South West Water

Drainage and Wastewater Management Plan

Kingsbridge -South Devon

May 2023

Table of Contents

Status and update information

Version SWW_DWMP_2021/22_0_2023-05-31

This document provides asset, characteristic and performance data for Strategic Planning Areas (Level 2 catchments). Performance data for the time frame up to April 2023 has been utilised to populate these documents.

Production Statement

These documents are produced using an automated process. The process uses a mixture of standard data holdings such as records of assets within the Kingsbridge-South Devon catchment and documents that are produced as part of modelling and analysis undertaken as part of the DWMP. The decision has been made to leave in tables and figures even if no performance or asset data exists for the catchment to serve as confirmation that no records are held for that particular item.

Data Statement

This document contains asset, characteristic and performance data for Strategic Planning Areas (Level 2 catchments) and has been prepared by South West Water Limited for the purposes of providing area specific detail on assets, risks and proposed interventions for our drainage and wastewater plans. Data records shown in the document for various performance and other metrics may not completely align with Regulatory reported data. This is partly due to the catchment based summation of some data and minor differences in time frames over which DWMP data has been collated compared to the Regulatory reporting time frames.

Contact details

If you have any queries or questions, you can email dwmp@southwestwater.co.uk.

South West Water, Peninsula House, Rydon Lane, Exeter, EX2 7HR

www.southwestwater.co.uk

Overview

Area Details

The Kingsbridge-South Devon catchment sits within the administrative districts of South Hams District and West Devon District (b). It covers the main settlements of Kingsbridge, Salcombe, South Brent, Stoke Fleming, Thurlestone, Aveton Gifford, Malborough, Chillington, Strete, South Milton, Kingston, Slapton, Bigbury-on-Sea, Loddiswell, Blackawton, West Charleton, Churchstow, Dartmouth, Stokenham, West Alvington, Aish, Ringmore, Diptford, Torcross, Inner Hope, East Prawle, Challaborough, Frogmore, Avonwick and East Allington.

The population of the Kingsbridge-South Devon catchment in 2020 was 19,538 and is projected to grow to 21,800 by 2050, an increase of 11.6 %. The catchment is also impacted by the influx of tourists during the summer, with an increase of 10,604 or 54.3 % over the existing resident population.

The Kingsbridge-South Devon catchment contains 22 km of watercourses including 2.3 km of Main River as designated by the Environment Agency (EA). This includes the Buckland Stream, Glaze Brook, River Avon and Torr Brook.

Discharges in the Kingsbridge-South Devon catchment may impact on the bathing waters of Hope Cove Beach, Mill Bay Beach and Thurlestone (South) Beach and the shellfish waters of Avon, Salcombe and Start Bay.

Details about local geology and soil structure can be found on the **British Geological Survey** website.

Wastewater Network

The Kingsbridge-South Devon catchment area has approximately 181km of mapped sewers and 7 sewage pumping stations (SPS) to convey wastewater away from homes and businesses to 43 Sewage Treatment Works. It has both separate (foul or surface water) and combined (foul and surface water) networks.

During severe rainfall events, where sewers convey foul and storm water, sewer capacity can be exceeded and to prevent flooding of homes and businesses, storm overflows act as built-in pressure relief valves and allow flows above a certain level to be discharged to rivers and seas. Storm overflows are permitted by the EA.

There are 67 overflows of which 13 are emergency overflows in the Kingsbridge-South Devon catchment (which should only operate as a result of other asset failure or power loss). There are 67 Event Duration Monitors (EDM's) installed to monitor spill frequency and spill duration.

A summary of the mapped wastewater network lengths is included in Table 1 below:

***Table 1**: Wastewater network lengths by system type*

Sewer Type	Length (km)
Combined	127.3
Surface	19.1
Foul	34.2

Area Overview

Table 2 summarises the number of critical assets within the Kingsbridge-South Devon catchment and a count of intersections with shellfisheries and bathing waters. The Level 3 (treatment works) catchments and neighbouring areas are shown in Figure 1.

***Table 2**: Count of key catchment environments/assets*

Shellfisheries	Bathing Waters	SPS	Storm Overflows	Emergency Overflows	Monitored Storm Overflows
3	3	7	54	13	67

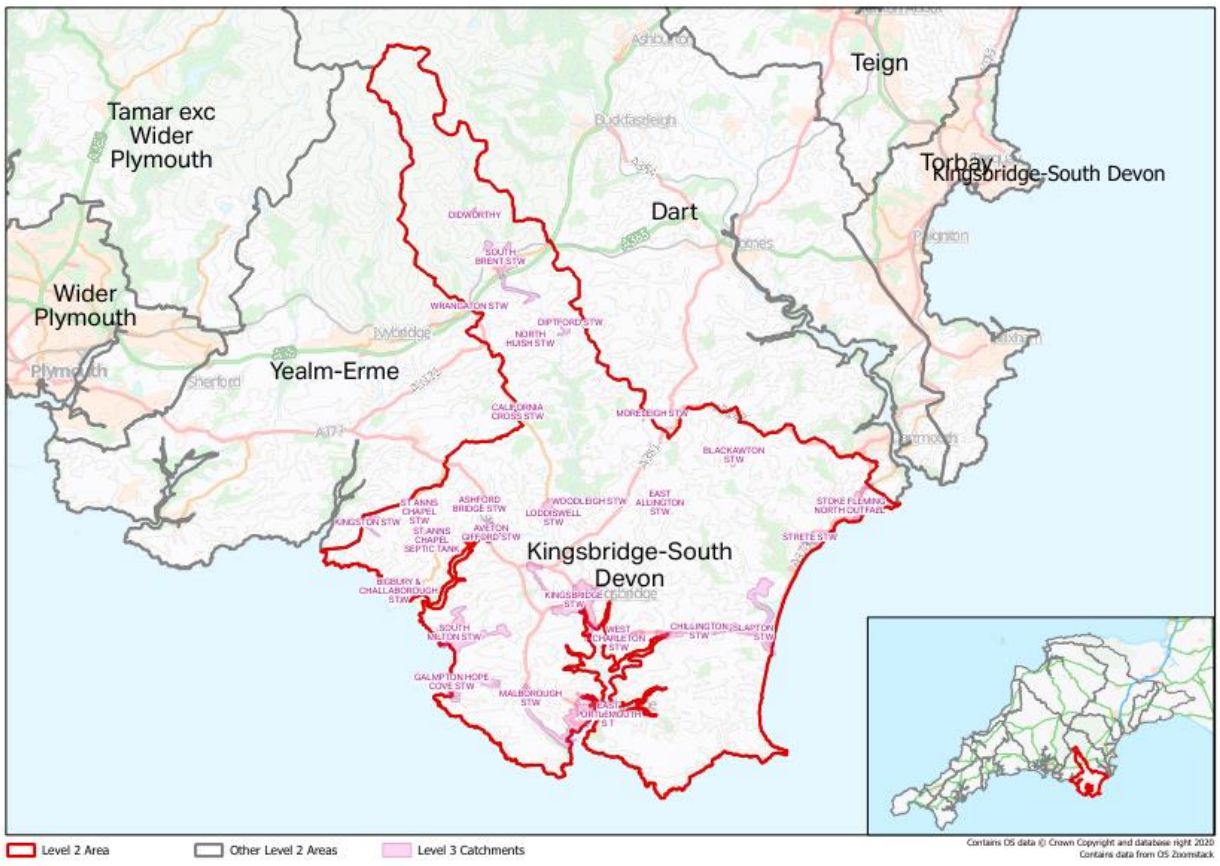

Figure 1: Catchment Overview

Designated Areas

Special Areas of Conservation

Special Areas of Conservation (SACs) are protected areas in the UK designated under:

- the Conservation of Habitats and Species Regulations 2017 (as amended) in England and Wales (including the adjacent territorial sea) and to a limited extent in Scotland (reserved matters) and Northern Ireland (excepted matters)
- the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) in the UK offshore area.

Under these regulations, the UK Government and devolved administrations are required to establish a network of important high-quality conservation sites that will make a significant contribution to conserving the habitats and species identified in Annexes I and II, respectively, of European Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, known as the Habitats Directive.

Special Areas of Scientific Interest

Under the Wildlife and Countryside Act 1981 (amended 1985) government has a duty to notify as a Site of Special Scientific Interest (SSSI) any land which in its opinion is of special interest by reason of any of its flora, fauna, geological or physiographical features.

SSSIs are designated by Natural England. An SSSI is not necessarily owned by a conservation organisation or by the Government - in fact, they can be owned by anybody. The designation is primarily to identify those areas worthy of preservation. A SSSI is given certain protection against damaging operations, and any such operations must be authorised by the designating body. The status also affords a certain amount of planning protection, depending on the reasons for designation.

Marine Conservation Zones

A Marine Conservation Zone (MCZ) is a type of marine nature reserve in UK waters. They were established under the Marine and Coastal Access Act (2009) and are areas designated with the aim to protect nationally important, rare or threatened habitats and species.

If any of these designated areas are within the Kingsbridge-South Devon catchment they are shown in Figure 2 below.

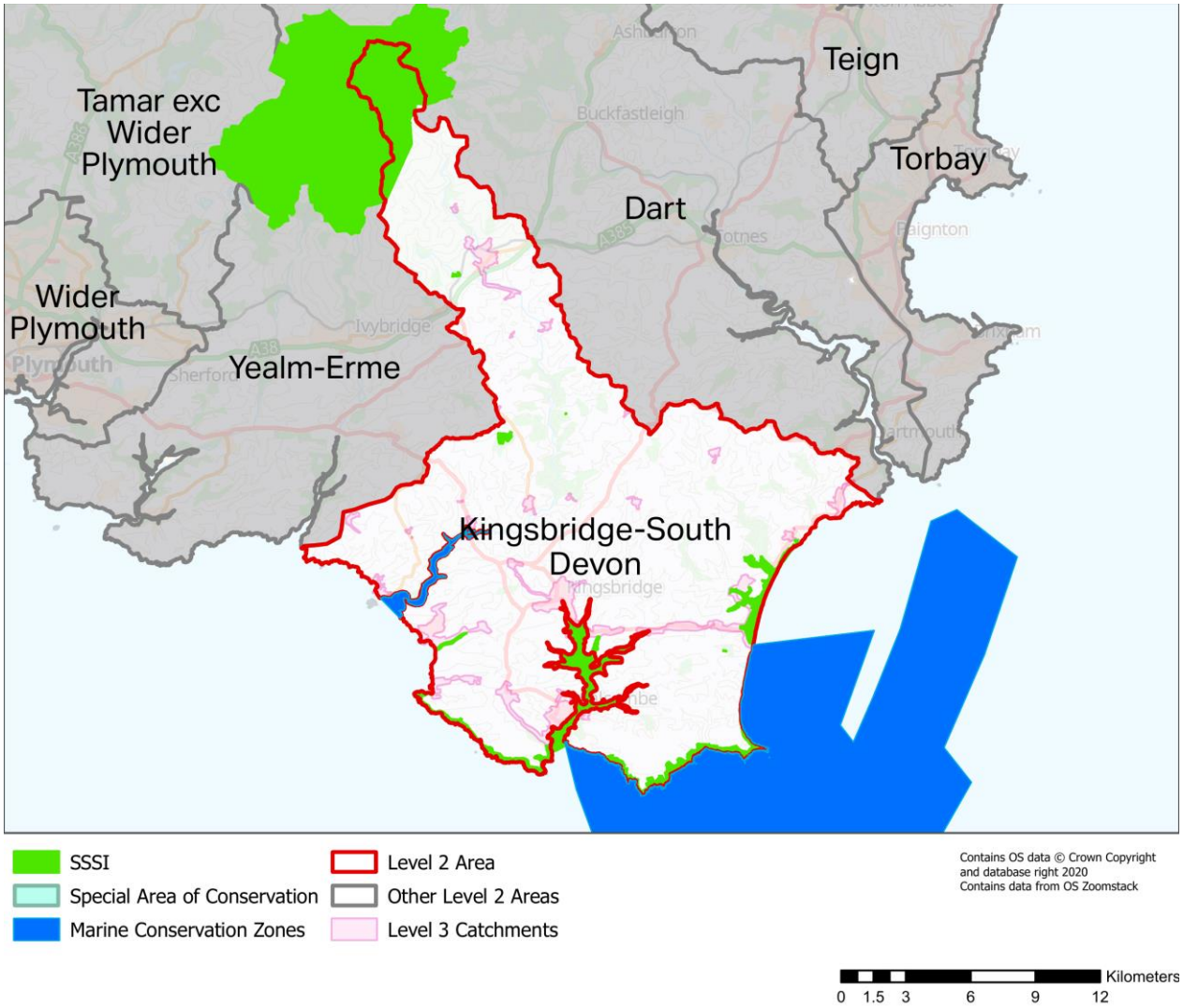

Figure 2: Designated Areas

Flooding Responsibilities

The Flood and Water Management Act, 2010 (FWMA), identified new responsibilities for flood and coastal erosion risk management authorities, of which Water and Sewerage Companies are one, together with a duty on all relevant authorities involved to co-operate and share data.

***Table 3**: FWMA Responsibilities*

Location	Description	Responsibility
Surface runoff/Land drainage	Landowners are responsible for their land drainage and must not cause problems for neighbours	• Lead Local Flood Authorities
		• Landowners
Highways	Highways Surface water on roads, highways and pavements, blocked road drains/gullies and overgrown verges	• Highways Authorities
		• Highways England/Welsh Government
		• Transport for London
Groundwater	Waterlogged ground when water pools on the surface	• Lead Local Flood Authorities
		• Landowners
Rivers and watercourses	Water draining into rivers and streams from nearby land	• Lead Local Flood Authorities
		• Environment Agency /Natural Resources Wales
		• Riparian Owners
		• Landowners
Coastal/Tidal	Rough seas, high tides or storm inundation on lower land	• Local Authorities
		• Environment Agency
		• Natural Resources Wales
Surface water sewers	Most properties drain rainfall to a public sewer, including flows from gutters/roads that end up in public sewers. Highway drainage is provided for rainfall onto the highway but also includes water from fields/other property that finds its way onto the highway	• Water and wastewater companies
		• Local Authorities
		• Housing Associations
		• Private landowners
		• Highway Authorities
Public sewers	Sewer flooding from manholes and covers	• Water and wastewater companies
Private sewers	Flooding from cesspits/septic tanks, toilets or internal drains	• Homeowners

South West Water needs clear long-term plans in order to engage with other Risk Management Authorities (RMAs) to produce joined-up approaches and deliver the best outcomes for customers and the environment.

Current Performance

For all performance measures, the average number of events in a catchment/ Special Protection Area (SPA), is calculated from performance data and normalised to sewer length, (e.g., floodings/km of sewer). This catchment average is then compared to the average number of events across all SPAs and, using the Jenks Natural Breaks Classification System, catchments are defined as average, above average or below average.

Sewer Flooding

Sewer flooding incidents may occur for a number of reasons, including network misuse, asset deterioration, asset failures (collectively referred to as "other causes") or hydraulic incapacity. Tables 4 and 5 provide a summary of internal and external flooding events respectively. Sewer flooding event locations are shown in Figure 3.

The rate (events/km) of internal sewer flooding in the Kingsbridge-South Devon catchment is above average when compared to other Level 2 catchments.

***Table 4**: Count of Internal Flooding by location and cause*

Year	Flooding Location	Flooding Cause Category	Count/km
2019	Internal	Other	3
2020	Internal	Other	3
2021	Internal	Other	1
2022	Internal	Other	1
2023	Internal	Other	1

The rate (events/km) of external sewer flooding in the Kingsbridge-South Devon catchment is above average when compared to other Level 2 catchments.

***Table 5**: Count of External Flooding by location and cause*

Year	Flooding Location	Flooding Cause Category	Count/km
2019	External	Hydraulic Overload	7
2019	External	Other	35
2020	External	Hydraulic Overload	12
2020	External	Other	35
2021	External	Hydraulic Overload	19
2021	External	Other	43
2022	External	Hydraulic Overload	11
2022	External	Other	28
2023	External	Hydraulic Overload	8
2023	External	Other	44

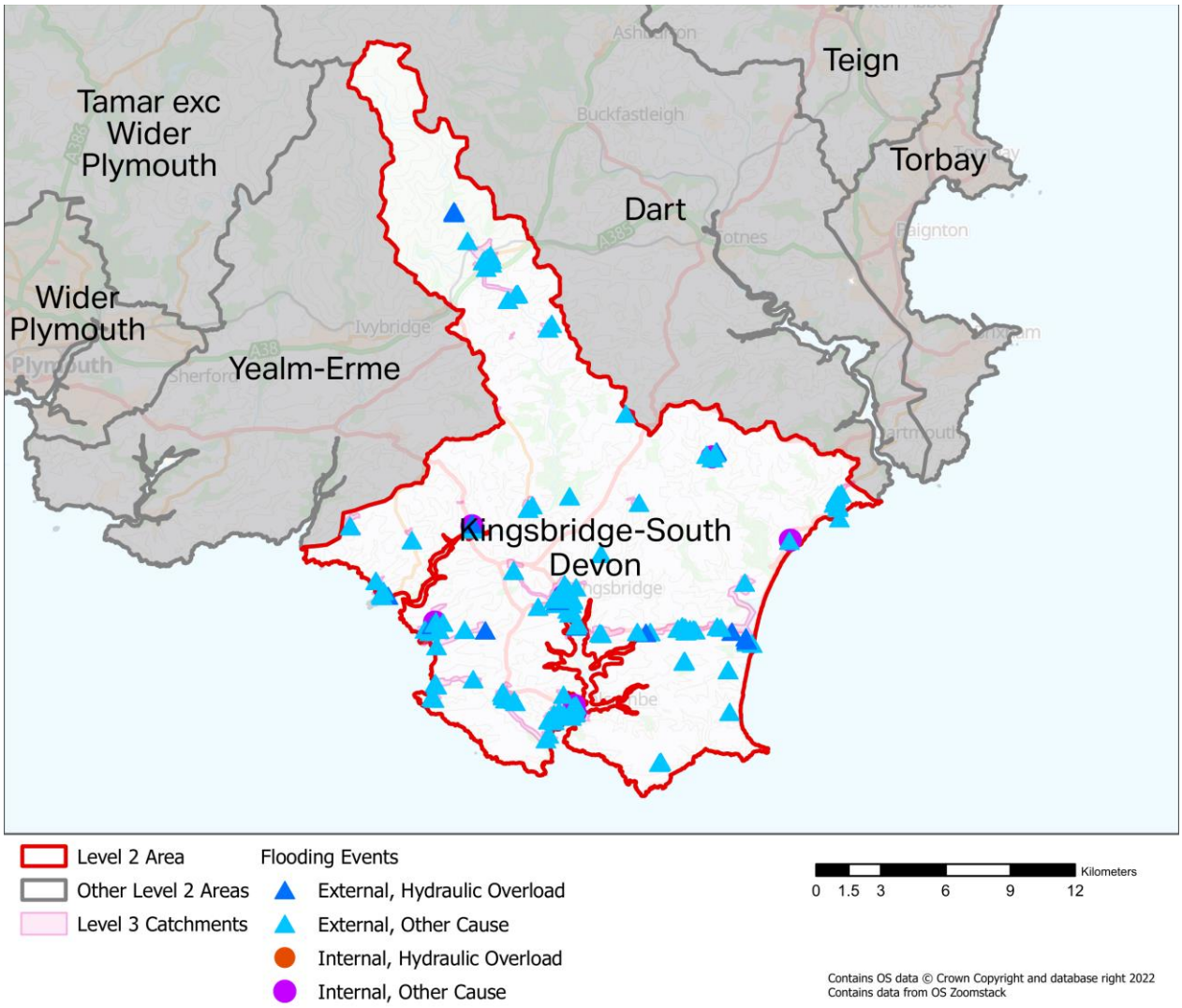

Figure 3: Sewer Flooding by location and cause

An assessment of future flooding risk has been carried out; the modelling approach is summarised further through this document in Table 22 (Future Flood Risk column).

Storm Overflows

Hydraulic overload is when the network cannot convey the runoff from heavy rainfall and can lead to sewer flooding and spills from overflows. It can be exacerbated by groundwater and surface water entering the sewerage system.

Figure 4 shows the approximate locations of all overflows. South West Water has a programme to monitor the current use and performance of storm overflows and 100% of the overflows are currently monitored. Table 6 below provides a summary of any available performance data for storm overflows in the catchment.

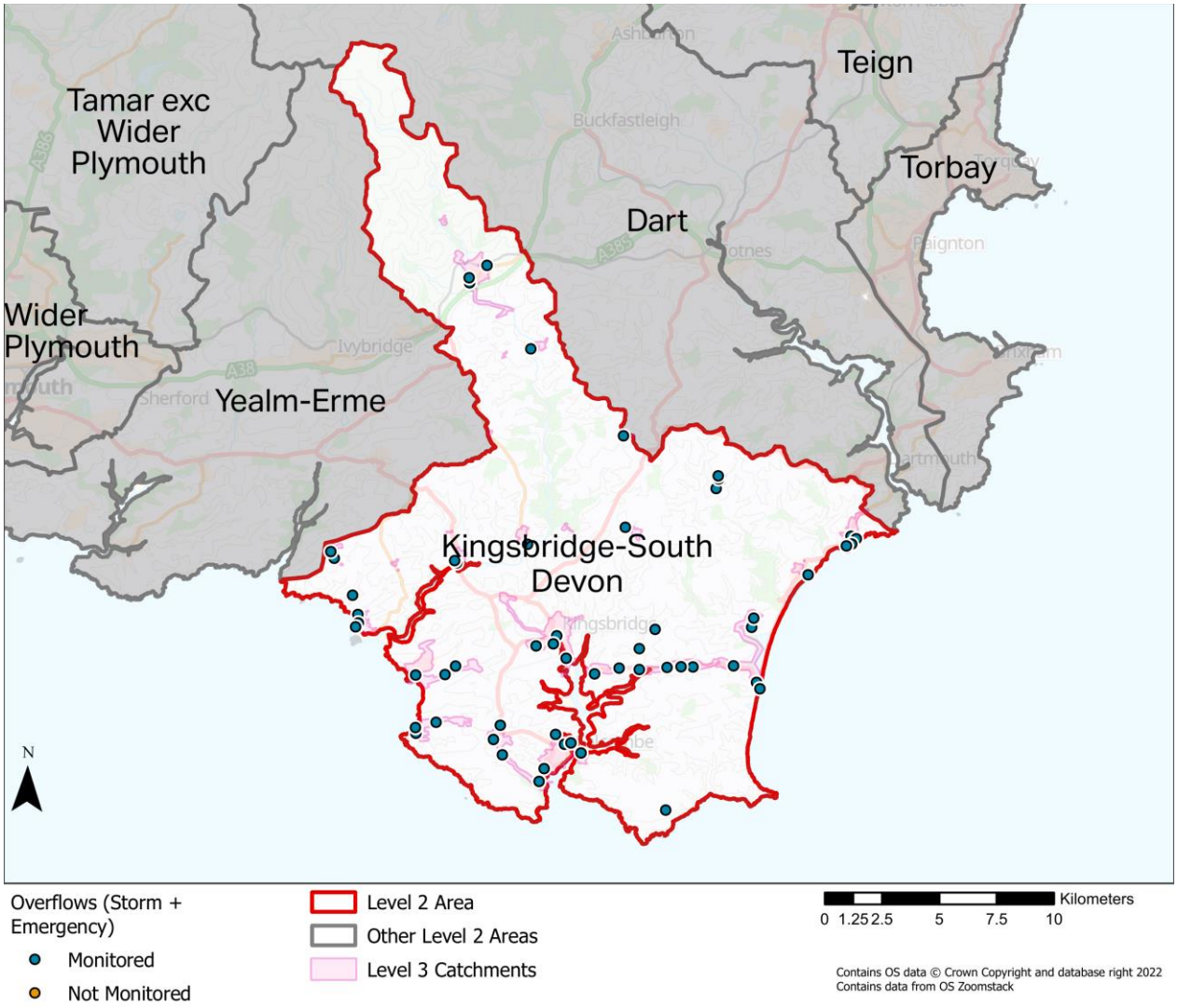

Figure 4: Overflow locations by monitoring status

***Table 6**: Storm Overflow Performance Summary*

Year	2019	2020	2021
No. Monitored	49	50	51
No. Spills	1078	1675	1544

Blockages

Blockages are caused by a variety of items, materials, substances and vegetation entering the network. In the case of vegetation, this may be root ingress from trees/shrubs that enter through damaged areas and joints. In other cases, silt and debris may be washed in through the surface water network and items such as wet wipes, fat or grease may be flushed into the network directly from homes and businesses.

Misuse of the network continues to be a significant issue across the region. Network misuse is defined as flushing anything other than the three Ps (Pee, Poo and toilet Paper) down toilets. Wet wipes, nappies and sanitary products should not be flushed regardless of their labelling. Fats, oils and grease should not be poured down sinks in the kitchen as these can congeal in and eventually block the sewer (known as a 'Fatberg'). Sewer misuse can lead to blockages which can cause sewer flooding and pollution.

South West Water has a number of community based education programmes including **Love your Loo** and **Think Sink!** that aim to prevent sewer misuse and reduce associated sewer flooding problems.

The rate of blockages in the Kingsbridge-South Devon catchment is average when compared to other catchments in South West Water area. Blockages since the 2018/19 reporting year are shown below in Table 7 (split by the blockage cause code) and the locations indicated by the heat map in Figure 5. Please contact us if you require additional information on blockages in the Kingsbridge-South Devon catchment.

***Table 7**: Count of blockages by year and cause*

Year	Debris	Fat	Paper/Rag	Roots	Silt
2019	39	20	66	15	9
2020	29	8	41	12	7
2021	18	17	79	12	11
2022	18	9	89	10	4
2023	13	19	82	25	1

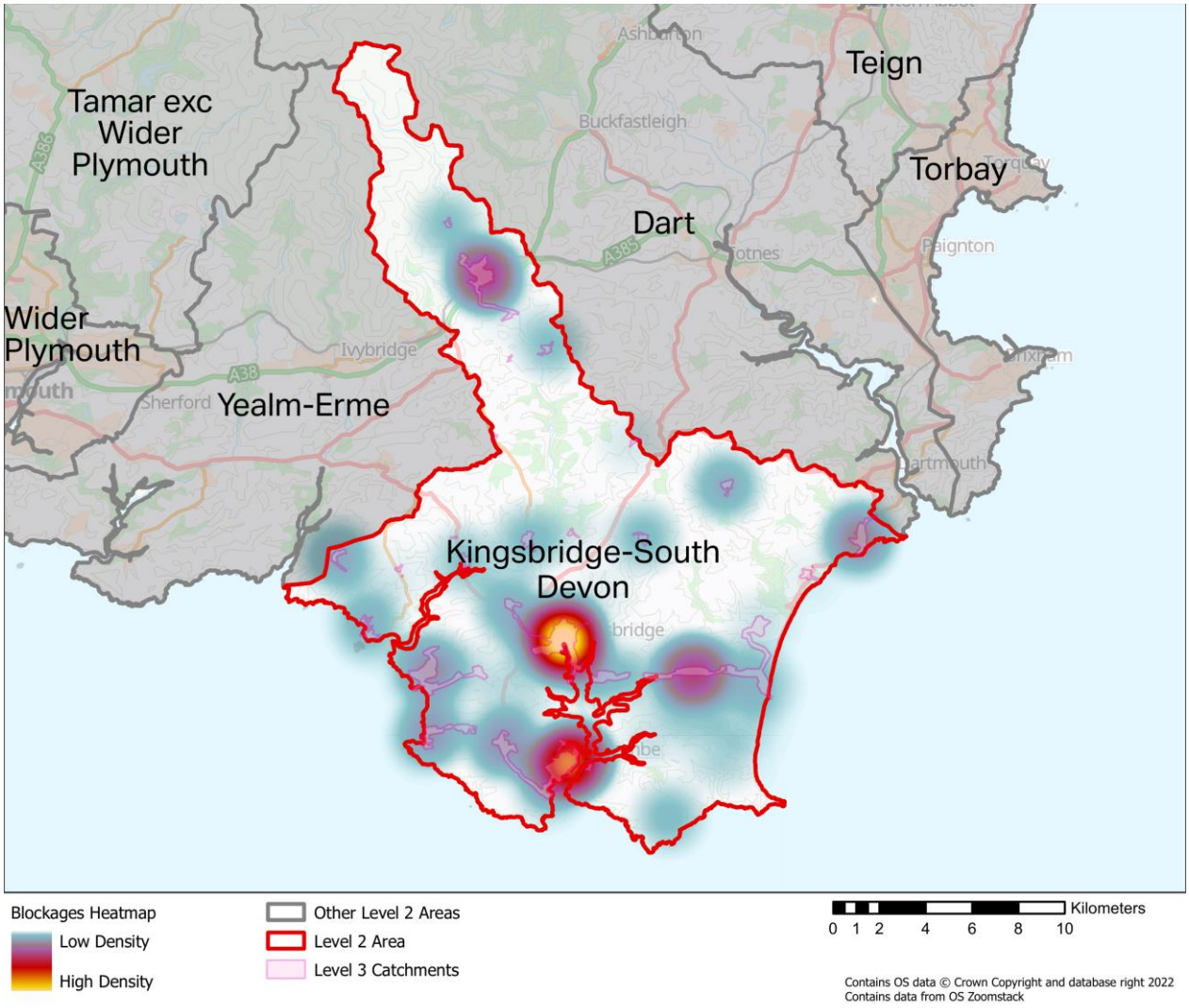

Figure 5: Blockage Event Heatmap

Asset Condition

Gravity Network

A programme of CCTV inspections is undertaken to determine the structural condition of sewers. A risk-based approach is applied, considering frequency of failure and consequence of failure. The sewers in most need of attention due to their condition are prioritised for more frequent inspection or rehabilitation.

The rate of collapses in the Kingsbridge-South Devon catchment is average when compared to other catchments in the region. A heatmap of sewer collapses since the 2018/19 reporting year is shown in Figure 6 below. Table 8 provides a count of collapse and partial collapse events since the 2018/19 reporting year.

***Table 8**: Count of sewer collapse by year*

Year	Collapse	Partial Collapse

Year	Collapse	Partial Collapse
2019	1	2
2020	3	0
2021	2	1
2022	2	1

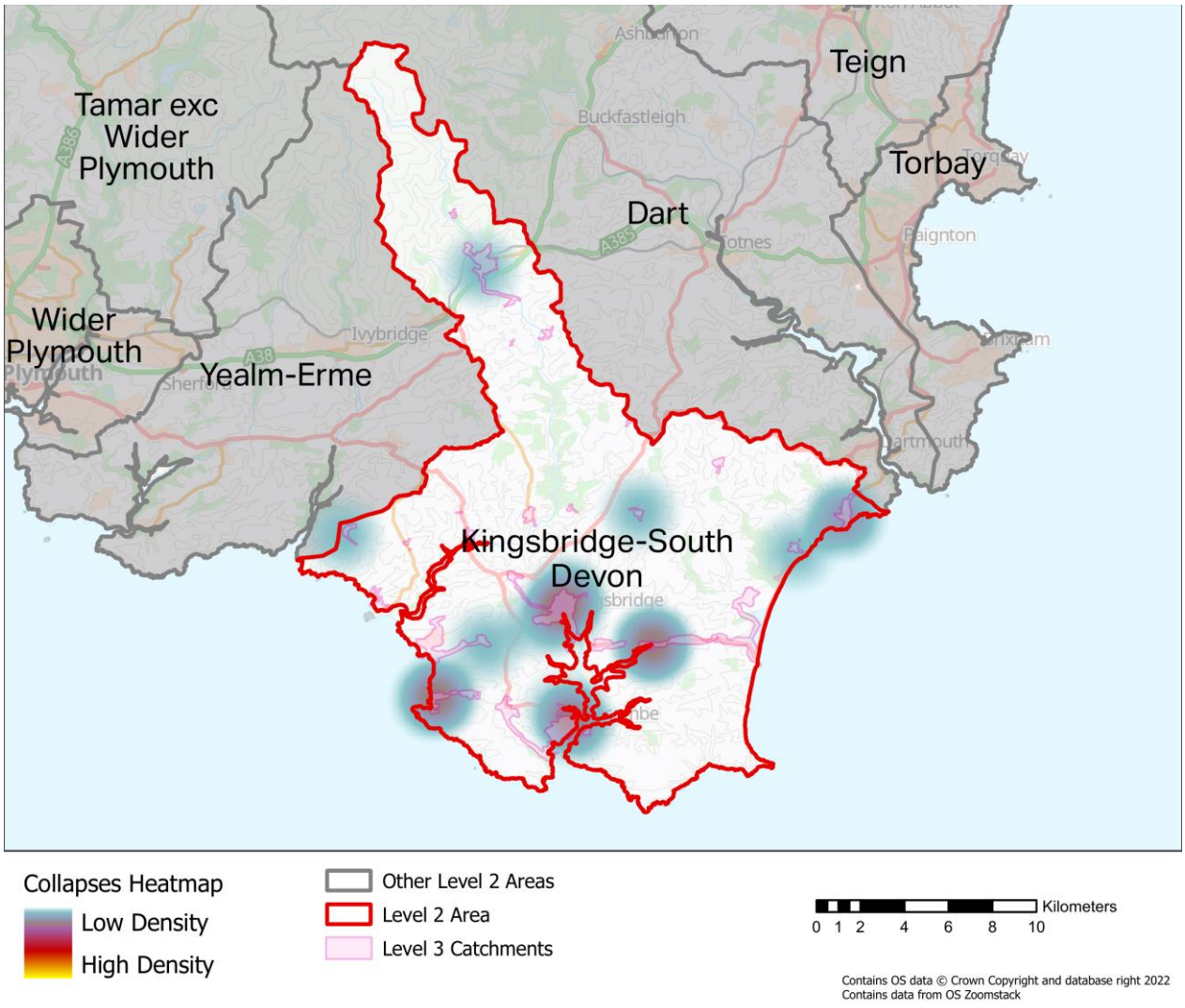

Figure 6: Sewer Collapse Heatmap

Pumped Network (Rising Mains)

South West Water continuously invests in sewage pumping stations (SPS) and rising mains. Rising main failures are repaired promptly by reactive teams, and if repeat failures are experienced or immediate works are identified, they are prioritised for replacement.

There have been 7 rising main bursts as shown in Table 9 and no flooding caused by issues at sewer pumping stations (Table 10) since the 2018/19 reporting year.

***Table 9**: Count of SPS flooding by year/cause*

Year	Feedback Cause	Count
2019	Hydraulic Overload Pumping Station	1
2020	Hydraulic Overload Pumping Station	1
2020	Pump Station Breakdown	1
2021	Hydraulic Overload Pumping Station	2
2022	Hydraulic Overload Pumping Station	2

***Table 10**: Count of Rising Main bursts by year/cause*

Year	Feedback Cause	Count

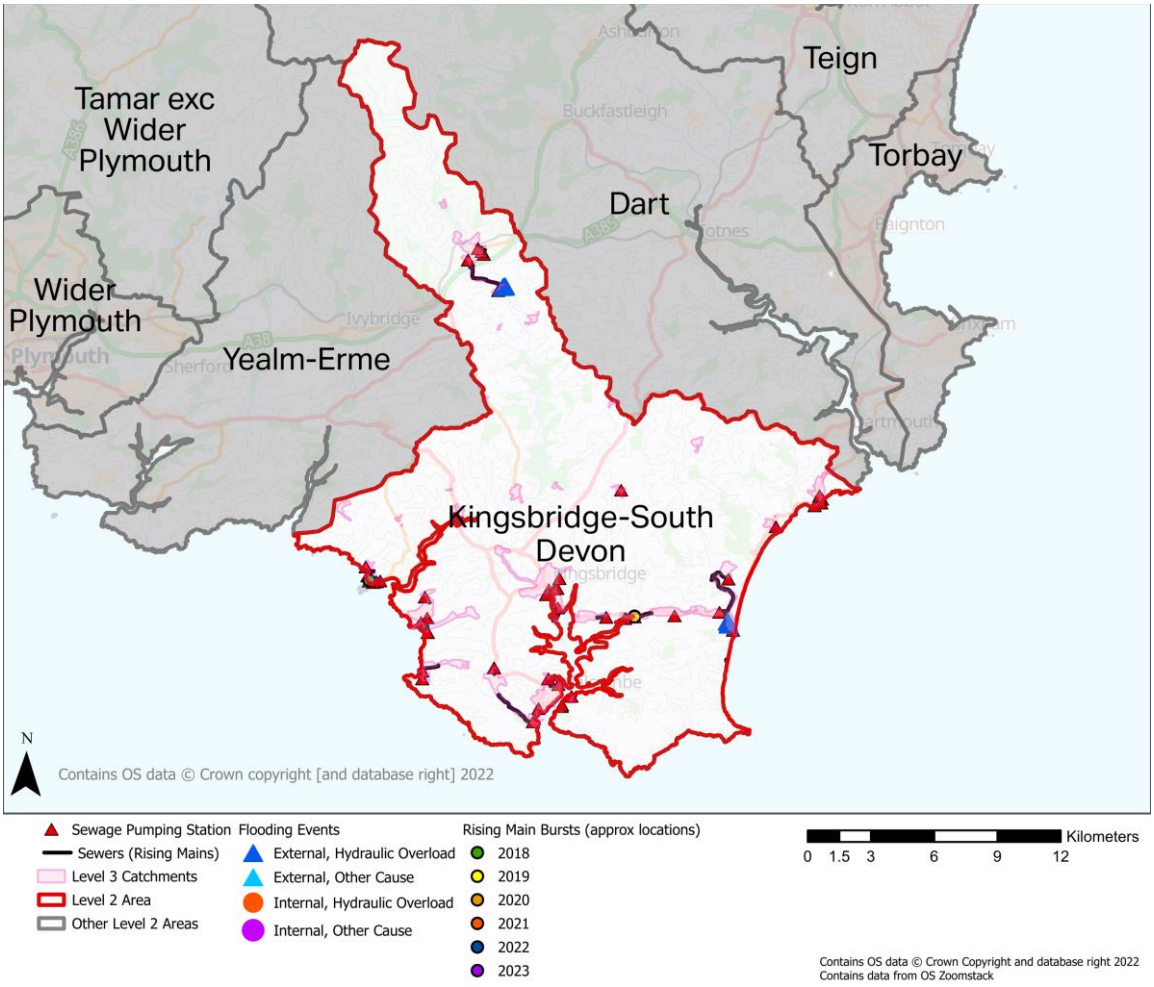

Figure 7: SPS/Rising Main flooding and burst events

Environmental Performance

Surface Water Flooding

South West Water is only responsible for sewer flooding. Areas prone to surface water flooding (due to rainfall and pooling at low points in the landscape) can be seen on the EA website. The responsibilities for other types of drainage and flooding are summarised in Table 3 earlier in this document.

Pollution

South West Water is continuing to strive to eliminate harmful pollution to the environment. This includes there being no Category 1 and 2 (the most harmful) pollution incidents. South West Water's vision for Environmental performance can be found on the website here.

There have been 37 category 3 (minor) pollution incidents in the Kingsbridge-South Devon catchment since the 2018/19 reporting year.

Table 11 provides a summary of pollution events by year and the category of environmental impact. The map in Figure 8 shows the location of pollution events. Clusters of pollution events are identified for further investigations and activities to reduce and/or remove the future risk of pollution events occurring.

***Table 11**: Count of pollution events by year and impact level*

Year	Water Env Category Level	Count
2019	3	12
2020	3	9
2021	3	8
2022	3	8

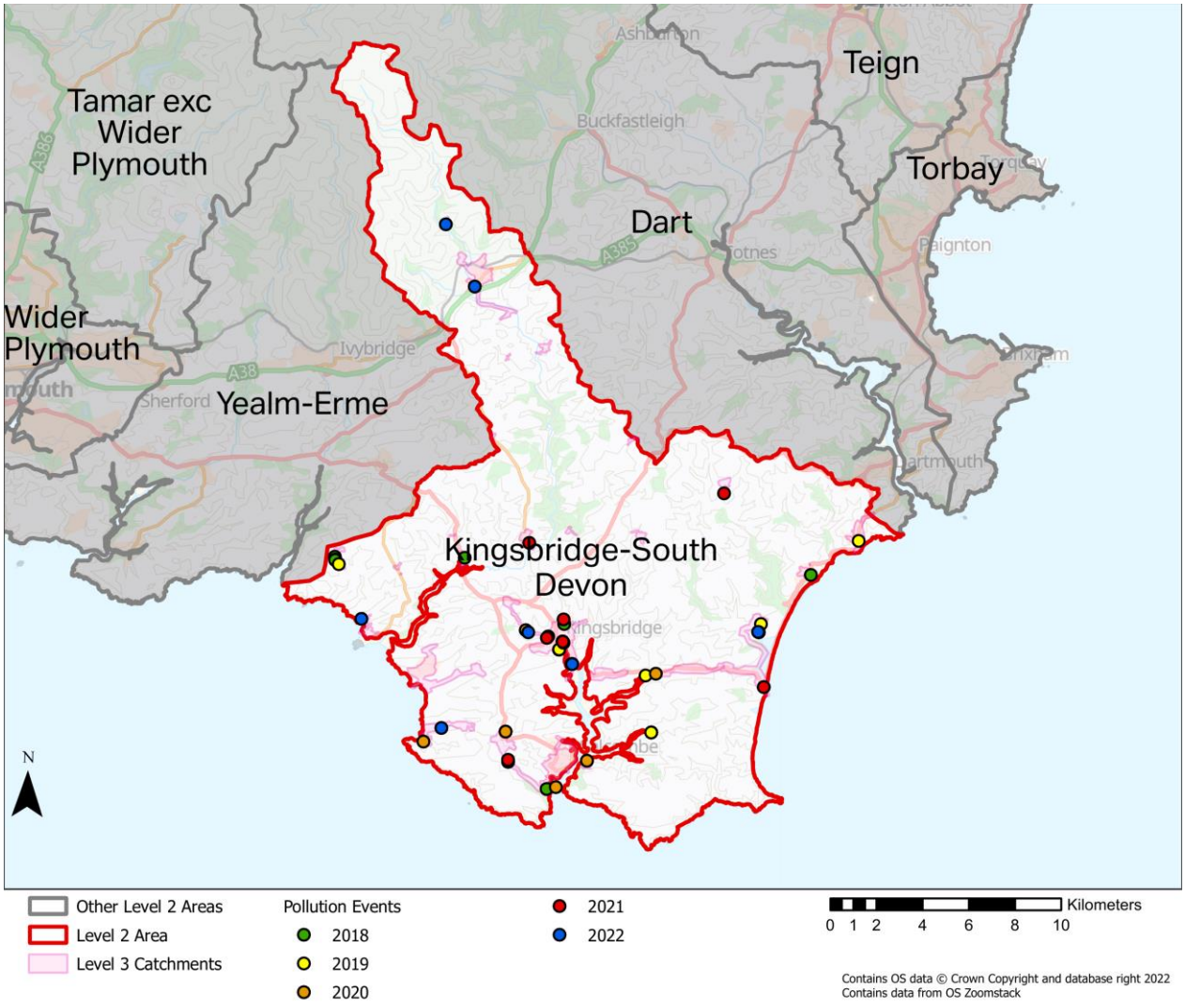

Figure 8: Pollution Events

Critical Drainage Areas

A Critical Drainage Area (CDA) is an area with critical drainage problems, which has been formally notified to the Local Authority by the Environment Agency. Within CDAs, proposed development may present risks of flooding on-site and/or off-site if the surface water runoff is not effectively managed.

The purpose of creating the CDA allocation is to reduce downstream flooding by controlling the accumulative impact of surface water runoff from multiple development sites in sensitive catchment areas. This means that any site discharging surface water to a watercourse or public sewer must attenuate the flow to mimic the green field runoff for a 1:10 year rain fall event. Where the surface water can be managed within the site for the "1:100+40%" condition (i.e., an allowance of 40% over and above the 1:100 event), there is no change to the standard surface water drainage requirement.

The Development Management Procedure Order requires that the EA is consulted on developments within Areas with Critical Drainage Problems (ACDPs). The map in Figure 9 shows the geographical coverage of ACDPs in the Kingsbridge-South Devon catchment.

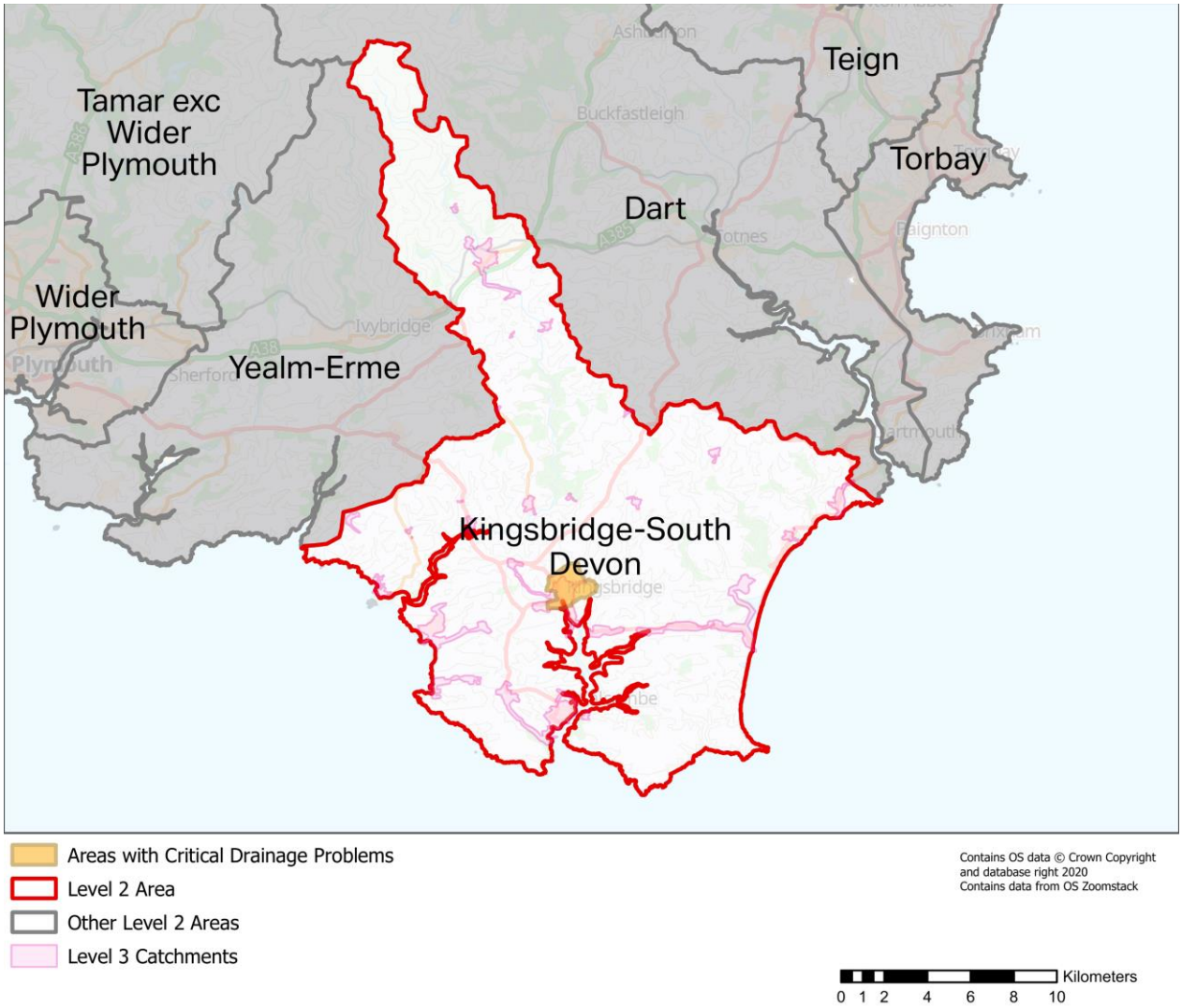

Figure 9: Critical Drainage Areas

Wastewater Treatment Compliance

Each Wastewater Treatment Works has a permit, as agreed with the EA, for the quantity and quality of the water that is discharged to the environment.

The Kingsbridge-South Devon catchment has failed some wastewater treatment compliance checks since the 2018/19 reporting year. These are shown in Table 12.

***Table 12**: Wastewater Treatment compliance failures*

Asset Equipment Name	Year	Fail Type	Parameter
MALBOROUGH_STW_SALCOMBE	2019	UWWTD	UWW UT COD

Dry Weather Flow is at risk of compliance failure. As a result, investigations to understand the reason for exceedance are undertaken when successive years of failure occur. Table 13 below shows the annual results since the 2018/19 reporting year.

Table 13 shows the Dry weather flow (DWF) performance of the treatment works in the Kingsbridge-South Devon catchment.

***Table 13**: Dry weather flow results and permits from 2018-2020*

Asset Name	Permitted (m3/d)	Comments
AVETON GIFFORD_STW_AVETON GIFFORD	306	Spare capacity available
BIGBURY & CHALLABOROUGH_STW_BIGBURY BAY	470	Spare capacity available
BLACKAWTON_STW_BLACKAWTON	104	Spare capacity available
CHILLINGTON_STW_CHILLINGTON	454	Spare capacity available
EAST ALLINGTON_STW_EAST ALLINGTON	69	Spare capacity available
GALMPTON HOPE COVE_STW_HOPE COVE	184	Spare capacity available
KINGSBRIDGE_STW_KINGSBRIDGE	5,505	Spare capacity available
KINGSTON_STW_KINGSTON	203	Spare capacity available
LODDISWELL_STW_LODDISWELL	197	Approaching design capacity
MALBOROUGH_STW_SALCOMBE	1,829	Spare capacity available
SLAPTON_STW_SLAPTON	777	Spare capacity available
SOUTH BRENT_STW_SOUTH BRENT	509	Spare capacity available
SOUTH MILTON_STW_SOUTH MILTON	320	Spare capacity available
STOKE FLEMING_STW_DARTMOUTH	260	Spare capacity available
STRETE_STW_DARTMOUTH	122	Spare capacity available
WEST CHARLETON_STW_CHARLETON	110	Spare capacity available

Water Quality

When untreated/partially treated wastewater is discharged to a watercourse it may have potential to affect the downstream environment including river and coastal areas. This will be dependent on the duration of any discharge and the dilution offered by the receiving watercourse. This discharge could be from blockages in the sewerage network, wastewater spills or leaks, from misconnections (when wastewater from households is incorrectly connected to the surface water sewer) or from storm overflows. The EA has overall responsibility for water quality in water courses, although South West Water work in partnership to reduce and remove possible sources of pollution.

Our dedicated Upstream Thinking (UST) team engages with farmers and landowners to make changes in how land is managed, ensuring our drinking water sources are protected from diffuse pollution. Starting on the high moorlands and focusing on the land next to rivers, we collaborate to make water management plans that protect streams and rivers while keeping farms productive.

The EA assesses why waterbodies do not achieve a "good" status. Table 14 below provides a summary of the significant water management issues and the associated activities identified as part of the analysis for the Kingsbridge-South Devon catchment.

***Table 14**: Reasons for not achieving 'Good' water quality status*

Significant water management issue (SWMI)	Activity	Count
Physical modifications	Reservoir / Impoundment - non flow related	1
Pollution from abandoned mines	Abandoned mine	2
Pollution from rural areas	Poor Livestock Management	9
	Poor nutrient management	7
	Poor soil management	6
	Riparian/in-river activities (inc bankside erosion)	1
Pollution from towns, cities and transport	Private Sewage Treatment	1
	Septic Tanks	2
	Urbanisation - urban development	1
Pollution from wastewater	Discharge	9
	Discharge (intermittent)	3
	Internal nutrient load (lakes only)	2
	Natural conditions - other	1
	Not applicable	1
	Unknown (pending investigation)	1

Future challenges in the catchment

Growth

New developments can cause an increase in the volume of wastewater requiring conveyance and treatment. Improvements to the foul sewerage system to support new development will be assessed by South West Water's New Developments Team and infrastructure charges paid by new developments will fund required upgrades to ensure sewer flooding risk is not increased. There are multiple sources of growth information for the region.

To understand where development and specific areas of growth can be expected, the local plans as published by the Local Planning Authority (LPA) are a reasonable source of information.

The LPA polygons showing areas earmarked for development can be found in Figure 10 at the end of this section.

Climate Change and Urban Creep

Climate change is likely to increase the intensity of rainfall leading to higher risk of flooding in the future; however, the magnitude and timing of this change is highly uncertain.

The potential increase in rainfall intensity could inundate the combined sewer networks and cause surface water and sewer flooding. Changing patterns of summer storms could affect the frequency and volume of spills from storm overflows and consequently impact on the river and bathing water quality downstream.

Urban creep can also pose a challenge for managing South West Water's drainage and wastewater networks. Urban creep occurs when minor extensions to homes are built or when existing permeable areas e.g., gardens are paved over to provide patios or for car parking. The result is an overall increase in impermeable area contributing directly to fast runoff to the urban drainage system and consequent increase in the risk of flooding

Future Challenges

32 potential development locations are recorded for this catchment. Table 15 summarises the different types of development planned in the catchment and Figure 10 shows the location and extent of land proposed for development that have been identified in local development plans at the time of writing. Please refer to the local authorities Local Plan for the most current information.

***Table 15**: Summary of Proposed Developments*

Development Type	Number in Catchment
Employment	2
Housing and Tourist Development	1

Development Type	Number in Catchment
Housing Development	36
Mixed Use Development	2

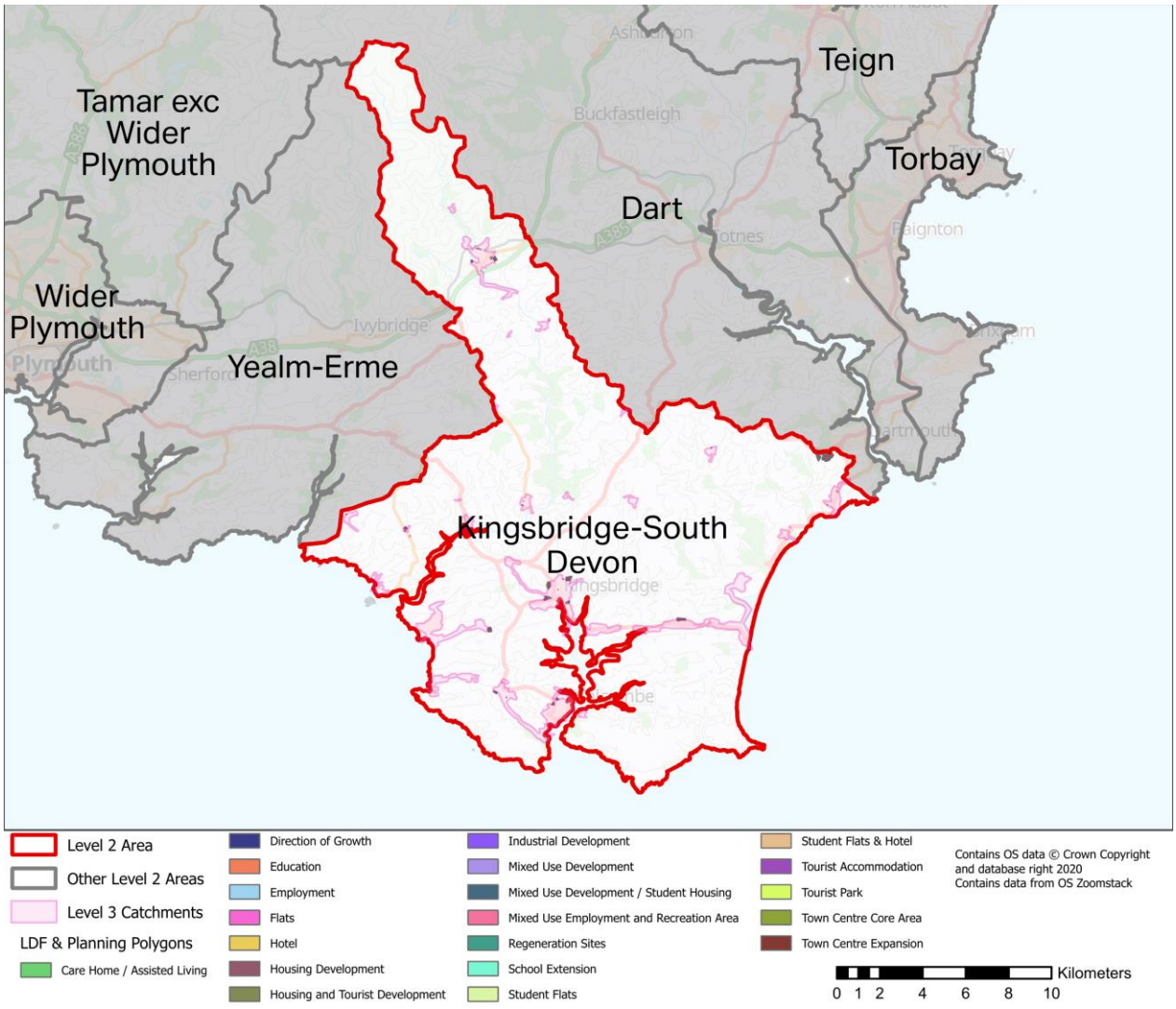

Figure 10: Local Development Framework Areas

Catchment Strategy

Partnership Working

South West Water is working in partnership with multiple organisations including the EA, local authorities and other stakeholders such as landowners, local residents and community groups. The purpose of this work is to understand the causes of drainage and wastewater issues and to progress joint projects to resolve them where appropriate. For example, partnership working opportunities may exist where properties are located within recognised flood zones (FZ2, FZ3 and/or Surface Water) which can be found here.

Investment Routes

Reactive Investment

Reactive investment needs are identified via investigations following reactive response to operational/customer issues and planned surveys that are targeted to detect and resolve problems before they have an impact on customers and the environment.

The investment needs are prioritised based on the risk to properties and the identification of repeat events. These needs then form a programme of targeted investments for delivery over the next 12 months. Details for any needs recorded for the Kingsbridge-South Devon catchment are summarised in Table 16.

Twelve investment needs are recorded for this catchment. Locations are shown in Figure 11.

***Table 16**: Summary of Reactive Investment Opportunities*

	Capital Maintenance	Enhanced Service Levels	Total
Completed	2	1	3
Confirm Scope	4		4
Programmed	1		1
Total	7	1	8

WINEP Investment

The Water Industry National Environment Programme (WINEP) is the programme of work where water companies work collaboratively with Environmental regulators and other stakeholders to investigate, identify and agree investment needs to deliver specific environmental improvements. Water companies in England then undertake to deliver this to meet their obligations from environmental legislation and UK government policy. The tables below indicate the WINEP investigation and implementation schemes for the Kingsbridge-South Devon catchment if present, with locations are shown in Figure 11.

There are currently 16 investigations planned in this catchment, as shown in Table 17.

***Table 17**: WINEP Investigations*

WINEP ID	Name of Waterbody	Waterbody Type	Driver Code	Planned Completion Date	Investigations Scope	Additional Comments
DCS00096	Plymouth Coast	Coastal	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS00118	The Gara	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS00259	Avon (DevonTidal) and Sth Hams - Frogmore	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS00388	Small Bk	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor

WINEP ID	Name of Waterbody	Waterbody Type	Driver Code	Planned Completion Date	Investigations Scope	Additional Comments
						to measure PFF.
DCS00702	Avon - Lower	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS00742	Salcombe Harbour	Coastal	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS01035	Avon (Devon Tidal) and Sth Hams - Slapton	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS01046	Plymouth Coast	Coastal	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS01144	Catchment Scale: - see additional comments	Catchment Scale: - see additional comments	SW_INV1	2022-09-30	Detailed scope in development.	See column AC - Investigation scope.Scope to be finalised in further discussions but may include the following: Investigate performance of 10352652 and53822and 53822sea

WINEP ID	Name of Waterbody	Waterbody Type	Driver Code	Planned Completion Date	Investigations Scope	Additional Comments
						outfall (203034). This should include intensive and daily sampling of influent and eflluent for E.coli. Investigation should also include investigation of the following assets and their impact on the SFW: The Anchorage CSO (201808), Kimberley Nurseries CSO (201721), Stokenham Caravan Park CSO (201706) and 53070 SO (NPSWQD0006916). 10407848 and Start Bay investigations will remain as two lines on WINEP but will be done as one report, due to the modelling involved.
DCS01157	Catchment Scale: - see additional comments	Catchment Scale: - see additional comments	SW_INV1	2022-09-30	Assess performance of all water company assets in catchment in order to identify those impacting on the SFW. Apportion SWW assets load in the context of other sources in order to understand the water company contribution to the failure to achieve the microbial standard. Understand how the impacts of climate change are interacting with the impact of water company assets; and identify any improvements required. Investigation to include detailed performance of 10694327 and 10407848. This must include sampling to measure	See column AC - Investigation scope. Scope to be finalised in further discussions. Stoke Fleming and Start Bay investigations will remain as two lines on WINEP but will be done as one report, due to the modelling involved.

WINEP ID	Name of Waterbody	Waterbody Type	Driver Code	Planned Completion Date	Investigations Scope	Additional Comments
					E.coli levels of the influent and effluent and flow monitoring. 4 weeks of sampling to include summer peak season (wet weather and dry weather) and low season (wet and dry weather). Daily sampling for 6 days in each week and one day hourly sampling for 8 hours. Daily upstream sampling over the same period at the same time. Total number of samples 110. This includes consideration of appropriate treatment requirements (UWWTD)."	
DCS01165	devon south	Coastal	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS01278	n/a	n/a	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
BAW00001	Catchment Scale: - see additional comments	Catchment Scale: - see additional comments	BW_INV4	2022-09-30	Catchment investigation to understand what water company action would be needed to achieve a robust classification of Excellent (less than 20% risk of failing planning class of Excellent).	n/a
BAW00015	Catchment Scale: - see additional comments	Catchment Scale: - see additional comments	BW_INV4	2022-09-30	Catchment investigation to understand what water company action would be needed to achieve a robust classification of Excellent (less than 20% risk of failing planning class of Excellent).	n/a
BAW00050	Catchment Scale: - see additional	Catchment Scale: - see additional	BW_INV4	2022-09-30	Investigation part 1. Catchment investigation to understand what water company action would be needed to achieve a robust classification of Good	n/a

WINEP ID	Name of Waterbody	Waterbody Type	Driver Code	Planned Completion Date	Investigations Scope	Additional Comments
	comments	comments			(less than 20% risk of failing planning class of Good). Investigation part 2. Catchment investigation to understand what water company action would be needed to achieve a robust classification of Excellent (less than 20% risk of failing planning class of Excellent).	
FLO00683	Devon South	Coastal	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.

There are currently 5 implementations planned in this catchment, as shown in Table 18.

***Table 18**: WINEP Implementations*

WINEP ID	Name of Waterbody	Waterbody Type	Driver Code	Planned Completion Date	Implementation Scope	Additional Comments
DCS00120	The Gara	River	U_IMP6	2023-03-31	n/a	n/a
DCS00704	Avon - Lower	River	U_IMP6	2024-03-31	n/a	n/a
DCS01005	Salcombe Harbour	Coastal	BW_IMP3	2025-03-31	SALCOMBE (MALBOROUGH) STW EO (001685/PE/01). Average of no more than 2 spills per bathing season >50 m3.	See column AD - Implementation scope. Scheme subject to 'willingness to pay'.

WINEP ID	Name of Waterbody	Waterbody Type	Driver Code	Planned Completion Date	Implementation Scope	Additional Comments
DCS01044	Plymouth Coast	Coastal	SSSI_IMP	2025-03-31	P reduction	Investigation in AMP 4 showed STW contirbutes large proportion of phosphate to SSSI. Improvement required to restore site to favourable condition.
DCS01047	Plymouth Coast	Coastal	U_IMP6	2025-03-31	n/a	n/a

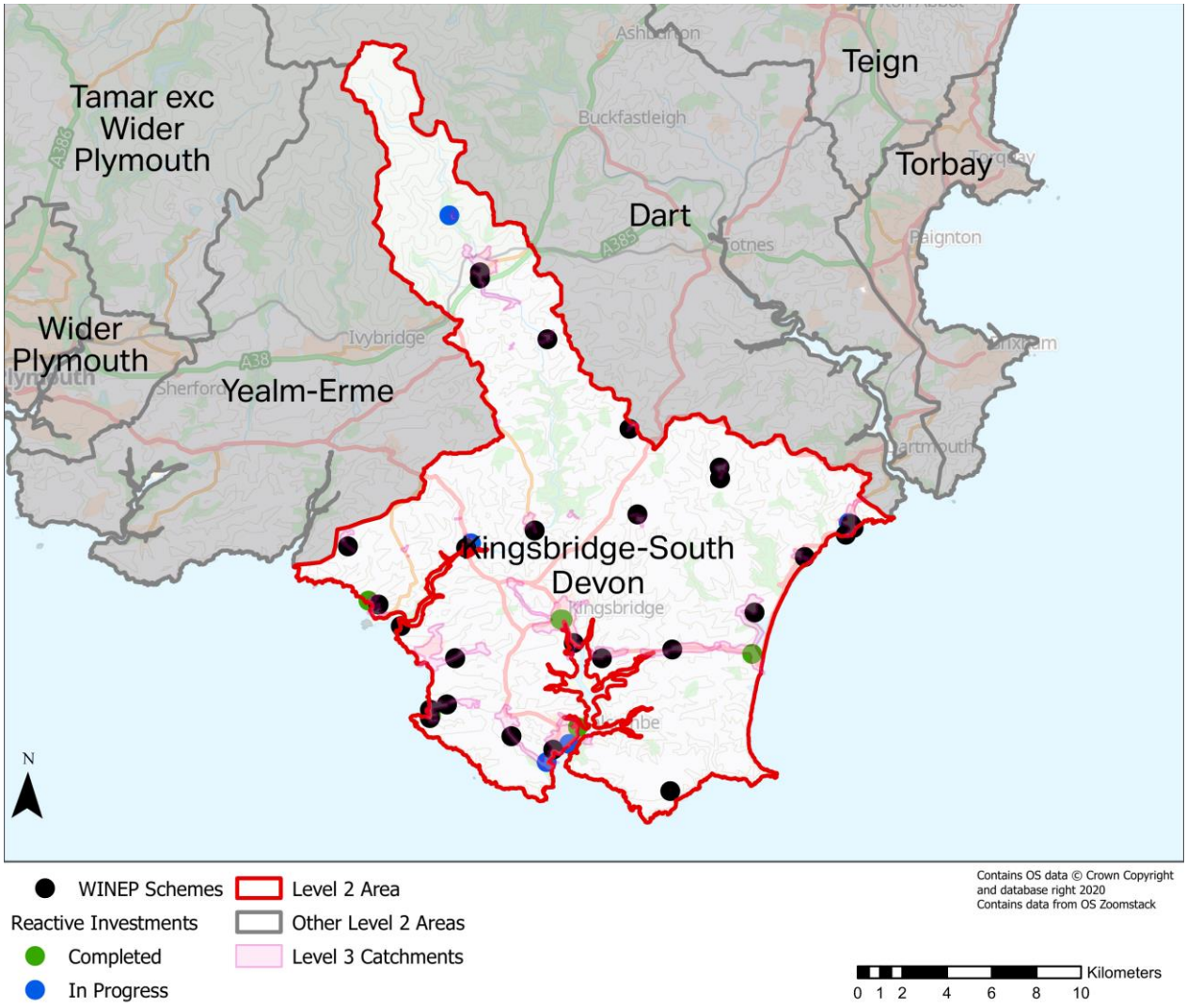

Figure 11: Reactive and WINEP Investment locations

Medium and Long-Term Plans

Overview

The following sections of this document outline South West Water's current analysis and medium to long-term proposals. In particular, they present the option developments and appraisals that will be used during the next price review and planning for future Asset Management Planning cycles (AMPs).

Outputs from the following DWMP process stages are summarised in the following sections and form the primary content for consultation:

- Risk-based catchment screening
- Baseline risk and vulnerability assessment
- Bespoke planning objectives
- Resilience scoring
- Problem characterisation
- Options appraisal

The DWMP will inform South West Water's future business plans based on the best available knowledge today. There is uncertainty in the future linked to finance, regulation/legislation, environmental and climate changes. This is a long-term, iterative process, so the plans may change in the future to reflect the future needs of the Kingsbridge-South Devon catchment.

Risk Based Catchment Screening

The Risk based Catchment Screening exercise (RBCS) was carried out across all of South West Water's 653 Level 3 Tactical Planning Units (TPUs), screening each one in order that the effort could be best focused where it was most appropriately needed. From this assessment exercise it was determined that 373 catchments were identified as being potentially 'at risk' of environmental or community impact deteriorating in the future and were to proceed to the Baseline Risk & Vulnerability Assessment (BRAVA) stage for assessment under those criteria. Each catchment was assessed against a range of indicators shown in Table 19, to identify the catchments that require a more detailed investigation. The information and data required for the assessment is readily available from company reporting systems and from stakeholders. Indicators have been classified into two tiers, which enables us to prioritise the indicators when assessing if further assessment is required. Only two indicators are Tier 2:

- Catchment characterisation
- Continuous or intermittent discharges impact upon sensitive receiving waters

All other indicators are Tier 1 indicators.

When a catchment or TPU is identified as needing further assessment, this is described as an "indicator breach" in the RBCS process. This is not a performance breach but rather a trigger to further evaluate or assess certain indicator/indicators in the next stage of the DWMP process.

The results for the Level 3 catchments within the Kingsbridge-South Devon catchment are in the RBCS Summary (Table 19) below.

***Table 19**: RBCS Summary Table*

Level 3 Equipment Number	C21st Pipe Metric	Total Population Equivalent	Catchment Characterisation	Bathing or shellfish waters	Discharge to Sensitive Waters (Part A)	Discharge to Sensitive Receiving (Part B)	SOAF	CAF	Internal Sewer Flooding	External Sewer Flooding	Pollution Incidents	WwTW Q Compliance	WwTW DWF Compliance	Storm Overflows	Other RMA Systems	Planned Residential Development	WINEP	Sewer Collapses	Sewer Blockages	Number of Indicators Breached (Excl	Single Indicator Breach is Tier 1	Proceed to BRAVA?
53070	Initial	381.5	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	YES	2	NO	YES
53081	Initial	1,729.5	NO	YES	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	3	NO	YES
53104	Initial	1,327.3	NO	YES	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	2	NO	YES
53119	Initial	339.3	NO	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	2	NO	YES
53125	Initial	959.7	NO	YES	NO	NO	YES	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	YES	3	NO	YES
53127	Initial	4,091.4	YES	YES	NO	NO	YES	NO	YES	YES	YES	YES	NO	NO	NO	NO	NO	NO	YES	7	NO	YES
53776	Initial	2,635.0	YES	YES	NO	NO	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	YES	4	NO	YES
53822	Initial	892.8	NO	YES	NO	NO	YES	NO	NO	NO	YES	NO	NO	YES	NO	NO	NO	NO	YES	4	NO	YES
53883	Initial	755.9	NO	YES	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	YES	4	NO	YES
54022	Initial	339.2	NO	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	2	NO	YES
10003887	Initial	58.4	NO	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	2	NO	YES
10407848	Initial	1,096.1	NO	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	2	NO	YES

Level 3 Equipment Number	C21st Pipe Metric	Total Population Equivalent	Catchment Characterisation	Bathing or shellfish waters	Discharge to Sensitive Waters (Part A)	Discharge to Sensitive Receiving (Part B)	SOAF	CAF	Internal Sewer Flooding	External Sewer Flooding	Pollution Incidents	WwTW Q Compliance	WwTW DWF Compliance	Storm Overflows	Other RMA Systems	Planned Residential Development	WINEP	Sewer Collapses	Sewer Blockages	Number of Indicators Breached (Excl	Single Indicator Breach is Tier 1	Proceed to BRAVA?
53145	Initial	37.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53139	Initial	160.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53090	Initial	118.9	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	YES	2	NO	YES
53142	Initial	81.1	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	1	YES	YES
10357075	Initial	15.5	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53097	Initial	0.5	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53091	Initial	143.6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53062	Initial	460.2	NO	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	2	NO	YES
53131	Initial	157.2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53105	Initial	3.1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53068	Initial	917.8	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53117	Initial	18.3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53077	Initial	19.1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO

Level 3 Equipment Number	C21st Pipe Metric	Total Population Equivalent	Catchment Characterisation	Bathing or shellfish waters	Discharge to Sensitive Waters (Part A)	Discharge to Sensitive Receiving (Part B)	SOAF	CAF	Internal Sewer Flooding	External Sewer Flooding	Pollution Incidents	WwTW Q Compliance	WwTW DWF Compliance	Storm Overflows	Other RMA Systems	Planned Residential Development	WINEP	Sewer Collapses	Sewer Blockages	Number of Indicators Breached (Excl	Single Indicator Breach is Tier 1	Proceed to BRAVA?
53065	Initial	8.6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53071	Initial	9.9	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53114	Initial	36.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
10518389	Initial	1.6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53080	Initial	498.0	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	1	YES	YES
10338736	Initial	24.9	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
52196	Initial	82.2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
54019	Initial	9.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
10694327	Initial	4.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53063	Initial	84.2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53890	Initial	101.9	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	1	YES	YES
53147	Initial	13.8	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
10003884	Initial	10.3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO

Level 3 Equipment Number	C21st Pipe Metric	Total Population Equivalent	Catchment Characterisation	Bathing or shellfish waters	Discharge to Sensitive Waters (Part A)	Discharge to Sensitive Receiving (Part B)	SOAF	CAF	Internal Sewer Flooding	External Sewer Flooding	Pollution Incidents	WwTW Q Compliance	WwTW DWF Compliance	Storm Overflows	Other RMA Systems	Planned Residential Development	WINEP	Sewer Collapses	Sewer Blockages	Number of Indicators Breached (Excl	Single Indicator Breach is Tier 1	Proceed to BRAVA?
53101	Initial	162.5	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53064	Initial	13.3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53135	Initial	31.7	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53098	Initial	487.4	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53118	Initial	7,150.3	YES	YES	NO	NO	NO	NO	YES	YES	YES	NO	NO	NO	NO	NO	NO	YES	YES	5	NO	YES

Score/Colour	Definition
No	No breach
Yes - Tier 1	Tier 1 breach
Yes - Tier 2	Tier 2 breach

Figure 12: RBCS scoring legend

Baseline Risk & Vulnerability Assessment (BRAVA)

For those catchments that were captured by the RBCS as being 'at risk' South West Water then progressed them through to the BRAVA process.

Through the BRAVA process South West Water's understanding of the risks facing the catchments, and at what scale and complexity, has been improved. This included an assessment into how external changes in the future may impact upon South West Water's catchment vulnerabilities and how they may be impacted by risks such as Climate Change and Urban Creep. The outputs from this process are summarised below in Table 20. The planning objectives used for this exercise were:

- Internal Sewer Flooding Risk
- Pollution Risk
- Sewer Collapse Risk
- Risk of Sewer Flooding in a 1 in 50-year storm
- Storm Overflow performance
- Risk of WwTW Compliance Failure

***Table 20**: BRAVA output summary table*

Group	Description	Value
	L2_Area	Kingsbridge-South Devon
Physical Characteristics	Total Population Equivalent	20496
	Baseline sewer length (km)	331
Baseline Score 2020	Planning Objective - Internal Sewer Flooding Risk	0
	Planning Objective - Pollution Risk	1
	Planning Objective - Sewer Collapse Risk	1
	Planning Objective - Risk of Sewer Flooding in a 1 in 50-year storm...7	1
	Planning Objective - Storm Overflow performance...8	1
	Planning Objective - Risk of WwTW Compliance Failure...9	0
		2
	Planning Objective - Storm	1

Group	Description	Value
	Overflow performance...11	
	Planning Objective - Risk of WwTW Compliance Failure...12	0

Score/Colour	Definition
0	No signficance
1	Moderately Significant
2	Very Significant

Figure 13: BRAVA scoring legend

BRAVA Risks were categorised from 0-2, with 0 being no significant risk identified, 1 for no immediate risk identified (although future risks may exist) and 2 showing that short- to medium-term risks of a significant nature having been recognised through the data analysis.

Bespoke Planning Objectives

In addition to the six common planning objectives identified within the DWMP Framework, South West Water has included three bespoke planning objectives that are tailored to the South West Region.

Problem Characterisation

Building on the outputs of the BRAVA process, South West Water examined the nature and complexity of the problems arising, how these relate to one another and what interventions could be put in place to mitigate them. The Problem Characterisation stage took the results from BRAVA and developed it further, providing insight into the risks around:

- Internal Sewer Flooding
- Pollution, dividing these between category 1 or category 2 & 3
- Sewer Collapse
- Sewer Flooding in a 1 in 50-year storm
- Sewer Flooding in a 1 in 10-year storm
- Storm Overflow performance
- WwTW Compliance Failure, including Dry Weather Flow scenarios

These ratings (shown in Table 21) were augmented with commentary (in Table 22) around how these risks have impacted the Kingsbridge-South Devon catchment previously, with Flooding Heat Maps providing visual indicators of the scale of some of the potential problems within each catchment.

***Table 21**: Problem Characterisation*

TPU2	F1: Internal sewer flooding	F2: Risk of sewer flooding in a 1 in 10 year event	F3: Risk of sewer flooding in a 1 in 50 year event	P1: Pollution incidents (CAT 1-3)	P2: Severe Pollutions (Cat 1-2)	P3: Storm overflow performance	P4: WwTW (NUMERIC) compliance failure	P5: WwTW (DWF) compliance failure	A1: Sewer collapse
TPU 1: Slapton	A	F	F	A	A	F	A	A	A
TPU 22: Stoke Fleming	A	F	F	A	A	G	B	A	F
TPU 26: South Brent	A	A	A	A	A	A	A	A	A
TPU 20: Chillington	A	F	F	A	A	A	B	A	G
TPU 21: South Milton	A	F	F	A	A	F	G	A	A
TPU 23: Malborough	F	G	G	G	A	F	F	A	A
TPU 25: Kingsbridge	F	G	G	G	A	F	A	A	G
TPU 10: Didworthy	A	G	G	A	A		A	G	A
TPU 5: Kingston	A	G	G	G	A	A	A	A	G
TPU 27: Bigbury & Challaborough	A	A	B	A	A	F	A	A	G
TPU 28: Galmpton Hope Cove	A	G	G	G	A	F	A	A	G
TPU 3: Aveton Gifford	A	G	G	A	A	F	A	A	A

TPU2	F1: Internal sewer flooding	F2: Risk of sewer flooding in a 1 in 10 year event	F3: Risk of sewer flooding in a 1 in 50 year event	P1: Pollution incidents (CAT 1-3)	P2: Severe Pollutions (Cat 1-2)	P3: Storm overflow performance	P4: WwTW (NUMERIC) compliance failure	P5: WwTW (DWF) compliance failure	A1: Sewer collapse
TPU 7: Strete	G	A	A	A	A	G	A	A	G
TPU 2: West Charleton	A	F	F	A	A	F	A	A	A
TPU 4: Blackawton	G	A	A	A	A	G	B	A	A
TPU 6: East Allington	A	F	F	A	A	G	A	A	A
TPU 8: Moreleigh	A	A	A	A	A		A	A	A
TPU 9: Diptford	A	B	B	A	A		A	A	A
TPU 11: St Anns Chapel	A	C	C	A	A		G		A
TPU 12: Ditch End	A	A	A	A	A	G	A	A	A
TPU 13: Woodleigh	A	A	A	A	A		A	A	A
TPU 14: North Huish	A	A	A	A	A		A	G	A
TPU 15: Ashford Farm	A	A	A	A	A		A	A	A
TPU 16: California Cross	A	A	A	A	A		A		A

TPU2	F1: Internal sewer flooding	F2: Risk of sewer flooding in a 1 in 10 year event	F3: Risk of sewer flooding in a 1 in 50 year event	P1: Pollution incidents (CAT 1-3)	P2: Severe Pollutions (Cat 1-2)	P3: Storm overflow performance	P4: WwTW (NUMERIC) compliance failure	P5: WwTW (DWF) compliance failure	A1: Sewer collapse
TPU 17: Wrangaton	A	A	A	A	A		A		A
TPU 18: St Anns Chapel ST	A	A	A	A	A		A		A
TPU 19: Strete ST	A	A	A	A	A		A		A
TPU 24: Loddiswell	A	A	A	A	A	F	A	A	A

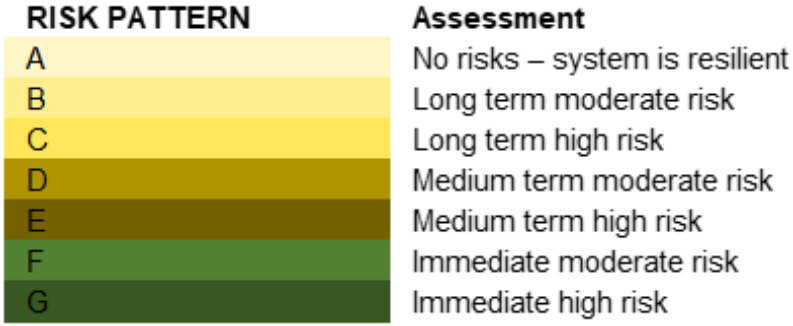

Figure 14: Problem Characterisation legend

***Table 22**: Problem Characterisation Description*

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
SLAPTON_STW_SLAP	This catchment is	There are 2 external	Non-Modelled	There are a total of 3	We are monitoring

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
TON	changing & requires a long-term strategy.	flooding hotspots attributed to other causes in the catchment, located near; Dockeys Lane Torcross SPS	approach	overflows in the catchment. They have been classified as follows; Substandard (medium) - 1 Substandard (high) - 2 Overflows in this catchment impact upon the following bathing beaches/shellfish waters; Slapton Sands (Torcross) Salcombe Start Bay	performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between now and 2050
WEST CHARLETON_STW_CHARLETON	This catchment is changing & requires a long-term strategy.	There were no substantial flooding or pollution hotspots in the catchment.	Non-Modelled approach	There are a total of 2 overflows in the catchment. They have been classified as follows; Substandard (medium) - 1 Substandard (high) - 1 Overflows in this catchment impact	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between now and 2050

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
				upon the following shellfish waters; Salcombe	
AVETON GIFFORD_STW_AVETON GIFFORD	This catchment requires additional investment to make it resilient for the future.	There is 1 internal flooding incident in the catchment, this is 0.41% of the total number of properties within the catchment. There is 1 external flooding hotspot attributed to hydraulic overload in the catchment, located near; Jubilee Street There is 1 pollution hotspot in the catchment located near; Jubilee Stree (ID 127)	Non-Modelled approach	There are a total of 2 overflows in the catchment. They have been classified as follows; Satisfactory - 1 Substandard (medium) - 1 Overflows in this catchment impact upon the following bathing beaches/shellfish waters; Bantham Beach Avon	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between now and 2050
BLACKAWTON_STW_BLACKAWTON	This catchment requires additional investment to make it resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	N/A	There are a total of 2 overflows in the catchment. They have been classified as follows;	We are monitoring performance at the treatment works and there may be a need to increase capacity

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
				Substandard (medium) - 2 Substandard (high) - 2	as part of a medium/long term strategy
KINGSTON_STW_KINGSTON	This catchment requires additional investment to make it resilient for the future.	There is 1 external flooding hotspot attributed to hydraulic overload in th catchment, located near; On the road to the WwTW There are 2 pollution hotspots in the catchment located near; Kingston WwTW (ID 195) Kingston Walkespool (ID 15)	Non-Modelled approach	N/A	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between now and 2050
EAST ALLINGTON_STW_EAST ALLINGTON	This catchment requires additional investment to make it resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	Non-Modelled approach	There is 1 overflow in the catchment. This has been classified as follows; Substandard (medium) - 1	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between now and 2050

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
STRETE_STW_DARTMOUTH	This catchment requires additional investment to make it resilient for the future.	There is 1 internal flooding incident in the catchment, this is 0.48% of the total number of properties within the catchment.	N/A	There is 1 overflows in the catchment. This has been classified as follows; Substandard (high) - 1 Overflows in this catchment impact upon the following shellfish waters; Salcombe	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between now and 2050
MORELEIGH_STW_MORELEIGH	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	N/A	N/A	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between now and 2050
DIPTFORD_STW_DIPTFORD	This catchment is changing & requires a long-term strategy.	There were no substantial flooding or pollution hotspots in the catchment.	N/A	N/A	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between now and 2050

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
DIDWORTHY_STW_DIDWORTHY	This catchment requires additional investment to make it resilient for the future.	There is 1 external flooding hotspot attributed to hydraulic overload in the catchment, located near; Private access road There is 1 external flooding hotspot attributed to other causes in the catchment, located near; Private access road	Non-Modelled approach	N/A	We are monitoring performance at the treatment works and there may be a need to increase capacity as part of a medium/long term strategy
ST ANNS CHAPEL_STW_ST ANNES CHAPEL	This catchment requires additional investment to make it resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	N/A	N/A	We are monitoring performance at the treatment works and there may be a need to increase capacity as part of a medium/long term strategy
DITCH END_STW_EAST PORTLEMOUTH	This catchment requires additional investment to make it resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	N/A	There is 1 overflow in the catchment. This has been classified as follows; Substandard (high)	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
					capacity between now and 2050
WOODLEIGH_STW_ WOODLEIGH	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	N/A	N/A	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between now and 2050
NORTH HUISH_STW_NORTH HUISH	This catchment requires additional investment to make it resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	N/A	N/A	We are monitoring performance at the treatment works and there may be a need to increase capacity as part of a medium/long term strategy
ASHFORD FARM_STW_AVETON GIFFORD	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	N/A	N/A	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between now and 2050

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
CALIFORNIA CROSS_STW_BROWNSTON	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	N/A	N/A	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between now and 2050
WRANGATON S T_SEPTNK_IVYBRIDGE	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	N/A	N/A	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between now and 2050
ST ANNS CHAPEL S T_STW_ST ANNES CHAPEL	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	N/A	N/A	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between now and 2050
STRETE S T_STW_STRETE	This catchment is performing well and is resilient for the	There were no substantial flooding or pollution hotspots	N/A	N/A	We are monitoring performance at the treatment works and

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
	future.	in the catchment.			we are not expecting any compliance issues due to lack of capacity between now and 2050
CHILLINGTON_STW_CHILLINGTON	This catchment requires additional investment to make it resilient for the future.	There are 3 external flooding hotspots attributed to other causes in the catchment, located near; Green Park Way Cotmore Way Frogmore No1 SPS There are pollution hotspots in the catchment located near; Frogmore No1 SPS (ID 105) Frogmore No2 SPS (ID 104)	Non-Modelled approach	N/A	We are monitoring performance at the treatment works and there may be a need to increase capacity as part of a medium/long term strategy
SOUTH MILTON_STW_SOUTH MILTON	This catchment requires additional investment to make it resilient for the future.	There are 3 external flooding hotspots attributed to other causes in the catchment, located near; Rockhill Corner	Non-Modelled approach	There are a total of 2 overflows in the catchment. They have been classified as follows; Substandard	We are monitoring performance at the treatment works and there may be a need to increase capacity as part of a

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
		Village Hall Horswell Lane		(medium) - 1 Substandard (high) - 2 Overflows in this catchment impact upon the following bathing beaches; Thurlestone (South) Beach	medium/long term strategy
STOKE FLEMING_STW_DARTMOUTH	This catchment requires additional investment to make it resilient for the future.	There are 2 external flooding hotspots attributed to other causes in the catchment, located near; Deer Park Road Church Road	Non-Modelled approach	There is 1 overflow in the catchment. This has been classified as follows; Substandard (high) - 1	We are monitoring performance at the treatment works and there may be a need to increase capacity as part of a medium/long term strategy
MALBOROUGH_STW_SALCOMBE	This catchment requires additional investment to make it resilient for the future.	There are 5 total internal flooding incidents in the catchment, this is 0.18% of the total number of properties within the catchment. There is 1 external flooding hotspot attributed to other causes in the	12% of the total number of properties within the catchment that are predicted to be at risk of sewer flooding. There are 5 predicted future flooding hotspots in the catchment, located near;	There are a total of 8 overflows in the catchment. They have been classified as follows; Satisfactory - 1 Substandard (medium) - 6 Substandard (high) - 1 Overflows in this	We are monitoring performance at the treatment works and there may be a need to increase capacity as part of a medium/long term strategy

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
		catchment, located near; Fore Street There are 2 pollution hotspots in the catchment located near; Malborough WwTW (ID 167) South Sands (ID 76)	Devon Road Fore Street Island Street Coronation Road Allenhayes Road	catchment impact upon the following bathing beaches/shellfish waters; Millbay Beach Salcombe South Sands Salcombe	
LODDISWELL_STW_LODDISWELL	This catchment is changing & requires a long-term strategy.	There were no substantial flooding or pollution hotspots in the catchment.	N/A	There are a total of 1 overflows in the catchment. They have been classified as follows; Substandard (high) - 1 Overflows in this catchment impact upon the following shellfish waters; Avon	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between now and 2050
KINGSBRIDGE_STW_KINGSBRIDGE	This catchment requires additional investment to make it resilient for the future.	There are 8 total internal flooding incidents in the catchment, this is 0.20% of the total number of properties	13% of the total number of properties within the catchment that are predicted to be at risk of sewer flooding.	There are a total of 5 overflows in the catchment. They have been classified as follows; Satisfactory - 1	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
		within the catchment. There are 3 external flooding hotspots attributed to other causes in the catchment, located near; Lime Grove Henacre Road Fore Street There are 2 pollution hotspots in the catchment located near; The Quay (ID 49) Westville SPS (ID32)	There are 10 predicted future flooding hotspots in the catchment, located near; Fore Street	Substandard (medium) - 3 Substandard (high) - 1 Overflows in this catchment impact upon the following shellfish waters; Salcombe	capacity between now and 2050
SOUTH BRENT_STW_SOUTH BRENT	This catchment is performing well and is resilient for the future.	There are 2 external flooding hotspots attributed to other causes in the catchment, located near; Exeter Road (Roundabout) Avonwick SPS	N/A	N/A	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between now and 2050
BIGBURY & CHALLABOROUGH_STW_BIGBURY BAY	This catchment requires additional investment to make it resilient for the	There is 1 external flooding hotspot attributed to other causes in the	N/A	There are a total of 4 overflows in the catchment. They have been classified	We are monitoring performance at the treatment works and we are not expecting

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
	future.	catchment, located near; Challaborough Holiday Park		as follows; Substandard (medium) - 4 Overflows in this catchment impact upon the following bathing beaches; Bigbury-on-Sea (North) Beach Challaborough Beach	any compliance issues due to lack of capacity between now and 2050
GALMPTON HOPE COVE_STW_SALCOMBE	This catchment requires additional investment to make it resilient for the future.	There is 1 external flooding hotspot attributed to other causes in the catchment, located near; Outer Hope Cover SPST	11% of the total number of properties within the catchment that are predicted to be at risk of sewer flooding. There are 2 predicted future flooding hotspots in the catchment, located near; Inner Hope Cove SPS Outer Hope Cove SPST	There are a total of 3 overflows in the catchment. They have been classified as follows; Satisfactory Substandard (medium) - 2 Substandard (high) - 1 Overflows in this catchment impact upon the following bathing beaches; Hope Cove Beach	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between now and 2050

Resilience Assessment

Resilience is a statutory duty for Ofwat under the 2014 Water Industry Act, but more importantly for us it is the philosophy that allows us to consider how we best manage our services to customers in a changing and sometime challenging environment. Such challenges encompass a wide range of factors such as extreme weather conditions; drought and flooding; land use and catchment pressures; power supply and communications reliability; skills and organisational capacity; supply chain capability; as well as changing environmental and public health challenges to meet the needs of consumers now as well as in the longer term. The details below form part of the Operational Resilience assessment within the DWMP. Namely:

- Coastal Flood Inundation
- Coastal Erosion
- Fluvial Flooding (Response and Recovery Plans)
- Power Outage
- Operational Telemetry (OT)

Coastal flooding and Erosion

UK coastal flood and erosion risk is expected to increase over the 21st century due to the impact in sea level rise and climate change. Which means that we can expect to see both an increase in the frequency and magnitude of extreme water levels and weather events around the UK coastline. This is particularly significant for the SW region due to the extensive coastline and numerous coastal communities who rely on the safe and constant provision of clean and wastewater services. The South West's tourism economy is also dependent, to a large extent, on the extensive coastline, acknowledged by EA through improvements to coastal waters over decades of investment under the Bathing Water drivers. As a consequence, an assessment of the risks associated with present day and future projected coastal flood and erosion risk was undertaken utilising the latest available science.

Coastal Flooding

Coastal flood risk was modelled for three climate scenarios, the first representing present-day risk in 2022 and second, the future climate change scenarios (RCP2.5 and RCP8.6) representing the projected risk in 2035 and 2050. To fully assess future risk for each of the above climate change scenarios four return events were evaluated, these were:

- Highest Astronomical Tide (HAT) event - represents the maximum observed tide under average atmospheric conditions
- 1 in 5-year storm return period event - a high probability event with a 20% chance of happening in any one year
- 1 in 50-year storm return period event – a moderate probability event with a 2% chance of occurring in any one year
- 1 in 200-year storm return period event – a low probability event with a 0.5% chance of occurring in any one year The EA Coastal Flood Boundary data for the assessment of extreme sea level rise was also used

A total of 653[1] Sewage Treatment Works (STW), 1235 Sewage Pumping Stations (SPS) plus the associated wastewater infrastructure were assessed for coastal flood risk. Sites have been assessed based upon a number of different storm and flood scenarios considering the risks to the site, the defence of the site and wider EA flood defence work. The 1 in 200-year flood extent for the three time periods is indicated in Figure 15 below.

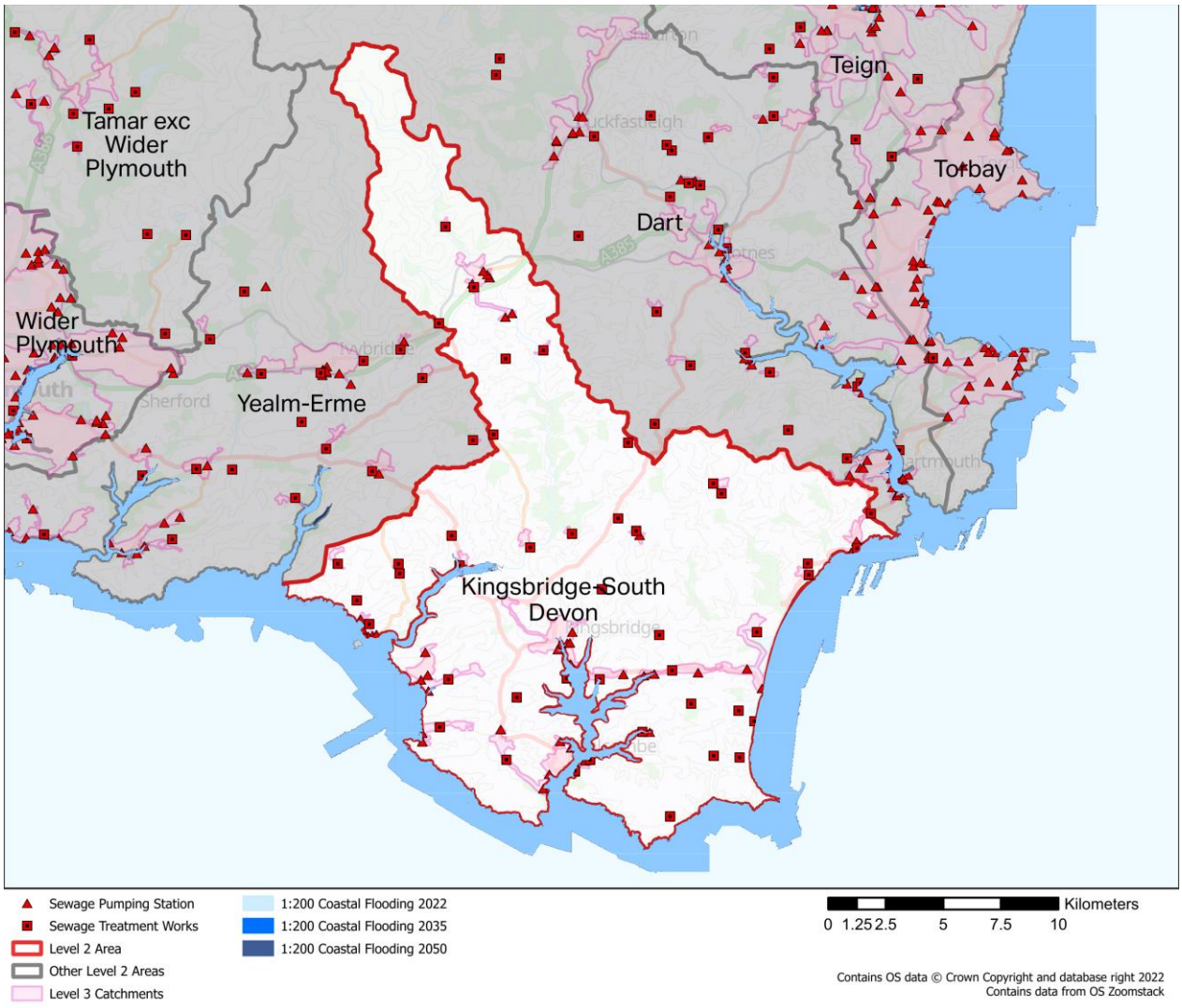

Figure 15: Extent of coastal flooding

Possible interventions to manage the risks have been identified as the provision of flood defences for the site, either as a SWW deliverable or as part of a wider programme of coastal defences working with EA and other RMAs. Thereby delivering greater benefit for coastal communities. An alternative intervention is to relocate the asset to a more secure location ensuring ability to continue to service local communities. This option is more likely to be part of a wider decision to relocate communities at risk and would be taken in close collaboration with the EA and responsible RMAs. The sewer infrastructure identified at risk

[1] Catchments are being continually reviewed as part of other workstreams and may be subject to change, Power Outage and OT defined in 'Our Regional Plan'

is associated with the hydrodynamic modelling outputs. This provides additional assurance for the network assessed as being at risk.

Coastal Erosion

A hazard assessment of coastal erosion susceptibility was undertaken with the aim of better understanding the risk posed to SWW assets and provide information whereby asset investment can be effectively prioritised allowing for a more targeted approach for future allocation of operational and capital expenditure. A detailed assessment of coastal erosion risk was assessed for all of our operational wastewater sites (653 STW's and co-located Sludge Treatment Centre [STC], 1235 SPS's plus associated infrastructure). All sites were only at risk from erosion and not from coastal flooding.
The assessment combines two approaches:

- A high-level screening to identify sites at coastal erosion risk by 2118
- A detailed site-by-site erosion analysis for the three epochs: 2022, 2035, and 2050

The high-level coastal erosion risk assessment is based on the NCERM (National Coastal Erosion Risk Mapping) dataset. The erosion risk was calculated based on the distance of the asset from the projected cliff edge with a geological scaling factor applied based on the erodibility of the underlying geology. Each site identified at risk had detailed erosion analysis undertaken. This included site-specific conditions that influence the rate of coastal erosion, such as geology, for the three time frames 2022, 2035, and 2050. This produced a ranked output highlighting assets at greatest risk of coastal erosion. The extent of coastal erosion in 2035 and 2050 is indicated in Figure 16 below.

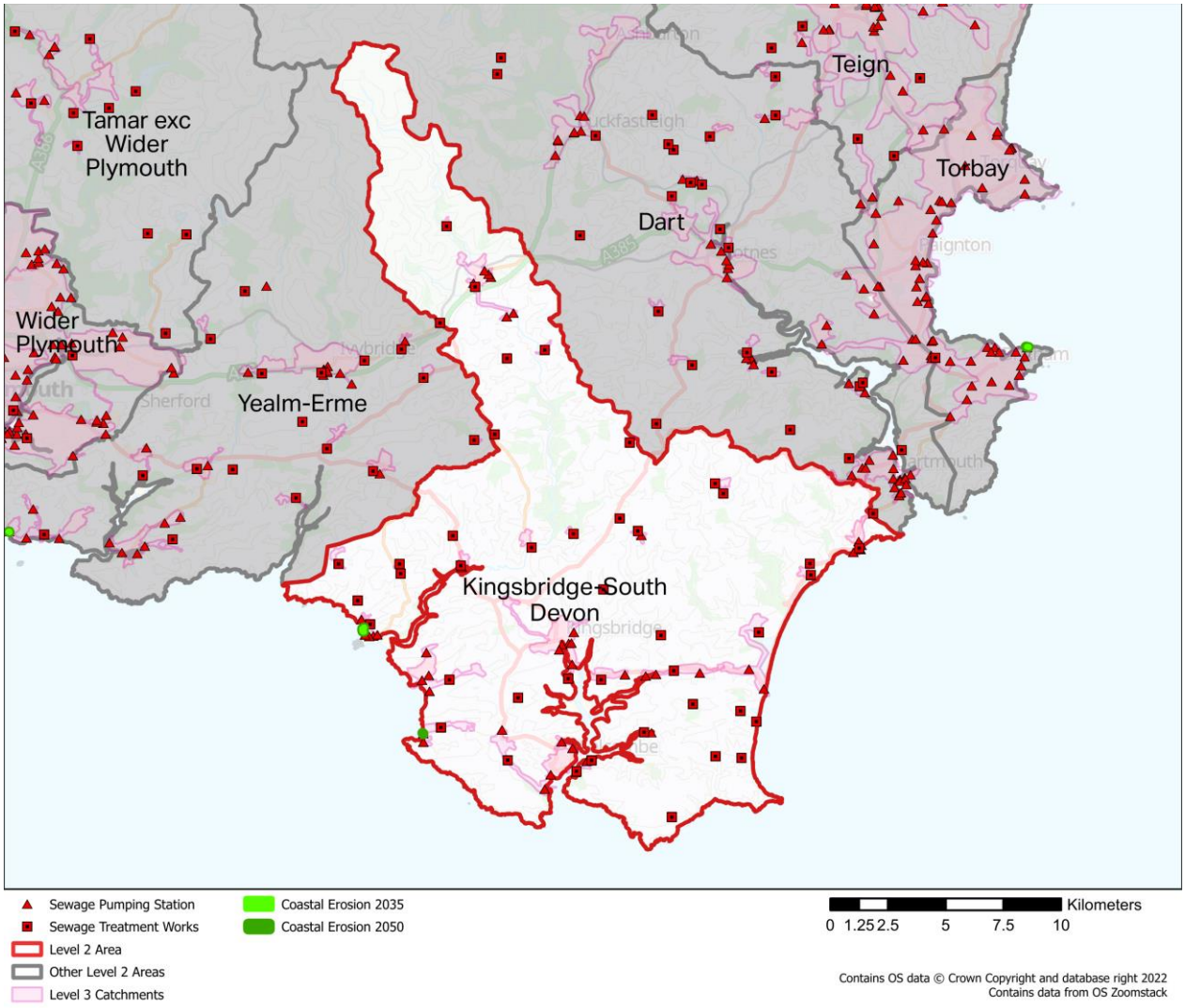

Figure 16: Extent of coastal erosion in 2035 and 2050

The EA have been allocated £2.5m capital funding to work with partners to deliver an update to the NCERM, across England by the end of 2023. The update to NCERM complements the dependent project to refresh the 20 Shoreline Management Plans (SMPs) across England, and other similar EA/DEFRA projects seeking to update flood and coastal erosion risk mapping, modelling and assessment. Combined, all of this activity will provide an essential body of data and evidence to underpin future adaptation and planning investment decisions of relevant coastal RMAs. This being the case the current strategy is to continue to evaluate the risks through AMP8 following the publication of the revised NCERM, working alongside other external agencies and key stakeholders including the relevant coastal risk management authorities to determine the level of risk, relevant SMP policy and therefore any subsequent required investment to mitigate coastal erosion impact.

Fluvial and Pluvial Flooding

UK fluvial flood risk is expected to increase over the 21st century which means that we can expect to see both an increase in the frequency and magnitude of extreme water levels around the UK. As a consequence, an assessment of the risks associated with future fluvial

flooding due to projected climate change has been evaluated using the latest available science, UKCP18. The UKCP (United Kingdom Climate Projections) is a suite of climate models developed by the UK Met Office (Meteorological Office) and the Centre for Ecology & Hydrology to provide projections of future climate change in the United Kingdom. The UKCP models use data from global climate models to provide regional and local-scale projections of temperature, precipitation, and other climate variables over the coming decades. The UKCP models have been used to inform policy and decision-making in the UK on issues related to climate change adaptation and mitigation. The UKCP model projections are based on scenarios of future greenhouse gas emissions and consider the most up-to-date scientific understanding of the physical processes that drive the climate system. A total of 653 STW's, 1235 SPS's plus the associated wastewater infrastructure were assessed.

There was a phase 1 screening to identify sites at risk and a high-level screening exercise was undertaken against existing known flood zone extents. This utilised EA flood zone data sets and Defra surface water flooding data sets. A further step was taken in refining the fluvial flood zone data to exclude coastal flooding from the dataset as this risk was appraised separately as part of a Coastal Flood Risk Assessment.

Following a review of outputs from Phase 1 the assessment of sites identified at risk are taken forward to a Phase 2 assessment. The detailed assessment includes both present day risk and two climate change scenarios (RCP2.6 and 8.5) to understand the changes in flood risk over time. The assessment considers both the area flooded and a range of modelled flood depth statistics. These enhanced flood metrics can then be combined with asset information and external factors to develop a more detailed assessment of the risk to each shortlisted asset. For these sites detailed Flood Assessment Reports (FARs) are produced. These reports are designed to be used as a preliminary form of flood risk assessment identifying the potential flood risk for a specified location.

Option Development and Appraisal

Future WINEP Investment

Earlier this year, we presented our WINEP investment programme for 2025 onwards to the EA. Our programme includes substantial investment to improve and protect the environment from our drainage and wastewater activities. The plan focuses on the period between 2025-2030 but also considers our, and the government's, longer term strategy for environmental improvements over the next 25 years. The wastewater investments included in the WINEP for 2025 to 2030 include:

- Investigating and reducing storm overflow discharges
- Investigating and improving bathing water and shellfish water quality, usually through a reduction in storm overflow discharges
- Investigating and protecting high priority sites such as SSSIs and SACs that are impacted by our drainage and wastewater treatment activities
- Investigating and reducing the impact of nutrients and chemicals from our WwTW discharges, especially Phosphorus, usually by increasing treatment capacity to meet more stringent permit levels

- Investments at WwTWs to meet more stringent requirements under the Urban Waste Water Treatment (England and Wales) Regulations 1994, driven by population growth and to provide increased treatment capacity at septic tanks
- Increased monitoring at WwTWs, SPSs, emergency overflows, and in rivers close to our storm overflow discharge points
- Investment in bio-resources
- Investigations into future potential improvements in the treatment of nitrogen and microplastics

In all cases, we have reviewed a number of different options for each investment and have taken into account the wider environmental and societal benefits, including impacts on embodied and operational carbon. We also spoke to our customers about the types of investments, as well as solutions, that they would prefer to see in our plan. All of this, combined with a long-term 30-year view of Total Expenditure (Totex) expenditure allowed us to present a preferred option to the EA for assessment. The investments in the WINEP programme have been produced in alignment with our DWMP. The final WINEP programme is expected to be agreed in July 2023 and hence is not presented here in detail.

ODA Prioritisation

The RBCS and BRAVA steps identified the Level 3 TPUs that were likely to need interventions to mitigate future risk. The PC step then assessed the severity and timing of these risks from 2020 to 2050. To further prioritise ODA effort and future interventions, ODA performance thresholds were applied to all TPUs as follows:

- Collapse Risk – < 10 collapses
- Pollution & Flooding Risk – incidents < 0.1% catchment total, external issues, hydraulic issues, hotspots present
- Future Flood Risk (FFR) – < 5% properties at risk of internal flooding in a 1 in 50 event
- Storm Overflow (SO) Risk – < 10 spills from any SO
- WWTW Compliance – Best judgement

Where no thresholds were met, risk was considered low and TPUs did not proceed to ODA. Performance will continue to be monitored through the DWMP process.

The TPUs that proceeded to ODA were then classed as Standard, Extended or Complex based on the total risk score and quality of hydraulic models, to determine our ODA approach taken in ODA. Standard TPUs are small (average population 756) with simpler problems and more straightforward interventions. Extended TPUs are larger (average population 9,553), have more risks and more complicated solutions. Complex TPUs are the largest (average population 23,132) with more complex systems and solutions, but better hydraulic models.

***Table 23**: Level 3 TPUs - Progression through DWMP stages and ODA class*

TPU	RBCS	BRAVA	ODA	TPU Class
ASHFORD FARM_STW_AVETON GIFFORD	YES	YES	NO	N/A
AVETON GIFFORD_STW_AVETON GIFFORD	YES	YES	YES	Standard
BIGBURY & CHALLABOROUGH_STW_BIGBURY BAY	YES	YES	NO	N/A
BLACKAWTON_STW_BLACKAWTON	YES	YES	YES	Standard
CALIFORNIA CROSS_STW_BROWNSTON	YES	YES	NO	N/A
CHILLINGTON_STW_CHILLINGTON	YES	YES	YES	Standard
DIDWORTHY_STW_DIDWORTHY	YES	YES	YES	Standard
DIPTFORD_STW_DIPTFORD	YES	YES	NO	N/A
DITCH END_STW_EAST PORTLEMOUTH	YES	YES	NO	N/A
EAST ALLINGTON_STW_EAST ALLINGTON	YES	YES	NO	N/A
GALMPTON HOPE COVE_STW_HOPE COVE	YES	YES	YES	Extended
KINGSBRIDGE_STW_KINGSBRIDGE	YES	YES	YES	Complex
KINGSTON_STW_KINGSTON	YES	YES	YES	Extended
LODDISWELL_STW_LODDISWELL	YES	YES	NO	N/A
MALBOROUGH_STW_SALCOMBE	YES	YES	YES	Complex
MORELEIGH_STW_MORELEIGH	YES	YES	NO	N/A
NORTH HUISH_STW_NORTH HUISH	YES	YES	YES	Standard
SLAPTON_STW_SLAPTON	YES	YES	NO	N/A
SOUTH BRENT_STW_SOUTH BRENT	YES	YES	NO	N/A
SOUTH MILTON_STW_SOUTH MILTON	YES	YES	YES	Standard
ST ANNS CHAPEL S T_STW_ST ANNES CHAPEL	YES	YES	NO	N/A
ST ANNS CHAPEL_STW_ST ANNES CHAPEL	YES	YES	YES	Standard
STOKE FLEMING_STW_DARTMOUTH	YES	YES	YES	Standard
STRETE S T_STW_STRETE	YES	YES	NO	N/A
STRETE_STW_DARTMOUTH	YES	YES	YES	Standard
WEST CHARLETON_STW_CHARLETON	YES	YES	NO	N/A

TPU	RBCS	BRAVA	ODA	TPU Class
WOODLEIGH_STW_WOODLEIGH	YES	YES	NO	N/A
WRANGATON S T_SEPTNK_IVYBRIDGE	YES	YES	NO	N/A
BEESANDS_STW_BEESANDS	YES	NO	NO	N/A
BEESON_STW_BEESON	YES	NO	NO	N/A
BICKERTON_STW_HALLSANDS	YES	NO	NO	N/A
BLACKAWTON S T_SEPTNK_BLACKAWTON	YES	NO	NO	N/A
EAST PRAWLE_STW_SALCOMBE	YES	NO	NO	N/A
GOVETON S T_SEPTNK_KINGSBRIDGE	YES	NO	NO	N/A
KELLATON_STW_KELLATON	YES	NO	NO	N/A
KERNBOROUGH_STW_KERNBOROUGH	YES	NO	NO	N/A
RINGMORE_STW_RINGMORE	YES	NO	NO	N/A
SHERFORD_STW_SHERFORD	YES	NO	NO	N/A
SILVER CLOUD S T_SEPTNK_STOKE FLEMING	YES	NO	NO	N/A
SOUTHPOOL_STW_SOUTH POOL	YES	NO	NO	N/A
THE MOUNT_STW_EAST ALLINGTON	YES	NO	NO	N/A
THE WEALD_STW_EAST PORTLEMOUTH	YES	NO	NO	N/A
WOOLSTON_STW_MALBOROUGH	YES	NO	NO	N/A

Of the 43 TPUs in the Kingsbridge-South Devon catchment, 28 proceeded through RBCS to BRAVA (the 15 remaining catchments had 1 or no indicators breached, and if 1 indicator was breached it was not tier 1) and 13 proceeded to ODA. Of these, 9 were classed as Standard, 2 Extended and 2 Complex.

Intervention Selection and Assessment

Catchment area teams reviewed each TPU and assigned up to 3 interventions to address the specific catchment risks from the standard list in the DWMP guidance (Table 24 below).

***Table 24**: Generic Interventions*

Management Area/Option Type	Description	Generic option examples- Standard TPU's	Sub-option examples- Extended & Complex TPU's	Option ID
Customer side management options	Generic options to manage the use of water in and arising from customer properties	Water efficient appliances	Promote and make available water efficient appliances to reduce production of domestic wastewater	CE1
		Rainwater harvesting	Promote and make available rainwater harvesting systems	CE2
		Customer incentives	Promotion of incentives to reduce impermeable areas	CE3
		Domestic and business customer education (Targeted Customer Behaviours)	Love Your Loo, etc. Likely focus at L1; however, where location specific issues are identified activities could be targeted around what should and shouldn't be put down sewers	CE4
Surface water management - Pollution & Flooding, Overflows	Generic options within catchments to manage surface water flows entering the conveyance system	Surface water source control measures	Company installation of source control sustainable drainage systems (SuDS)	SWM1
		Surface water source control measures	SuDS partnerships with key stakeholders	SWM2
		Surface water source control measures	Upper Catchment Solution/Upstream Thinking	SWM3
		Surface water pathway measures	Separate surface water from combined systems by constructing new surface water networks (and/or	SWM4

Management Area/Option Type	Description	Generic option examples- Standard TPU's	Sub-option examples- Extended & Complex TPU's	Option ID
			modify existing)	
		Surface water pathway measures	Integrate surface water pathway measures into new and upgraded third party designs	SWM5
		Surface water infiltration measures	Develop a program to reduce Surface Water Infiltration	SWM6
Combined and foul sewer systems - Overflows, Pollution & Flooding Collapses	Generic options to manage flows within the conveyance system to minimise impacts on customers and the environment	Intelligent network operation	Implement widespread sewer/pumping station level monitoring, live network modelling linked to operational responses such as proactive jetting	CFS1
		Increase the capacity of existing foul/combined networks	Construct new stormwater storage systems	CFS2
		Increase the capacity of existing foul/combined networks	Replace or upgrade existing networks	CFS3
		Wastewater transfers	Inter-catchment network transfers	CFS4
		Wastewater transfers	inter-catchment WwTW transfers	CFS5
Wastewater treatment	Generic options to manage flows and loads at wastewater treatment works to minimise impacts on customers and the environment	Treat or pre-treat wastewater in the network	Treat or pre-treat flows at existing pumping stations or within sewer network	WWT1
		Increase treatment capacity	Upgrade existing works using more intensive processes	WWT2

Management Area/Option Type	Description	Generic option examples- Standard TPU's	Sub-option examples- Extended & Complex TPU's	Option ID
		Increase treatment capacity	Add additional process streams (increase plant capacity)	WWT3
		Treatment works rationalisation/ decentralisation	Replace existing treatment works with one large scale installation	WWT4
		Treatment works rationalisation/ decentralisation	Replace existing treatment works with several smaller scale installations	WWT5
		Modify consents and permits	Catchment consenting	WWT7
		Modify consents and permits	Adaptive consenting (e.g. "wet weather" relaxation)	WWT8
		Catchment management initiatives	Initiatives to address fertiliser use and application	WWT9

These initial selections were then subject the following checks and reviews:

- Internal review by Catchment Managers (all) and WwTW experts (WwTW)
- External review by key stakeholders (all)
- Internal hydraulic modelling of selected catchments and extrapolation of modelling results to non-modelled catchments (FFR and SO risk)
- Internal review of the above by DWMP team

Intervention Quantification and Costing

Preferred interventions were quantified using modelling and extrapolation. Up to 5 final interventions were selected, reflecting the need for a combination of solutions. Costs were provided by South West Water's cost consultants, using approved cost models based on South West Water data where possible, and from past South West Water scheme data or industry recognised estimates if not.

The approach was different for different risks:

Collapses – Quantification and costing not included in DWMP. Risks and interventions noted but plan already covered by wider programme of sewer rehabilitation and repairs.

Pollution & Flooding – Quantification and costing included in DWMP only where an enhancement over and above existing programmes of work were recommended.

Future Flood Risk (FFR) – 26 Complex catchments were hydraulically modelled to assess options to address risk. The results were used to extrapolate to non-modelled catchments. It was assumed at the outset that Nature Based solutions such as Sustainable drainage systems (SuDS) were a possibility wherever surface water separation (SWS) was suggested. Suitability of SuDS for surface water separation assessed at high level using Stantec's GIS based Surface Water Assessment Tool (SWAT) analysis.

Storm Overflows (SO) - 12 catchments (8 complex 4 extended) were selected for hydraulic modelling to give coverage of 233 SOs (c.20% of South West Water total) and a representative sample of receiving waters. Results were used to extrapolate to non-modelled DWMP TPUs. To meet the later DEFRA SO guidance, a separate top-down desktop model based on Event Duration Monitor (EDM) spill data was developed to assess total need for all TPUs.

WWTW Performance – Analyses of Biological Oxygen Demand (BOD) Capacity and DWF permit compared with future population and flow projections were used to assess sites at future risk of meeting permit requirements. The scale of upgrades needed was estimated using a calculation of the increase in population equivalent PE or additional capacity in cubic metres required at the works.

Results - Interventions

Table 25 below outlines the final interventions selected for the TPUs in the Kingsbridge-South Devon catchment, along with potential solutions involving partnership working or nature-based solutions. The intervention codes applied are defined in Table 24 above.

***Table 25**: TPU interventions selection and feedback*

TPU	Class	Nature based solutions assessment Comments	Partnership working potential Comments	Final #1	Final #2	Final #3	Final #4	Final #5	Final DWMP ODA assessment summary
AVETON GIFFORD_STW _AVETON GIFFORD	Standard	SWW: Potential SUDS for SW separation identified	SWW: Potential SUDS identified	CFS2	SWM4	SWM2			Surface water management intervention SWM6 removed, Surface water management SWM4 & SWM2 and Combined and foul sewer systems CFS2 carried over.
BLACKAWTON _STW_BLACKA WTON	Standard	SWW: Potential SUDS for SW separation	SWW: Potential SUDS	CFS2	SWM4	SWM6	WWT3		Wastewater treatment intervention WWT3 carried over but WWT2 removed. SWM4 and SWM6 carried

TPU	Class	Nature based solutions assessment Comments	Partnership working potential Comments	Final #1	Final #2	Final #3	Final #4	Final #5	Final DWMP ODA assessment summary
									over with CFS2.
CHILLINGTON_STW_CHILLINGTON	Standard	SWW: Potential SUDS for SW separation	SWW: Potential SUDS	CFS2	SWM4	WWT3			Wastewater treatment intervention WWT3 added. Surface water management SWM4 carried over and SWM6 removed. CE4 and CFS1 also removed, CFS2 remains.
DIDWORTHY_STW_DIDWORTHY	Standard	SWW: Potential SUDS for SW separation	SWW: Potential SUDS						continue to monitor risk, no intervention needed
GALMPTON HOPE COVE_STW_SALCOMBE	Extended	SWW: Potential SUDS for SW separation	Short term and long term EA: SHDC Hope Cove coastal project on FDGiA, possible to						Work completed in AMP7 WaterFit programme removing future need.

TPU	Class	Nature based solutions assessment Comments	Partnership working potential Comments	Final #1	Final #2	Final #3	Final #4	Final #5	Final DWMP ODA assessment summary
			partner to address resilience on network and Inner Hope cove SPS rear of beach. Ensure DWMP work accounts for coastal change. SWW: Potential SUDS, EA/S Hams Council collaboration on l/term flooding - CAM						
KINGSBRIDGE_STW_KINGSBRIDGE	Complex	SWW: Potential SUDS for SW separation	Short term and long term (check timeline), EA: Pipeline scheme is on FDGIA prog for Kingsbridge	CFS2	SWM4	SWM6			Surface water management SWM4 and surface Water management SWM6 carried over. Combined and foul sewer

TPU	Class	Nature based solutions assessment Comments	Partnership working potential Comments	Final #1	Final #2	Final #3	Final #4	Final #5	Final DWMP ODA assessment summary
			from 23/24-25/26, it will need to build on the findings of IUDM by DCC, EA and SWW. EA capital investment could be made available to SWW/DCC/ partnership to progress. EA approach to this community is likely via regulation of the planning system. SWW: Potential SUDS						systems CFS2 added in. Customer Side Management Options CE1 and CE4 removed.
KINGSTON_STW_KINGSTON	Extended	SWW: Potential SUDS for SW	SWW: Potential SUDS	CFS2	SWM4	SWM6			Surface water management SWM4 and

TPU	Class	Nature based solutions assessment Comments	Partnership working potential Comments	Final #1	Final #2	Final #3	Final #4	Final #5	Final DWMP ODA assessment summary
		separation							surface Water management SWM6 carried over. Customer Side Management Option CE4 and Combined and foul sewer systems CFS1 removed. Combined and Foul sewer systems CFS2 added in.
MALBOROUGH _STW_SALCO MBE	Complex	SWW: Potential SUDS for SW separation identified	Short and Long term, EA: Salcombe scheme in FCRM 1 SWW: Potential SUDS identified	CFS2	SWM4	WWT3			Surface Water management SWM4, Combined and foul sewer systems CFS2, Wastewater treatment WWT3 carried over. Combined and foul sewer systems CFS3, Surface Water

TPU	Class	Nature based solutions assessment Comments	Partnership working potential Comments	Final #1	Final #2	Final #3	Final #4	Final #5	Final DWMP ODA assessment summary
									management SWM1 and SWM6 removed.
NORTH HUISH_STW_NORTH HUISH	Standard	SWW: Assume no potential unless advised by WWTW team	SWW: Assume no potential						continue to monitor risk, no intervention needed
SOUTH MILTON_STW_SOUTH MILTON	Standard	SWW: Potential SUDS for SW separation	SWW: Potential SUDS	CFS2	SWM4	WWT3			Wastewater treatment intervention WWT2 and Surface water management SWM6 removed. Combined and foul sewer systems CFS2, Wastewater treatment intervention WWT3 and Surface water management SWM4 carried

TPU	Class	Nature based solutions assessment Comments	Partnership working potential Comments	Final #1	Final #2	Final #3	Final #4	Final #5	Final DWMP ODA assessment summary
									over.
ST ANNS CHAPEL_STW_ ST ANNES CHAPEL	Standard	SWW: Potential SUDS for SW separation	SWW: Potential SUDS	WWT3					Surface water management SWM4 and SWM6 and Combined and foul sewer systems CFS5 removed. Wastewater treatment intervention WWT3 was retained
STOKE FLEMING_STW _DARTMOUTH	Standard	SWW: Potential SUDS for SW separation	SWW: Potential SUDS	CFS2	SWM4				Surface water management SWM6, Wastewater treatment intervention WWT2 and WWT3 removed. Combined and foul sewer systems CFS2 and Surface water

TPU	Class	Nature based solutions assessment Comments	Partnership working potential Comments	Final #1	Final #2	Final #3	Final #4	Final #5	Final DWMP ODA assessment summary
									management SWM4 carried over
STRETE_STW_ DARTMOUTH	Standard	SWW: Potential SUDS for SW separation	SWW: Potential SUDS	CFS2	SWM4				Surface water management SWM6 and Wastewater treatment intervention WWT2 and WWT3 removed. Combined and foul sewer systems CFS2 and Surface water management SWM4 carried over

For the Kingsbridge-South Devon catchment, 13 TPUs progressed to ODA. Stakeholder feedback was received on 4 TPUs. The feedback was mainly on the need to:

- Consult the EA and partners on potential Surface Water Separation (SWS) plans
- Consider links to surface water, fluvial and sea flooding, planned schemes
- Consider coastal erosion risk

Potential Nature Based Solutions were identified for 12 catchments (largely SuDS for Surface Water Separation) and partnership opportunities were identified for 12 catchments (largely on SWS/SuDS).

Table 26 below summarises the final interventions selected now that the ODA stage is complete.

***Table 26**: Initial and Final Interventions selected by intervention type*

INTERVENTION	Total selected Final
CE1: Promote and make available water efficient appliances to reduce production of domestic wastewater	0
CE2: Promote and make available rainwater harvesting systems	0
CE3: Promotion of incentives to reduce impermeable areas	0
CE4: Love Your Loo, etc	0
SWM1: Company installation of source control sustainable drainage systems (SuDS)	0
SWM2: SuDS partnerships with key stakeholders	1
SWM3: Upper Catchment Solution/Up Stream Thinking	0
SWM4: Separate surface water from combined systems by constructing new surface water networks (and/or modify existing)	9
SWM5: Integrate surface water pathway measures into new and upgraded third party designs	0
SWM6: Develop a program to reduce infiltration	3
CFS1: Implement widespread sewer/pumping station level monitoring, live; network modelling linked to operational responses such as proactive jetting	0
CFS2: Construct new combined or foul storage systems	9
CFS3: Replace or upgrade existing networks	0
CFS4: Inter-catchment network transfers	0
CFS5: inter-catchment WwTW's transfers	0

INTERVENTION	Total selected Final
WWT1: Treat or pre-treat flows at existing pumping stations or within sewer network	0
WWT2: Upgrade existing works using more intensive processes	0
WWT3: Add additional process streams (increase plant capacity)	5
WWT4: Replace existing treatment works with one large scale installation	0
WWT5: Replace existing treatment works with several smaller scale installations	0
WWT7: Catchment consenting	0
WWT8: Adapative consenting (e.g. "wet weather" relaxation)	0
WWT9: Initiatives to address fertiliser use and application	0
Total	27

There were no interventions selected in the Kingsbridge-South Devon catchment for customer education, although education to promote water efficiency, rainwater harvesting, reducing impermeable areas and preventing sewer misuse will be delivered across the region as part of a company-wide initiative. There were no interventions selected for CFS1 monitoring to direct proactive jetting effort to manage flooding and pollution incidents due to blockages.

Construction of storage systems (CFS2) was recommended based on the results of modelling for storm overflow risk and the preferred solution being a combination of surface water separation and storage.

Where a strategic network or treatment intervention was selected (CFS4,5 WWT4,5) the selection was noted but not progressed under DWMP. These strategic decisions will lead to bespoke plans which will be revisited for PR24 and captured separately in the programme.

The ODA process led to a lot more Surface Water Management (SWM) interventions being selected. Infiltration (SWM6) was selected in all catchments, with the view that this would be the first task to help understand flows and identify opportunities for Surface Water Separation (SWM4), SuDS (SWM1,2) and other nature-based solutions such as Upstream Thinking and Natural Flood Management (SWM3). Our assumption is that unless specifically ruled out, Nature Based solutions such as SuDS will be possible, so they will be explored wherever surface water separation was selected.

Results – Quantities

Table 27 below outlines the quantities of interventions proposed by the DWMP for the Kingsbridge-South Devon catchment.

***Table 27**: Quantities for proposed interventions*

TPU	Storage (m3)	SWS (ha)	Network Enhancement (km)	No. WWTW for Capacity increase	No. WWTW for DWF increase	No. WWTW for Nutrient reduction
ASHFORD FARM_STW_AVETON GIFFORD	0	0.00	0.00	0	0	0
AVETON GIFFORD_STW_AVETON GIFFORD	56	0.54	0.00	0	0	0
BEESANDS_STW_BEESANDS	0	0.00	0.00	0	0	0
BEESON_STW_BEESON	0	0.00	0.00	0	0	0
BICKERTON_STW_HALLSANDS	0	0.00	0.00	0	0	0
BIGBURY & CHALLABOROUGH_STW_BIGBURY BAY	8	0.20	0.00	0	0	0
BLACKAWTON S T_SEPTNK_BLACKAWTON	0	0.00	0.00	0	0	0
BLACKAWTON_STW_BLACKAWTON	1,448	4.16	2.09	0	0	1
CALIFORNIA CROSS_STW_BROWNSTON	0	0.00	0.00	0	0	0
CHILLINGTON_STW_CHILLINGTON	49	0.80	0.00	0	0	2
DIDWORTHY_STW_DIDWORTHY	0	0.00	0.00	0	0	0
DIPTFORD_STW_DIPTFORD	536	3.18	0.94	0	0	0
DITCH END_STW_EAST PORTLEMOUTH	0	0.00	0.00	0	0	0
EAST ALLINGTON_STW_EAST ALLINGTON	57	0.98	1.69	0	0	0
EAST PRAWLE_STW_SALCOMBE	0	0.00	1.00	0	0	0
GALMPTON HOPE COVE_STW_SALCOMBE	0	0.00	0.00	0	0	0
GOVETON S T_SEPTNK_KINGSBRIDGE	0	0.00	0.00	0	0	0

TPU	Storage (m3)	SWS (ha)	Network Enhancement (km)	No. WWTW for Capacity increase	No. WWTW for DWF increase	No. WWTW for Nutrient reduction
KELLATON_STW_KELLATON	0	0.00	0.00	0	0	0
KERNBOROUGH_STW_KERNBOROUGH	0	0.00	0.00	0	0	0
KINGSBRIDGE_STW_KINGSBRIDGE	2,326	7.88	26.24	0	0	0
KINGSTON_STW_KINGSTON	4,518	5.65	1.78	0	0	0
LODDISWELL_STW_LODDISWELL	0	0.00	0.00	0	1	1
MALBOROUGH_STW_SALCOMBE	557	8.72	0.00	1	0	0
MORELEIGH_STW_MORELEIGH	132	1.80	0.61	0	0	1
NORTH HUISH_STW_NORTH HUISH	0	0.00	0.00	0	0	0
RINGMORE_STW_RINGMORE	0	0.00	0.00	0	0	0
SHERFORD_STW_SHERFORD	76	0.00	0.31	0	0	0
SILVER CLOUD S T_SEPTNK_STOKE FLEMING	0	0.00	0.00	0	0	0
SLAPTON_STW_SLAPTON	943	3.70	18.25	0	0	0
SOUTH BRENT_STW_SOUTH BRENT	51	0.86	15.00	0	0	1
SOUTH MILTON_STW_SOUTH MILTON	139	1.90	0.00	1	1	0
SOUTHPOOL_STW_SOUTH POOL	0	0.00	0.00	0	0	0
ST ANNS CHAPEL S T_STW_ST ANNES CHAPEL	0	0.00	0.00	0	0	0
ST ANNS CHAPEL_STW_ST ANNES CHAPEL	0	0.00	0.00	0	1	0
STOKE FLEMING_STW_DARTMOUTH	75	1.00	0.00	0	0	0
STRETE S T_STW_STRETE	0	0.00	0.00	0	0	0
STRETE_STW_DARTMOUTH	75	1.00	0.00	0	0	0

TPU	Storage (m3)	SWS (ha)	Network Enhancement (km)	No. WWTW for Capacity increase	No. WWTW for DWF increase	No. WWTW for Nutrient reduction
THE MOUNT_STW_EAST ALLINGTON	0	0.00	0.00	0	0	0
THE WEALD_STW_EAST PORTLEMOUTH	0	0.00	0.00	0	0	0
WEST CHARLETON_STW_CHARLETON	152	0.00	0.62	0	0	0
WOODLEIGH_STW_WOODLEIGH	0	0.00	0.00	0	0	0
WOOLSTON_STW_MALBOROUGH	0	0.00	0.00	0	0	0
WRANGATON S T_SEPTNK_IVYBRIDGE	0	0.00	0.00	0	0	0

Our proposals for the Kingsbridge-South Devon catchment include approximately 42ha of SWS by conventional or SUDS solutions, 11,195m^3 of storage, 68km of network enhancement, work to improve DWF compliance at 3 treatment sites, upgrading of capacity at 2 treatment sites and work to reduce nutrients at 6 treatment sites. [2]

Surface Water Separation and SuDS Assessment

To explore opportunities for SWS and SuDS, Stantec's GIS based Surface Water Assessment Tool (SWAT) was applied to the 26 Complex TPUs that were hydraulically modelled for future flood risk (FFR). The tool plots impermeable area, green space, existing networks, buildings, roads and watercourses. It plots existing foul combined and surface water networks and identifies where surface water sewers join combined sewers as potential points for disconnection. It identifies potential land and road space as well as residential and commercial properties for different interventions. Appendix F outlines the approach.

The high-level results indicate that on average it is estimated that SuDS might be suitable for delivering approximately 55% of the SWS required to mitigate the future flood risk in modelled catchments. This ranged from 0% where there was limited space, impermeable land, and no water courses present to discharge to, to 100% in some TPUs. We intend to develop the tool and process in more detail in the future as we progress the first DWMP interventions through feasibility.

[2] Please note that these are high level strategic planning proposals and do not represent a commitment. The plans and overall programme need to be assessed against other risks and against the wider South West Water programme for risk and affordability.

Upstream Thinking and Natural Flood Management

Appendix G shows the coverage of current UST projects in the SWW region where upper catchment solutions are being successfully explored and the intention is to expand this approach. South West Water's infiltration and site surveys may identify opportunities for Natural Flood Management and Upstream Thinking interventions in the Kingsbridge-South Devon catchment. South West Water intend to collaborate with the EA and take a similar GIS based approach to assessing Natural Flood Management options where tackling shared surface water flooding issues.

Next Steps

A cornerstone of the DWMP framework and process is collaboration between water companies and key stakeholders. To be successful in developing an effective plan that provides innovative solutions and better value for customers, while protecting our environment and ensuring we meet the future pressure on our drainage systems, we need to work together, and we rely on the active participation of our stakeholders to engage with us in the concept, planning and delivery of this plan.

APPENDICES

APPENDIX A: SEWER OVERFLOW DETAILS

South West Water has a programme to monitor the use and performance of storm overflows and the number of monitors is planned to increase. The table below provides a summary of any available performance data for storm overflows in the catchment.

***Table 28**: Storm Overflow Performance Metrics*

CD_Number	Waterbody	2019 Reportable	2019 Nr. Spills	2020 Reportable	2020 Nr. Spills	2021 Reportable	2021 Nr. Spills
CD404420	Avon (Devon Tidal) and South Hams - Frogmore	Y	34	Y	161	Y	226
CD507550	Teign, Avon, Dart and Erme	Y	113	Y	136	Y	103
CD202740	Teign, Avon, Dart and Erme	Y	4	Y	124	Y	114
CD200390	The Gara	Y	59	Y	118	Y	91
CD706120	The Gara	Y	68	Y	116	Y	58
CD405011	Teign, Avon, Dart and Erme	Y	58	Y	89	Y	53
CD404540	Teign, Avon, Dart and Erme	Y	79	Y	85	Y	61
CD721120	Teign, Avon, Dart and Erme	Y	72	Y	83	Y	51
CD715760	Teign, Avon, Dart and Erme	Y	57	Y	80	Y	75
CD205530	Teign, Avon, Dart and Erme	Y	58	Y	66	Y	41
CD403050	Avon - Lower	Y	97	Y	63	Y	60
CD204510	Teign, Avon, Dart and Erme	Y	36	Y	63	Y	46
CD204560	Teign, Avon, Dart and Erme	Y	43	Y	63	Y	34
CD509400	Teign, Avon, Dart and Erme	Y	42	Y	59	Y	39

CD_Number	Waterbody	2019 Reportable	2019 Nr. Spills	2020 Reportable	2020 Nr. Spills	2021 Reportable	2021 Nr. Spills
CD701740	Teign, Avon, Dart and Erme	Y	37	Y	48	Y	13
CD707670	Teign, Avon, Dart and Erme	Y	22	Y	41	Y	28
CD707520	Teign, Avon, Dart and Erme	Y	30	Y	31	Y	49
CD716390	Teign, Avon, Dart and Erme	Y	11	Y	29	Y	47
CD515960	Avon (DevonTidal) and South Hams - Frogmore	Y	15	Y	21	Y	22
CD509000	Teign, Avon, Dart and Erme	Y	0	Y	21	Y	29
CD517440	Teign, Avon, Dart and Erme	Y	0	Y	19	Y	26
CD815740	Avon (DevonTidal) and South Hams - Frogmore	Y	6	Y	19	Y	22
CD507660	Teign, Avon, Dart and Erme	Y	34	Y	17	Y	49
CD200140	Teign, Avon, Dart and Erme	Y	9	Y	16	Y	7
CD507240	Teign, Avon, Dart and Erme	Y	6	Y	15	Y	8
CD809390	Teign, Avon, Dart and Erme	Y	13	Y	13	Y	11
CD719940	Teign, Avon, Dart and Erme	Y	8	Y	12	Y	7
CD201950	Teign, Avon, Dart and Erme	Y	8	Y	11	Y	17
CD516680	Teign, Avon, Dart and Erme	Y	11	Y	10	Y	7
CD716690	Teign, Avon, Dart and Erme	Y	21	Y	10	Y	9
CD201050	Avon (DevonTidal) and South Hams - Frogmore	Y	7	Y	6	Y	0

CD_Number	Waterbody	2019 Reportable	2019 Nr. Spills	2020 Reportable	2020 Nr. Spills	2021 Reportable	2021 Nr. Spills
CD707500	Teign, Avon, Dart and Erme	Y	6	Y	6	Y	1
CD707650	Teign, Avon, Dart and Erme	Y	0	Y	5	Y	4
CD709410	Teign, Avon, Dart and Erme	Y	0	Y	4	Y	5
CD515440	Teign, Avon, Dart and Erme	Y	0	Y	4	Y	0
CD507310	Teign, Avon, Dart and Erme	Y	10	Y	4	Y	8
CD404270	Teign, Avon, Dart and Erme	Y	1	Y	3	Y	4
CD718090	Teign, Avon, Dart and Erme	Y	0	Y	2	Y	3
CD201691	Teign, Avon, Dart and Erme	N	n/a	Y	1	Y	37
CD706121	The Gara	Y	1	Y	1	Y	58
CD813070	Teign, Avon, Dart and Erme	Y	0	Y	0	Y	1
CD818270	Teign, Avon, Dart and Erme	Y	0	Y	0	Y	0
CD400330	Teign, Avon, Dart and Erme	Y	0	Y	0	Y	0
CD715730	Teign, Avon, Dart and Erme	Y	0	Y	0	Y	9
CD719680	Avon (DevonTidal) and South Hams - Frogmore	Y	1	Y	0	Y	0
CD719530	Teign, Avon, Dart and Erme	Y	0	Y	0	Y	0
CD304540	Teign, Avon, Dart and Erme	Y	0	Y	0	Y	0
CD517470	Teign, Avon, Dart and Erme	Y	1	Y	0	Y	4
CD715720	Teign, Avon, Dart and Erme	Y	0	Y	0	Y	0

CD_Number	Waterbody	2019 Reportable	2019 Nr. Spills	2020 Reportable	2020 Nr. Spills	2021 Reportable	2021 Nr. Spills
CD808790	Teign, Avon, Dart and Erme	Y	0	Y	0	Y	0
CD200140	Teign, Avon, Dart and Erme	N	n/a	N	n/a	Y	7

APPENDIX B: STORM OVERFLOW ASSESSMENT FRAMEWORK (SOAF) DETAILS

Storm overflows which do not affect Bathing Waters or Shellfish Waters, but may impact on amenity watercourses, are managed in accordance with the Storm Overflow Assessment Framework (SOAF) industry guidance. The following table shows the SOAF information for each storm overflow in the catchment

***Table 29**: SOAF triggered investigation sites*

Site Name	CD Number
BATSON SPS_PSCSOEO_SALCOMBE	CD707670
BLACKAWTON STW_SSO_BLACKAWTON	CD200390
COMMINUTOR HOUSE GOULD RD_CSO_SALCOMBE	CD507550
DITCH END S T_PSCSOEO_EAST PORTLEMOUTH	CD701740
FROGMORE No1 SPST_PSEO_FROGMORE	CD815740
FROGMORE No2 SPS_PSEO_FROGMORE	CD809390
KINGSTON STW_SSO_KINGSTON	CD202740
LODDISWELL STW_SO_LODDISWELL	CD403050
OUTER HOPE COVE SPST_PSEO_HOPE COVE	CD715760
SHADY LANE SPS_PSCSOEO_STOKE FLEMING	CD721120
SLAPTON STW_SSO_SLAPTON	CD204510
SOUTH BRENT STW_SO_SOUTH BRENT	CD404540
SOUTH MILTON STW_SSO_SOUTH MILTON	CD204560
STRETE STW_SO_DARTMOUTH	CD405011
TORCROSS SPST_PSCSOEO_TORCROSS	CD706120

APPENDIX C: RESPONSIVE INVESTMENT OPTIMISATION

Reactive investment needs are identified via investigations following reactive response to operational/customer issues and planned surveys that are targeted to detect and resolve problems before they have an impact on customers and the environment.

The investment needs are prioritised based on the risk to properties and the identification of repeat events. These needs then form a programme of works for delivery over the next 12 months. Details for any needs recorded for the Kingsbridge-South Devon catchment are also shown in Table below.

***Table 30**: Reactive investment opportunities*

IM Number	Driver	Route	Stage	Status	Stage No
N82967	Capital Maintenance	Rapid Investment - WWS-Networks (Pollution)	Confirm Scope	In Progress	Stage 7
N91166	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N82418	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N63569	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N89667	Capital Maintenance	Rapid Investment - WWS-Networks (Pollution)	Programmed	In Progress	Stage 8
N64117	Enhanced Service Levels	Rapid Investment - WWS-Networks (Flooding)	Completed	Completed	Stage 9
N66571	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Completed	Completed	Stage 9
N63866	Capital Maintenance	Rapid Investment - WWS-Networks (Pollution)	Completed	Completed	Stage 9

APPENDIX D: SURFACE WATER SEPARATION AND SuDS APPROACH

To explore opportunities for SWS and SuDS, Stantec's GIS based Surface Water Assessment Tool (SWAT) was applied to the 26 Complex TPUs that were hydraulically modelled for future flood risk (FFR). The tool plots impermeable areas, green space, existing networks, buildings, roads and watercourses. It plots existing foul combined and surface water networks and identifies where surface water sewers join combined sewers as potential points for disconnection. It identifies potential land and road space as well as residential and commercial properties for different interventions.

Using this insight our approach for surface water separation and SuDS is to find an alternative pathway for surface water, where we identify surface water contributing to risks in our networks. Surface water can originate from buildings, roads/highways and paved areas. Surface water collection may also exist but be connected to the foul network at some point. In this case we would consider options to provide an alternative pathway for the surface water such a swale or other watercourse or SuDS solution where space and natural topography support this approach. This would include conveying the surface water to an appropriate location. Further modelling and investigations are required to ensure this will not generate a surface water flooding risk elsewhere.

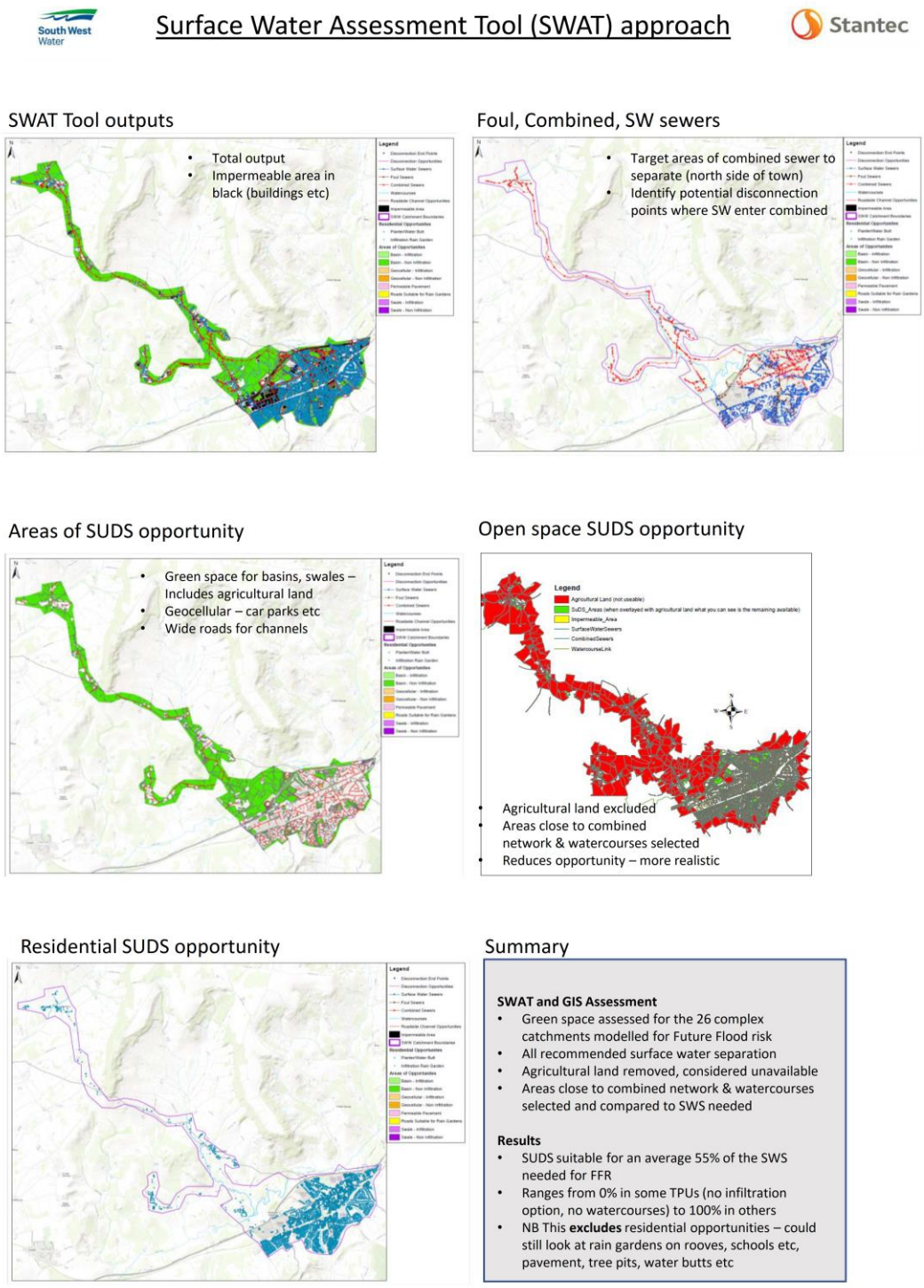

Figure 17: Approach to assessing opportunity for SuDS solutions for Surface Water Separation

APPENDIX E: CURRENT AND PLANNED UPSTREAM THINKING (UST) PROJECTS

South West Water's infiltration and site surveys may identify opportunities for Natural Flood Management and Upstream Thinking interventions in the Kingsbridge-South Devon catchment. South West Water intend to collaborate with the EA and take a similar GIS based approach to assessing Natural Flood Management options where tackling shared surface water flooding issues. The figure below shows the coverage of current upstream thinking (UST) projects in the vicinity of the Kingsbridge-South Devon catchment where upper catchment solutions are being explored; the intention is to expand this approach.

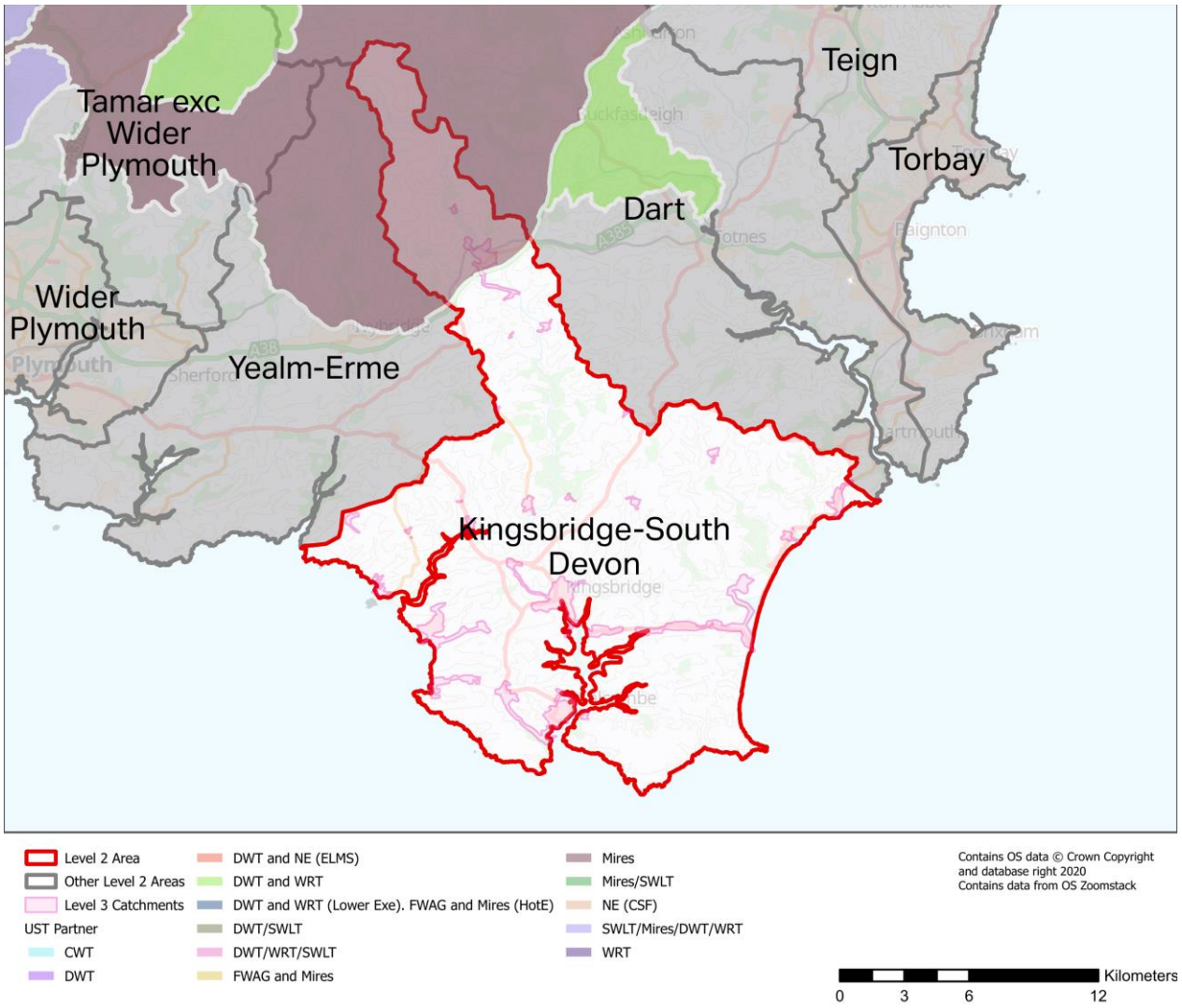

Figure 18: Catchments with Upstream Thinking Programmes