Drainage and Wastewater Management Plan

Portswood
Wastewater System Plan

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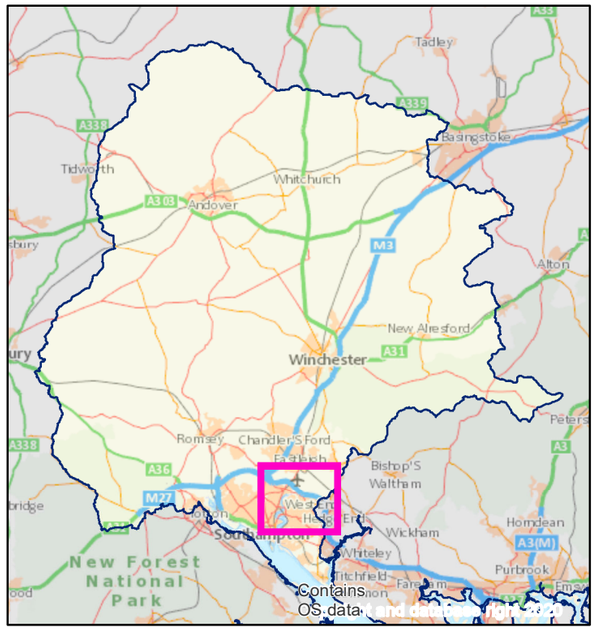
Portswood wastewater system: map and key facts



Population Equivalent (PE)	**79,637**
Discharge Waterbody	**River Itchen**
Number of Pumping Stations	**19**
Number of Overflows	**10**
Length of Sewer (km)	**585.1**
Catchment Reference	**POOD**

BRAVA Results Table (POOD)

	Planning Objective	2020	2050
1	Internal Sewer Flooding Risk	1	
2	Pollution Risk	2	
3	Sewer Collapse Risk	0	
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	1	2
8	Dry Weather Flow Compliance	0	0
9	Good Ecological Status / Potential	0	
10	Surface Water Management	1	
11	Nutrient Neutrality	2	2
12	Groundwater Pollution	0	
13	Bathing Waters	NA	
14	Shellfish Waters	0	

Problem Characterisation
Portswood (POOD)

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 Portswood wastewater system

Planning Objectives		2020	Driver	2050
1	Internal Sewer Flooding Risk	1	Customer	
2	Pollution Risk	2	Customer	
3	Sewer Collapse Risk	0	-	
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	1	Hydraulic	2
8	WTW Dry Weather Flow Compliance	0	-	0
9	Good Ecological Status / Good Ecological Potential	0	-	
10	Surface Water Management	1	Hydraulic	
11	Nutrient Neutrality	2	Unknown	2
12	Groundwater Pollution	0	-	
13	Bathing Waters	NA	-	
14	Shellfish Waters	0	-	

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

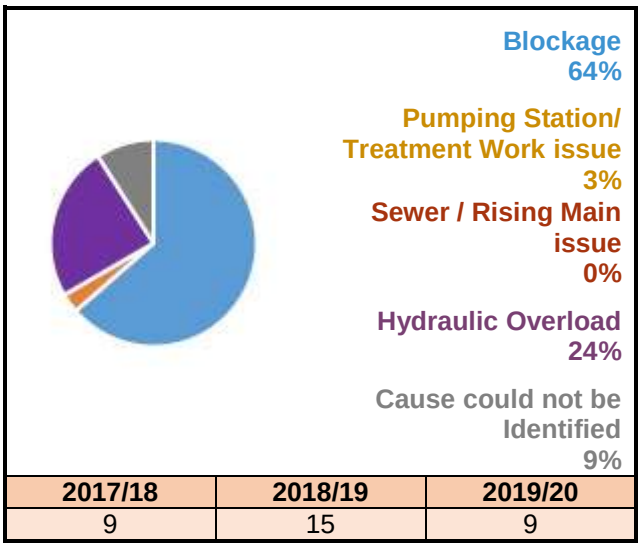
This means that we consider that the current performance of the drainage and wastewater system needs to be improved to reduce the impacts on our customers and/or the environment. We will plan investment to reduce the current risks by actively looking to invest capital funding in the short term to address 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 between 1.68 and 3.35 incidents per 10,000 connections per year (a threshold set by Ofwat) so the risk is in the 'moderately significant' band.2

The primary driver for internal sewer flooding in this wastewater system is 'Customer'. Blockages caused 64% 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



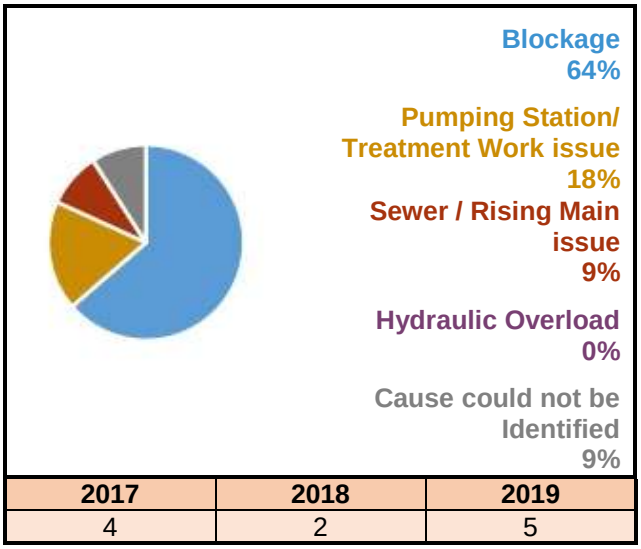
2017/18	2018/19	2019/20
9	15	9

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.

The primary driver for pollution is 'Customer'. Blockages caused 64% 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 2: Number of pollution incidents per annum and causes



2017	2018	2019
4	2	5

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**	4
	2018/19	1
	2019/20	2
Rising Main Bursts	**2017/18**	0
	2018/19	0
	2019/20	1

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 1400 - 1500 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 2500 - 2600 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	2 High	2 High	Less than 8	Between 8-10	10 or more
Bathing Waters	0 Medium	0 High	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 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 and Critical respectively. 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 moderately significant in 2020. The risk 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.

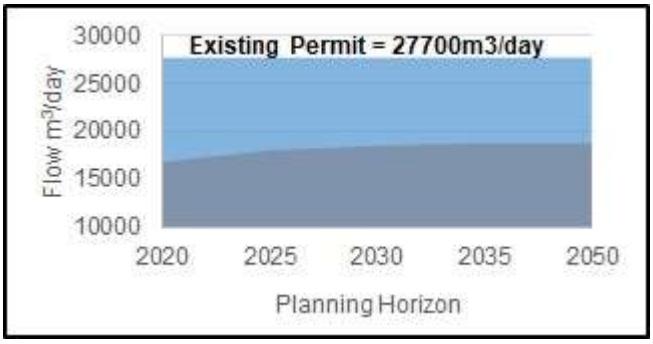
Rainfall Return Period (yr)	Number of Properties at Risk		Annualised per 10,000 connections	
	2020	2050	2020	2050
1 in 1	149	491	94	310
1 in 2	218	591	86	233
1 in 5	646	1138	117	206
1 in 10	906	1528	86	145
1 in 20	1170	2004	57	98
1 in 30	1294	2287	42	75
Total Annualised			**483**	**1067**

This indicates that the existing capacity of the wastewater network can be exceeded during 1 in 30 year storms (or more frequent events), and that the risk will increase due to future growth, creep and/or climate change by 2050.

Planning Objective 8: Wastewater Treatment Works Dry Weather Flow Compliance

The risk of Wastewater Treatment Works Dry Weather Flow (DWF) Compliance is not significant for both 2020 and 2050. This is because the average annual DWF for 2017, 2018 and 2019 has been below 80% of the current permit. The predicted DWF in 2050 is also expected to remain below 80% of the current permit, shown in Figure 3.

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



Planning Objective 9: Good Ecological Status / Good Ecological Potential

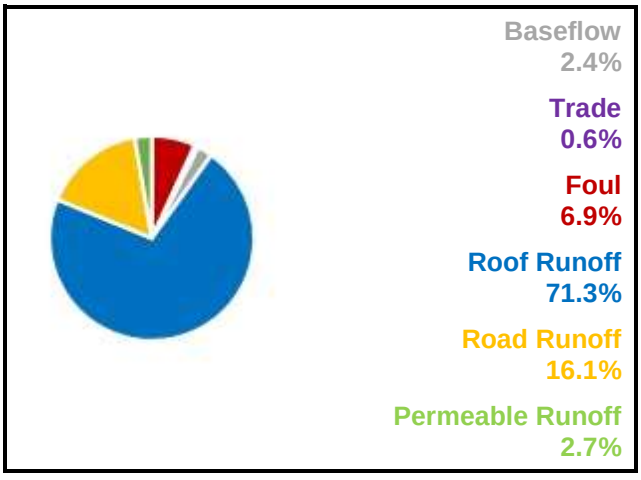
This wastewater system is not hydraulically linked to a waterbody where wastewater operations are contributing to not achieving GES/GEP, therefore the risk is not significant.

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 90.1% of the flow in the sewers. The total contribution of foul water from homes is 6.9% with business contributing 0.6%. The baseflow is infiltration from water in the ground and makes up 2.4% 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 very significant in 2020 and 2050. This is because Natural England have advised that there is a risk to condition for the habitat sites that are hydraulically linked to our wastewater system, listed in Table 5.

Table 5: Habitat Sites hydraulically linked to wastewater system

Habitat Sites	
Solent and Dorset Coast	Phosphate and Nitrate permit review required Overflow Spills
Solent & Southampton Water	No Threat/Remedy Identified or Anticipated

Planning Objective 12: Groundwater Pollution

The risk of Groundwater Pollution is not significant. This is because the wastewater network in this wastewater system does not overlap with any groundwater Source Protection Zones (SPZ) used for water supply.

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 can affect the designated shellfish waters shown in Table 6. The risk of not achieving the faecal standards for shellfish in these designated waters from this wastewater system is not significant. This is because any microbes or bacteria from the wastewater will either die or their impact will be dissipated before they reach the shellfish water where the discharges are over 5 km away.

Table 6: Shellfish Waters linked to wastewater system

Shellfish Waters
Southampton Water Sw

Generic Options Assessment for: Portswood (POOD)

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

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		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
	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		Y	-	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

August 2021
Version 1

Portswood 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	Catchment Wide	PO1, PO2, PO5, PO10	POOD.SC01.1	Surface water separation	Greening the city – manage water in a different way.	Yes	No					Environmental - Strategic Environmental Assessment
Control/ Reduce surface water entering the sewers	Catchment Wide	PO1, PO2, PO5, PO10	POOD.SC01.2	Rain Gardens	Rain gardens to take roof runoff.	Yes	No					Environmental - Strategic Environmental Assessment
Control/ Reduce surface water entering the sewers	Catchment Wide	PO1, PO2, PO5, PO10	POOD.SC01.3	SUDs	Smaller SuDS interventions – the flow can be held, intercepted, infiltrated.	Yes	Yes	Yes	Moderate Positive ++	£TBC - With Partners	No	Best Value
Control/ Reduce surface water entering the sewers	Catchment Wide	PO1, PO2, PO5, PO10	POOD.SC01.4	Rainwater harvesting - industrial	Target larger industrial units – roof runoff into tanks, for example, Tesco.	Yes	Yes	Yes	Moderate Positive ++	£TBC - With Partners	No	Best Value
Control / Reduce groundwater infiltration												
Improve quality of wastewater entering sewers (inc reducing FOG, RAG, pre-treatment, trade waste)	Catchment Wide	PO1, PO2, PO5, PO10	POOD.SC03.1	Customer Education Plan	Partnership with manufacturers to make it clearer what can and can't be flushed/removal of non-flushable products from market.	No						Deliver the required outcome and Do customer support it
Improve quality of wastewater entering sewers (inc reducing FOG, RAG, pre-treatment, trade waste)	West of catchment/ University	PO1, PO2, PO5, PO10	POOD.SC03.2	Customer Education Plan	Customer communication and education.	Yes	No					Performance and Sustainability
Improve quality of wastewater entering sewers (inc reducing FOG, RAG, pre-treatment, trade waste)	West of catchment/ University	PO1, PO2, PO5, PO10	POOD.SC03.3	Customer Education Plan	Sharing messages in different languages through the local media.	Yes	No					Performance and Sustainability
Improve quality of wastewater entering sewers (inc reducing FOG, RAG, pre-treatment, trade waste)	Catchment Wide	PO1- Internal Flooding	POOD.SC03.4	Customer Education Programme	Customer education programme to reduce the risk.	Yes	Yes	Yes	Minor Positive +	£115K	Yes	Best Value
Improve quality of wastewater entering sewers (inc reducing FOG, RAG, pre-treatment, trade waste)	Catchment Wide	PO2- Pollution Risk	POOD.SC03.5	Customer Education Programme	Customer education programme.	Yes	Yes	Yes	Minor Positive +	£115K	Yes	Best Value
Control / Reduce the quantity / flow of wastewater entering sewer system												
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO1, PO2, PO5, PO10	POOD.PW01.1	Smart networks	Smart networks – to better understand what is taking place in the sewer and improve incident response time.	Yes	No					Operational
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO6, PO11	POOD.PW01.2	Increase / improve screening in network	More intervention and protection for surface water sewers.	Yes	No					Operational
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO1, PO2	POOD.PW01.3	Operations inprovements	Improved jetting and washing programme.	Yes	No					Operational
Network Improvements (eg increase capacity, storage, conveyance)	Treatment Works	PO6, PO11	POOD.PW01.4	In network treatment	Upstream solutions to mitigate impacts at works.	Yes	Yes	Yes	Minor Positive +	£TBC - With Partners	No	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO1, PO2, PO5, PO10	POOD.PW01.5	Network upsize and increased storage	DAP Option.	Yes	No					Feasibility and Risk
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO1, PO2, PO5, PO10	POOD.PW01.6	Tunnel under river	To manage storm flow from POOD, MILL and WOOL (plus PEEL?).	Yes	No					Operational
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO1- Internal Flooding	POOD.PW01.7	Maintenance Programme	An efficient maintenance programme for pumping stations and/Treatment works to elimate the risk of a pollution incident due to an operational failure.	Yes	Yes	Yes	Minor Positive +	£6,970K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO1- Internal Flooding	POOD.PW01.8	Additional Storage	Additional Storage.	No						Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO1- Internal Flooding	POOD.PW01.9	Pipe Rehabilitation Programme	Pipe Rehabilitation Programme.	No						Cost Effective
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO2- Pollution Risk	POOD.PW01.10	Maintenance Programme WPS	Improve resilience: An efficient maintenance programme for pumping stations to elimate the risk of a pollution incident due to an operational failure.	No						Environmental risk mitigatable
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO2- Pollution Risk	POOD.PW01.11	Additional Storage	Additional Storage.	No						Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO3- Sewer Collapse	POOD.PW01.12	Pipe Rehabilitation Programme	Targeted CCTV / electroscan surveys and proactive sewer rehabilitation to reduce risk of sewer collapse.	No						Deliver the required outcome
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO8 (2050)- Dry Weather Flow	POOD.PW01.13	Pipe Rehabilitation Programme	Relining/improving structural grades of sewers across the catchment.	No						Cost Effective and Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO9- GE Status / Potential	POOD.PW01.14	Additional Storage	Additional Storage.	No						Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO9- GE Status / Potential	POOD.PW01.15	Pipe Rehabilitation Programme	Pipe Rehabilitation Programme.	No						Cost Effective and Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO12- Ground Water Pollution	POOD.PW01.16	Pipe Rehabilitation Programme	Targeted CCTV / electroscan surveys and proactive sewer rehabilitation to reduce risk of sewer collapse.	No						Cost Effective and Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO2- Pollution Risk	POOD.PW01.17	Pipe Rehabilitation Programme	Pipe Rehabilitation Programme.	Yes	Yes	Yes	Minor Positive +	£65K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO1- Internal Flooding	POOD.PW01.18	Jetting Programme	Jetting Programme.	Yes	Yes	Yes	Minor Positive +	£240K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO2- Pollution Risk	POOD.PW01.19	Jetting Programme	Jetting Programme.	Yes	Yes	Yes	Minor Positive +	£80K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	POOD FC01 GLEN EYRE ROAD	PO4 and PO7 - Growth	POOD.PW01.20	Upsize and offline storage	DAP Option.	Yes	Yes	Yes	Major Positive +++	£7,005K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	POOD FC02 MEGGESON AVENUE	PO4 and PO7 - Growth	POOD.PW01.21	New sewer and manhole	DAP Option.	Yes	Yes	Yes	Major Positive +++	£490K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	POOD FC03 PORTWOOD CRICKET GROUND	PO4 and PO7 - Growth	POOD.PW01.22	Online tank, new sewer and manhole	DAP Option.	Yes	Yes	Yes	Major Positive +++	£4,450K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	POOD FC04 BURGESS ROAD	PO4 and PO7 - Growth	POOD.PW01.23	New sewer	DAP Option.	Yes	No					Feasibility and Risk
Network Improvements (eg increase capacity, storage, conveyance)	POOD FC05 ON-LINE STORAGE	PO4 and PO7 - Growth	POOD.PW01.24	Online storage	DAP Option.	Yes	Yes	Yes	Major Positive +++	£325K	Yes	Best Value
Improve treatment (capacity and quality at existing works or develop new WTWs)	Treatment Works	PO6	POOD.PW02.1	Increase Capacity	Storm storage increase.	Yes	Yes	Yes	Minor Positive +	£4,720K	Yes	Best Value
Improve treatment (capacity and quality at existing works or develop new WTWs)	Treatment Works	PO11	POOD.PW02.2	Tertiary Treetment - reedbeds	Reedbeds to help with nutrient neutrality.	Yes	Yes	Yes	Minor Positive +	£TBC - With Partners	No	Best Value

Portswood 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
Improve treatment (capacity and quality at existing works or develop new WTWs)	Treatment Works	PO6, PO11	POOD.PW02.3	Centralise treatment	Convert into a terminal pumping station, transferring flows to Chickenhall Eastleigh.	Yes	Yes	Yes	Minor Positive +	£TBC - With Partners	No	Best Value
Improve treatment (capacity and quality at existing works or develop new WTWs)	Treatment Works	PO6, PO11	POOD.PW02.4	Screening for micro-plastics	Improve infrastructure (screens) for dealing with micro plastics – there is a key site for this in the northern Portswood catchment.	No						Deliver the required outcome
Wastewater Transfer												
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	PO1, PO2, PO5, PO10	POOD.OT01.1	Data sharing study	Better data sharing between partners – if we all know the full picture we will be better equipped to apply for funding to undertake flooding schemes throughout the catchment.	Yes	Yes	Yes	Minor Positive +	£TBC - With Partners	No	Best Value
Study/ investigation to gather more data	POOD FC01 - PORTSWOOD WTW	PO5 and PO14 - Spill Assessments	POOD.OT01.2	Storage	The model has a DAP confidence score of 2 and was last verified in 2012.	Yes	Yes	Yes	Major Positive +++	£TBC - With Partners	Yes	Best Value
Study/ investigation to gather more data	POOD FC02 - SIRDAR ROAD SOUTHAMPTON CSO	PO5 and PO14 - Spill Assessments	POOD.OT01.3	Storage	The model has a DAP confidence score of 2 and was last verified in 2012.	Yes	Yes	Yes	Major Positive +++	£TBC - With Partners	Yes	Best Value
Study/ investigation to gather more data	Solent and Dorset Coast Solent & Southampton Water	PO11 - Nutrient Neutrality	POOD.OT01.4	Nutrient Budget	Catchment is Hydraulically linked to; Solent and Dorset Coast (Threat/Remedy Identified or Anticipated) Solent & Southampton Water (NO Threat/Remedy Identified or Anticipated).	Yes	Yes	Yes	Minor Positive +	£75K	Yes	Best Value
Study/ investigation to gather more data	Catchment Wide	PO4 PO5 PO7 PO10	POOD.OT01.5	Improve Hydraulic Model	Study / Investigation: Update and re-verify the Portswood Hydraulic Model to improve model confidence.	Yes	Yes	Yes	Minor Positive +	£265K	Yes	Best Value
Study/ investigation to gather more data	Riverside Park	PO11	POOD.OT01.6	Study / Investigation - Riverside Park inland bathing water	Study / Investigation: Identify potential opportunities to designate Riverside Park an inland bathing water.	Yes	Yes	Yes	Minor Positive +	£TBC - With Partners	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.

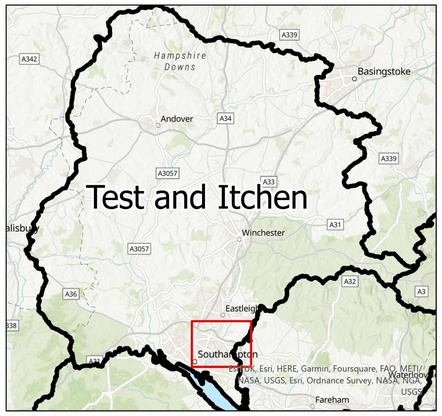
Date : May 2023
Version : 1.0

WATER for LIFE
from Southern Water

Reference	River Basin (L2)	Wastewater System (L3)	Location	Option	Indicative Cost	Indicative Timescales	Potential Partners	Applicable Planning Objectives
Test and Itchen								
Portswood								
POOD.SC03.4	Test and Itchen	Portswood	Need to identify Hotspots	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	Hampshire County Council Test Valley Borough Council	PO1
POOD.SC03.5	Test and Itchen	Portswood	Bassett, Harefield, Townhill Park	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
POOD.PW01.7	Test and Itchen	Portswood	Treatment Works	Enhanced Sewer Maintenance: Increase targeted sewer jetting to reduce the number of blockages in the network	£6,970K	AMP8 onwards	-	PO1
POOD.PW01.17	Test and Itchen	Portswood	Harefield	Sewer Rehabilitation: Targeted CCTV or electroscan surveys and sewer rehabilitation to reduce the risk of sewer bursts and collapses	£65K	AMP8 onwards	-	PO2
POOD.PW01.18	Test and Itchen	Portswood	Need to identify Hotspots	Enhanced Sewer Maintenance: Increase targeted sewer jetting to reduce the number of blockages in the network	£240K	AMP8 onwards	-	PO1
POOD.PW01.19	Test and Itchen	Portswood	Bassett, Harefield, Townhill Park	Enhanced Sewer Maintenance: Increase targeted sewer jetting to reduce the number of blockages in the network	£80K	AMP8 onwards	-	PO2
POOD.PW01.20	Test and Itchen	Portswood	Glen Eyre Road	Growth scheme from our Drainage Area Plan (DAP): Upsize and offline storage	£7,005K	AMP9	-	PO4 PO7
POOD.PW01.21	Test and Itchen	Portswood	Meggeson Avenue	Growth scheme from our Drainage Area Plan (DAP): New sewer and manhole	£490K	AMP9	-	PO4 PO7
POOD.PW01.22	Test and Itchen	Portswood	Portwood Cricket Ground	Growth scheme from our Drainage Area Plan (DAP): Online tank, new sewer and manhole	£4,450K	AMP9	-	PO4 PO7
POOD.PW01.24	Test and Itchen	Portswood	Burgess Road	Growth scheme from our Drainage Area Plan (DAP): Online storage	£325K	AMP9	-	PO4 PO7
POOD.PW02.1	Test and Itchen	Portswood	Portswood WTW	Increase treatment capacity to allow for planned new development	£4,720K	AMP10	Environment Agency	PO6
POOD.OT01.5	Test and Itchen	Portswood	System Wide	Improve the Hydraulic Model: Surveys and reverification of model to improve confidence and accuracy	£265K	AMP8	-	PO4 PO5 PO7 PO10
POOD.OT01.6	Test and Itchen	Portswood	Riverside Park	Study / Investigation: Identify potential opportunities to designate Riverside Park an inland bathing water	£TBC	AMP8	Southampton City Council Environment Agency	PO11
POOD.WINEP01.1	Test and Itchen	Portswood	PORTSWOOD SSO	Reduce the number of storm discharges from PORTSWOOD SSO by a combination of SuDS and storage options	£20,815K	AMP10	-	PO4 PO5 PO7
POOD.WINEP01.2	Test and Itchen	Portswood	GATERS MILL MANSBRIDGE CSO	New or improved screen to reduce aesthetics impacts from storm discharges at GATERS MILL MANSBRIDGE CSO	£130K	AMP11	-	PO5
POOD.WINEP01.3	Test and Itchen	Portswood	UPPER SHAFTSBURY AVENUE SOUTHAMPTON CSO	New or improved screen to reduce aesthetics impacts from storm discharges at UPPER SHAFTSBURY AVENUE SOUTHAMPTON CSO	£130K	AMP11	-	PO5
POOD.WINEP01.4	Test and Itchen	Portswood	WESSEX LANE SOUTHAMPTON OUTSIDE 11 CSO	New or improved screen to reduce aesthetics impacts from storm discharges at WESSEX LANE SOUTHAMPTON OUTSIDE 11 CSO	£130K	AMP12	-	PO5
POOD.WINEP01.5	Test and Itchen	Portswood	SIRDAR ROAD SOUTHAMPTON CSO	Reduce the number of storm discharges from SIRDAR ROAD SOUTHAMPTON CSO by a combination of SuDS and storage options	£2,385K	AMP11	-	PO4 PO5 PO7
POOD.WINEP01.6	Test and Itchen	Portswood	LAWN ROAD SOUTHAMPTON CSO	New or improved screen to reduce aesthetics impacts from storm discharges at LAWN ROAD SOUTHAMPTON CSO	£130K	AMP11	-	PO5
POOD.WINEP01.7	Test and Itchen	Portswood	GLENFIELD AVENUE SOUTHAMPTON CSO	New or improved screen to reduce aesthetics impacts from storm discharges at GLENFIELD AVENUE SOUTHAMPTON CSO	£130K	AMP12	-	PO5
POOD.WINEP01.8	Test and Itchen	Portswood	WESSEX LANE SOUTHAMPTON OUTSIDE 1 CSO	Reduce the number of storm discharges from WESSEX LANE SOUTHAMPTON OUTSIDE 1 CSO by a combination of SuDS and storage options	£2,975K	AMP12	-	PO4 PO5 PO7
POOD.WINEP01.9	Test and Itchen	Portswood	WESSEX LANE SOUTHAMPTON OUTSIDE 15 CSO	Reduce the number of storm discharges from WESSEX LANE SOUTHAMPTON OUTSIDE 15 CSO by a combination of SuDS and storage options	£2,975K	AMP12	-	PO4 PO5 PO7
POOD.WINEP.PO2.1	Test and Itchen	Portswood	Portswood WTW	Conversion to denitrification and provision of additional biological treatment capacity to achieve 10mg/l Total N permit. (WINEP OAR 08SO103995)	£30,906K	AMP8	-	PO11

Drainage and Wastewater Management Plan: Location of Potential Options PORTSWOOD Wastewater system in Test and Itchen 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

POOD.PW01.19 POOD.SC03.5 POOD.PW01.19 POOD.SC03.5 POOD.SC03.4 POOD.PW01.18 POOD.WINEP01.8 POOD.WINEP01.4 POOD.PW01.18 POOD.WINEP01.9 POOD.SC03.4 POOD.SC03.4 POOD.WINEP01.2 POOD.PW01.19 POOD.PW01.18 POOD.PW01.18 POOD.SC03.5 POOD.SC03.5 POOD.PW01.19 POOD.PW01.19 POOD.SC03.4 POOD.WINEP01.5 POOD.SC03.5 POOD.SC03.5 POOD.PW02.1 POOD.PW01.19 POOD.WINEP.PO2.1 POOD.WINEP01.1 POOD.WINEP01.3 POOD.PW01.19 POOD.SC03.4 POOD.SC03.4 POOD.PW01.18 POOD.PW01.18 POOD.PW01.19 POOD.SC03.5 POOD.SC03.4 POOD.PW01.18 POOD.PW01.18 POOD.PW01.19 POOD.WINEP01.6 POOD.SC03.4 POOD.WINEP01.7 POOD.SC03.5 POOD.PW01.18 POOD.SC03.4 POOD.PW01.17

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