



Drainage and Wastewater Management Plan

Tonbridge
Wastewater System Plan



from
**Southern
Water** 

Contents

Wastewater System Map

Problem Characterisation

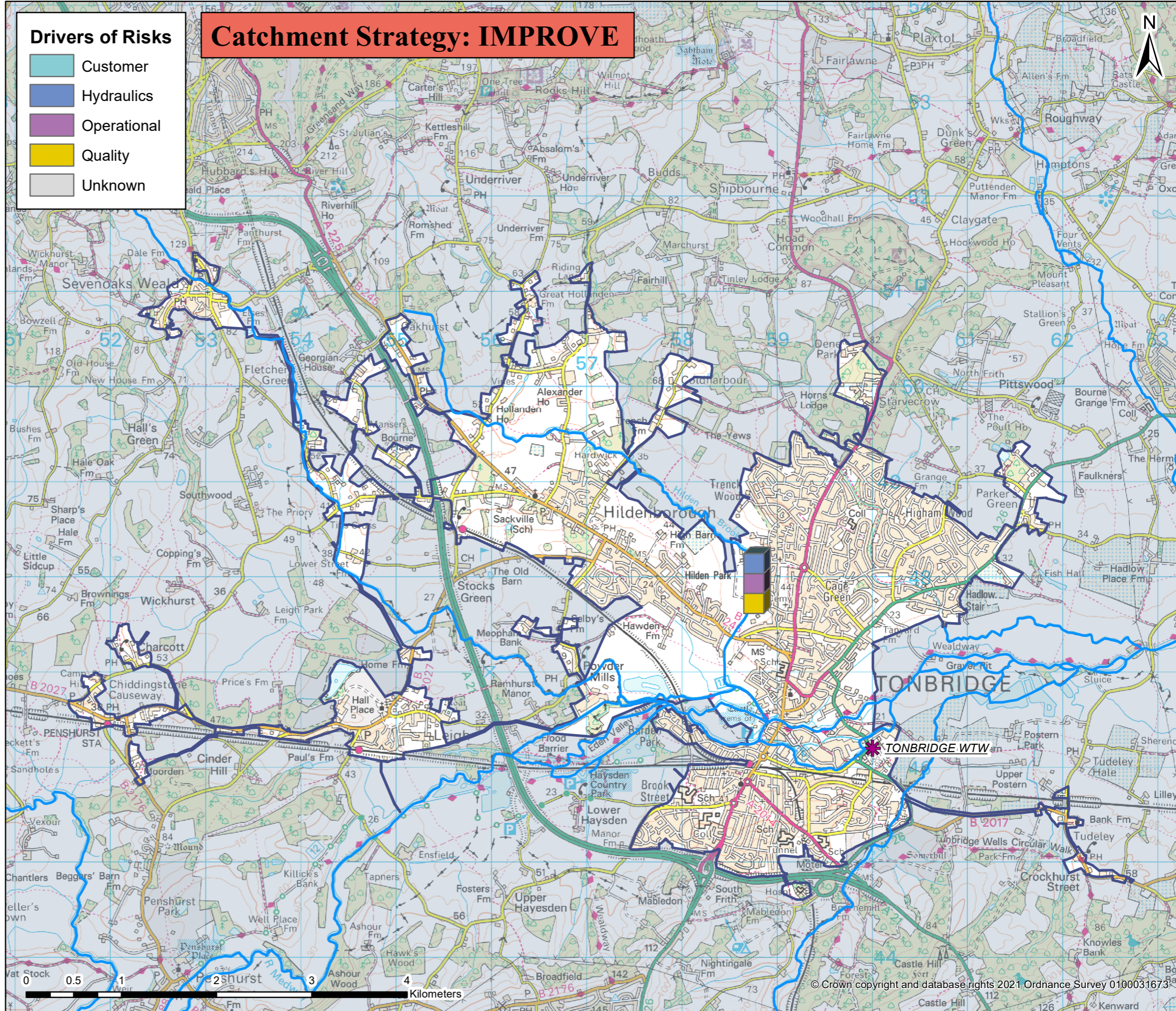
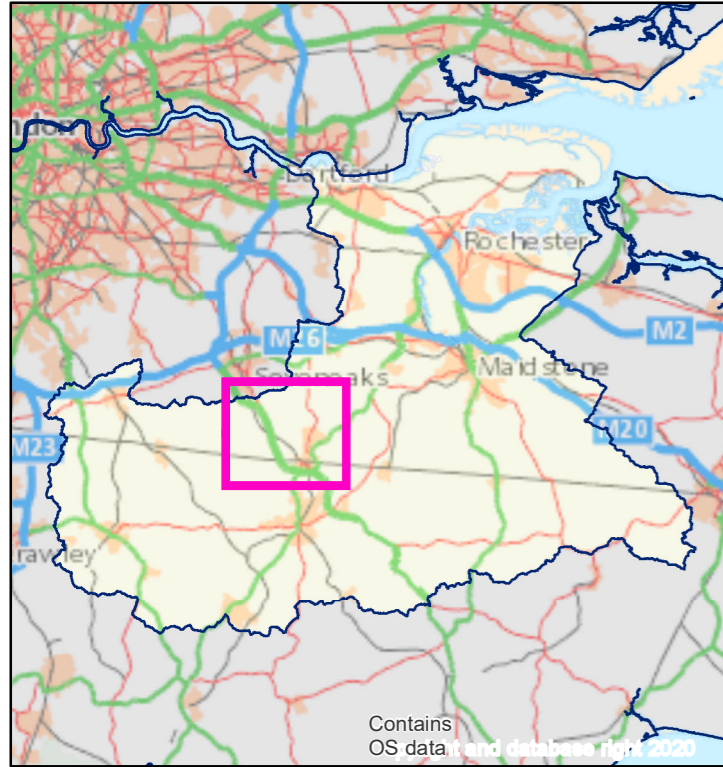
Generic Options

Outline Option Appraisal

Investment Needs

Location of Potential Options

Tonbridge wastewater system: map and key facts



Population Equivalent (PE)	45,768
Discharge Waterbody	Botany Stream
Number of Pumping Stations	52
Number of Overflows	19
Length of Sewer (km)	489.9
Catchment Reference	TONB

BRAVA Results Table (TONB)		
Planning Objective	2020	2050
1 Internal Sewer Flooding Risk	0	
2 Pollution Risk	2	
3 Sewer Collapse Risk	1	
4 Risk of Sewer Flooding in a 1 in 50 year storm	1	1
5 Storm Overflow performance	2	2
6 Risk of WTW Compliance Failure	1	1
7 Risk of flooding due to Hydraulic Overload	2	2
8 Dry Weather Flow Compliance	0	1
9 Good Ecological Status / Potential	0	
10 Surface Water Management	1	
11 Nutrient Neutrality	NA	NA
12 Groundwater Pollution	1	
13 Bathing Waters	NA	
14 Shellfish Waters	NA	



Problem Characterisation Tonbridge (TONB)

This document describes the causes of the risks identified by the Baseline Risk and Vulnerability Assessment (BRAVA). The BRAVA results for this catchment are summarised in Table 1. The results indicate that flooding, pollution and water quality are the main concerns in this wastewater catchment. We have completed risk assessments for 2050 where we have the data and tools available to do so. For the other planning objectives, we will explore how we can predict future risks for the next cycle of DWMPs. All the risk assessment methods need to be reviewed after the first DWMPs have been produced with a view to improve the methods and data for future planning cycles.

Table 1: Results of the BRAVA for Tonbridge wastewater system

Planning Objectives		2020	Driver	2050
1	Internal Sewer Flooding Risk	0	-	
2	Pollution Risk	2	Operational	
3	Sewer Collapse Risk	1	Operational	
4	Sewer Flooding in a 1 in 50-year storm	1	Hydraulic	1
5	Storm Overflow Performance	2	Hydraulic	2
6	WTW Water Quality Compliance	1	Quality	1
7	Flooding due to Hydraulic Overload	2	Hydraulic	2
8	WTW Dry Weather Flow Compliance	0	-	1
9	Good Ecological Status / Good Ecological Potential	0	-	
10	Surface Water Management	1	Hydraulic	
11	Nutrient Neutrality	NA	-	NA
12	Groundwater Pollution	1	Operational	
13	Bathing Waters	NA	-	
14	Shellfish Waters	NA	-	

Key

BRAVA Risk Band	
NA	Not Applicable*
0	Not Significant
1	Moderately Significant
2	Very Significant

*No issues relevant to planning objective within Wastewater System

Catchment Investment Strategy

The risks identified in this wastewater catchment mean that we have assigned the following investment strategy:

Improve

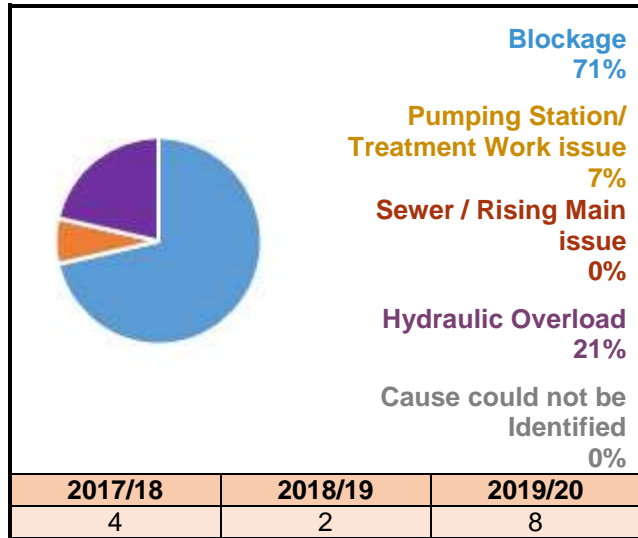
This means that we consider that the current performance of the drainage and wastewater system needs to be improved to reduce the impacts on our customers and/or the environment. We will plan investment to reduce the current risks by actively looking to invest capital funding in the short term to address current performance issues (and consider future risks when implementing improvements).



Planning Objective 1: Internal Sewer Flooding Risk

The number of internal sewer flooding incidents reported during the three years considered by the risk assessment are shown in Figure 1. The total number of connections in this wastewater system means there have been less than 1.68 incidents per 10,000 connections per year (a threshold set by Ofwat) so the risk is in the 'not significant' band.2

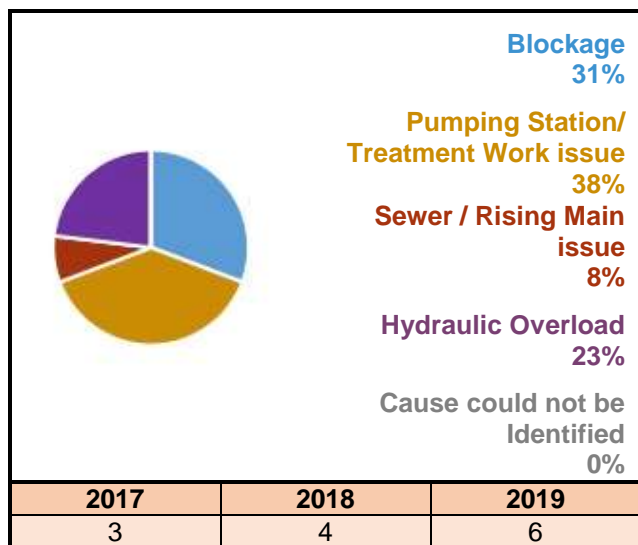
Figure 1: Number of internal flooding incidents per annum and causes



Planning Objective 2: Pollution Risk

The number of pollution incidents reported during the three years considered by the risk assessment are shown in Figure 2. The length of sewer in this wastewater system means there have been more than 49.01 incidents per 10,000km per year (a threshold set by Ofwat) so the risk is in the 'very significant' band.

Figure 2: Number of pollution incidents per annum and causes



The primary driver for pollution is 'Operational' due to asset operational issues. Asset operational issues at our pumping stations and treatments works are the main cause of incidents, contributing to 38% of all incidents recorded in this wastewater system.

Planning Objective 3: Sewer Collapse Risk

The number of sewer collapses reported during the three years considered by the risk assessment are shown in Table 2. The length of sewer in this wastewater system means there have been between 5.72 and 9.44 incidents per 1,000km per year (a threshold set by Ofwat), the risk is in the 'moderately significant' band.

Table 2: Sewer collapses and rising main bursts

Sewer Collapse	2017/18	2
	2018/19	3
	2019/20	0
Rising Main Bursts	2017/18	1
	2018/19	2
	2019/20	1

The primary driver is 'Operational' as the cause of these collapses and bursts is due to the age and condition of the sewers.

Planning Objective 4: Sewer Flooding in a 1 in 50 Year Storm

The risk of flooding in a 1 in 50 year storm is moderately significant in 2020 and 2050. This is because our computer model of the sewer network indicate for 2020 that approximately 1200 - 1300 properties within this wastewater system are in areas that could flood by water escaping from sewers. This model prediction increases the number of properties in areas at risk from flooding to approximately 1600 - 1700 by 2050.

Our wastewater networks are generally designed with capacity for up to a 1 in 30 year storm, hence flooding is expected to occur during more severe storms such as a 1 in 50 year event. Flooding will occur due to insufficient capacity of the drainage system either on the surface before it enters the drainage system, and/or from manholes, in people's homes or at a low point elsewhere in the system.

Planning Objective 5: Storm Overflow Performance

The storm overflow performance risk has been assessed as very significant for both 2020 and 2050. Table 3 shows the overflows that discharge above the low threshold set for storm overflow discharges to Shellfish Water, Bathing Water and inland rivers.

The primary driver for the Storm Overflow Performance is 'Hydraulic.'

Table 3: Overflows exceeding discharge frequency threshold per annum

	Number of overflows		Threshold for number of discharges per annum		
	2020	2050	Low	Medium	High
Shellfish Waters	0 Medium	0 Medium	Less than 8	Between 8-10	10 or more
Bathing Waters	0 Medium	0 Medium	Less than 3	Between 3-10	10 or more
Freshwater	5 High	5 High	Less than 20	Between 20-40	40 or more

Planning Objective 6: Wastewater Treatment Works Water Quality Compliance

The risk of non-compliance with our wastewater quality permit has been assessed as moderately significant for both 2020 and 2050. This is because the compliance status of the wastewater treatment works in 2018 and 2020 was Sub Critical. Future forecast growth for 2050 was assessed to not have an adverse affect for the risk score.

Planning Objective 7: Flooding due to Hydraulic Overload

This is an assessment of the risk of flooding from sewers during a 1 in 30 year storm, and more frequent rainfall, to understand where flooding could occur. The risk of sewer flooding due to hydraulic overload is very significant in 2020 and 2050. The annualised number of properties in areas at risk of flooding is shown in Table 4.

Table 4: Annualised number of properties at risk per 10,000 connections.

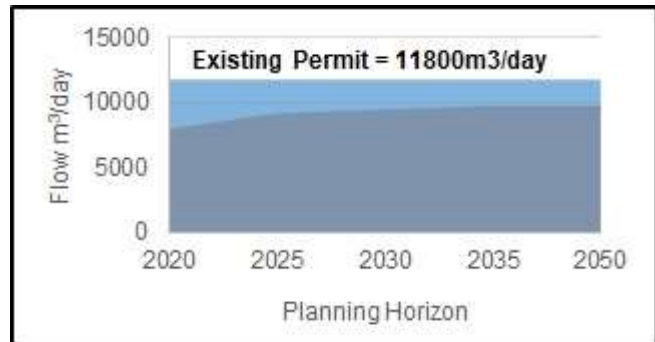
Rainfall Return Period (yr)	Number of Properties at Risk		Annualised per 10,000 connections	
	2020	2050	2020	2050
1 in 1	265	348	168	220
1 in 2	323	422	127	166
1 in 5	529	679	96	123
1 in 10	713	901	68	86
1 in 20	902	1188	44	58
1 in 30	1057	1377	35	45
Total Annualised			537	698

This indicates that the existing capacity of the wastewater network can already be exceeded during 1 in 30 year storms (or more frequent events).

Planning Objective 8: Wastewater Treatment Works Dry Weather Flow Compliance

The risk of Wastewater Treatment Works Dry Weather Flow Compliance is not significant for 2020 but is predicted to increase to moderately significant in 2050, shown in Figure 3. This is because the predicted DWF in 2050 is expected to be between 80% and 100% of the current permit.

Figure 3: Recorded and predicted dry weather flow with existing permit



Planning Objective 9: Good Ecological Status / Good Ecological Potential

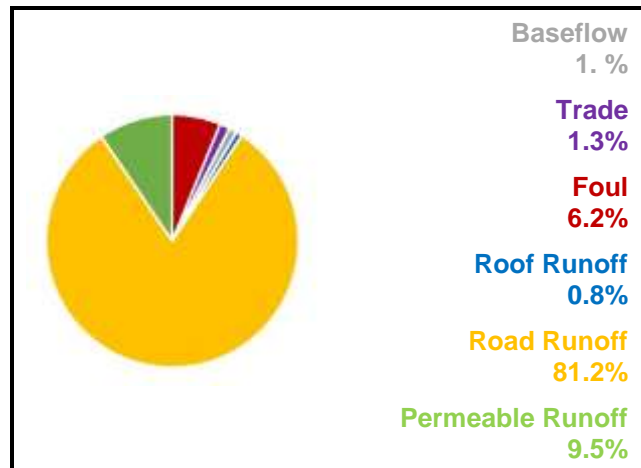
This wastewater system is not hydraulically linked to a waterbody where wastewater operations are contributing to not achieving GES/GEP, therefore the risk is not significant.

Planning Objective 10: Surface Water Management

Our initial high level assessment indicated that there is moderately significant interaction between surface water flooding and flooding from sewers in this wastewater system. The cause of this localised flooding is the capacity of the drainage network in these areas to convey both wastewater and surface water run-off.

Figure 4 illustrates the sources of water flowing in the wastewater system during a 1 in 20 year storm. It shows that surface water runoff from roofs, road and permeable surfaces constitutes more than 91.5% of the flow in the sewers. The total contribution of foul water from homes is 6.2% with business contributing 1.3%. The baseflow is infiltration from water in the ground and makes up 1. % of the flow in the system.

Figure 4: Sources of water flowing in sewers during a 1 in 20 year storm



Planning Objective 11: Nutrient Neutrality

This wastewater system is not hydraulically linked to Habitat Sites noted as under threat by Natural England.

Planning Objective 12: Groundwater Pollution

The risk of Groundwater Pollution is moderately significant. The wastewater system network of sewers extends across geographical areas that are designated as a Source Protection Zone (SPZ) for water supply. Sewer survey data indicates that parts of the sewer network are in poor condition and are likely to leak sewage.

The primary driver is 'Operational' due to condition of our assets.

Planning Objective 13: Bathing Waters

This wastewater system does not discharge into a designated bathing water.

Planning Objective 14: Shellfish Waters

The discharges from this wastewater system do not impact on any designated shellfish waters.

Generic Options Assessment for: Tonbridge (TONB)



Planning Objectives		2020	Driver	2050	Type of Measures	Generic Option Categories	Icon	Take Forward?	Reasons	Examples of Generic Options
PO1	Internal Flooding	0	-	-	Source (Demand) Measures (to reduce likelihood)	Control / Reduce surface water run-off		Y	-	Natural Flood Management; rural land management and catchment management; SuDS including blue and green infrastructure; storm management
PO2	Pollution Risk	2	Operational	-		Reduce groundwater levels		N	Reducing groundwater levels would reduce the risks from infiltration into the network. However, in practice, reducing groundwater levels will be detrimental to the environment, ground conditions and is prohibitively too costly to implement. For these reasons, this generic option has been discounted.	Reduce leakage from water supply pipes; pump away schemes to locally lower groundwater near sewer network
PO3	Sewer Collapse	1	Operational	-		Improve quality of wastewater		Y	-	Domestic and business customer education; incentives and behaviour change (reduce Fats, Oils & Grease, wet wipes etc.); monitoring trade waste at source; on-site black water and/or greywater pre-treatment
PO4	Risk of Sewer Flooding in 1 in 50 yr	1	Hydraulic	1		Reduce the quantity / demand		Y	-	Water efficient appliances; water efficient measures; blackwater and/or greywater re-use; treatment at source
PO5	Storm Overflow Performance	2	Hydraulic	2	Pathway (Supply) Measures (to reduce likelihood)	Network Improvements		Y	-	Asset optimisation; additional network capacity; storage; separate flows; structural repairs; re-line sewer pipe and manholes; smart networks.
PO6	Risk of WTW Compliance Failure	1	Quality	1		Improve Treatment Quality		Y	-	Increase treatment capacity; rationalisation of treatment works (centralisation / de-centralisation); install tertiary plant; UV plant or disinfection facilities; innovation; improve Technical Achievable Limits; new WTWs
PO7	Annualised Flood Risk/Hydraulic Overload	2	Hydraulic	2		Wastewater Transfer to treatment elsewhere		Y	-	Transfer flow to other network or treatment sites; transport sewage by tanker to other sites
PO8	DWF Compliance	0	-	1	Receptor Measures (to reduce consequences)	Mitigate impacts on Air Quality		N/A	Not included in first round of DWMPs	Carbon offsetting; noise suppression /filtering; odour control and treatments
PO9	Achieve Good Ecological Status	0	-	-		Improve Land and Soils		N/A	Not included in first round of DWMPs	Sludge soil enhancement
PO10	Improve Surface Water Management	1	Hydraulic	-		Mitigate impacts on receiving waters		N	The receiving waters are not adversely impacted by our wastewater operations. Hence, offsetting any adverse impacts on receiving waters will not reduce any of the significant risks in this catchment.	River enhancement, aeration
PO11	Secure Nutrient Neutrality	NA	-	NA		Reduce impact on properties		Y	-	Property flood resilience; non-return valves; flood guards / doors; air brick covers
PO12	Reduce Groundwater Pollution	1	Operational	-	Other	Study / Investigation		N	No further studies required at this stage	Additional data required; hydraulic model development; WQ monitoring and modelling
PO13	Improve Bathing Water Quality	NA	-	-						
PO14	Improve Shellfish Water Quality	NA	-	-						

Tonbridge Wastewater System - Outline Options Appraisal

Generic Option	Location of Risk	Planning Objective and Description of Risk	Option Reference	Description	Further Description	Unconstrained Option?	Constrained Option?	Feasible Option?	Net Benefits	Estimated Cost	Preferred Option	Best value / Least cost or Reasons for Rejection
Control/ Reduce surface water entering the sewers												
Control / Reduce groundwater infiltration												
Improve quality of wastewater entering sewers (inc reducing FOG, RAG, pre-treatment, trade waste)	Catchment wide	PO2- Pollution Risk	TONB.SC03.1	Customer Education Programme	Customer education programme to reduce pollution risk from blockages.	Yes	Yes	Yes	Minor Positive +	£115K	Yes	Best Value
Control / Reduce the quantity / flow of wastewater entering sewer system	Tonbridge WTW	PO8 (2050)- Dry Weather Flow	TONB.SC04.1	Water Efficient Appliance / Measures	Southern Water aims to reduce water consumption to 100 l/h/d by 2040.	Yes	No					Environmental - Strategic Environmental Assessment
Network Improvements (eg increase capacity, storage, conveyance)	Priory Mill Tonbridge WPS, Hilden Park Road Hildenborough WPS, Chiddingstone Causeway WPS, Shipbourne Road Tonbridge WPS, Charcott Place WPS	PO2- Pollution Risk	TONB.PW01.1	Maintenance Programme WPS	Enhanced maintenance programme for WPS to reduce risk of pollution incidents due to operational failures.	Yes	Yes	Yes	Minor Negative -	£930K	Yes	Least Cost
Network Improvements (eg increase capacity, storage, conveyance)	Eggpie Lane Leigh CSO	PO2- Pollution Risk and PO5 - Storm Overflow	TONB.PW01.2	Storage	Additional storage needs to be modelled, in order to improve on the spill frequency (average 20 spills in 2017-2019).	Yes	Yes	Yes	Major Positive +++	£1,000K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Catchment wide	PO2 - Pollution Risk PO3 - Sewer Collapse	TONB.PW01.3	Pipe Rehabilitation Programme	Targeted CCTV / electroscan surveys and proactive sewer rehabilitation (1%/year) to reduce risk of sewer collapse.	Yes	Yes	Yes	Minor Negative -	£1,105K	Yes	Least Cost
Network Improvements (eg increase capacity, storage, conveyance)	Catchment wide	PO8 (2050)- Dry Weather Flow	TONB.PW01.4	Pipe Rehabilitation Programme	Relining/improving structural grades of sewers across the catchment.	Yes	No					Feasibility and Risk
Network Improvements (eg increase capacity, storage, conveyance)	Catchment wide	PO12- Groundwater Pollution	TONB.PW01.5	Pipe Rehabilitation Programme	Total length of sewer within protection zones- 45.	Yes	Yes	Yes	Minor Positive +	£1,955K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Catchment wide	PO2- Pollution Risk	TONB.PW01.6	Jetting Programme	Increase frequency of MST (Maintenance Scheduled Tasks).	Yes	Yes	Yes	Minor Negative -	£45K	Yes	Least Cost
Network Improvements (eg increase capacity, storage, conveyance)	TONB FC01 - North Tonbridge	PO4 & PO7 - Growth	TONB.PW01.7	New sewer, offline storage, flow transfer and increase pump rate	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,900K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	TONB FC02 - Central Tonbridge (Sovereign Way WPS)	PO4 & PO7 - Growth	TONB.PW01.8	Upsize, new sewer and flow transfer	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,900K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	TONB FC03 - South Tonbridge (Botany Tonbridge WPS)	PO4 & PO7 - Growth	TONB.PW01.9	Upsize, Offline Storage and new storm PS	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,900K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	TONB FC04 - South West Tonbridge	PO4 & PO7 - Growth	TONB.PW01.10	Upsize and New Sewer	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,900K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	TONB FC05 - West Tonbridge (Power Mill WPS)	PO4 & PO7 - Growth	TONB.PW01.11	Increase pump rate	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,900K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	TONB FC06 - Downstream of Hilden Bridge WPS	PO4 & PO7 - Growth	TONB.PW01.12	Upsize	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,900K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Hawden Road CSO	PO2- Pollution Risk & PO5 - Storm Overflow	TONB.PW01.13	Storage	Additional storage needs to be modelled, in order to improve on the spill frequency (average 26 spills in 2017-2019).	Yes	Yes	Yes	Major Positive +++	£1,000K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Priory Road outside 86 CSO	PO2- Pollution Risk & PO5 - Storm Overflow	TONB.PW01.14	Storage	Additional storage needs to be modelled, in order to improve on the spill frequency (average 45 spills in 2017-2019).	Yes	Yes	Yes	Major Positive +++	£1,000K	Yes	Best Value
Improve treatment (capacity and quality at existing works or develop new WTWs)	Tonbridge WTW	PO6 (2050)- WTW compliance	TONB.PW02.1	Increase Capacity	Catchment was banded 1 in 2020/2050 because: Biological Capacity = -4.	Yes	Yes	Yes	Minor Positive +	£71,790K	Yes	Best Value
Improve treatment (capacity and quality at existing works or develop new WTWs)	Tonbridge WTW	PO8 (2050)- Dry Weather Flow	TONB.PW02.2	Permit Review	Increase capacity at the Works.	Yes	Yes	Yes	Minor Positive +	£1,895K	Yes	Best Value
Wastewater Transfer	Tonbridge WTW	PO8 (2050)- Dry Weather Flow	TONB.PW03.1	New WPS & Rising Main	No other WTWs are within a 20km radius of TONBRIDGE WTW with spare capacity to take DWF.	Yes	No					Feasibility and Risk
Mitigate impacts on Air Quality (e.g. Carbon neutrality, noise, odour)												Not included in the first round of DWMPs
Improve Land and Soils												Not included in the first round of DWMPs
Mitigate impacts on Water Quality												
Reduce consequences Properties (e.g. Property Flood Resilience)												
Study/ investigation to gather more data	Catchment Wide	PO8 (2050)- Dry Weather Flow	TONB.OT01.1	Infiltration Reduction Plan	Relining/improving structural grades of sewers across the catchment.	Yes	No					Environmental - Strategic Environmental Assessment
Study/ investigation to gather more data	Catchment wide/ Overflow locations	PO4- 1 in 50 year PO7- Hydraulic Overload PO10- Surface Water Management	TONB.OT01.2	Improve Hydraulic Model	Hydraulic model to be improved and upgraded.	Yes	Yes	Yes	Minor Positive +	£150K	Yes	Best Value
Study/ investigation to gather more data	TONB FC07 - Coldharbour Lane Hildenborough Rear 30 CSO	PO4 & PO7 - Growth	TONB.OT01.3	Study / modelling investigation	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,900K	Yes	Best Value
Study/ investigation to gather more data	TONB FC08 - Ensfield Road Leigh CEO	PO4 & PO7 - Growth	TONB.OT01.4	Study / modelling investigation	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,900K	Yes	Best Value
Study/ investigation to gather more data	TONB FC09 - Tonbridge WTW	PO4, PO5 & PO7 - Spills and Growth	TONB.OT01.5	Study / modelling investigation	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,900K	Yes	Best Value
Study/ investigation to gather more data	TONB FC10 - Tonbridge WTW Storm Tanks	PO4 & PO7 - Growth	TONB.OT01.6	Study / modelling investigation	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,900K	Yes	Best Value
Study/ investigation to gather more data	Priory Mill Tonbridge WPS	PO5 - Spill Assessments	TONB.OT01.7	Study / modelling investigation	Offline storage of 343/292m3 required to achieve a 3 Spill 2020/2050 solution.	Yes	Yes	Yes	Major Positive +++	£2,900K	Yes	Best Value
Study/ investigation to gather more data	Hilden Park Road Hildenborough WPS	PO5 - Spill Assessments	TONB.OT01.8	Study / modelling investigation	No offline storage required to achieve a 3/10/20 spill 2020/2050 solution Storage volume needs to be confirmed due to discrepancies between EDM and model data.	Yes	Yes	Yes	Major Positive +++	£1,000K	Yes	Best Value
Study/ investigation to gather more data	Coldharbour Lane Hildenborough CEO	PO5 - Spill Assessments	TONB.OT01.9	Study / modelling investigation	No offline storage required to achieve a 3/10/20 spill 2020/2050 solution Storage volume needs to be confirmed due to discrepancies between EDM and model data.	Yes	Yes	Yes	Major Positive +++	£1,000K	Yes	Best Value
Study/ investigation to gather more data	Cannon Lane Tonbridge CSO	PO5 - Spill Assessments	TONB.OT01.10	Study / modelling investigation	The model underpredicts the number of spills observed in recent years.	Yes	Yes	Yes	Major Positive +++	£1,000K	Yes	Best Value
Study/ investigation to gather more data	Sainsbury's and Sovereign Road car parks, fields west of High Street	PO4, PO7 & PO10 - Flooding	TONB.OT01.11	SuDS investigation	Opportunities for surface water separation need to identified.	Yes	No					Environmental - Strategic Environmental Assessment

Drainage and Wastewater Management Plan (DWMP)

DWMP Investment Needs

1. The options listed in the DWMP Investment Needs below are the preferred options in our DWMP. They will need further refinement as we implement the DWMP to confirm the exact location and scope of action needed, and the cost.
2. The costs are indicative costs for planning purposes only. The basis for the cost estimates, including assumptions and uncertainties, are explained in our DWMP Investment Plans.
3. The table of Investment Need provides an indicative cost so we know what level of funding is needed to reduce the risks. It is not a commitment to fund or deliver any option.
4. The Indicative Timescale is when the investment is needed. Some options may take several investment periods to achieve the desired outcomes.
5. Potential Partners have been identified in the table of Investment Needs. This is to indicate where there may be opportunities for us to work with these partners when developing and delivering these options. It is not a commitment by any of the partners to work with us.
6. These options will inform our future business plans as part of the Ofwat periodic review process to secure the finance to implement these options.
7. The options listed are prioritised by the method stated in the [Programme Appraisal Technical Summary](#).

Date : May 2023

Version : 1.0

Reference	River Basin (L2)	Wastewater System (L3)	Location	Option	Indicative Cost	Indicative Timescales	Potential Partners	Applicable Planning Objectives
Medway								
Tonbridge								
TONB.SC03.1	Medway	Tonbridge	System Wide	Customer Education Programme: Targeted campaign to reduce the amount of FOG (fats, oils and grease) and unflushables discharged into the sewer network	£115K	AMP8 onwards	-	PO2
TONB.PW01.1	Medway	Tonbridge	Priory Mill, Hilden Park, Hildenborough	Improve the operational resilience of wastewater pumping station (WPS) to reduce pollution incidents	£930K	AMP8 onwards	-	PO2
TONB.PW01.3	Medway	Tonbridge	System Wide	Sewer Rehabilitation: Targeted CCTV or electroscan surveys and sewer rehabilitation to reduce the risk of sewer bursts and collapses	£1,105K	AMP8 onwards	-	PO2 PO3
TONB.PW01.5	Medway	Tonbridge	System Wide	Sewer Rehabilitation: Targeted CCTV or electroscan surveys to check the integrity of sewers and reline or renew them to reduce the risk of groundwater pollution	£1,955K	AMP9	-	PO12
TONB.PW01.6	Medway	Tonbridge	System Wide	Enhanced Sewer Maintenance: Increase targeted sewer jetting to reduce the number of blockages in the network	£45K	AMP8 onwards	-	PO2
TONB.PW01.7	Medway	Tonbridge	North Tonbridge	Growth scheme from our Drainage Area Plan (DAP): Construct new sewer; Increase pump rate and wet well storage volume; Replace rising main	£2,900K	AMP9	-	PO4 PO7
TONB.PW01.8	Medway	Tonbridge	Central Tonbridge	Growth scheme from our Drainage Area Plan (DAP): Upsize, new sewer and flow transfer	£2,900K	AMP9	-	PO4 PO7
TONB.PW01.9	Medway	Tonbridge	South Tonbridge	Growth scheme from our Drainage Area Plan (DAP): Offline storage, new storm PS, upsize	£2,900K	AMP9	-	PO4 PO7
TONB.PW01.10	Medway	Tonbridge	South West Tonbridge	Growth scheme from our Drainage Area Plan (DAP): Construct a new sewers; Upsize existing sewers	£2,900K	AMP9	-	PO4 PO7
TONB.PW01.11	Medway	Tonbridge	Power Mill WPS	Growth scheme from our Drainage Area Plan (DAP): Increase pump rate	£2,900K	AMP9	-	PO4 PO7
TONB.PW01.12	Medway	Tonbridge	Hilden Bridge	Growth scheme from our Drainage Area Plan (DAP): Upsize existing sewers	£2,900K	AMP9	-	PO4 PO7
TONB.PW02.1	Medway	Tonbridge	TONBRIDGE WTW	Increase treatment capacity to allow for planned new development	£35,895K	AMP11	-	PO6
TONB.PW02.2	Medway	Tonbridge	TONBRIDGE WTW	Increase capacity to allow for planned new development	£3,000K	AMP8	-	PO8
TONB.OT01.2	Medway	Tonbridge	System Wide/ Overflow locations	Improve the Hydraulic Model: Surveys and reverification of model to improve confidence and accuracy	£150K	AMP9	-	PO4 PO7 PO10

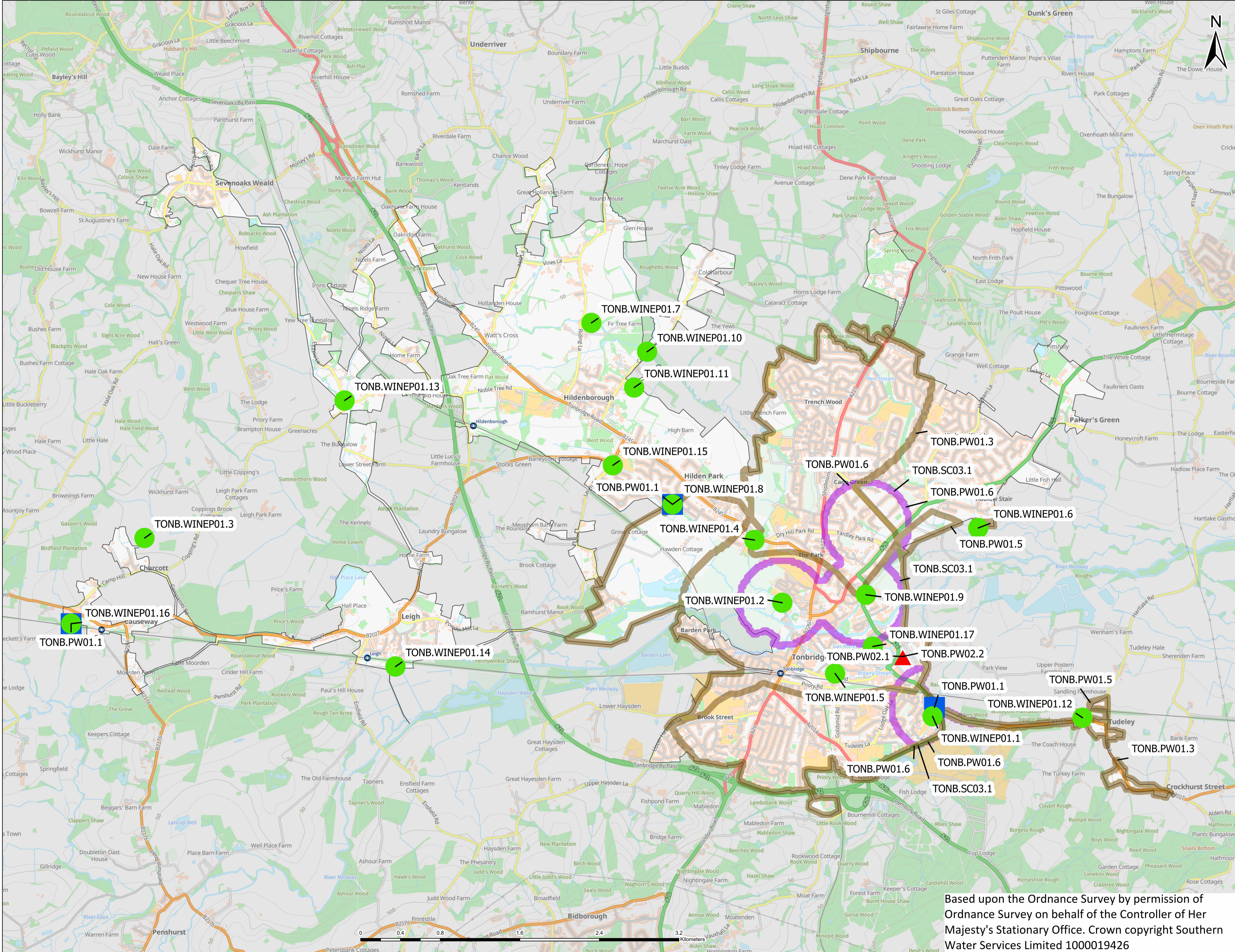
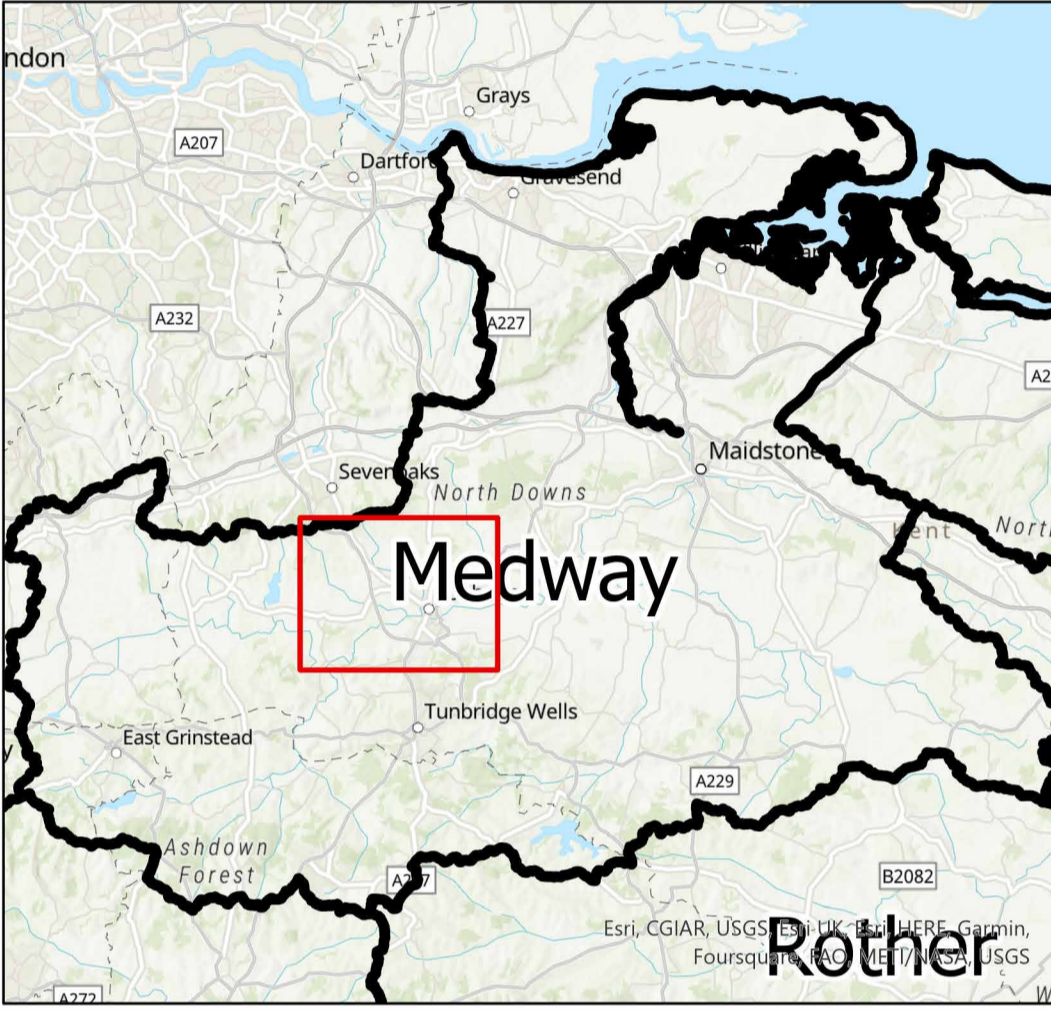
Reference	River Basin (L2)	Wastewater System (L3)	Location	Option	Indicative Cost	Indicative Timescales	Potential Partners	Applicable Planning Objectives
TONB.OT01.3	Medway	Tonbridge	Coldharbour Lane Hildenborough 30 CSO	Growth scheme from our Drainage Area Plan (DAP): Additional storage of 50m3 (TBC, model improvements required)	£2,900K	AMP9	-	PO4 PO7
TONB.OT01.4	Medway	Tonbridge	Ensfield Road Leigh CEO	Growth scheme from our Drainage Area Plan (DAP): Additional storage of 90m3 (TBC, model improvements required)	£2,900K	AMP9	-	PO4 PO7
TONB.OT01.6	Medway	Tonbridge	Tonbridge WTW Storm Tanks	Growth scheme from our Drainage Area Plan (DAP): Additional storage of 670m3 (TBC, model improvements required)	£2,900K	AMP9	-	PO4 PO7
TONB.WINEP01.1	Medway	Tonbridge	PRIORY MILL TONBRIDGE CEO	Reduce the number of storm discharges from PRIORY MILL TONBRIDGE CEO by a combination of SuDS and storage options	£3,230K	AMP8	-	PO4 PO5 PO7
TONB.WINEP01.2	Medway	Tonbridge	HAWDEN ROAD TONBRIDGE CSO	Reduce the number of storm discharges from HAWDEN ROAD TONBRIDGE CSO by creating below-ground storage	£1,935K	AMP11	-	PO5
TONB.WINEP01.3	Medway	Tonbridge	CHARCOTT PLACE CEO	Reduce the number of storm discharges from CHARCOTT PLACE CEO by creating below-ground storage	£1,165K	AMP11	-	PO5
TONB.WINEP01.4	Medway	Tonbridge	HILDEN BRIDGE CEO	New or improved screen to reduce aesthetics impacts from storm discharges at HILDEN BRIDGE CEO	£130K	AMP11	-	PO5
TONB.WINEP01.5	Medway	Tonbridge	PRIORY ROAD TONBRIDGE OUTSIDE 86 CSO	Reduce the number of storm discharges from PRIORY ROAD TONBRIDGE OUTSIDE 86 CSO by a combination of SuDS and storage options	£910K	AMP11	-	PO4 PO5 PO7
TONB.WINEP01.6	Medway	Tonbridge	OLD HADLOW ROAD TONBRIDGE CSO	Reduce the number of storm discharges from OLD HADLOW ROAD TONBRIDGE CSO by a combination of SuDS and storage options	£1,950K	AMP12	-	PO4 PO5 PO7
TONB.WINEP01.7	Medway	Tonbridge	RIDING LANE HILDENBOROUGH CSO	Reduce the number of storm discharges from RIDING LANE HILDENBOROUGH CSO by a combination of SuDS and storage options	£1,380K	AMP11	-	PO4 PO5 PO7
TONB.WINEP01.8	Medway	Tonbridge	HILDEN PARK ROAD HILDENBOROUGH CEO	Reduce the number of storm discharges from HILDEN PARK ROAD HILDENBOROUGH CEO by a combination of SuDS and storage options	£3,285K	AMP8	-	PO4 PO5 PO7
TONB.WINEP01.9	Medway	Tonbridge	CANNON LANE TONBRIDGE CSO	Reduce the number of storm discharges from CANNON LANE TONBRIDGE CSO by a combination of SuDS and storage options	£3,550K	AMP8	-	PO4 PO5 PO7
TONB.WINEP01.10	Medway	Tonbridge	COLDHARBOUR LANE HILDENBOROUGH CEO	Reduce the number of storm discharges from COLDHARBOUR LANE HILDENBOROUGH CEO by a combination of SuDS and storage options	£3,145K	AMP11	-	PO4 PO5 PO7
TONB.WINEP01.11	Medway	Tonbridge	COLDHARBOUR LANE HILDENBOROUGH REAR 30 CSO	New or improved screen to reduce aesthetics impacts from storm discharges at COLDHARBOUR LANE HILDENBOROUGH REAR 30 CSO	£130K	AMP10	-	PO5
TONB.WINEP01.12	Medway	Tonbridge	TUDELEY CEO	Reduce the number of storm discharges from TUDELEY CEO by creating below-ground storage	£2,055K	AMP10	-	PO5

Reference	River Basin (L2)	Wastewater System (L3)	Location	Option	Indicative Cost	Indicative Timescales	Potential Partners	Applicable Planning Objectives
TONB.WINEP01.13	Medway	Tonbridge	EGGPIE LANE LEIGH CSO	Reduce the number of storm discharges from EGGPIE LANE LEIGH CSO by a combination of SuDS and storage options	£2,395K	AMP11	-	PO4 PO5 PO7
TONB.WINEP01.14	Medway	Tonbridge	ENSFIELD ROAD LEIGH CEO	New or improved screen to reduce aesthetics impacts from storm discharges at ENSFIELD ROAD LEIGH CEO	£130K	AMP11	-	PO5
TONB.WINEP01.15	Medway	Tonbridge	LEIGH ROAD HILDENBOROUGH CSO	New or improved screen to reduce aesthetics impacts from storm discharges at LEIGH ROAD HILDENBOROUGH CSO	£130K	AMP12	-	PO5
TONB.WINEP01.16	Medway	Tonbridge	CHIDDINGSTONE CAUSEWAY CEO	Reduce the number of storm discharges from CHIDDINGSTONE CAUSEWAY CEO by creating below-ground storage	£1,215K	AMP12	-	PO5
TONB.WINEP01.17	Medway	Tonbridge	TONBRIDGE SSO	Reduce the number of storm discharges from TONBRIDGE SSO by creating below-ground storage	£2,200K	AMP11	-	PO5
TONB.WINEP.PO2.1	Medway	Tonbridge	Tonbridge WTW	Provision of chemical dosing and tertiary solids removal to achieve 0.25mg/l Total P (WINEP OAR 08SO104021)	£22,632K	AMP8	-	PO9

Drainage and Wastewater Management Plan: Location of Potential Options TONBRIDGE Wastewater system in Medway River Basin Catchment



(i) This map should be read in conjunction with the list of Investment Needs for this wastewater system
 (ii) The areas shown on this map are the potential locations for the options. The location of the risk may be elsewhere in the system.
 (iii) Labels for each location are the option references in the list of Investment Needs
 (iv) Drainage Area Plan (DAP) options on flooding and growth are not shown.



- Customer Education
- Pipe Rehabilitation
- Asset Resilience
- Wastewater Treatment
- WINEP Nutrient Neutrality
- WINEP Storm Overflows

Based upon the Ordnance Survey by permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office. Crown copyright Southern Water Services Limited 100019426