is believed to be environmental or amenity problems, or they are likely, to arise from their existing drainage system. The application goes through a preliminary assessment to determine:

- If the application meets the basic requirements of S101A and,
- If a significant environmental impact or amenity problem exists within the Environmental Impact Area and
- If the problem is unlikely to be solved practically in the long term by the repair, proper maintenance, or reconstruction of the existing private drainage systems.

A more detailed assessment² takes place for applications that meets the preliminary assessment criteria to assess possible options (provision of a new public sewer, remedying existing systems etc) in accordance with the DEFRA Guidance, in each case assessing the expected environmental, or amenity benefits and the costs of implementing alternative solutions.

Southern Water adopts the provision of a new public sewer if it is considered to be a preferred option in the light of the best available evidence.

Three basic requirements need to be considered by the applicant:

- that the premises in question, or any of those premises, are premises on which there are buildings.
- that the drains or sewers used for the drainage for domestic sewerage purposes of the premises in question do not, either directly or through an intermediate drain or sewer, connect with a public sewer; and
- that the drainage of any of the premises in question is giving, or is likely to give, rise to such adverse effects to the environment or amenity that it is appropriate, having regard to S101A legislation and the associated guidance issued by the Secretary of State as well as other relevant considerations, to provide a public sewer for the drainage for domestic sewerage purposes of the premises in question.

From years 2004 - 2023, 689 properties have been connected to the network across 9 completed S101A schemes as illustrated in table 4 below.

Table 1-2: The number of applications received per AMP

AMP Period	Number of New Applications Received in AMP (excluding Carry over)	Total Number Projects carried over from Previous AMP
AMP 4	10	2
AMP 5	2	8
AMP 6	1	5
AMP 7	6	6

There has been a total of 19 applications that have had expenditure since 2004, this includes four applications where assessment led to rejection. Additionally, there were 2 projects where connections were made prior to 2004 but project close out was completed in AMP4.

Due to the varying application size and geographical location a unit price per project has been calculated. Table 3 and Graph 1 highlights that the majority of projects fall across at least two AMPs unless they are small applications received very early within the AMP.

This unit price analysis highlights three expected trends:

- Applications where investment is needed in treatment works or pumping stations (Three Oaks and Avington Park) have a higher cost per unit.
- Applications where the number of properties falls between 40-70 units have the smallest costs per unit. These can be a few reasons for this for example, mid-range of properties solutions are less likely to need above ground investments (treatment works), a more central location can be utilised for sewer connection resulting in less land access constraints.
- Areas that are more isolated generally have a large unit cost. This is due to need for longer sewer connections, more permitting requirements as the villages are normally older with several listed properties/ historic landmarks.

Table 1-3: All known S101a Projects from AMP4- AMP7 with calculated unit price in line with 2022-2023 prices

No.	Project	Total Properties	Spend per Unit (£000's)	Total Spend (£000's)	Number of AMPs Work Spanned
1	Marchwood	Rejected			
2	Stone Cross Hailsham Road	44	28	1241	2
3	Hambledon and Wormley	138	73	10094	2
4	Dorman's Park	73	26	1925	2
5	Minstead	Rejected			
6	Harlands Villas	Connection Prior to AMP4			
7	Bosham Hoe	123	73	8918	4
8	Forewood Lane	Connected Prior to AMP4			
9	Mountfield Village	71	184	13031	4
10	Three Oaks	124	118	14605	4
11	Rushlake Green	72	61	4361	2
12	Rew Street Gurnard IOW	Rejected			
13	Snowdown Village	46	41	1863	3
14	Avington	38	48	1831	4 (full connection of properties in AMP8)
15	Meadow View	17	10	167	2
16	Bracken Hall	25	36	890	2 (Construction to be completed in AMP8)
17	Rose Cottage	3	25	74	1

18	Porters Lane	3	124	371	1
19	Triangle Oast	6	TBC	TBC	2 (Application received 2023)
20	Hermitage Lane	Rejected			
21	Fords Green - Nutley	4	TBC	TBC	2 (Application received 2023)

Table 1-4: Reported Figures to OFWAT 2004-2023

Financial Year end	Schemes completed	Properties connected
2004 - 2005	0	0
2005 – 2006	0	0
2006 - 2007	0	0
2007 - 2008	0	0
2008 - 2009	0	0
2009 - 2010	3	305
2010 - 2011	0	0
2011 - 2012	0	0
2012 - 2013	0	0
2013 - 2014	0	0
2014 - 2015	1	123
2015 - 2016	0	0
2016 – 2017	0	0
2017 - 2018	0	0
2018 – 2019	2	195
2019 - 2020	1	46
2020-2021	0	0
2021 -2022	2	20
2022-2023	0	0

Table 1-5: Links to Ofwat PR24 data table lines

Links to data table lines		
Enhancement	Table	Line
	PR24 Data Table	CWW6.1
	PR24 Data Table	CWW6.2

Currently not associated with any PC deliverables data lines.

2. Needs Case for Enhancement

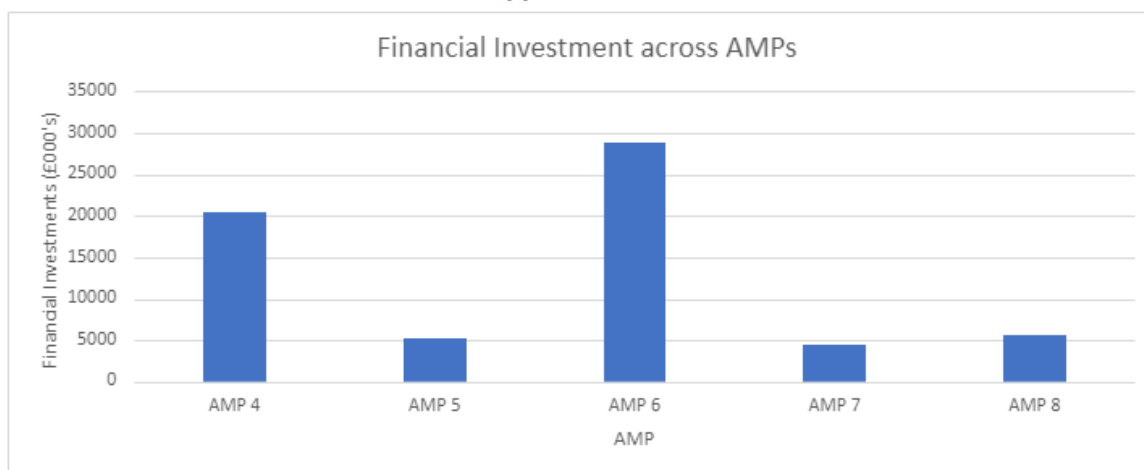
As stated in the introduction, Southern Water has a legal Obligation to review the S101A applications when they are submitted.

The process consists of two assessments before entering the Asset Lifecycle Process (ALP) once a project has been given approval.

During the ALP, consideration of the solution determines the level on enhancement given to the network. Depending on the complexity of the submission this can be as big as building treatment works and creating multi-AMP construction schemes. Through the historical delivery of these schemes from AMP4 to AMP7 it is clear that projects are varied but deliverable.

Based on the historical trends in Figure 1, the S101A programme is variable but there is a clear base level of investment required every AMP. AMP4 and AMP6 investment were both unusually large as they included atypically large schemes.

Figure 1: The financial investment in s101a applications from AMP4 - AMP8



The process for larger schemes spans more than one AMP period. At this stage, no large schemes have been submitted, so we are confident that the programme for AMP8 will remain at the lower level. This is in line with the modelled allowances used for PR19.

Within our longer-term Drainage and Wastewater Management Plan (DWMP), we expect there to be an increasing stakeholder interest in the environmental risk of isolated sewerage systems. We believe the EA will push more owners to consider an application before any individuals permit is renewed.

Our powers and responsibilities do not extend to private sewers, such as the pipes connecting individual homes to the public sewer, so leakage from these sewers will not be addressed through our current investment plans. We're pleased that the government is considering giving water companies the right and legal powers to repair defective drains on private property.

The total length of privately owned drains is greater than that owned by water companies. Many of these private drains are old or poorly maintained and probably constructed and laid to lower standards than public sewers.

There are many small communities that are not connected to our wastewater systems, and there are concerns about the suitability of arrangements for wastewater disposal, especially for new developments.

Our wastewater systems serve approximately two million homes and businesses across our region, mainly located in urbanised areas. The majority of the geographic area, more than 70%, is rural with many villages, settlements and farms without a mains wastewater drainage system. An emerging concern is the risk of pollution of groundwater in Source Protection Zones (SPZs) due to routine releases from non-networked settlements and/or private leaking sewers and poorly maintained septic tanks.

The First Time Sewerage scheme is the existing mechanism for customers to apply to us to extend our wastewater systems to cover more remote properties. Our findings in the DWMP suggested that the process for first time sewerage schemes is too difficult and complex. This means that wastewater systems are not being extended to areas where a connection would be feasible therefore increasing the risk of groundwater pollution. These findings also highlight the aversion for customers to apply given the complexity and scheme delivery times associated.

Where recent schemes have been provided by us, some customers are choosing not to connect as they would then be liable for wastewater service charges. A change in government policy and legislation is required for the provision of first-time sewerage schemes. The costs and benefit assessment should take account of the downstream costs of these releases on drinking water treatment, as well as the environmental impacts which can be quantified as part of the assessment.

3. Best Option for Customers

As outlined earlier in this document, S101A applications are submitted by individual parties if there is believed to be environmental or amenity problems, or they are likely, to arise from their existing drainage system. The application goes through a preliminary assessment to determine eligibility, before a more detailed assessment is undertaken to assess possible solution options. This considers for example the provision of a new public sewer or remedying existing systems in accordance with the DEFRA Guidance.

Consequently, our optioneering approach for S101A applications is focused on the appropriate process for forecasting expenditure requirements, rather than the selection of specific solutions. This can only take place in response to applications which are yet to be received and after assessing site specific factors.

Table 3-1: Optioneering overview

#	Option	Decision	Overview
1	Do Nothing	Considered	Not a feasible option as Southern water has a legal obligation to provide first time sewerage scheme as per S101a of the Water Industry Act.
2	Option 1 – standard programme	Adopted	<p>The process in which Southern water progresses schemes will remain the unchanged in AMP8. As it stands, Southern water has received any applications that indicate a need for atypically large or high complexity schemes requiring construction within AMP8.</p> <p>We are proposing a ‘standard’ investment programme of £5.6m, based on historic levels of investment and expected econometric modelling.</p> <p>If such a large or atypical application is received there is a risk that more money is needed. However, historical schemes highlight that several years of surveying and design are needed before construction can begin allowing for larger costs to be attributed into AMP9 if necessary.</p>
3	Option 2 – enhanced programme	Considered	<p>AMP4 and AMP6 required investment between £20m to £30m, due to atypically large schemes being required.</p> <p>We have not received any large application to date and therefore do not expect AMP8 to require an enhanced level of investment.</p>

The process through which Southern Water progresses schemes will remain the unchanged in AMP8. The financial benefit is assessed via the capital and operational cost of new sewer. This considers the CAPEX and OPEX cost that would be required to install the new sewer, divided by cost of any repair / replacement of the existing system and the cost of any maintenance / emptying costs as outlined in MOS 337. Whilst environmental factors are required for an application to be pursued, the benefit is determined through assessing the financial value. This financial benefit feeds into the Southern Water R&V process as described in [Cost and Option Methodology Technical Annex \(SRN15\)](#). For larger more complex applications there may be multiple options to consider through the R&V process others may only have one option.

4. Cost Efficiency

The project length is dependent on the year the application is received, total number of properties and the proximity the application has to our network. Therefore, it is hard to determine the exact length of a project without first assessing an application. For example, the Triangle Oast application that was received in 2023 will be completed in AMP8, but if the application were received at the beginning of the AMP all works would have been completed within the same AMP.

Ofwat used a model to estimate required allowances at PR19. We have developed our own model, based on this, to estimate the cost we will incur during AMP8 for first time sewage. We used a historical and a forecast model and assigned equal weight to each. Firstly, we used a pooled OLS model on historical data to estimate the impact of connectable properties, and the square of that variable, on first time sewage costs incurred. We then used a forecast model using forecast values of the same independent variables. The forecast values are derived in exactly the same way that Ofwat did at PR19, that is, they are the company forecasts of the cost drivers. The models that we use are the same ones that Ofwat used at PR19 and produce the same coefficients, which maintains the same relationships between the dependent and independent variables.

We consider that the allowance that we estimate is efficient through the efficiency challenge applied in the model that we use. The efficiency challenge is applied to the triangulation of the two versions of the model: The historical and the forecast versions. We apply the same efficiency challenge that Ofwat did at PR19. Through this exercise, we estimated a required allowance of £5.6m, based on an expected volume of activity of 83 units multiplied by the coefficients that come from the model. We trust these coefficients because they accord with those that OFWAT used for PR19. See Appendix ^{TA7.1} for the attached model

We believe that 83 units is the correct volume of activity for the following reasons:

- The number of applications received to date show that no schemes larger than 25 have been received during the current AMP.
- Applications between 10-25 properties are likely to fall across 2 AMPs if received in the latter part of an AMP. We have received only 1 application of this size in AMP7.
- New applications where construction has not been funded in AMP7 will equate to approximately 35 (confirmed: Bracken Hall and Triangle Oast). This is the same as the number of carry over applications into AMP7, where £5m was spent.
- We predict that applications received between 2024-2026 will be applicable for delivery at the latter part of AMP8, and current planned projects will be completed in the early years of AMP8.
- There is a carry over of up to 38 units from Avington which will have connectable properties in March-April 2026 with construction being completed in AMP7, so minimal spend will be required for project close out.

Although we are starting to see an increase in applications compared to AMP5/6 due to application size build out is more likely to be completed within one AMP period. Therefore, the spend and potential new connections for AMP8 are anticipated to be comparable to AMP7 which supports our proposed £5.6 million investment need for AMP8.

Due to the unknowns around application submission the decision to reflect £5.6 million per AMP in the LTDS core plan has been carried forward, as it is more beneficial to keep customer bill unaffected until more evidence for increased investment is seen. This has been evidenced through the scale of applications we have seen to date and their delivery timelines.

Table 4-1: The number of Applications with spend in AMP7

Project	Total Properties	AMP Application Received
Bosham Hoe	123	AMP4
Mountfield Village	71	AMP4
Three Oaks	124	AMP4
Snowdown Village	46	AMP4
Avington	38	AMP5
Meadow View	17	AMP6
Bracken Hall	25	AMP7
Rose Cottage	3	AMP7
Porters Lane	3	AMP7
Triangle Oast	6	AMP7
Hermitage Lane	Rejected	AMP7
Fords Green - Nutley	4	AMP7

For projects that are low complexity a direct award route is taken, which allows for a quicker delivery for the customer. The project is also applicable to follow an R&V¹ light route which allows for R&V steps to be combined within one session. This includes the initial and preliminary assessment being completed in one session.

(See Appendices for attached R&V templates for the following projects: Rose Cottages & Porters Lane A7.2, Brackenhall A7.3)

For projects of larger complexity such as Three Oaks A7.4, the R&V process is longer, and contracts will be sent for tender. These larger projects require a number of ecological surveys as well as different engineering perspectives resulting in them spanning multiple AMPs as standard. Three Oaks for example needed to have design completed for both Network and Treatment upgrades in order for the small village to connect.

The followed R&V process and subsequent design process Southern Water's legal obligation is fulfilled, and the design process allows for a solution that is a neutral impact on any performance commitment.

¹ [A description of our Risk and Value Process is explained in Cost and Option Methodology Technical Annex \(SRN15\)](#)

5. Customer Protection

As outlined in section 1.2, Southern Water undertakes a detailed assessment for S101A applications that are submitted by the residents; expected environmental, or amenity benefits and the costs of implementing alternative solutions are considered during the assessments. These assessments ensure that investment risks are reduced, and customers will not see any impact of unjustified cost. When this preliminary assessment takes place, the following factors are considered based on the outlined process in MOS ²160 & MOS 337:

MOS 160

CONTROLLED DOCUMENT

Issue No: 1

2 of 2

Date: January 2006

The Section 101A Assessment Procedure is a three-stage operation.

- An Initial Assessment to ensure an Application meets the basic requirements of the S101A legislation.
- A Preliminary Assessment to establish if there is a probability of it meeting the remaining requirements.
- If the application passes the Preliminary Assessment stage consultants are engaged to undertake the Detailed Assessment Stage to identify the Company's precise obligations to provide new sewers under S101A.

MOS 337

CONTROLLED DOCUMENT

Issue No: 1

Page 12 of 14

Date: January 2006

The result of the Preliminary Assessment shall be based on the value of the ratio (R) as follows:

$$R = \frac{\text{Capital and Operational Cost of new sewer}}{(\text{Repair \& Replacement cost of maintaining existing system}) + (\text{Emptying \& Maintenance costs})}$$

using net present values over a 60-year period.

If R is equal to or less than 2.0, the Application will be deemed to warrant further detailed investigation and a S101A First Time Sewerage scheme is to be sponsored.

Should (R) be greater than 2.0, the Application shall be deemed to have failed to meet the necessary criteria at this stage and will be rejected.

As outlined in MOS 337, in order to be accepted the proposed connection must have a 60-year whole life cost benefit to be approved for design. Where this is not met, such as for the Hermitage application A7.5, the application is rejected. In summary, projects are only advanced through to design once these requirements are satisfied, meaning that customers are only funding eligible and beneficial projects.

Once it is deemed applicable that the potential investment meets the requirements, the project is allowed to follow the ALP through risk and value workshops & investment decision phases. The complexity and size of

² More information is in Manual of Sewerage MOS160, MOS337 and MOS 425 respectively.

the application (considered in the preliminary stage) will determine the projects delivery route. As the projects follow the ALP process, they all reach a lessons learnt stage that is captured in the current process, the outcomes of this will adjust how we deliver in the future.

Our overall approach to S101A protects customers by requesting funding in line with historical requirements observed over previous AMPs. Our proposed investment of £5.6m is consistent with previous experiences where significant projects have not been required in an AMP.

Due to the nature of these projects, there is no third party arrangements nor is it applicable to affordability criteria, due to the low cost being encompassed as part of existing customer bills.

We are not proposing a Price Control Deliverable (PCD) for this enhancement expenditure because at £5.6m, this expenditure is below the materiality threshold of 1% of wastewater totex (equivalent to £41.6m).

6. Conclusion

Section	Key Commentary	Page
Introduction & Background	<p>Southern water has a legal obligation to review S101a applications for first time sewerage connection for existing properties.</p> <ul style="list-style-type: none"> • Our process of assessment • Current schemes & reported connections since 2018 	6-8
Need for Enhancement Investment	<p>This is an enhancement case as this represents new connections required to meet statutory requirements. This is consistent with previous Price Reviews</p>	9
Best Option for Customers	<p>A view of the potential options considered:</p> <ul style="list-style-type: none"> • Do nothing • Standard investment programme - adopted • Uplifted programme due to atypically large or complex schemes 	9
Cost Efficiency	<p>We use the most appropriate delivery route, with many schemes able to follow the lower cost R&V light process</p>	9-10
Customer Protection	<p>Outline of the current assessment for customer protection</p>	10

References

- ¹ The Southern Water Process is published on our website: [First time sewerage scheme \(southernwater.co.uk\)](https://www.southernwater.co.uk)
- ² More information is in Manual of Sewerage MOS160, MOS337 and MOS 425 respectively.

Appendix

All available on request

SRN45 Appendix 1	Enhancement Model for s101a
SRN45 Appendix 2	Rose Cottage & Porters Lane R&V3.1 template
SRN45 Appendix 3	Bracken Hall R&V Template
SRN45 Appendix 4	Three Oaks R&V Template / Presentation
SRN45 Appendix 5	Hermitage Lane R&V presentation