



Drainage and Wastewater Management Plan

**Weatherlees Hill
Wastewater System Plan**



from
**Southern
Water** 

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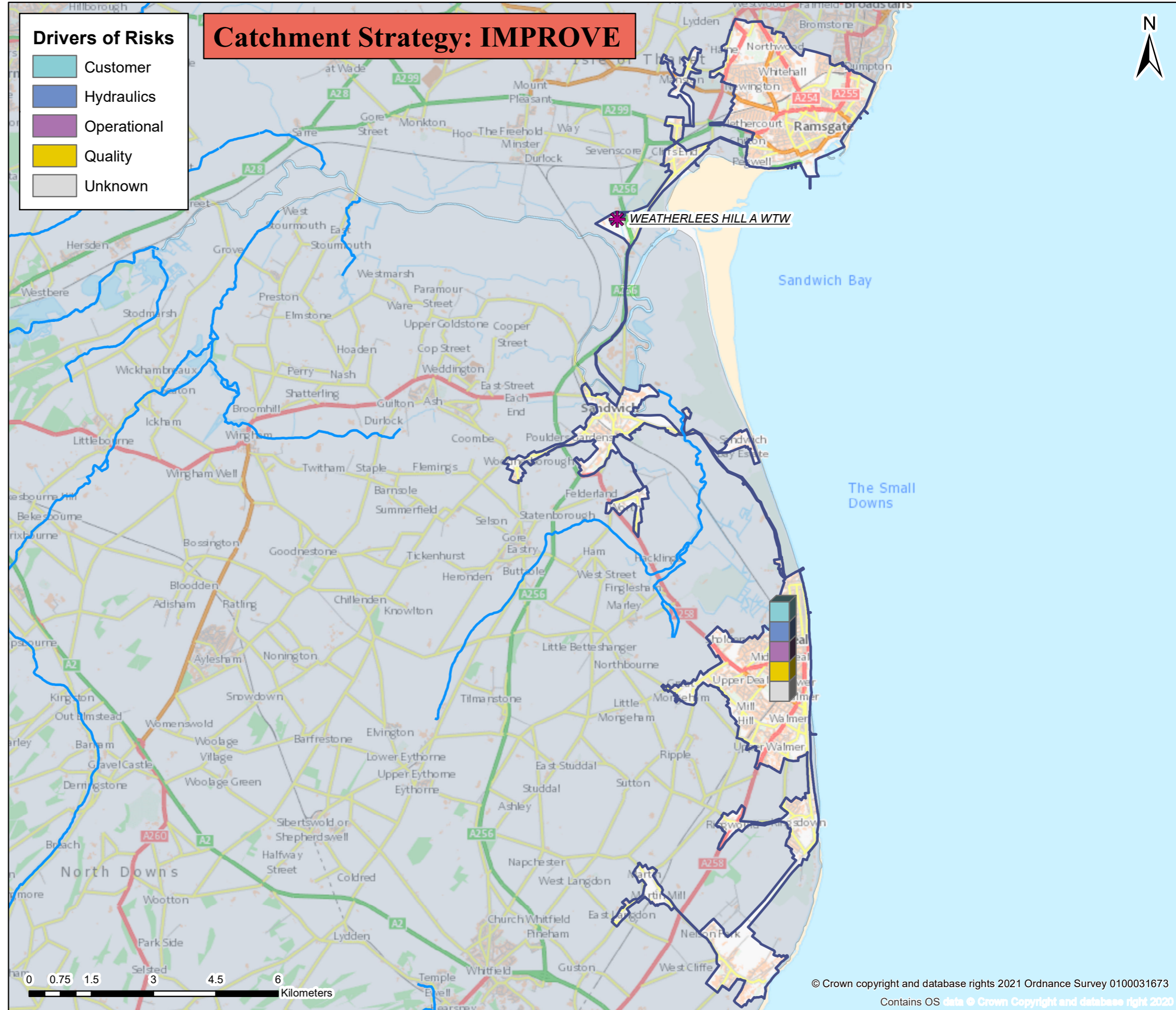
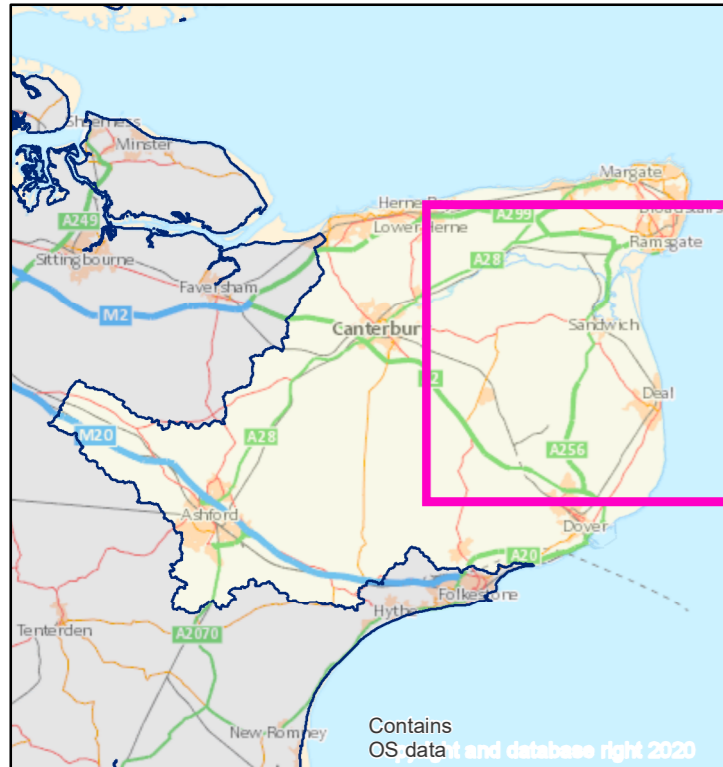
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Weatherlees Hill wastewater system: map and key facts



Population Equivalent (PE)	91,319
Discharge Waterbody	Tidal River Stour into Pegwell Bay
Number of Pumping Stations	44
Number of Overflows	8
Length of Sewer (km)	642.5
Catchment Reference	WEAT

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



Problem Characterisation

Weatherlees Hill (WEAT)

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 Weatherlees Hill wastewater system

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

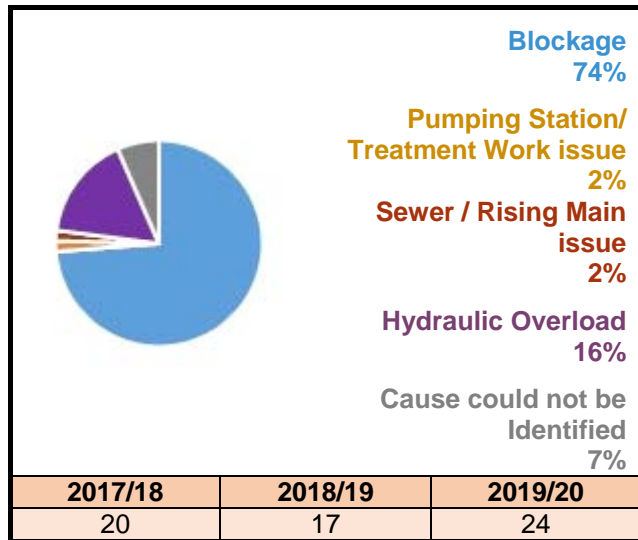


Planning Objective 1: Internal Sewer Flooding Risk

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 more than 3.35 incidents per 10,000 connections per year (a threshold set by Ofwat) so the risk is in the 'very significant' band.

The primary driver for internal sewer flooding in this wastewater system is 'Customer'. Blockages caused 74% of all incidents recorded in this wastewater system. Blockages are often caused by fats, oils, grease, nappies, wet wipes and sanitary products within the system. These items are non-flushable and should not be disposed of into wastewater systems.

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

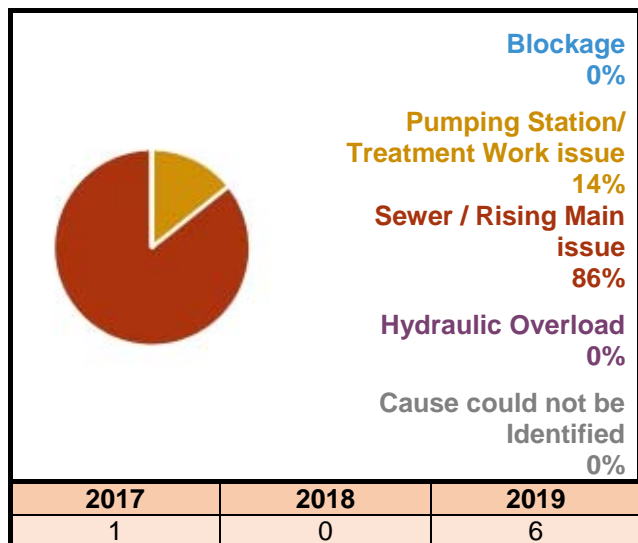


Planning Objective 2: Pollution Risk

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 between 24.51 and 49.01 incidents per 10,000km per year (a threshold set by Ofwat) so the risk is in the 'moderately significant' band.

The primary driver for pollution is 'Operational' due to asset operational issues. Sewer collapses and bursts are the main cause of incidents, contributing to 86% of all incidents recorded in this wastewater system.

Figure 2: Number of pollution incidents per annum and causes



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 more than 9.44 incidents per 1,000km per year (a threshold set by Ofwat) so the risk is in the 'very significant' band.

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

Table 2: Sewer collapses and rising main bursts

Sewer Collapse	2017/18	3
	2018/19	1
	2019/20	4
Rising Main Bursts	2017/18	3
	2018/19	5
	2019/20	5

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

The risk of flooding in a 1 in 50 year storm is very significant in 2020 and 2050. This is because our computer model of the sewer network indicate for 2020 that approximately 2900 - 3000 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 4900 - 5000 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 not significant in 2020, however network modelling results indicated that the risk will increase to very significant by 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.

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	1 High	Less than 8	Between 8-10	10 or more
Bathing Waters	0	1 High	Less than 3	Between 3-10	10 or more
Freshwater	0	0	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 not significant for both 2020 and 2050. This is because the wastewater treatment works has no record of compliance failure during the last three years (2018-2020).

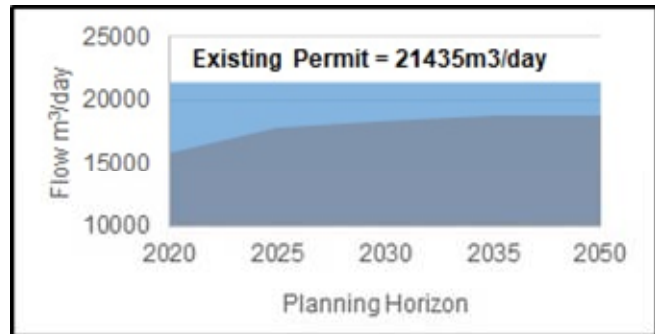
Planning Objective 7: Flooding due to Hydraulic Overload

Our initial assessment is that flooding from hydraulic overload is not significant in this wastewater catchment for both 2020 and 2050. We will use a hydraulic model of the wastewater system to determine if this catchment is at risk for Hydraulic Overload across the various storm events, and update this risk assessment accordingly for the next cycle of DWMPs.

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

Table 4 shows the waterbodies connected to this wastewater catchment are not achieving Good Ecological Status or Potential (GES/GEP). The Environment Agency has attributed the 'reasons for not achieving good status' to water company operations. Our risk assessment has been assessed based on the worst assigned status (Poor) and is very significant. This is because there are potential issues with leaking sewers allowing the sewerage to escape into the ground due to the condition of our sewer network in this wastewater system and due to intermittent discharges from overflows.

The primary driver is 'Operational'.

Table 4: Waterbodies not achieving GES/GEP

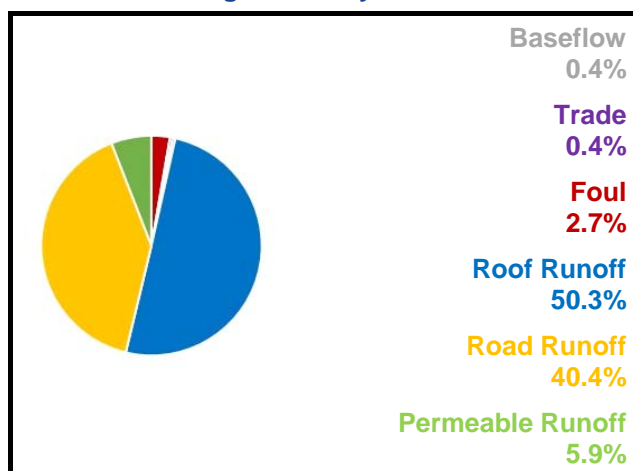
Waterbody	Classification	EA-Status	Activity
Monkton and Minster Marshes	Macrophytes and Phytobenthos Combined	Moderate	Sewage discharge (continuous)
Monkton and Minster Marshes	Phosphate	Moderate	Sewage discharge (continuous)
Kent Isle of Thanet Chalk	General Chemical Test	Poor	Leaking utility sewers
Kent Isle of Thanet Chalk	Chemical Drinking Water Protected Area	Poor	Leaking utility sewers
Kent Isle of Thanet Chalk	Chemical Drinking Water Protected Area	Poor	Sewage discharge (intermittent)
East Kent Chalk - Stour	Chemical Drinking Water Protected Area	Poor	Leaking utility sewers

Planning Objective 10: Surface Water Management

Our initial high level assessment indicated that there is very 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 96.6% of the flow in the sewers. The total contribution of foul water from homes is 2.7% with business contributing 0.4%. The baseflow is infiltration from water in the ground and makes up 0.4% 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

The risk to internationally designated habitat sites from this wastewater system is moderately significant in 2020 but rises to very significant in 2050. This is because Natural England have advised a condition assessment is planned by them after 2025 for the habitat site (hydraulically linked to our wastewater catchment) shown in Table 5.

Table 5: Habitat Sites hydraulically linked to wastewater system

Habitat Sites	
Thanet Coast & Sandwich Bay	Condition Assessment after 2025

Our growth forecast suggest that more than 2,000 new homes could occur in this wastewater system by 2050 which means the risk to habitat sites increases to very significant by 2050.

Planning Objective 12: Groundwater Pollution

The risk of Groundwater Pollution is very 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

The designated bathing waters that could be affected by discharges from this wastewater system are shown in Table 6, along with the current classification from the Environment Agency. The risks from this wastewater system on Ramsgate Western Undercliffe, Deal Castle, Ramsgate Sands bathing waters has led to an assessment of is very significant.

Table 6: Bathing Water annual results

Bathing Waters	Annual Results		
	2017	2018	2019
Ramsgate Western Undercliffe	Good	Excellent	Sufficient
Deal Castle	Excellent	Excellent	Sufficient
Ramsgate Sands	Excellent	Excellent	Good
Sandwich Bay	Excellent	Excellent	Excellent

The primary driver is 'Customer' due to evidence of agriculture affecting the bathing waters in this wastewater system.

Planning Objective 14: Shellfish Waters

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

Southern Water
August 2021
Version 1

Generic Options Assessment for: Weatherlees Hill (WEAT)



Planning Objectives		2020	Driver	2050	Type of Measures	Generic Option Categories	Icon	Take Forward?	Reasons	Examples of Generic Options
PO1	Internal Flooding	2	Customer	-	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	1	Operational	-		Reduce groundwater levels		N	None of the significant risks in this catchment are caused by high groundwater levels. Hence reducing groundwater levels will not impact any of the risks in this catchment.	Reduce leakage from water supply pipes; pump away schemes to locally lower groundwater near sewer network
PO3	Sewer Collapse	2	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	2	Hydraulic	2		Reduce the quantity / demand		Y	-	Water efficient appliances; water efficient measures; blackwater and/or greywater re-use; treatment at source
PO5	Storm Overflow Performance	0	-	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	0	-	0		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	0	-	0		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	2	Operational	-		Improve Land and Soils		N/A	Not included in first round of DWMPs	Sludge soil enhancement
PO10	Improve Surface Water Management	2	Hydraulic	-		Mitigate impacts on receiving waters		Y	-	River enhancement, aeration
PO11	Secure Nutrient Neutrality	1	Unknown	2		Reduce impact on properties		Y	-	Property flood resilience; non-return valves; flood guards / doors; air brick covers
PO12	Reduce Groundwater Pollution	2	Operational	-	Other	Study / Investigation		N	No further studies are required at this stage	Additional data required; hydraulic model development; WQ monitoring and modelling
PO13	Improve Bathing Water Quality	2	Customer	-						
PO14	Improve Shellfish Water Quality	NA	-	-						

Weatherlees Hill 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	Flooding Cluster WEAT FC03 - High Street / Harbour Parade	PO4 and PO7 Flooding	WEAT.SC01.1	Surface Water Separation and SuDS	DAP Option.	No						
Control/ Reduce surface water entering the sewers	Flooding Cluster WEAT FC04 - Grange Road	PO4 and PO7 Flooding	WEAT.SC01.2	Surface Water Separation and SuDS	DAP Option.	No						
Control/ Reduce surface water entering the sewers	Flooding Cluster WEAT FC05 - Albert Road	PO4 and PO7 Flooding	WEAT.SC01.3	Surface Water Separation	DAP Option.	No						
Control/ Reduce surface water entering the sewers	Flooding Cluster WEAT FC06 - Middle Deal Road	PO4 and PO7 Flooding	WEAT.SC01.4	Surface Water Separation	DAP Option.	No						
Control/ Reduce surface water entering the sewers	Flooding Cluster WEAT FC07 - Manor Road / Gilham Grove	PO4 and PO7 Flooding	WEAT.SC01.5	Surface Water Separation	DAP Option.	No						
Control/ Reduce surface water entering the sewers	Flooding Cluster WEAT FC08 Walmer,	PO4 and PO7 Flooding	WEAT.SC01.6	Surface Water Separation	DAP Option.	No						
Control/ Reduce surface water entering the sewers	Flooding Cluster WEAT FC09 Granville Road	PO4 and PO7 Flooding	WEAT.SC01.7	Surface Water Separation	DAP Option.	No						
Control/ Reduce surface water entering the sewers	Flooding Cluster WEAT FC10 - Church Street	PO4 and PO7 Flooding	WEAT.SC01.8	Surface Water Separation	DAP Option.	No						
Control/ Reduce surface water entering the sewers	Flooding Cluster WEAT FC11	PO4 and PO7 Flooding	WEAT.SC01.9	Surface Water Separation	DAP Option.	No						
Control / Reduce groundwater infiltration												
Improve quality of wastewater entering sewers (inc reducing FOG, RAG, pre-treatment, trade waste)	Catchment Wide	PO1- Internal Flooding	WEAT.SC03.1	Customer Education Programme	Customer education programme to reduce the risk.	Yes	Yes	Yes	Minor Positive +	£115K	Yes	Best Value
Control / Reduce the quantity / flow of wastewater entering sewer system	WEATHERLEES HILL A WTW	PO8 (2050)- Dry Weather Flow	WEAT.SC04.1	Water Efficient Appliance / Measures	Southern Water aims to reduce water consumption to 100 l/h/d by 2040.	No						Deliver the required outcome
Network Improvements (eg increase capacity, storage, conveyance)	MILITARY ROAD RAMSGATE WPS	PO1- Internal Flooding	WEAT.PW01.1	Maintenance Programme WPS	An efficient maintenance programme for pumping stations to eliminate the risk of a flooding incident due to an operational failure.	No						Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	York Street, Harbour Parade, High Street	PO1- Internal Flooding	WEAT.PW01.2	Storage Tank	Conventional storage tank.	No						Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	KING STREET, ALLENBY ROAD, TELHAM AVENUE, CANTERBURY ROAD WEST, FLORA ROAD & THE STRAND	PO1- Internal Flooding	WEAT.PW01.3	Pipe Rehabilitation Programme	Targeted CCTV / electroscan surveys (64km or 10% of network) and proactive sewer rehabilitation (6.	No						Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	MILITARY ROAD RAMSGATE WPS	PO2- Pollution Risk	WEAT.PW01.4	Maintenance Programme WPS	An efficient maintenance programme for pumping stations to eliminate the risk of a pollution incident due to an operational failure.	No						Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	KING STREET, ALLENBY ROAD, TELHAM AVENUE, CANTERBURY ROAD WEST, FLORA ROAD & THE STRAND	PO3- Sewer Collapse	WEAT.PW01.5	Pipe Rehabilitation Programme	Targeted CCTV / electroscan surveys (64km or 10% of network) and proactive sewer rehabilitation (6.	Yes	Yes	Yes	Minor Positive +	£12,225K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO8 (2050)- Dry Weather Flow	WEAT.PW01.6	Pipe Rehabilitation Programme	Relining/improving structural grades of sewers across the catchment - Targeted CCTV / electroscan surveys (64km or 10% of network) and proactive sewer rehabilitation (6.	No						Cost EffectiveRisk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Lord of the Manor (Priority Catchment)- Inner & Outer Zone TCZ Martin Mill- Inner & Outer Zone TCZ Deal- Inner & Outer Zone TCZ Ringwould- Outer Zone TCZ Minster B- TCZ	PO12- Groundwater Pollution	WEAT.PW01.7	Pipe Rehabilitation Programme	Total length of sewer within protection zones- 114.	Yes	Yes	Yes	Minor Positive +	£9,305K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	KING STREET, ALLENBY ROAD, TELHAM AVENUE, CANTERBURY ROAD WEST, FLORA ROAD & THE STRAND	PO2- Pollution Risk	WEAT.PW01.8	Pipe Rehabilitation Programme	Targeted CCTV / electroscan surveys (64km or 10% of network) and proactive sewer rehabilitation (6.	Yes	Yes	Yes	Minor Positive +	£2,535K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO1- Internal Flooding	WEAT.PW01.9	Jetting Programme	Improved targeting and frequency of sewer jetting under MST (maintenance scheduled tasks) programme upstream of WPS to prevent blockages Link to improved jetting MST Programme.	Yes	Yes	Yes	Minor Positive +	£515K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	WEAT (Ramsgate) FC01 College Road	PO4 & PO7 - Growth	WEAT.PW01.10	New offline storage tank	DAP Option.	Yes	Yes	Yes	Major Positive +++	£1,235K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	WEAT (Ramsgate) FC012 Harbour Parade	PO4 & PO7 - Growth	WEAT.PW01.11	New offline storage tank	DAP Option.	Yes	Yes	Yes	Major Positive +++	£1,235K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	WEAT (DEAL) FC01 Woodensborough Road,Sandwich	PO4 & PO7 - Growth	WEAT.PW01.12	Pipe Upsize	DAP Option.	Yes	Yes	Yes	Major Positive +++	£625K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	WEAT (DEAL) FC02 Woodensborough Road,Sandwich	PO4 & PO7 - Growth	WEAT.PW01.13	The Bulwark Sandwich WPS duty pump discharge rate increase	DAP Option.	Yes	Yes	Yes	Major Positive +++	£625K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	WEAT (DEAL) FC03 Deal, Golf Road WPS	PO4 & PO7 - Growth	WEAT.PW01.14	Pumping station upsizing and new rising main	DAP Option.	Yes	Yes	Yes	Major Positive +++	£625K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	WEAT (DEAL) FC04 Sholden Fields eastern bend of The Street	PO4 & PO7 - Growth	WEAT.PW01.15	Pipe Upsize	DAP Option.	Yes	Yes	Yes	Major Positive +++	£625K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	WEAT (DEAL) FC05 Dola Avenue & William Pitt Avenue	PO4 & PO7 - Growth	WEAT.PW01.16	Offline/Online storage	DAP Option.	Yes	Yes	Yes	Major Positive +++	£625K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	WEAT (DEAL) FC06 Church Lane	PO4 & PO7 - Growth	WEAT.PW01.17	Upsizing	DAP Option.	Yes	Yes	Yes	Major Positive +++	£625K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	WEAT (DEAL) FC07 Middle Deal Road	PO4 & PO7 - Growth	WEAT.PW01.18	Sewer upsizing	DAP Option.	Yes	Yes	Yes	Major Positive +++	£625K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	WEAT (DEAL) FC08 Granville Road	PO4 & PO7 - Growth	WEAT.PW01.19	Sewer upsizing	DAP Option.	Yes	Yes	Yes	Major Positive +++	£625K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	WEAT (DEAL) FC09 Mongham Road Deal WPS	PO4 & PO7 - Growth	WEAT.PW01.20	Upsiz WPS and new rising main	DAP Option.	Yes	Yes	Yes	Major Positive +++	£625K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	WEAT (DEAL) FC10 Walmer, Station Rd	PO4 & PO7 - Growth	WEAT.PW01.21	Sewer upsizing/Online storage.	DAP Option.	Yes	Yes	Yes	Major Positive +++	£625K	Yes	Best Value

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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
Network Improvements (eg increase capacity, storage, conveyance)	WEAT (DEAL) FC012 - LOOP STREET SANDWICH WPS	PO5, PO13 and PO14 - Spill Assessments	WEAT.PW01.23	Storage	DAP Option.	Yes	Yes	Yes	Major Positive +++	£595K	#VALUE!	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO8 (2050) - Dry Weather Flow	WEAT.PW01.24	Infiltration Reduction Plan	DAP Option.	No						
Network Improvements (eg increase capacity, storage, conveyance)	Flooding Cluster WEAT FC03 - High Street / Harbour Parade	PO4 and PO7 Flooding	WEAT.PW01.25	Storage Tank	DAP Option.	Yes	Yes	Yes	Major Positive +++	£1,105K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Flooding Cluster WEAT FC04 - Grange Road	PO4 and PO7 Flooding	WEAT.PW01.26	Storage Tank	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,060K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Flooding Cluster WEAT FC05 - Albert Road	PO4 and PO7 Flooding	WEAT.PW01.27	Storage Tank	DAP Option.	Yes	Yes	Yes	Major Positive +++	£1,155K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Flooding Cluster WEAT FC06 - Middle Deal Road	PO4 and PO7 Flooding	WEAT.PW01.28	Storage Tank	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,240K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Flooding Cluster WEAT FC07 - Manor Road / Gilham Grove	PO4 and PO7 Flooding	WEAT.PW01.29	Storage Tank	DAP Option.	Yes	Yes	Yes	Major Positive +++	£620K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Flooding Cluster WEAT FC08 Walmer.	PO4 and PO7 Flooding	WEAT.PW01.30	Storage Tank	DAP Option.	Yes	Yes	Yes	Major Positive +++	£1,640K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Flooding Cluster WEAT FC09 Granville Road	PO4 and PO7 Flooding	WEAT.PW01.31	Storage Tank	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,735K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Flooding Cluster WEAT FC10 - Church Street	PO4 and PO7 Flooding	WEAT.PW01.32	Storage Tank	DAP Option.	Yes	Yes	Yes	Major Positive +++	£880K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Flooding Cluster WEAT FC11- Undercliffe Road	PO4 and PO7 Flooding	WEAT.PW01.33	Storage Tank	DAP Option.	Yes	Yes	Yes	Major Positive +++	£1,375K	Yes	Best Value
Improve treatment (capacity and quality at existing works or develop new WTWs)	WEATHERLEES HILL A WTW	PO8 (2050) - Dry Weather Flow	WEAT.PW02.1	DWF Permit Increase	Increase Capacity at WTW for New DWF Permit of 24685m3 / day.	Yes	Yes	Yes	Minor Positive +	£2,745K	Yes	Best Value
Wastewater Transfer	WEATHERLEES HILL A WTW	PO8 (2050) - Dry Weather Flow 2598m3/day to achieve below 80% permit	WEAT.PW03.1	Construct New WPS & Rising Main	Within 5km radius of WEAT is WEHB which in 2050 will have approximately 2972m3/day of headroom (until it is above 80% of its DWF permit).	No						Cost Effective Risk and uncertainty - future resilience
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	York Street, Harbour Parade, High Street	PO1 - Internal Flooding	WEAT.RC03.1	Property Flood Mitigation / Resistance	Short-term property level protection ahead of flood alleviation scheme - Non-return valves and flood mitigation doors / gates.	No						Risk and uncertainty - future resilience
Reduce consequences Properties (e.g. Property Flood Resilience)	Flooding Cluster WEAT FC03 - High Street / Harbour Parade	PO4 & PO10 - Flooding	WEAT.RC04.1	Property Flood Mitigation / Resistance	Short-term property level protection ahead of flood alleviation scheme - Non-return valves and flood mitigation doors / gates.	No						Risk and uncertainty - future resilience
Reduce consequences Properties (e.g. Property Flood Resilience)	Flooding Cluster WEAT FC04 - Grange Road	PO4 & PO10 - Flooding	WEAT.RC04.2	Property Flood Mitigation / Resistance	Short-term property level protection ahead of flood alleviation scheme - Non-return valves and flood mitigation doors / gates.	No						Risk and uncertainty - future resilience
Reduce consequences Properties (e.g. Property Flood Resilience)	Flooding Cluster WEAT FC05 - Albert Road	PO4 & PO10 - Flooding	WEAT.RC04.3	Property Flood Mitigation / Resistance	Short-term property level protection ahead of flood alleviation scheme - Non-return valves and flood mitigation doors / gates.	No						Risk and uncertainty - future resilience
Reduce consequences Properties (e.g. Property Flood Resilience)	Flooding Cluster WEAT FC07 - Manor Road / Gilham Grove	PO4 & PO10 - Flooding	WEAT.RC04.4	Property Flood Mitigation / Resistance	Short-term property level protection ahead of flood alleviation scheme - Non-return valves and flood mitigation doors / gates.	No						Risk and uncertainty - future resilience
Reduce consequences Properties (e.g. Property Flood Resilience)	Flooding Cluster WEAT FC10 - Church Street	PO4 & PO10 - Flooding	WEAT.RC04.5	Property Flood Mitigation / Resistance	Short-term property level protection ahead of flood alleviation scheme - Non-return valves and flood mitigation doors / gates.	No						Risk and uncertainty - future resilience
Study/ investigation to gather more data	Charlotte Court, Royal Esplanade, Cannonbury Road, Dover Road	PO1 - Internal Flooding	WEAT.OT01.1	Investigation into causes	Further investigation to identify the cause of the internal flooding incident.	No						Cost Effective
Study/ investigation to gather more data	Monkton and Minster Marshes Kent Isle of Thanet Chalk East Kent Chalk - Stour	PO9 - Good Ecological Status / Potential Sewage discharge (continuous) Leaking utility sewers Sewage discharge (intermittent) Chemical Drinking Water Protected Area	WEAT.OT01.2	Study and Investigations to Achieve Good Ecological Status	Catchment was banded 2 in because; Monkton and Minster Marshes-Macrophytes and Phytobenthos Combined (Moderate Sewage discharge (continuous)) Monkton and Minster Marshes-Phosphate (Moderate Sewage discharge (continuous)) Kent Isle of Thanet Chalk-General Chemical Test (Poor Leaking utility sewers) Kent Isle of Thanet Chalk-Chemical Drinking Water Protected Area (Poor Leaking utility sewers) Kent Isle of Thanet Chalk-Chemical Drinking Water Protected Area (Poor Sewage discharge (intermittent)) Kent Isle of Thanet Chalk-Chemical Drinking Water Protected Area (Poor Sewage discharge (intermittent)).	Yes	Yes	Yes	Minor Positive +	£695K	No	Best Value
Study/ investigation to gather more data	Thanet Coast & Sandwich Bay	PO11 - Nutrient Neutrality	WEAT.OT01.3	Nutrient Budget	Catchment is Hydraulically linked to; Thanet Coast & Sandwich Bay (Condition Assessment after 2025).	Yes	Yes	Yes	Minor Positive +	£75K	Yes	Best Value
Study/ investigation to gather more data	Lord of the Manor (Priority Catchment)- Inner & Outer Zone TCZ Martin Mill- Inner & Outer Zone TCZ Deal- Inner & Outer Zone TCZ Ringwould- Outer Zone TCZ Minster B- TCZ	PO12 - Groundwater Pollution	WEAT.OT01.4	Study and Investigations	Study and Investigation for groundwater pollution - Infiltration.	No						Deliver the required outcome
Study/ investigation to gather more data	Catchment Wide	PO4 - 1 in 50 year Flooding PO5 - Storm Overflow Performance PO10 - Surface Water Management	WEAT.OT01.5	Improve Hydraulic Model	Hydraulic surveys and reverification to improve model confidence and accuracy of simulations.	No						Deliver the required outcome

Weatherlees Hill 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
Study/ investigation to gather more data	WEAT (DEAL) FC013 - THE BULWARK SANDWICH WPS	PO5, PO13 and PO14 - Spill Assessments	WEAT.OT01.6	Storage ((DEAL) FC013 - THE BULWARK SANDWICH WPS)	The model has a Low risk DAP confidence score of 2 and was last verified in 2017.	Yes	Yes	Yes	Major Positive +++	£1,000K	Yes	Best Value
Study/ investigation to gather more data	WEAT (DEAL) FC014 - GOLF ROAD DEAL CSO (ICM link: Golf Rd_Storm WPS.2)	PO5, PO13 and PO14 - Spill Assessments	WEAT.OT01.7	Storage ((DEAL) FC014 - GOLF ROAD DEAL CSO (ICM link: Golf Rd_Storm WPS.2))	DAP Option.	Yes	Yes	Yes	Major Positive +++	£1,000K	Yes	Best Value
Study/ investigation to gather more data	Catchment Wide	PO1, PO4, PO7 & PO10 - Sewer Flooding PO5 - Storm Overflow Performance	WEAT.OT01.8	Improve Hydraulic Model	There is a Low confidence between Storm Overflow spill frequencies measured by EDM sensor and model data.	Yes	Yes	Yes	Major Positive +++	£400K	Yes	Best Value
Study/ investigation to gather more data	Catchment Wide	PO13 - Bathing Waters	WEAT.OT01.9	Study and Investigations	Link to ongoing study and investigations to identify causes of impact on Bathing Waters and appropriate measures to address them.	Yes	Yes	Yes	Minor Positive +	£TBC - With Partners	Yes	Best Value
Study/ investigation to gather more data	Ramsgate	PO1, PO4, PO7 & PO10 - Sewer Flooding	WEAT.OT01.10	Study and Investigations	Investigate the condition of existing 40,000 m3 storage tanks under Ramsgate town and remobilise to full storage capacity.	Yes	Yes	Yes	Minor Positive +	£100K	Yes	Best Value
Study/ investigation to gather more data	Deal	PO1, PO4, PO7 & PO10 - Sewer Flooding	WEAT.OT01.11	Study and Investigations	Investigate the condition of existing storage tanks in town centre and remobilise to full storage capacity.	Yes	Yes	Yes	Minor Positive +	£100K	Yes	Best Value

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
Stour								
Weatherlees Hill								
WEAT.SC03.1	Stour	Weatherlees Hill	St. Andrews Road, Cattle Market, High Street, York Street, Harbour Parade, Queen Street, Broad Street, Sandown Lees, The Old Vicarage, The Street, Hereson Road, Denmark Road, Albion Road, Pysons Road, The Strand, Victoria Road, Campbell Road, Beach Street, Channel Lea, Richmond Road, The Fairway, West Cliff Road	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	Thanet District Council	PO1
WEAT.PW01.5	Stour	Weatherlees Hill	System Wide	Sewer Rehabilitation: Targeted CCTV or electroscan surveys and sewer rehabilitation to reduce the risk of sewer bursts and collapses	£12,225K	AMP8 onwards	-	PO3
WEAT.PW01.7	Stour	Weatherlees Hill	Groundwater Capture Zone & Source Protection Zones including hotspots Lord of the Manor, Martin Mill, Ringwold and Minster B	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	£9,305K	AMP9	Environment Agency	PO12
WEAT.PW01.8	Stour	Weatherlees Hill	KING STREET, ALLENBY ROAD, TELHAM AVENUE, CANTERBURY ROAD WEST, FLORA ROAD & THE STRAND	Sewer Rehabilitation: Targeted CCTV or electroscan surveys and sewer rehabilitation to reduce the risk of sewer bursts and collapses	£2,535K	AMP8 onwards	-	PO2
WEAT.PW01.9	Stour	Weatherlees Hill	St. Andrews Road, Cattle Market, High Street, York Street, Harbour Parade, Queen Street, Broad Street, Sandown Lees, The Old Vicarage, The Street, Hereson Road, Denmark Road, Albion Road, Pysons Road, The Strand, Victoria Road, Campbell Road, Beach Street, Channel Lea, Richmond Road, The Fairway, West Cliff Road	Enhanced Sewer Maintenance: Increase targeted sewer jetting to reduce the number of blockages in the network	£515K	AMP8 onwards	-	PO1
WEAT.PW01.10	Stour	Weatherlees Hill	College Road - Ramsgate	Growth scheme from our Drainage Area Plan (DAP): Construct new storage tank on sewer network	£1,235K	AMP9	-	PO4 PO7
WEAT.PW01.11	Stour	Weatherlees Hill	Harbour Parade - Ramsgate	Growth scheme from our Drainage Area Plan (DAP): Construct new storage tank and manholes on sewer network	£1,235K	AMP9	-	PO4 PO7
WEAT.PW01.12	Stour	Weatherlees Hill	Woodensborough Road - Sandwich	Growth scheme from our Drainage Area Plan (DAP): Upsize sections of local sewers	£625K	AMP9	-	PO4 PO7
WEAT.PW01.13	Stour	Weatherlees Hill	Woodensborough Road - Sandwich	Growth scheme from our Drainage Area Plan (DAP): Increase pumping capacity at the Bulwark Sandwich WPS from 38l/s to 73l/s	£625K	AMP9	-	PO4 PO7
WEAT.PW01.14	Stour	Weatherlees Hill	Deal, Golf Road WPS - Deal	Growth scheme from our Drainage Area Plan (DAP): Increase pumping capacity at Golf Road WPS	£625K	AMP9	-	PO4 PO7
WEAT.PW01.15	Stour	Weatherlees Hill	Sholden Fields eastern bend of The Street - Deal	Growth scheme from our Drainage Area Plan (DAP): Upsize sections of local sewers to 300mm and 450mm diameter	£625K	AMP9	-	PO4 PO7
WEAT.PW01.16	Stour	Weatherlees Hill	Dola Avenue & William Pitt Avenue - Deal	Growth scheme from our Drainage Area Plan (DAP): Construct new storage tank in sewer network	£625K	AMP9	-	PO4 PO7
WEAT.PW01.17	Stour	Weatherlees Hill	Church Lane - Deal	Growth scheme from our Drainage Area Plan (DAP): Upsize sections of local sewers to 600mm diameter	£625K	AMP9	-	PO4 PO7
WEAT.PW01.18	Stour	Weatherlees Hill	Middle Deal Road - Deal	Growth scheme from our Drainage Area Plan (DAP): Upsize sections of local sewers to 600mm diameter	£625K	AMP9	-	PO4 PO7
WEAT.PW01.19	Stour	Weatherlees Hill	Granville Road - Deal	Growth scheme from our Drainage Area Plan (DAP): Upsize sections of local sewers on Granville Rd and increase pumping capacity of Mongham Road Deal WPS	£625K	AMP9	-	PO4 PO7
WEAT.PW01.20	Stour	Weatherlees Hill	Mongham Road Deal WPS - Deal	Growth scheme from our Drainage Area Plan (DAP): Increase pumping capacity of Mongham Road Deal WPS	£625K	AMP9	-	PO4 PO7

Reference	River Basin (L2)	Wastewater System (L3)	Location	Option	Indicative Cost	Indicative Timescales	Potential Partners	Applicable Planning Objectives
WEAT.PW01.21	Stour	Weatherlees Hill	Walmer, Station Rd - Deal	Growth scheme from our Drainage Area Plan (DAP): Upsize sections of local sewers	£625K	AMP9	-	PO4 PO7
WEAT.PW01.25	Stour	Weatherlees Hill	High Street, Harbour Parade - Ramsgate	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£1,105K	AMP9	Kent CC, Catchment Partnership, Kent Wildlife Trust	PO4 PO7
WEAT.PW01.26	Stour	Weatherlees Hill	Grange Road - Ramsgate	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£2,060K	AMP9	Kent CC, Catchment Partnership, Kent Wildlife Trust	PO4 PO7
WEAT.PW01.27	Stour	Weatherlees Hill	Albert Road - Deal	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£1,155K	AMP9	Kent CC, Catchment Partnership, Kent Wildlife Trust	PO4 PO7
WEAT.PW01.28	Stour	Weatherlees Hill	Middle Deal Road - Deal	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£2,240K	AMP9	Kent CC, Catchment Partnership, Kent Wildlife Trust	PO4 PO7
WEAT.PW01.29	Stour	Weatherlees Hill	Manor Road, Gilham Grove - Deal	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£620K	AMP9	Kent CC, Catchment Partnership, Kent Wildlife Trust	PO4 PO7
WEAT.PW01.30	Stour	Weatherlees Hill	Walmer - Deal	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£1,640K	AMP9	Kent CC, Catchment Partnership, Kent Wildlife Trust	PO4 PO7
WEAT.PW01.31	Stour	Weatherlees Hill	Granville Road - Deal	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£2,735K	AMP9	Kent CC, Catchment Partnership, Kent Wildlife Trust	PO4 PO7
WEAT.PW01.32	Stour	Weatherlees Hill	Church Street - Deal	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£880K	AMP9	Kent CC, Catchment Partnership, Kent Wildlife Trust	PO4 PO7
WEAT.PW01.33	Stour	Weatherlees Hill	Undercliffe Road - Deal	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£1,375K	AMP9	Kent CC, Catchment Partnership, Kent Wildlife Trust	PO4 PO7
WEAT.PW02.1	Stour	Weatherlees Hill	WEATHERLEES HILL A WTW	Increase capacity to allow for planned new development	£2,745K	AMP9	-	PO8
WEAT.OT01.2	Stour	Weatherlees Hill	System Wide	Study and Investigation to understand the impact of wastewater discharges on the local environment and identify measures required to achieve good ecological status in the receiving waterbody	£695K	AMP8	Environment Agency	PO9
WEAT.OT01.8	Stour	Weatherlees Hill	System Wide	Improve the Hydraulic Model: Surveys and reverification of model to improve confidence and accuracy	£400K	AMP8	-	PO1 PO4 PO5 PO7 PO10
WEAT.OT01.10	Stour	Weatherlees Hill	Ramsgate	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£100K	AMP8	-	PO1 PO4 PO7 PO10
WEAT.OT01.11	Stour	Weatherlees Hill	Deal	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding (Costs based on storage solution but surface water separation is our preferred approach)	£100K	AMP8	-	PO1 PO4 PO7 PO10
WEAT.WINEP01.1	Stour	Weatherlees Hill	GOLF ROAD DEAL CSO	New or improved screen to reduce aesthetics impacts from storm discharges at GOLF ROAD DEAL CSO	£130K	AMP12	-	PO5 PO9
WEAT.WINEP01.2	Stour	Weatherlees Hill	FOADS LANE RAMSGATE CEO	New or improved screen to reduce aesthetics impacts from storm discharges at FOADS LANE RAMSGATE CEO	£130K	AMP11	-	PO5 PO9
WEAT.WINEP01.3	Stour	Weatherlees Hill	SPENCER SQUARE RAMSGATE CSO	New or improved screen to reduce aesthetics impacts from storm discharges at SPENCER SQUARE RAMSGATE CSO	£130K	AMP12	-	PO5 PO9

Reference	River Basin (L2)	Wastewater System (L3)	Location	Option	Indicative Cost	Indicative Timescales	Potential Partners	Applicable Planning Objectives
WEAT.WINEP01.4	Stour	Weatherlees Hill	LOOP STREET SANDWICH CEO	New or improved screen to reduce aesthetics impacts from storm discharges at LOOP STREET SANDWICH CEO	£130K	AMP12	-	PO5 PO9
WEAT.WINEP01.5	Stour	Weatherlees Hill	THE BULWARK SANDWICH CEO	Reduce the number of storm discharges from THE BULWARK SANDWICH CEO by a combination of SuDS and storage options	£17,530K	AMP12	-	PO4 PO5 PO9
WEAT.WINEP01.6	Stour	Weatherlees Hill	THANET ROAD RAMSGATE CSO	New or improved screen to reduce aesthetics impacts from storm discharges at THANET ROAD RAMSGATE CSO	£130K	AMP11	-	PO5 PO9
WEAT.WINEP01.7	Stour	Weatherlees Hill	FOADS HILL CLIFFS END CSO	Reduce the number of storm discharges from FOADS HILL CLIFFS END CSO by a combination of SuDS and storage options	£12,930K	AMP10	-	PO4 PO5 PO9
WEAT.WINEP01.8	Stour	Weatherlees Hill	FOXBOROUGH CLOSE WOODNESBOROUGH SSO	Reduce the number of storm discharges from FOXBOROUGH CLOSE WOODNESBOROUGH SSO by a combination of SuDS and storage options	£12,220K	AMP12	-	PO4 PO5 PO9
WEAT.WINEP.PO2.1	Stour	Weatherlees Hill	Weatherlees Hill WTW	Action to reduce total phosphorus and/or total nitrogen levels from discharges which drain to internationally designated sites where there is a risk from nutrients	£11,050K	AMP10	-	PO9 PO11

Drainage and Wastewater Management Plan: Location of Potential Options WEATHERLEES HILL

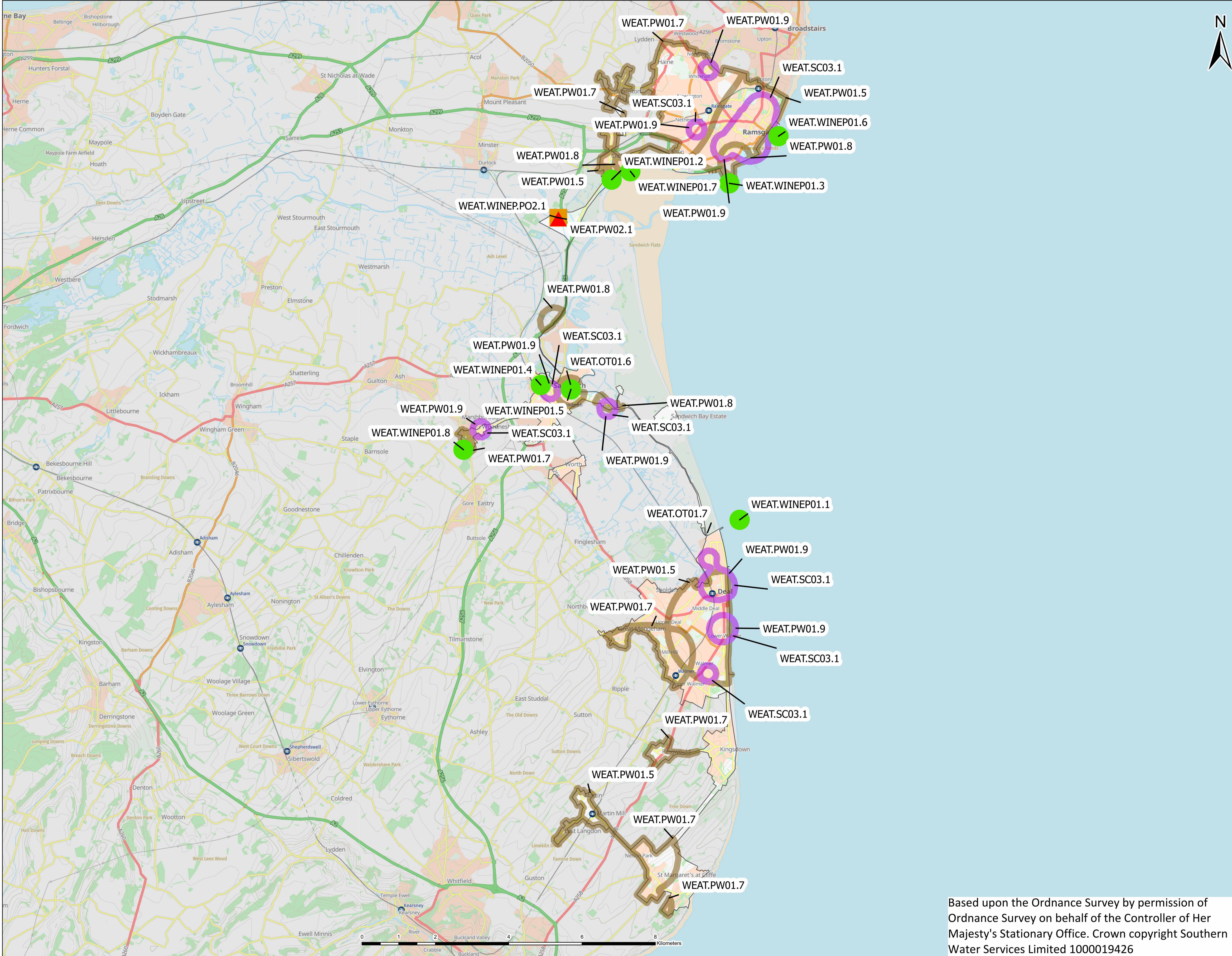
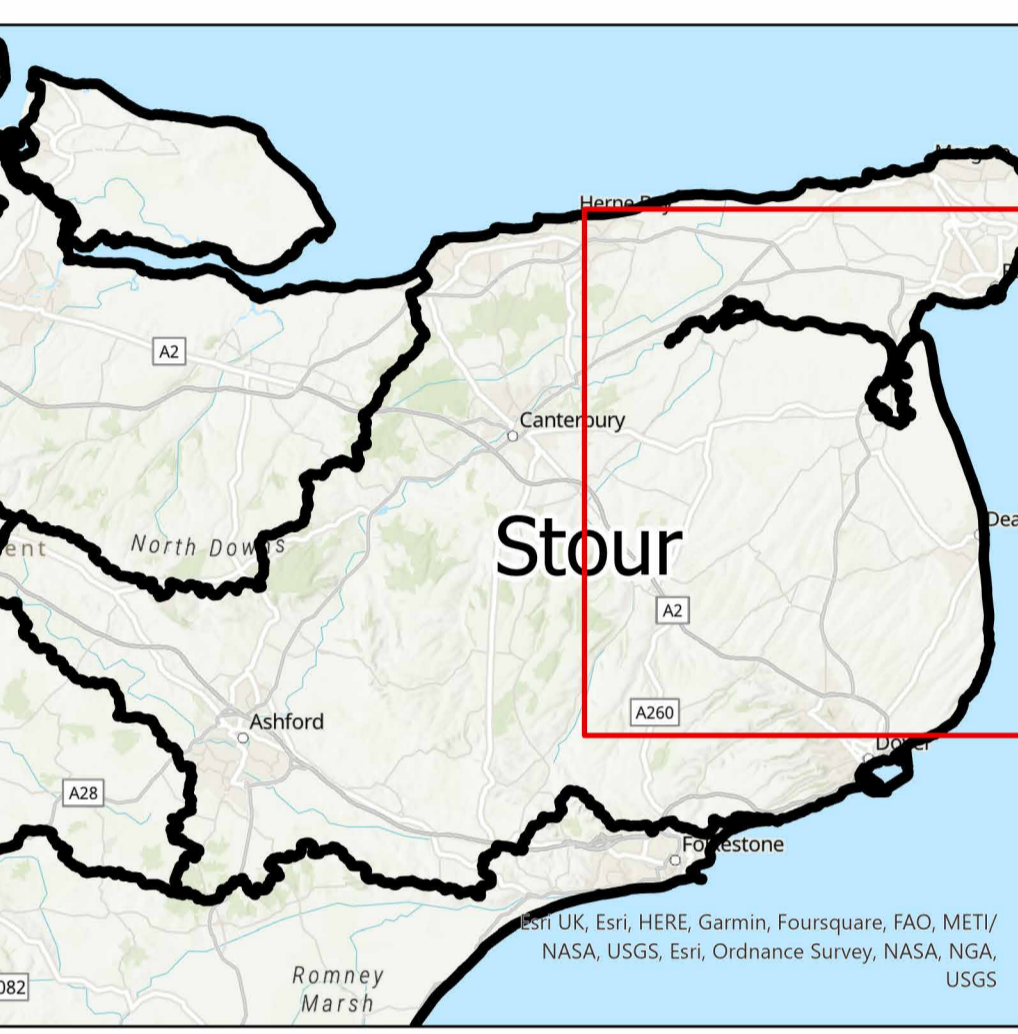
Wastewater system in Stour River Basin Catchment







(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

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