Drainage and Wastewater Management Plan

Shoreham
Wastewater System Plan

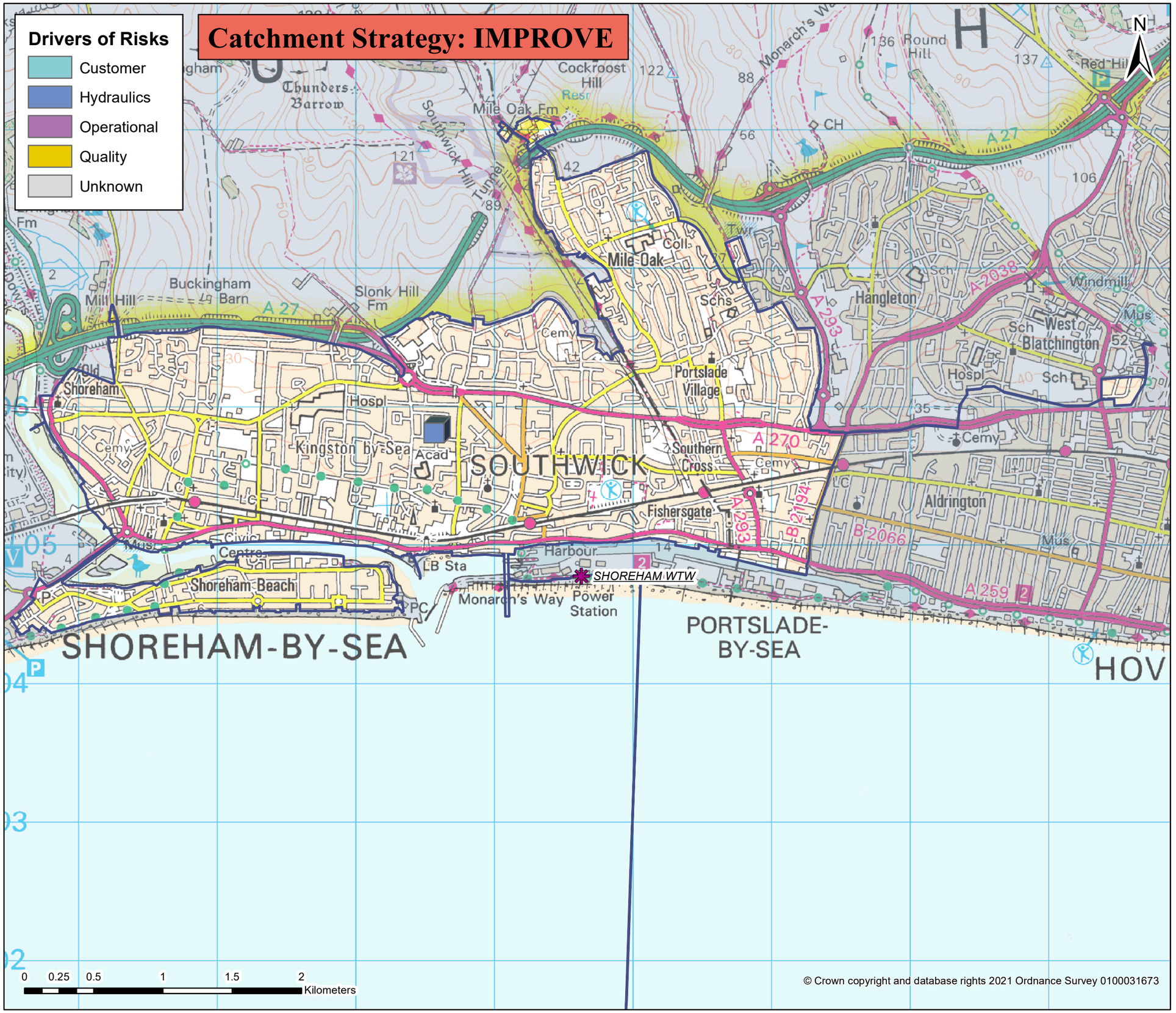
from Southern Water

Contents

Shoreham wastewater system: map and key facts

Population Equivalent (PE)	55,458
Discharge Waterbody	Long sea outfall into English Channel
Number of Pumping Stations	25
Number of Overflows	5
Length of Sewer (km)	408.7
Catchment Reference	PORT

BRAVA Results Table (PORT)			
	Planning Objective	2020	2050
1	Internal Sewer Flooding Risk	0	
2	Pollution Risk	0	
3	Sewer Collapse Risk	0	
4	Risk of Sewer Flooding in a 1 in 50 year storm	2	2
5	Storm Overflow performance	2	2
6	Risk of WTW Compliance Failure	0	0
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	2	
11	Nutrient Neutrality	NA	NA
12	Groundwater Pollution	0	
13	Bathing Waters	NA	
14	Shellfish Waters	NA	



Problem Characterisation
Shoreham (PORT)

This document describes the causes of the risks identified by the Baseline Risk and Vulnerability Assessment (BRAVA). The BRAVA results for this wastewater system are summarised in Table 1. The results indicate that flooding, pollution and water quality are the main concerns in this wastewater system. 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 Shoreham wastewater system

Planning Objectives		2020	Driver	2050
1	Internal Sewer Flooding Risk	0	-	
2	Pollution Risk	0	-	
3	Sewer Collapse Risk	0	-	
4	Sewer Flooding in a 1 in 50-year storm	2	Hydraulic	2
5	Storm Overflow Performance	2	Hydraulic	2
6	WTW Water Quality Compliance	0	-	0
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	2	Hydraulic	
11	Nutrient Neutrality	NA	-	NA
12	Groundwater Pollution	0	-	
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

Investment Strategy

The risks identified in this wastewater system 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.

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

2017/18	2018/19	2019/20
3	3	3

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 less than 24.51 incidents per 10,000km per year (a threshold set by Ofwat) so the risk is in the 'not significant' band.

Figure 2: Number of pollution incidents per annum and causes

2017	2018	2019
0	0	1

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 less than 5.72 incidents per 1,000km per year (a threshold set by Ofwat) so the risk is in the 'not significant' band.

Table 2: Sewer collapses and rising main bursts

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

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 2500 - 2600 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 3700 - 3800 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	1 High	1 Medium	Less than 3	Between 3-10	10 or more
Freshwater	1 High	1 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 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

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.

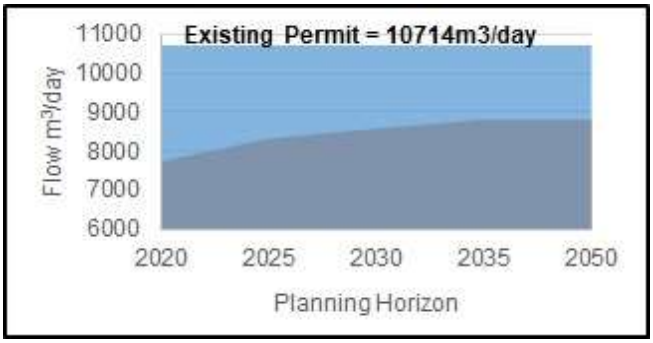
Rainfall Return Period (yr)	Number of Properties at Risk		Annualised per 10,000 connections	
	2020	2050	2020	2050
1 in 1	217	552	137	349
1 in 2	330	721	130	284
1 in 5	903	1599	164	290
1 in 10	1439	2295	137	218
1 in 20	1964	2913	96	142
1 in 30	2287	3284	75	108
Total Annualised			**738**	**1391**

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

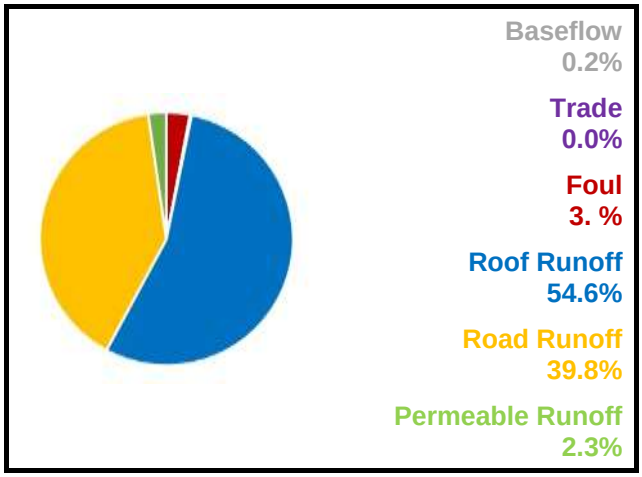
This wastewater system is not hydraulically linked to a waterbody where wastewater operations are contributing to not achieving GES/GEP, therefore the risk is not significant.

Planning Objective 10: Surface Water Management

Our initial high level assessment indicated that there is 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 96.7% of the flow in the sewers. The total contribution of foul water from homes is 3.0%. The baseflow is infiltration from water in the ground and makes up 0.2% 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 not significant. Although our wastewater network crosses over Source Protection Zones (SPZ) used for water supply, there is no evidence to suggest our network is leaking into these SPZs.

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.

Southern Water
August 2021
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Generic Options Assessment for: Shoreham (PORT)

Planning Objectives		2020	Driver	2050
PO1	Internal Flooding	0	-	-
PO2	Pollution Risk	0	-	-
PO3	Sewer Collapse	0	-	-
PO4	Risk of Sewer Flooding in 1 in 50 yr	2	Hydraulic	2
PO5	Storm Overflow Performance	2	Hydraulic	2
PO6	Risk of WTW Compliance Failure	0	-	0
PO7	Annualised Flood Risk/Hydraulic Overload	2	Hydraulic	2
PO8	DWF Compliance	0	-	1
PO9	Achieve Good Ecological Status	0	-	-
PO10	Improve Surface Water Management	2	Hydraulic	-
PO11	Secure Nutrient Neutrality	NA	-	NA
PO12	Reduce Groundwater Pollution	0	-	-
PO13	Improve Bathing Water Quality	NA	-	-
PO14	Improve Shellfish Water Quality	NA	-	-

Type of Measures	Generic Option Categories	Icon	Take Forward?	Reasons	Examples of Generic Options
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
	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
	Improve **quality** of wastewater		N	None of the significant risks are caused by the quality of wastewater entering the wastewater system.	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
	Reduce the **quantity** / demand		Y	-	Water efficient appliances; water efficient measures; blackwater and/or greywater re-use; treatment at source
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.
	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
	Wastewater Transfer to treatment elsewhere		N	The causes of risk are not due to where our systems discharge to the environment or our ability to increase the capacity to connect more homes. Transferring wastewater for treatment elsewhere will not reduce any of the significant risks in this catchment.	Transfer flow to other network or treatment sites; transport sewage by tanker to other sites
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
	Improve Land and Soils		N/A	Not included in first round of DWMPs	Sludge soil enhancement
	Mitigate impacts on receiving waters		N	The receiving waters are not advserly 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
	Reduce impact on properties		Y	-	Property flood resilience; non-return valves; flood guards / doors; air brick covers
Other	Study / Investigation		N	No further studies are required at this stage	Additional data required; hydraulic model development; WQ monitoring and modelling

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Shoreham 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	PORT FC01_1 - Albion Street	PO4 and PO7 Flooding	PORT.SC01.1	Surface Water Separation	DAP Option.	No						
Control/ Reduce surface water entering the sewers	PORT FC02_1 - Trafalgar Road	PO4 and PO7 Flooding	PORT.SC01.2	Surface Water Separation	DAP Option.	No						
Control/ Reduce surface water entering the sewers	PORT FC03_1 - Station Road	PO4 and PO7 Flooding	PORT.SC01.3	Surface Water Separation	DAP Option.	No						
Control/ Reduce surface water entering the sewers	PORT FC04_1 - Brighton Road	PO4 and PO7 Flooding	PORT.SC01.4	Surface Water Separation	DAP Option.	No						
Control/ Reduce surface water entering the sewers	PORT FC11_1 - Old Shoreham Road	PO4 and PO7 Flooding	PORT.SC01.5	Surface Water Separation	DAP Option.	No						
Control / Reduce groundwater infiltration												
Improve quality of wastewater entering sewers (inc reducing FOG, RAG, pre-treatment, trade waste)												
Control / Reduce the quantity / flow of wastewater entering sewer system	SHOREHAM WTW	PO8 (2050)- Dry Weather Flow	PORT.SC04.1	Water Efficient Appliance / Measures	Southern Water aims to reduce water consumption to 100 l/h/d by 2040.	No						Environmental risk mitigatable
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO8 (2050)- Dry Weather Flow	PORT.PW01.1	Pipe Rehabilitation Programme	Relining/improving structural grades of sewers across the catchment.	No						Cost Effective
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO12- Ground Water Pollution	PORT.PW01.2	Pipe Rehabilitation Programme	Total length of sewer within protection zones- 159.	Yes	Yes	Yes	Minor Positive +	£4,645K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	PORT FC08 - THE GREEN SOUTHWICK CSO	PO5 and PO13 - Spill Assessments	PORT.PW01.3	Storage (FC08 - THE GREEN SOUTHWICK CSO)	The model has a DAP confidence score of 2 and was ;last verified in 2014.	Yes	Yes	Yes	Major Positive +++	£515K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	PORT FC01 Old Shoreham Road	PO4 & PO7 - Growth	PORT.PW01.4	Upsizing (PORTGR001 Option 2 Section 1.1)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,960K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	PORT FC02 High Street/Brighton Road	PO4 & PO7 - Growth	PORT.PW01.5	Upsizing, new sewer and online storage (PORTGR001 Option 2 Section 1.2)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,960K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	PORT FC03 Upper Shoreham Road	PO4 & PO7 - Growth	PORT.PW01.6	Upsizing (PORTGR001 Option 2 Section 1.3)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,960K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	PORT FC04 Dolphin Road	PO4 & PO7 - Growth	PORT.PW01.7	Upsizing (PORTGR001 Option 2 Section 1.4)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,960K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	PORT FC05 Kingstone Lane	PO4 & PO7 - Growth	PORT.PW01.8	Upsizing and offline storage (PORTGR001 Option 2 Section 1.5)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,960K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	PORT FC06 Albion Street	PO4 & PO7 - Growth	PORT.PW01.9	Upsizing (PORTGR001 Option 2 Section 1.6)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,960K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	PORT FC07 Wellington Road	PO4 & PO7 - Growth	PORT.PW01.10	Upsizing (PORTGR001 Option 2 Section 1.7)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,960K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	PORT FC01_1 - Albion Street	PO4 and PO7 Flooding	PORT.PW01.11	Storage	DAP Option.	Yes	Yes	Yes	Major Positive +++	£10,685K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	PORT FC02_1 - Trafalgar Road	PO4 and PO7 Flooding	PORT.PW01.12	Storage	DAP Option.	Yes	Yes	Yes	Major Positive +++	£3,015K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	PORT FC03_1 - Station Road	PO4 and PO7 Flooding	PORT.PW01.13	Storage	DAP Option.	Yes	Yes	Yes	Major Positive +++	£2,870K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	PORT FC04_1 - Brighton Road	PO4 and PO7 Flooding	PORT.PW01.14	Storage	DAP Option.	Yes	Yes	Yes	Major Positive +++	£985K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	PORT FC11_1 - Old Shoreham Road	PO4 and PO7 Flooding	PORT.PW01.15	Storage	DAP Option.	Yes	Yes	Yes	Major Positive +++	£825K	Yes	Best Value
Improve treatment (capacity and quality at existing works or develop new WTWs)	SHOREHAM WTW	PO8 (2050)- Dry Weather Flow	PORT.PW02.1	Permit Review	Proposed permit-11618m3.	Yes	Yes	Yes	Minor Positive +	£1,755K	Yes	Best Value
Wastewater Transfer	SHOREHAM WTW	PO8 (2050)- Dry Weather Flow	PORT.PW03.1	Construct New WPS & Rising Main	Within 20km radius of PORT is BRIG which in 2050 will have approximately 7613m3day of headroom (until it is above 80% of its DWF permit).	No						Cost Effective and Do customer support it
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	PORT.OT01.1	Infiltration Reduction Plan	Relining/improving structural grades of sewers across the catchment.	No						Cost Effective
Study/ investigation to gather more data	Catchment Wide	PO12- Ground Water Pollution	PORT.OT01.2	Study and Investigations	Total length of sewer within protection zones- 47.	No						Deliver the required outcome
Study/ investigation to gather more data	Catchment Wide	PO4- 1 in 50 year PO5- Storm Overflow PO7- Hydraulic Overload PO10- Surface Water Management	PORT.OT01.3	Improve Hydraulic Model	Improve Hydraulic Model.	Yes	Yes	Yes	Minor Positive +	£350K	Yes	Best Value
Study/ investigation to gather more data	PORT FC09 - UPPER SHOREHAM ROAD SHOREHAM CSO	PO5 and PO13 - Spill Assessments	PORT.OT01.4	Storage (FC09 - UPPER SHOREHAM ROAD SHOREHAM CSO)	The model has a DAP confidence score of 2 and was last verified in 2014.	Yes	Yes	Yes	Major Positive +++	£1,000K	Yes	Best Value

Shoreham 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	SHOREHAM WTW	PO5 Storm Overflow	PORT.OT01.5	Storage	Storage.	Yes	Yes	Yes	Minor Positive +	£1,000K	Yes	Best Value

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.

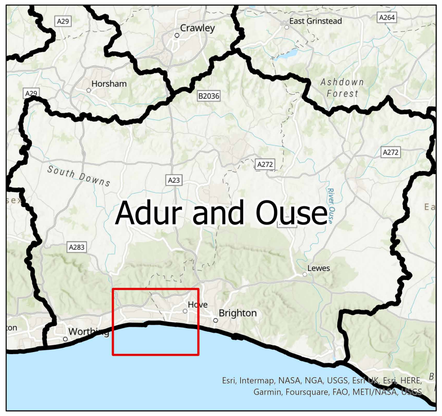
Date : May 2023
Version : 1.0

Reference	River Basin (L2)	Wastewater System (L3)	Location	Option	Indicative Cost	Indicative Timescales	Potential Partners	Applicable Planning Objectives
Adur and Ouse								
Shoreham								
PORT.PW01.2	Adur and Ouse	Shoreham	System Wide (excluding part of Shoreham Beach and the Harbour)	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	£4,645K	AMP9	-	PO12
PORT.PW01.4	Adur and Ouse	Shoreham	Old Shoreham Road	Growth scheme from our Drainage Area Plan (DAP): Construct additional storage in network including 107m of new 1800mm dia sewer and upsize sections of local sewers	£2,960K	AMP9	West Sussex County Council	PO4 PO7
PORT.PW01.5	Adur and Ouse	Shoreham	High Street/Brighton Road	Growth scheme from our Drainage Area Plan (DAP): Construct additional storage in network including 107m of new 1800mm dia sewer and upsize sections of local sewers	£2,960K	AMP9	West Sussex County Council	PO4 PO7
PORT.PW01.6	Adur and Ouse	Shoreham	Upper Shoreham Road	Growth scheme from our Drainage Area Plan (DAP): Construct additional storage in network including 107m of new 1800mm dia sewer and upsize sections of local sewers	£2,960K	AMP9	West Sussex County Council	PO4 PO7
PORT.PW01.7	Adur and Ouse	Shoreham	Dolphin Road	Growth scheme from our Drainage Area Plan (DAP): Construct additional storage in network including 107m of new 1800mm dia sewer and upsize sections of local sewers	£2,960K	AMP9	West Sussex County Council	PO4 PO7
PORT.PW01.8	Adur and Ouse	Shoreham	Kingstone Lane	Growth scheme from our Drainage Area Plan (DAP): Construct additional storage in network including 107m of new 1800mm dia sewer and upsize sections of local sewers	£2,960K	AMP9	West Sussex County Council	PO4 PO7
PORT.PW01.9	Adur and Ouse	Shoreham	Albion Street	Growth scheme from our Drainage Area Plan (DAP): Construct additional storage in network including 107m of new 1800mm dia sewer and upsize sections of local sewers	£2,960K	AMP9	West Sussex County Council	PO4 PO7
PORT.PW01.10	Adur and Ouse	Shoreham	Wellington Road	Growth scheme from our Drainage Area Plan (DAP): Construct additional storage in network including 107m of new 1800mm dia sewer and upsize sections of local sewers	£2,960K	AMP9	West Sussex County Council	PO4 PO7
PORT.PW01.11	Adur and Ouse	Shoreham	Albion Street	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding	£10,685K	AMP9	West Sussex County Council	PO4 PO7
PORT.PW01.12	Adur and Ouse	Shoreham	Trafalgar Road	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding	£3,015K	AMP9	West Sussex County Council	PO4 PO7
PORT.PW01.13	Adur and Ouse	Shoreham	Station Road	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding	£2,870K	AMP9	West Sussex County Council	PO4 PO7
PORT.PW01.14	Adur and Ouse	Shoreham	Brighton Road	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding	£985K	AMP9	West Sussex County Council	PO4 PO7
PORT.PW01.15	Adur and Ouse	Shoreham	Old Shoreham Road	Flood Alleviation: Separate or attenuate excess rainwater in sewer network using Sustainable Drainage Systems (SuDS) to reduce risk of flooding	£825K	AMP9	West Sussex County Council	PO4 PO7
PORT.PW02.1	Adur and Ouse	Shoreham	Shoreham WTW	Increase capacity to allow for planned new development	£1,755K	AMP9	-	PO8

Reference	River Basin (L2)	Wastewater System (L3)	Location	Option	Indicative Cost	Indicative Timescales	Potential Partners	Applicable Planning Objectives
PORT.OT01.3	Adur and Ouse	Shoreham	System Wide	Improve the Hydraulic Model: Surveys and reverification of model to improve confidence and accuracy	£350K	AMP8	-	PO4 PO5 PO7 PO10
PORT.WINEP01.1	Adur and Ouse	Shoreham	SHOREHAM CSO	Reduce the number of storm discharges from SHOREHAM CSO by a combination of SuDS and storage options	£13,850K	AMP9	-	PO4 PO5 PO7 PO13
PORT.WINEP01.2	Adur and Ouse	Shoreham	ROPETACKLE STREET SHOREHAM CEO	New or improved screen to reduce aesthetics impacts from storm discharges at ROPETACKLE STREET SHOREHAM CEO	£130K	AMP11	-	PO5
PORT.WINEP01.3	Adur and Ouse	Shoreham	THE GREEN SOUTHWICK CSO	New or improved screen to reduce aesthetics impacts from storm discharges at THE GREEN SOUTHWICK CSO	£130K	AMP12	-	PO5
PORT.WINEP01.4	Adur and Ouse	Shoreham	UPPER SHOREHAM ROAD SHOREHAM CSO	New or improved screen to reduce aesthetics impacts from storm discharges at UPPER SHOREHAM ROAD SHOREHAM CSO	£130K	AMP11	-	PO5
PORT.WINEP01.5	Adur and Ouse	Shoreham	ALBION STREET PORTSLADE EMO	Reduce the number of storm discharges from ALBION STREET PORTSLADE EMO by a combination of SuDS and storage options	£13,820K	AMP12	-	PO4 PO5 PO7

Drainage and Wastewater Management Plan: Location of Potential Options SHOREHAM Wastewater system in Adur and Ouse 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 Nutient Neutrality
- WINEP Storm Overflows

PORT.PW01.2
PORT.WINEP01.4
PORT.WINEP01.2
PORT.WINEP01.3
PORT.PW01.2
PORT.PW02.1
PORT.WINEP01.5
PORT.WINEP01.1

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