



Drainage and Wastewater Management Plan

Chichester
Wastewater System Plan



from
**Southern
Water** 

Contents

Wastewater System Map

Problem Characterisation

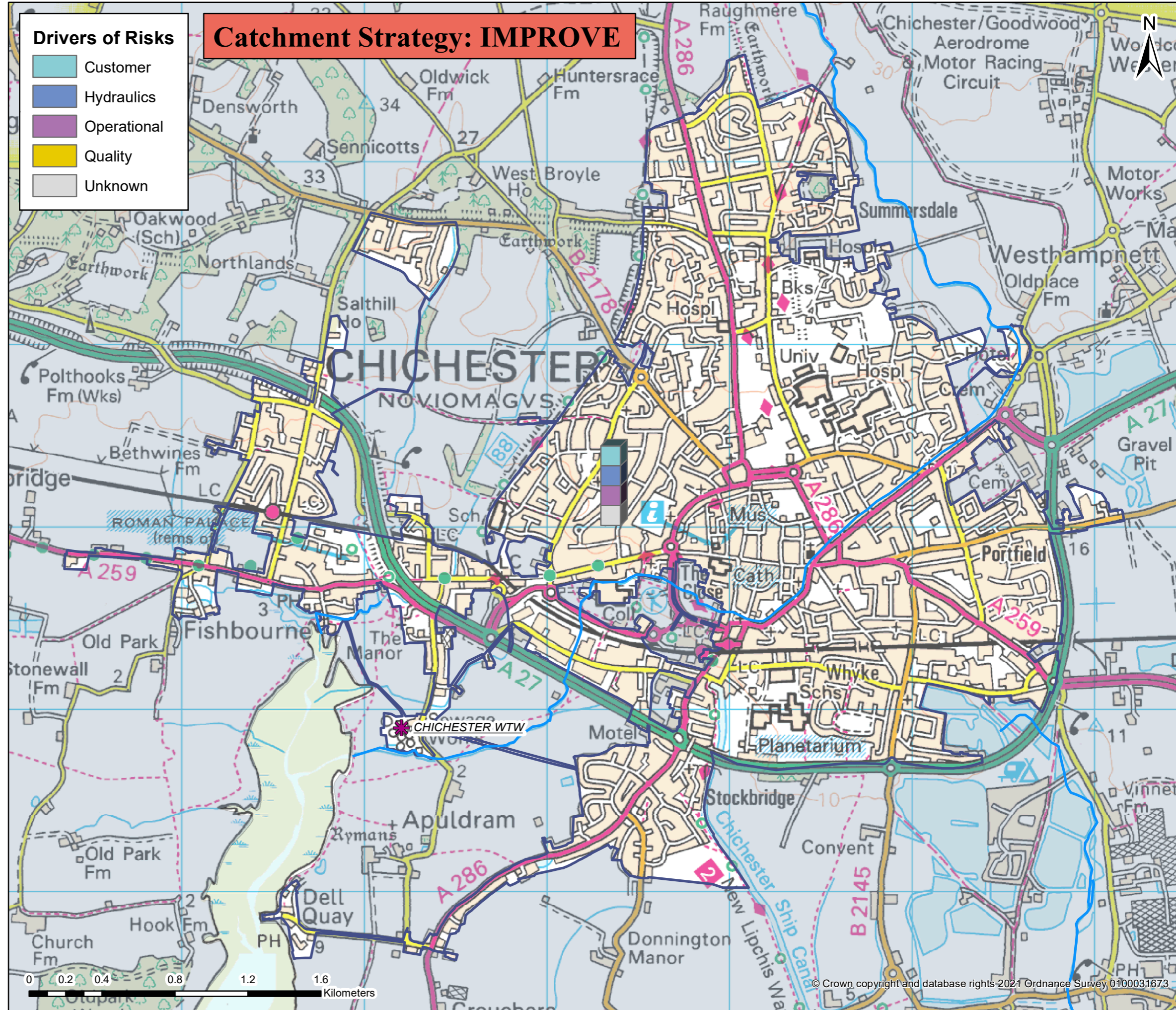
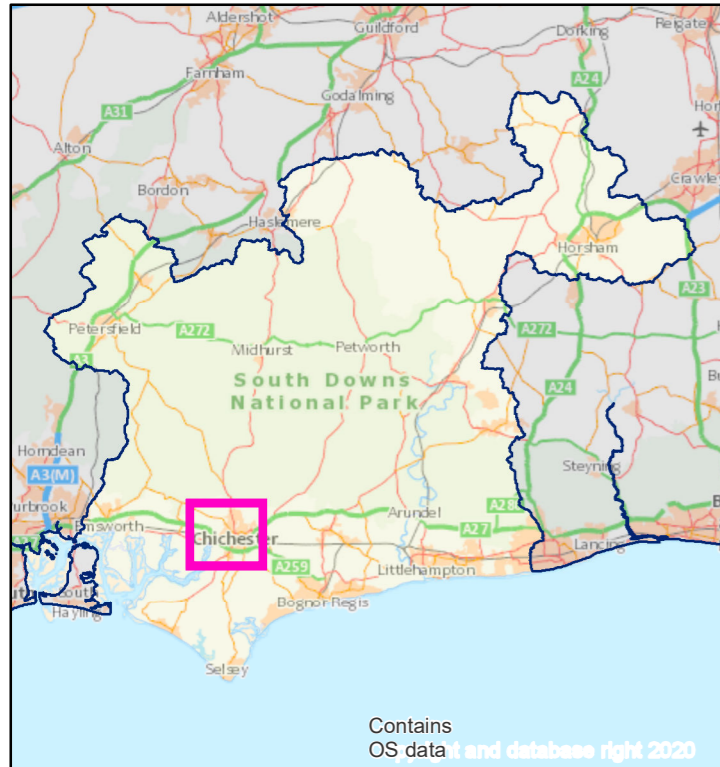
Generic Options

Outline Option Appraisal

Investment Needs

Location of Potential Options

Chichester wastewater system: map and key facts



Population Equivalent (PE)	34,623
Discharge Waterbody	River Lavant
Number of Pumping Stations	28
Number of Overflows	3
Length of Sewer (km)	221.3
Catchment Reference	CHIC

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



Problem Characterisation

Chichester (CHIC)

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 Chichester wastewater system

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

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).

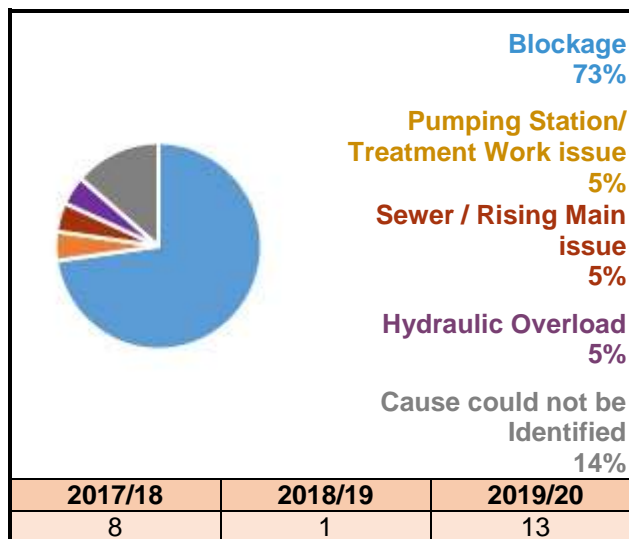


Planning Objective 1: Internal Sewer Flooding Risk

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 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 73% 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

There has been less than one pollution incident reported on average during the three year period considered by the risk assessment, so the risk is in the 'not significant' band. The exception is if there were two incidents in the most recent year.

Planning Objective 3: Sewer Collapse Risk

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

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

	2017/18	2018/19	2019/20
Sewer Collapse	2017/18	0	0
	2018/19	0	0
	2019/20	3	0
Rising Main Bursts	2017/18	0	0
	2018/19	0	0
	2019/20	1	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 moderately significant in 2020 and 2050. This is because our computer model of the sewer network indicate for 2020 that approximately 500 - 600 properties within this wastewater system are in areas that could flood by water escaping from sewers. The model prediction for 2050 does not identify a notable increase.

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	1 High	1 High	Less than 8	Between 8-10	10 or more
Bathing Waters	0 Medium	1 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 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 moderately 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.

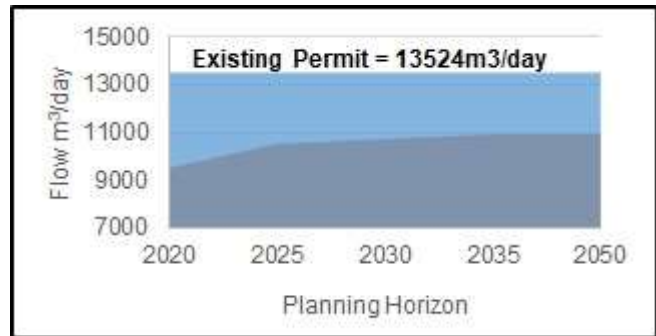
Rainfall Return Period (yr)	Number of Properties at Risk		Annualised per 10,000 connections	
	2020	2050	2020	2050
1 in 1	89	18	56	11
1 in 2	111	38	44	15
1 in 5	258	136	47	25
1 in 10	318	279	30	27
1 in 20	424	360	21	18
1 in 30	453	426	15	14
Total Annualised			212	109

This indicates that the capacity of the wastewater network can be exceeded during 1 in 30 year storms (or more frequent events). Future growth, creep and/or climate change are not anticipated to significantly increase the risk by 2050.

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 2. 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 5 shows the waterbodies connected to this wastewater system 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 (Moderate) and has been moderated from moderately significant to not significant because of the presence of Tertiary Treatment at the wastewater system Treatment Works.

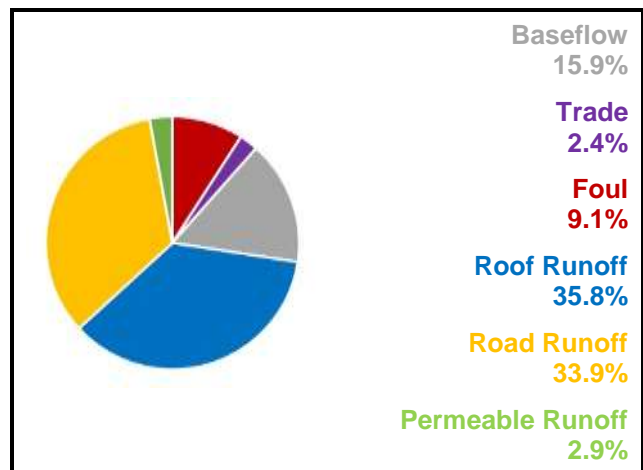
Table 5: Waterbodies not achieving GES/GEP

Waterbody	Classification	EA-Status	Activity
Lavant (Sussex)	Phosphate	Moderate	Sewage discharge (continuous)

Planning Objective 10: Surface Water Management

Figure 3 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 72.6% of the flow in the sewers. The total contribution of foul water from homes is 9.1% with business contributing 2.4%. The baseflow is infiltration from water in the ground and makes up 15.9% of the flow in the system.

Figure 3: 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 6.

Table 6: Habitat Sites hydraulically linked to wastewater system

Habitat Sites	
Chichester and Langstone Harbours	Phosphate permit review required Overflow Spills
Solent and Dorset Coast	Phosphate permit review required Overflow Spills
Solent Maritime	Phosphate permit review required Overflow Spills

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 can affect the designated shellfish waters shown in Table 7. The risk of not achieving the faecal standards for shellfish in these designated waters from this wastewater system is very significant. This is because the CEFAS classification for the shellfish waters is in class C, prohibited or seasonal class B or C.

Table 7: Shellfish Waters linked to wastewater system

Shellfish Waters
Chichester Harbour (Chichester)

Generic Options Assessment for: Chichester (CHIC)



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	0	-	-		Reduce groundwater levels		N	Reducing groundwater levels would reduce the risks from infiltration into the network. However, in practice, reducing groundwater levels will be detrimental to the environment, ground conditions and is prohibitively too costly to implement. For these reasons, this generic option has been discounted.	Reduce leakage from water supply pipes; pump away schemes to locally lower groundwater near sewer network
PO3	Sewer Collapse	1	Operational	-		Improve quality of wastewater		Y	-	Domestic and business customer education; incentives and behaviour change (reduce Fats, Oils & Grease, wet wipes etc.); monitoring trade waste at source; on-site black water and/or greywater pre-treatment
PO4	Risk of Sewer Flooding in 1 in 50 yr	1	Hydraulic	1		Reduce the quantity / demand		Y	-	Water efficient appliances; water efficient measures; blackwater and/or greywater re-use; treatment at source
PO5	Storm Overflow Performance	2	Hydraulic	2	Pathway (Supply) Measures (to reduce likelihood)	Network Improvements		Y	-	Asset optimisation; additional network capacity; storage; separate flows; structural repairs; re-line sewer pipe and manholes; smart networks.
PO6	Risk of WTW Compliance Failure	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	1	Hydraulic	1		Wastewater Transfer to treatment elsewhere		Y	-	Transfer flow to other network or treatment sites; transport sewage by tanker to other sites
PO8	DWF Compliance	0	-	1	Receptor Measures (to reduce consequences)	Mitigate impacts on Air Quality		N/A	Not included in first round of DWMPs	Carbon offsetting; noise suppression /filtering; odour control and treatments
PO9	Achieve Good Ecological Status	0	-	-		Improve Land and Soils		N/A	Not included in first round of DWMPs	Sludge soil enhancement
PO10	Improve Surface Water Management	0	-	-		Mitigate impacts on receiving waters		Y	-	River enhancement, aeration
PO11	Secure Nutrient Neutrality	2	Unknown	2		Reduce impact on properties		Y	-	Property flood resilience; non-return valves; flood guards / doors; air brick covers
PO12	Reduce Groundwater Pollution	0	-	-	Other	Study / Investigation		Y	-	Additional data required; hydraulic model development; WQ monitoring and modelling
PO13	Improve Bathing Water Quality	NA	-	-						
PO14	Improve Shellfish Water Quality	2	Unknown	-						

Chichester 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	CHIC FC01_1 - Salthill,	PO4 and PO7 Flooding	CHIC.SC01.1	Surface Water Separation	DAP Option.	No						
Control/ Reduce surface water entering the sewers	CHIC FC02_1 - Sherlock Avenue,	PO4 and PO7 Flooding	CHIC.SC01.2	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	CHIC.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	CHICHESTER WTW	PO8 (2050)- Dry Weather Flow	CHIC.SC04.1	Water Efficient Appliance / Measures	Southern Water aims to reduce water consumption to 100 l/h/d by 2040.	Yes	No					Environmental - Strategic Environmental Assessment
Network Improvements (eg increase capacity, storage, conveyance)	CHICHESTER WTW	PO1- Internal Flooding	CHIC.PW01.1	Maintenance Programme	An efficient maintenance programme for pumping stations and/Treatment works to eliminate the risk of a pollution incident due to an operational failure.	No						Do customer support it and Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Stockbridge Road	PO1- Internal Flooding	CHIC.PW01.2	Additional Storage	Additional Storage.	No						Do customer support it and Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO1- Internal Flooding	CHIC.PW01.3	Pipe Rehabilitation Programme	Pipe Rehabilitation Programme.	No						Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO3- Sewer Collapse	CHIC.PW01.4	Pipe Rehabilitation Programme	Targeted CCTV / electroscan surveys and proactive sewer rehabilitation to reduce risk of sewer collapse.	Yes	Yes	Yes	Minor Positive +	£870K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO8 (2050)- Dry Weather Flow	CHIC.PW01.5	Pipe Rehabilitation Programme	Relining/improving structural grades of sewers across the catchment.	No						Technically feasible, Cost Effective, Do customer support it and Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO1- Internal Flooding	CHIC.PW01.6	Jetting Programme	Jetting Programme.	Yes	Yes	Yes	Minor Positive +	£185K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	CHIC FC01 - CHICHESTER WTW	PO5, PO13 and PO14 - Spill Assessments	CHIC.PW01.7	Storage (FC01 - CHICHESTER WTW)	The DAP model has a confidence score of 2 and was last verified in 2014.	Yes	Yes	Yes	Major Positive +++	£8,055K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	CHIC FC01 Summersdale Road	PO4 and PO7 - Growth	CHIC.PW01.8	Upsizing (CHICGR001 Option 1 Plan 1.1)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£550K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	CHIC FC02 Pammers Filed Avenue	PO4 and PO7 - Growth	CHIC.PW01.9	Upsizing (CHICGR001 Option 1 Plan 1.2)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£550K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	CHIC FC03 Broyle Road	PO4 and PO7 - Growth	CHIC.PW01.10	Upsizing (CHICGR001 Option 1 Plan 1.3)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£550K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	CHIC FC04 College Lane	PO4 and PO7 - Growth	CHIC.PW01.11	Upsizing (CHICGR001 Option 1 Plan 1.4)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£550K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	CHIC FC05 Spitalfield Lane	PO4 and PO7 - Growth	CHIC.PW01.12	Upsizing (CHICGR001 Option 1 Plan 1.5)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£550K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	CHIC FC06 Baxendale Road	PO4 and PO7 - Growth	CHIC.PW01.13	Upsizing (CHICGR001 Option 1 Plan 1.6)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£550K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	CHIC FC07 Orchard Street	PO4 and PO7 - Growth	CHIC.PW01.14	Upsizing (CHICGR001 Option 1 Plan 1.7)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£550K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	CHIC FC08 Saint Pancras	PO4 and PO7 - Growth	CHIC.PW01.15	Upsizing (CHICGR001 Option 1 Plan 1.8)	DAP Option.	Yes	Yes	Yes	Major Positive +++	£550K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	CHIC FC01_1 - Salthill,	PO4 and PO7 Flooding	CHIC.PW01.16	Storage	DAP Option.	Yes	Yes	Yes	Major Positive +++	£885K	Yes	Best Value
Network Improvements (eg increase capacity, storage, conveyance)	CHIC FC02_1 - Sherlock Avenue,	PO4 and PO7 Flooding	CHIC.PW01.17	Storage	DAP Option.	Yes	Yes	Yes	Major Positive +++	£480K	No	Best Value
Improve treatment (capacity and quality at existing works or develop new WTWs)	CHICHESTER WTW	PO8 (2050)- Dry Weather Flow	CHIC.PW02.1	Permit Review	Proposed permit-14137m3.	Yes	Yes	Yes	Minor Positive +	£TBC - With Partners	Yes	Best Value
Wastewater Transfer	CHICHESTER WTW	PO8 (2050)- Dry Weather Flow	CHIC.PW03.1	Construct New WPS & Rising Main	Within 5km radius of CHIC is LAVA which in 2050 will have approximately 903m3day of headroom (until it is above 80% of its DWF permit).	No						Cost Effective, Do customer support it and 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												
Reduce consequences Properties (e.g. Property Flood Resilience)	Stockbridge Road	PO1- Internal Flooding	CHIC.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
Study/ investigation to gather more data	Chichester	PO1- Internal Flooding	CHIC.OT01.1	Investigation into causes	Further investigation to identify the cause of the internal flooding incident.	No						Cost Effective and Risk and uncertainty - future resilience
Study/ investigation to gather more data	Catchment Wide	PO3- Sewer Collapse	CHIC.OT01.2	CCTV Investigation	CCTV Investigation.	No						Risk and uncertainty - future resilience
Study/ investigation to gather more data	Catchment Wide	PO8 (2050)- Dry Weather Flow	CHIC.OT01.3	Infiltration Reduction Plan Investigation already planned for. Investigation has commenced	Relining/improving structural grades of sewers across the catchment.	No						Cost Effective and Risk and uncertainty - future resilience

Chichester 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	Chichester and Langstone Harbours Solent and Dorset Coast Solent Maritime	PO11 - Nutrient Neutrality	CHIC.OT01.4	Nutrient Budget	Catchment is Hydraulically linked to; Chichester and Langstone Harbours (Threat/Remedy Identified or Anticipated) Solent and Dorset Coast (Threat/Remedy Identified or Anticipated) Solent Maritime (Threat/Remedy Identified or Anticipated).	Yes	Yes	Yes	Minor Positive +	£75K	Yes	Best Value
Study/ investigation to gather more data	Catchment Wide	PO4- 1 in 50 year PO5- Storm Overflow PO7- Hydraulic Overload	CHIC.OT01.5	Improve Hydraulic Model	Improve Hydraulic Model.	Yes	Yes	Yes	Minor Positive +	£400K	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

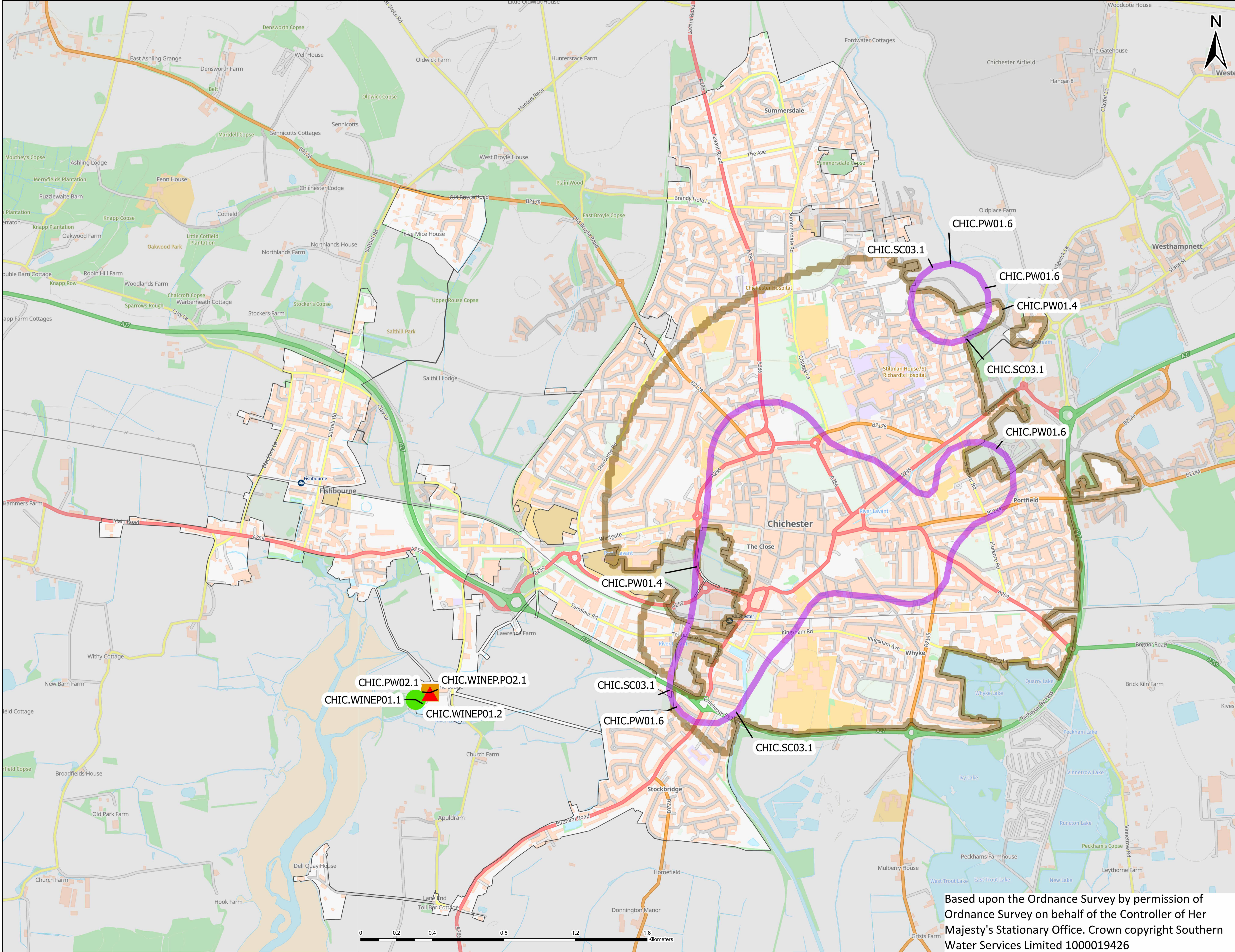
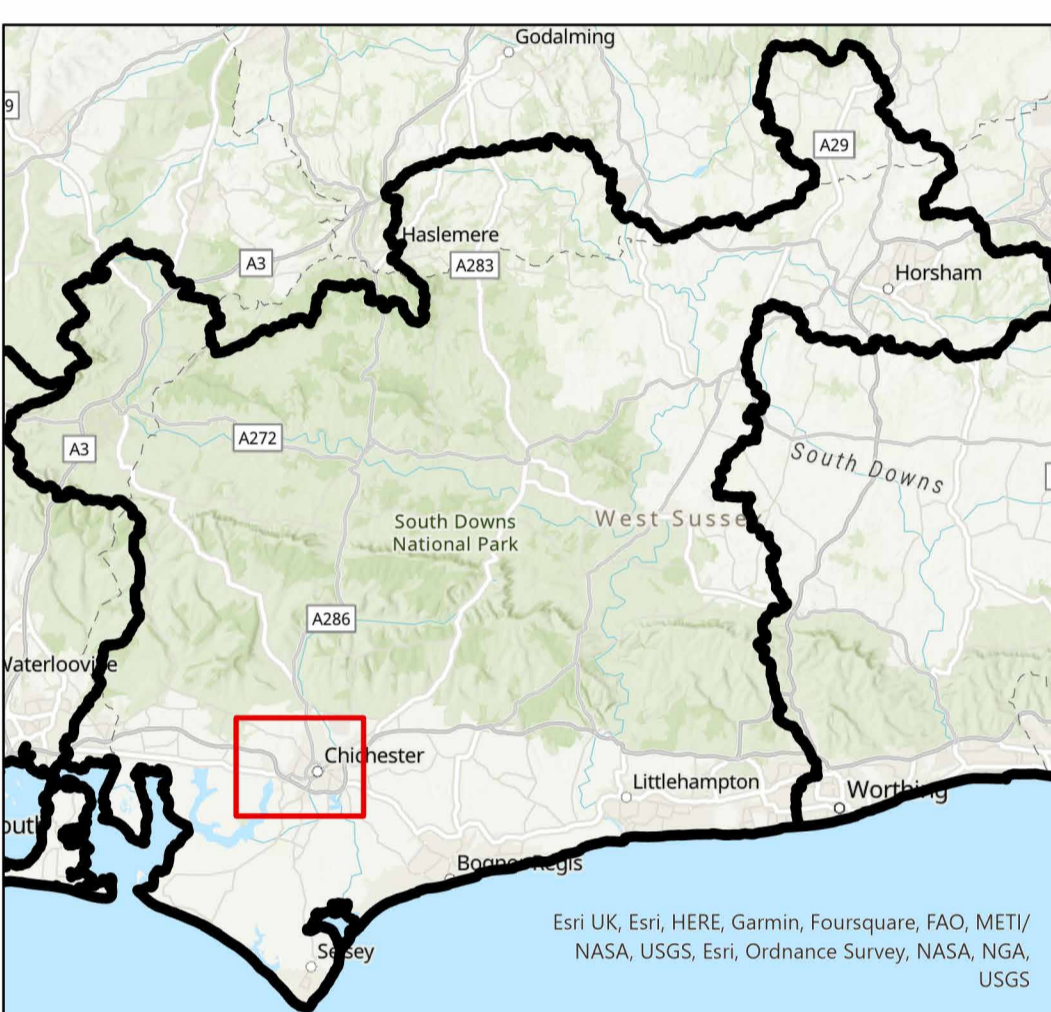
Reference	River Basin (L2)	Wastewater System (L3)	Location	Option	Indicative Cost	Indicative Timescales	Potential Partners	Applicable Planning Objectives
Arun and Western Streams								
Chichester								
CHIC.SC03.1	Arun and Western Streams	Chichester	St. Pancras, Winden Avenue, St. Martins Square, Southgate, North Street, Northgate, Cooper Street, Stockbridge Road, Peacock Close,	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	West Sussex County Council Chichester District Council	PO1
CHIC.PW01.4	Arun and Western Streams	Chichester	A285 / A286	Sewer Rehabilitation: Targeted CCTV or electroscan surveys and sewer rehabilitation to reduce the risk of sewer bursts and collapses	£870K	AMP8 onwards	-	PO3
CHIC.PW01.6	Arun and Western Streams	Chichester	St. Pancras, Winden Avenue, St. Martins Square, Southgate, North Street, Northgate, Cooper Street, Stockbridge Road, Peacock Close,	Enhanced Sewer Maintenance: Increase targeted sewer jetting to reduce the number of blockages in the network	£185K	AMP8 onwards	West Sussex County Council Chichester District Council	PO1
CHIC.PW01.8	Arun and Western Streams	Chichester	Summersdale Road	Growth scheme from our Drainage Area Plan (DAP): Upsize sections of local sewers in Summersdale Road to accommodate flows from future development	£550K	AMP9	West Sussex County Council Chichester District Council	PO4 PO7
CHIC.PW01.9	Arun and Western Streams	Chichester	Pammers Filed Avenue	Growth scheme from our Drainage Area Plan (DAP): Upsize sections of local sewers in Palmers Field Avenue to accommodate flows from future development	£550K	AMP9	West Sussex County Council Chichester District Council	PO4 PO7
CHIC.PW01.10	Arun and Western Streams	Chichester	Broyle Road	Growth scheme from our Drainage Area Plan (DAP): Upsize sections of local sewers in Broyle Road to accommodate flows from future development	£550K	AMP9	West Sussex County Council Chichester District Council	PO4 PO7
CHIC.PW01.11	Arun and Western Streams	Chichester	College Lane	Growth scheme from our Drainage Area Plan (DAP): Upsize sections of local sewers in College Lane to accommodate flows from future development	£550K	AMP9	West Sussex County Council Chichester District Council	PO4 PO7
CHIC.PW01.12	Arun and Western Streams	Chichester	Spitalfield Lane	Growth scheme from our Drainage Area Plan (DAP): Upsize sections of local sewers in Spitalfield Lane to accommodate flows from future development	£550K	AMP9	West Sussex County Council Chichester District Council	PO4 PO7
CHIC.PW01.13	Arun and Western Streams	Chichester	Baxendale Road	Growth scheme from our Drainage Area Plan (DAP): Upsize sections of local sewers in Baxendale Road to accommodate flows from future development	£550K	AMP9	West Sussex County Council Chichester District Council	PO4 PO7
CHIC.PW01.14	Arun and Western Streams	Chichester	Orchard Street	Growth scheme from our Drainage Area Plan (DAP): Upsize sections of local sewers in Orchard Street to accommodate flows from future development	£550K	AMP9	West Sussex County Council Chichester District Council	PO4 PO7
CHIC.PW01.15	Arun and Western Streams	Chichester	Saint Pancras	Growth scheme from our Drainage Area Plan (DAP): Upsize sections of local sewers in Saint Pancras to accommodate flows from future development	£550K	AMP9	West Sussex County Council Chichester District Council	PO4 PO7
CHIC.PW01.16	Arun and Western Streams	Chichester	Salthill	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)	£885K	AMP9	West Sussex County Council Chichester District Council	PO4 PO7
CHIC.PW01.17	Arun and Western Streams	Chichester	Sherlock Avenue	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)	£480K	AMP9	West Sussex County Council Chichester District Council	PO4 PO7
CHIC.OT01.5	Arun and Western Streams	Chichester	System Wide	Improve the Hydraulic Model: Surveys and reverification of model to improve confidence and accuracy	£400K	AMP8	West Sussex County Council Chichester District Council	PO4 PO5 PO7

Reference	River Basin (L2)	Wastewater System (L3)	Location	Option	Indicative Cost	Indicative Timescales	Potential Partners	Applicable Planning Objectives
CHIC.WINEP01.1	Arun and Western Streams	Chichester	CHICHESTER WTW 2 SSO	Reduce impact from storm spills from CHICHESTER WTW 2 SSO through wetland creation and/or sewer lining to reduce infiltration of groundwater	£24,435K	AMP8	-	PO5 PO14
CHIC.WINEP01.2	Arun and Western Streams	Chichester	CHICHESTER WTW 1 SSO	Reduce impact from storm spills from CHICHESTER WTW 1 SSO through wetland creation and/or sewer lining to reduce infiltration of groundwater	£615K	AMP8	-	PO5 PO14

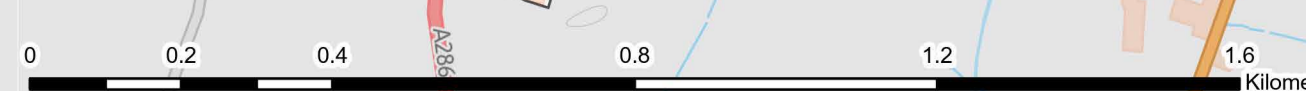
Drainage and Wastewater Management Plan: Location of Potential Options CHICHESTER Wastewater system in Arun and Western Streams River Basin Catchment



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



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



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