South West Water

Drainage and Wastewater Management Plan

Exe

May 2023

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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 Exe 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

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Overview

Area Details

The Exe catchment sits within the administrative districts of East Devon District, Exeter District (b), Mid Devon District, North Devon District, Somerset West and Taunton District, Teignbridge District and West Devon District (b). It covers the main settlements of Exeter, Exmouth, Tiverton, Dawlish, Crediton, Cullompton, Budleigh Salterton, Topsham, Willand, Cranbrook, Clyst Honiton, Dunkeswell, Woodbury, Thorverton, Exminster, Lympstone, Dunchideock, Bampton, Dawlish Warren, Whimple, Exton, Uffculme, Tedburn St Mary, Broadclyst, West Clyst, Dulverton, Halberton, Bradninch, Kenton and Hemyock.

The population of the Exe catchment in 2020 was 283,627 and is projected to grow to 373,332 by 2050, an increase of 31.6 %. The catchment is also impacted by the influx of tourists during the summer, with an increase of 37,252 or 13.1 % over the existing resident population.

The Exe catchment contains 176 km of watercourses including 114 km of Main River as designated by the Environment Agency (EA). This includes the Alphin Brook, Alsa Brook, Berry Brook, Brockey River, Brown's Brook, Burn River, Cole Brook, Cottey Brook, Dawlish Water, Duryardwood Brook, Exeter Canal, Exwick Leat, Fordland Brook, Grindie Brook, Grindle Brook, Heal-eye Stream, Holly Water, Jackmoor Brook, Lilly Brook, Littleham Brook, Marsh Water, Matford Brook, Mill Stream, Mincinglake Stream, Nadder Brook, Northbrook, Pin Brook, Pulham River, River Barle, River Batherm, River Clyst, River Creedy, River Culm, River Culvery, River Exe, River Haddeo, River Ken, River Kenn, River Lowman, River Lyner, River Otter, River Troney, River Weaver, River Yeo, Shobrooke Lake, Shuttern Brook, Spratford Stream, Taddiforde Brook, Three Waters, Town Leat, Withycombe Brook and Wotton Brook.

Discharges in the Exe catchment may impact on the bathing waters of Budleigh Salterton Beach, Coryton Cove Dawlish, Dawlish (Town) Beach, Exmouth Beach, Sandy Bay Beach and Teignmouth (Holcombe) Beach and the shellfish waters of Exe.

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

Wastewater Network

The Exe catchment area has approximately 2035km of mapped sewers and 62 sewage pumping stations (SPS) to convey wastewater away from homes and businesses to 78 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 236 overflows of which 21 are emergency overflows in the Exe catchment (which should only operate as a result of other asset failure or power loss). There are 236 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	893.2
Surface	649.4
Foul	492.8

Area Overview

Table 2 summarises the number of critical assets within the Exe 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
1	6	62	215	21	236

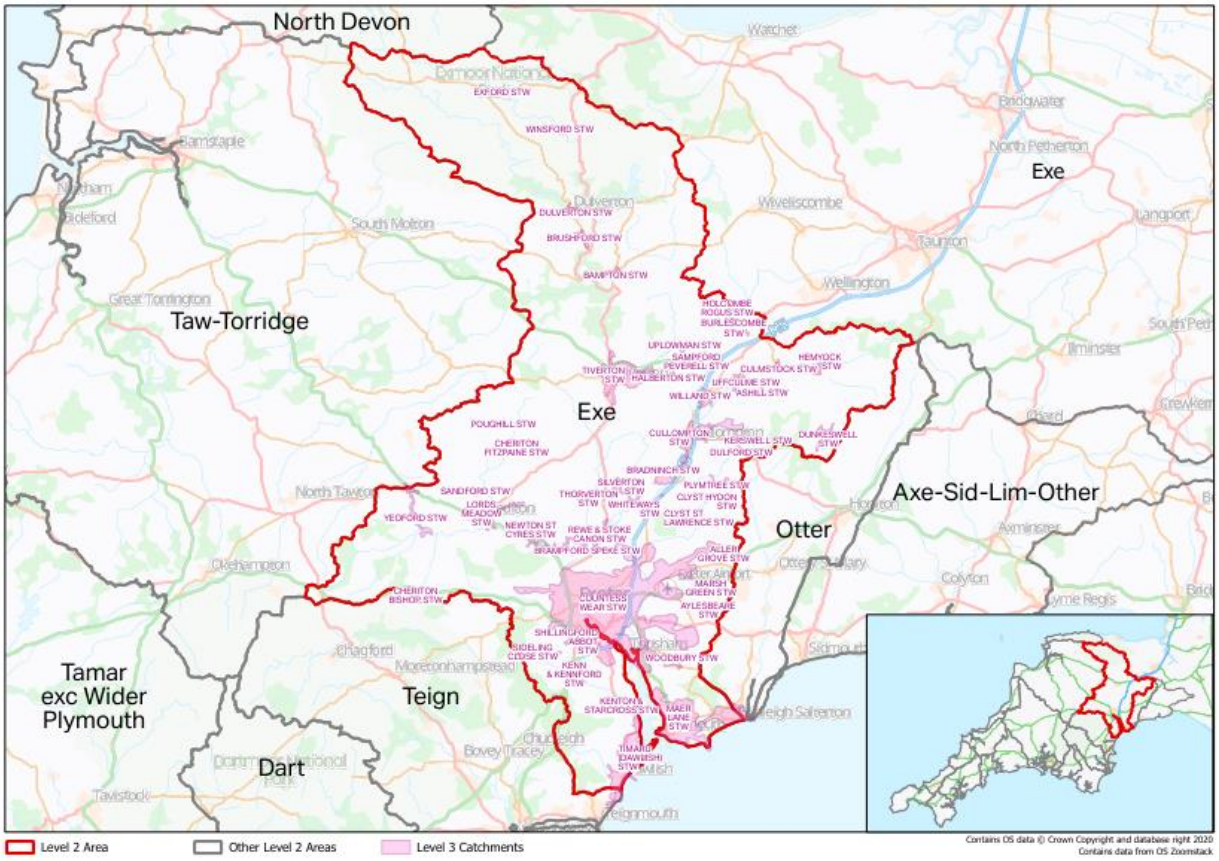

Figure 1: Catchment Overview

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 Exe catchment they are shown in Figure 2 below.

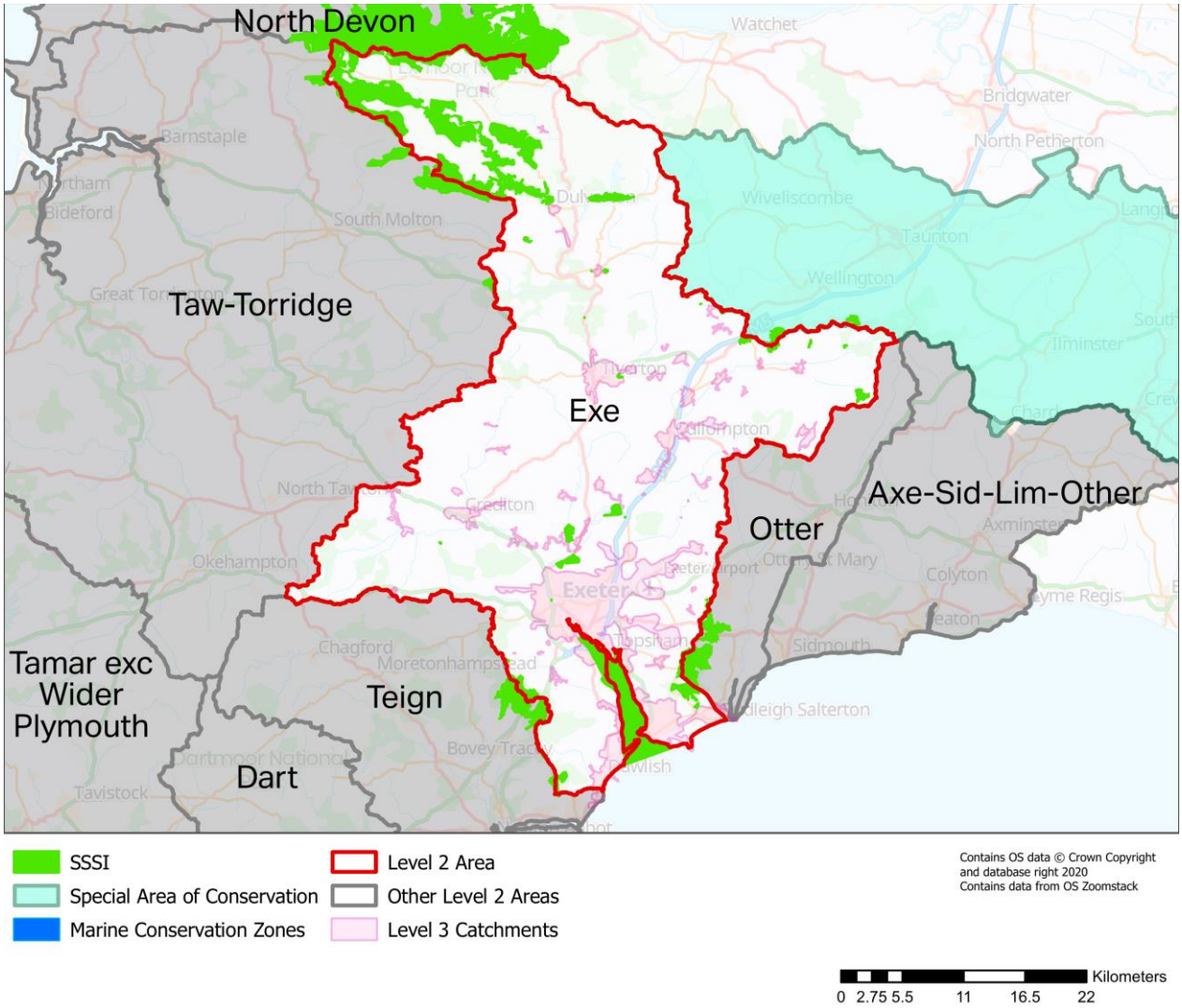

Figure 2: Designated Areas

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	• Highways Authorities
		• Highways England/Welsh Government

Location	Description	Responsibility
	verges	• 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 Exe catchment is 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	Hydraulic Overload	1
2019	Internal	Other	13
2020	Internal	Hydraulic Overload	4
2020	Internal	Other	19
2021	Internal	Hydraulic Overload	1
2021	Internal	Other	13
2022	Internal	Hydraulic Overload	2
2022	Internal	Other	11
2023	Internal	Hydraulic Overload	3
2023	Internal	Other	10

The rate (events/km) of external sewer flooding in the Exe 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	11
2019	External	Other	168
2020	External	Hydraulic Overload	12
2020	External	Other	197
2021	External	Hydraulic Overload	19
2021	External	Other	123
2022	External	Hydraulic Overload	18
2022	External	Other	161
2023	External	Hydraulic Overload	17
2023	External	Other	199

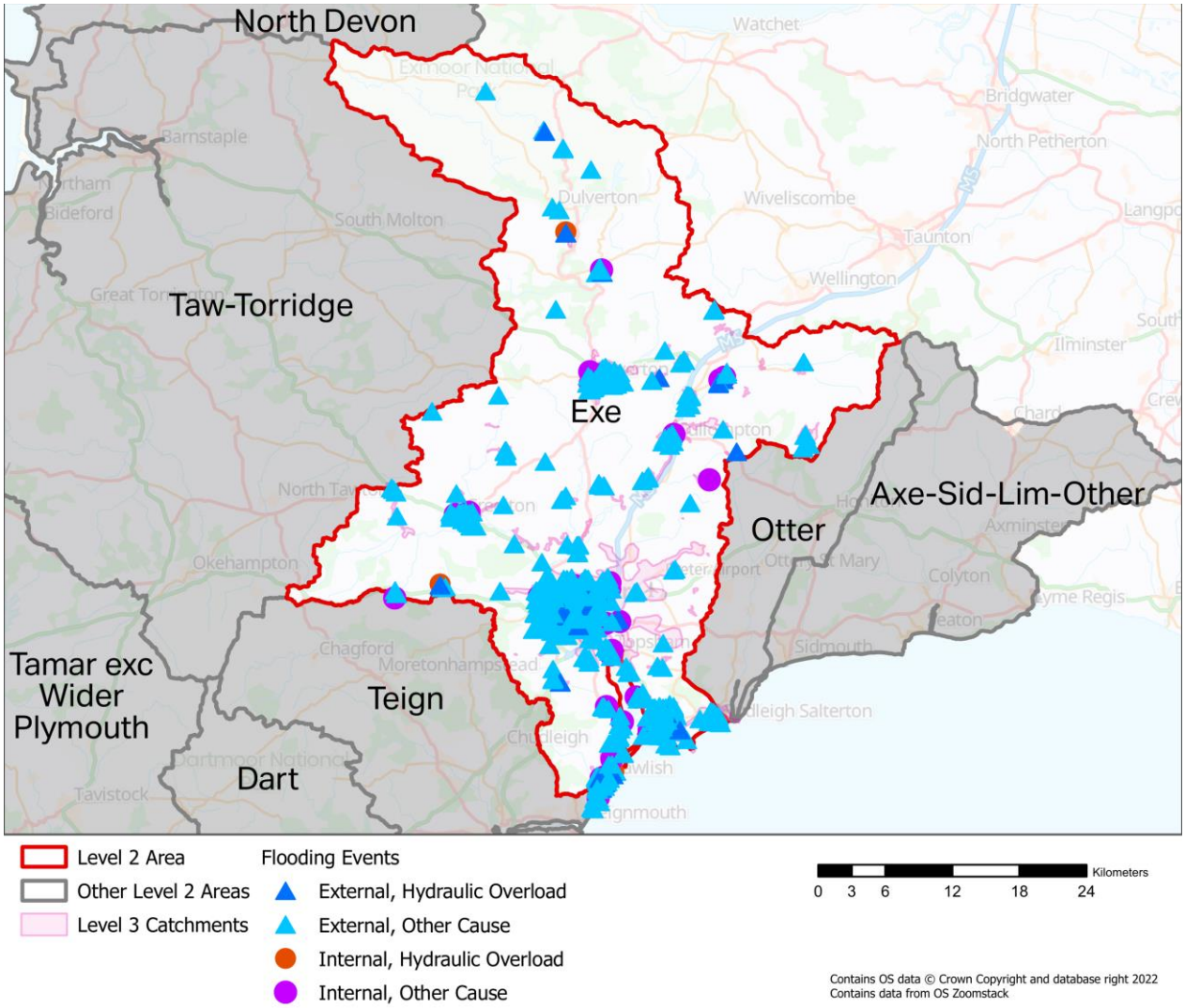

Figure 3: Sewer Flooding by location and cause

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.

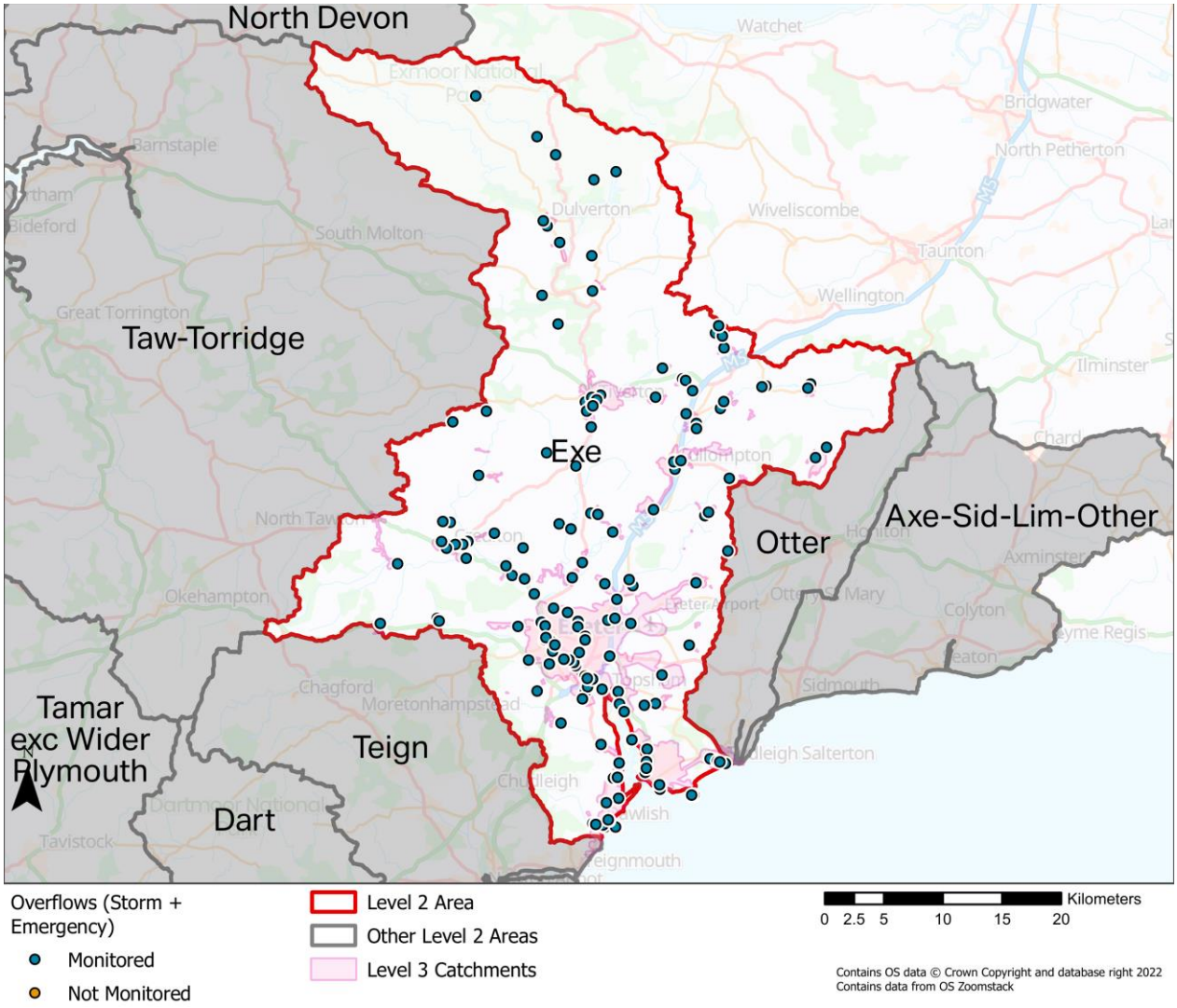

Figure 4: Overflow locations by monitoring status

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

Year	2019	2020	2021
No. Monitored	164	167	182
No. Spills	4300	4875	4559

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 Exe 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 Exe catchment.

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

Year	Debris	Fat	Paper/Rag	Roots	Silt	Third Party Damage
2019	140	136	654	124	23	
2020	187	90	590	95	12	1
2021	173	74	511	82	12	
2022	143	62	609	55	17	
2023	178	71	595	104	12	2

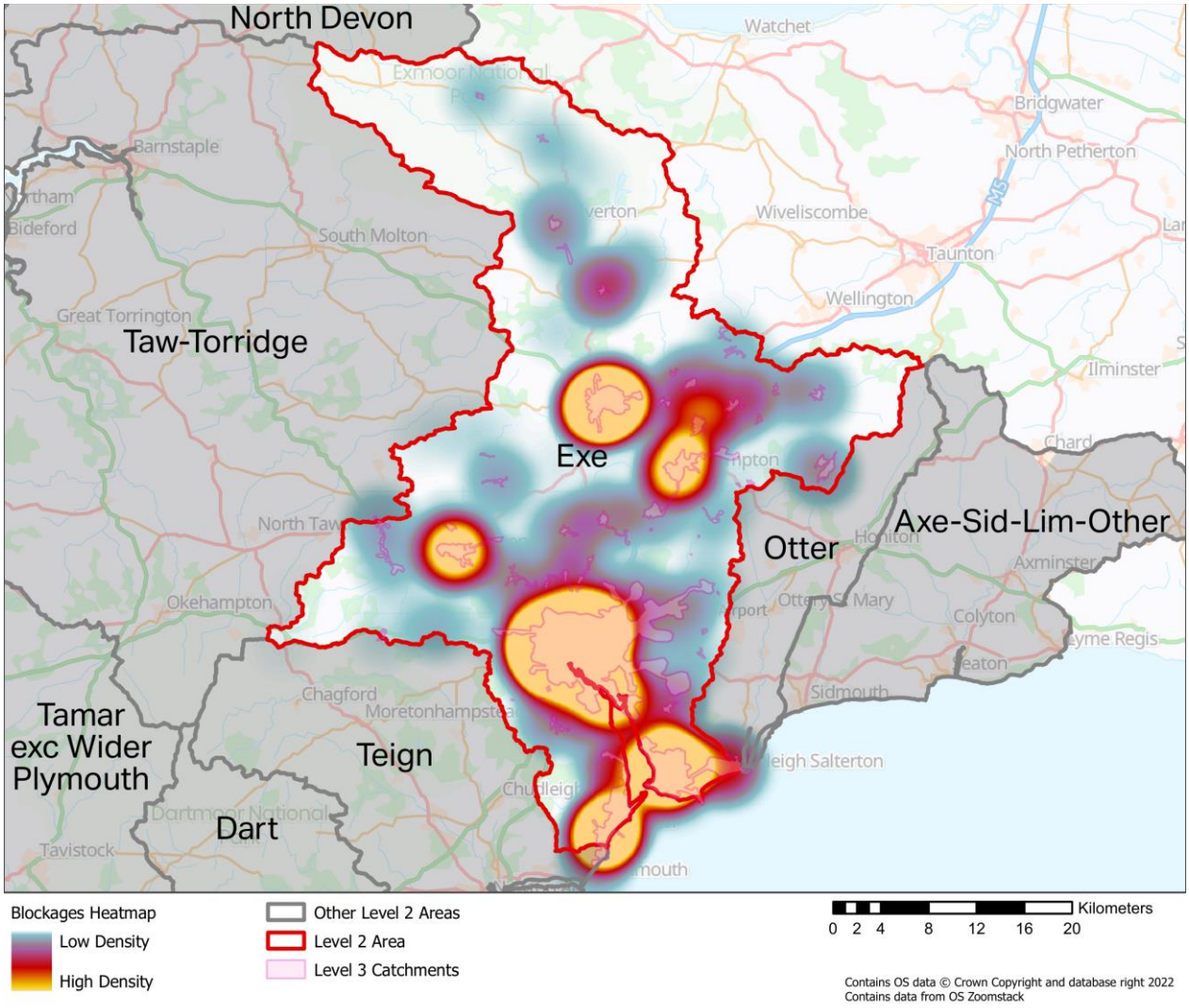

Figure 5: Blockage Event Heatmap

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 Exe 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
2019	7	24
2020	18	7
2021	12	2
2022	9	5
2023	5	1

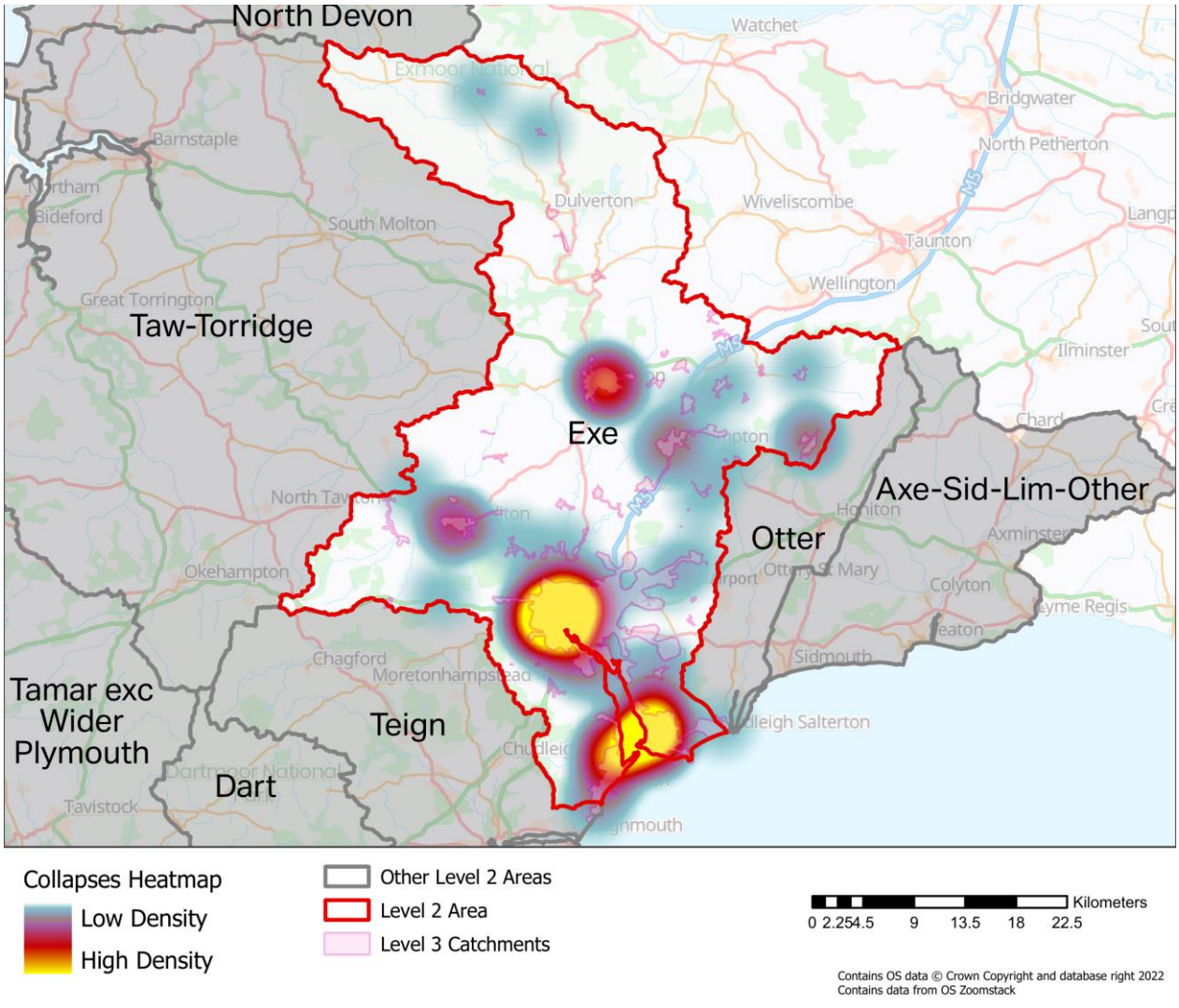

Figure 6: Sewer Collapse Heatmap

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.

Table 9 provides a count of flooding events caused as a result of issues at pumping stations and Table 10 provides a count of rising main bursts since the 2018/19 reporting year. Flooding and burst locations are shown in Figure 7.

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

Year	Feedback Cause	Count
2019	Pump Station Breakdown	5
2020	Hydraulic Overload Pumping Station	1
2020	Pump Station Breakdown	2
2022	Hydraulic Overload Pumping Station	1
2022	Pump Station Breakdown	1

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

Year	Feedback Cause	Count
2019	Collapse/Burst	1
2020	Collapse/Burst	6
2021	Collapse/Burst	6
2022	Collapse/Burst	3

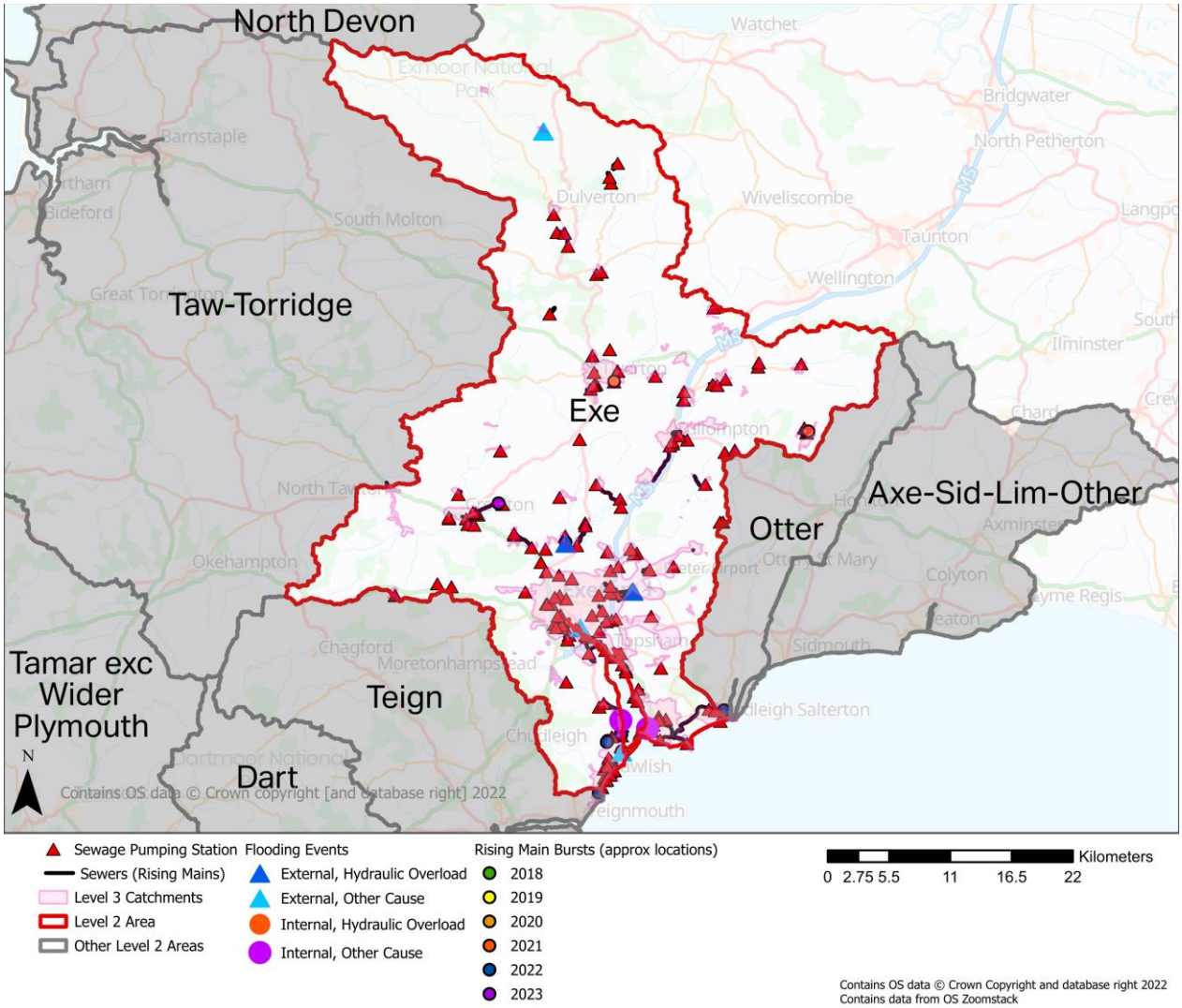

Figure 7: SPS/Rising Main flooding and burst events

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 54 Category 1 or 2 pollution incidents in the Exe catchment from 2018-2022.

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	18
2020	3	13
2021	2	1
2021	3	18
2022	3	14

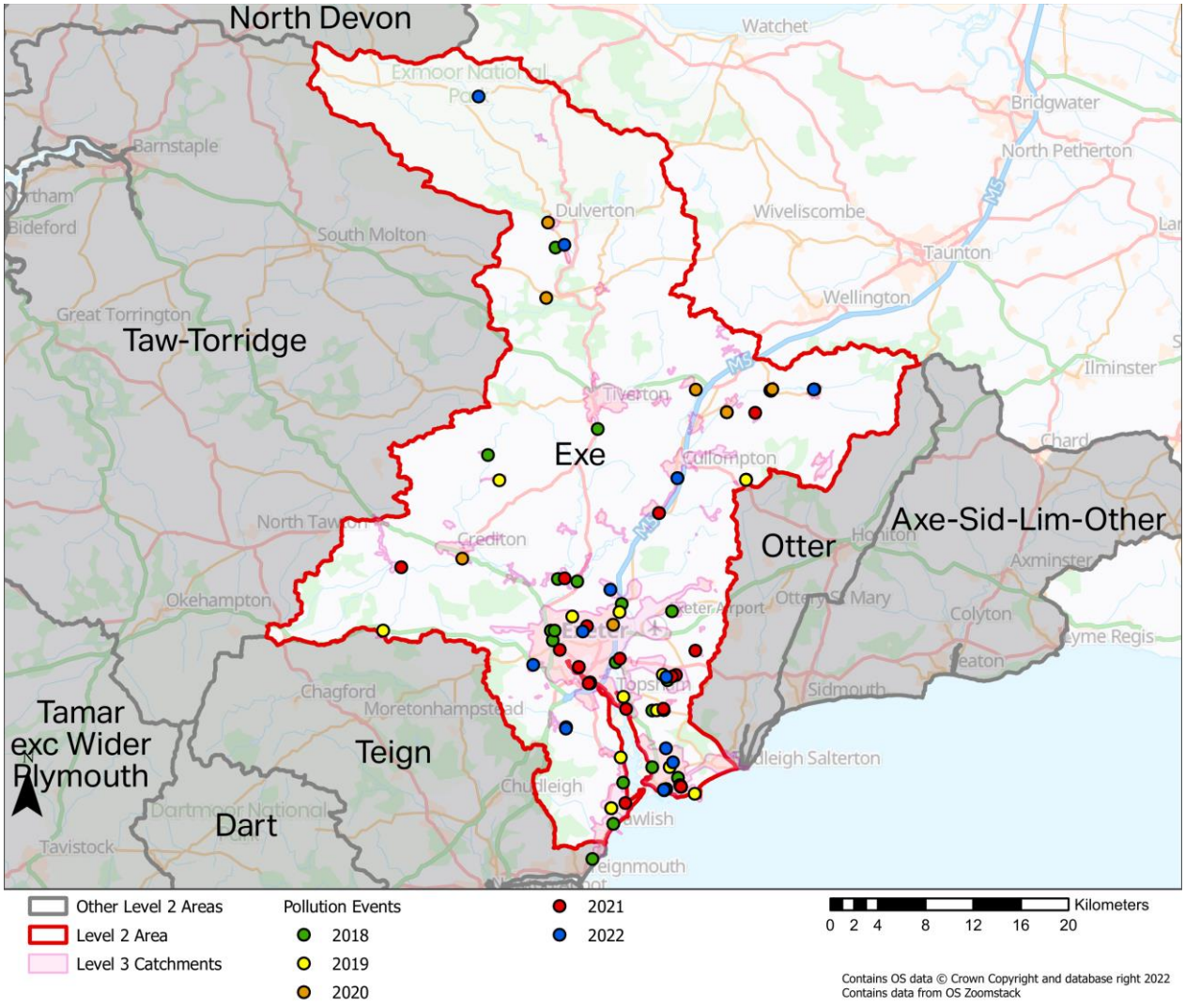

Figure 8: Pollution Events

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 Exe catchment.

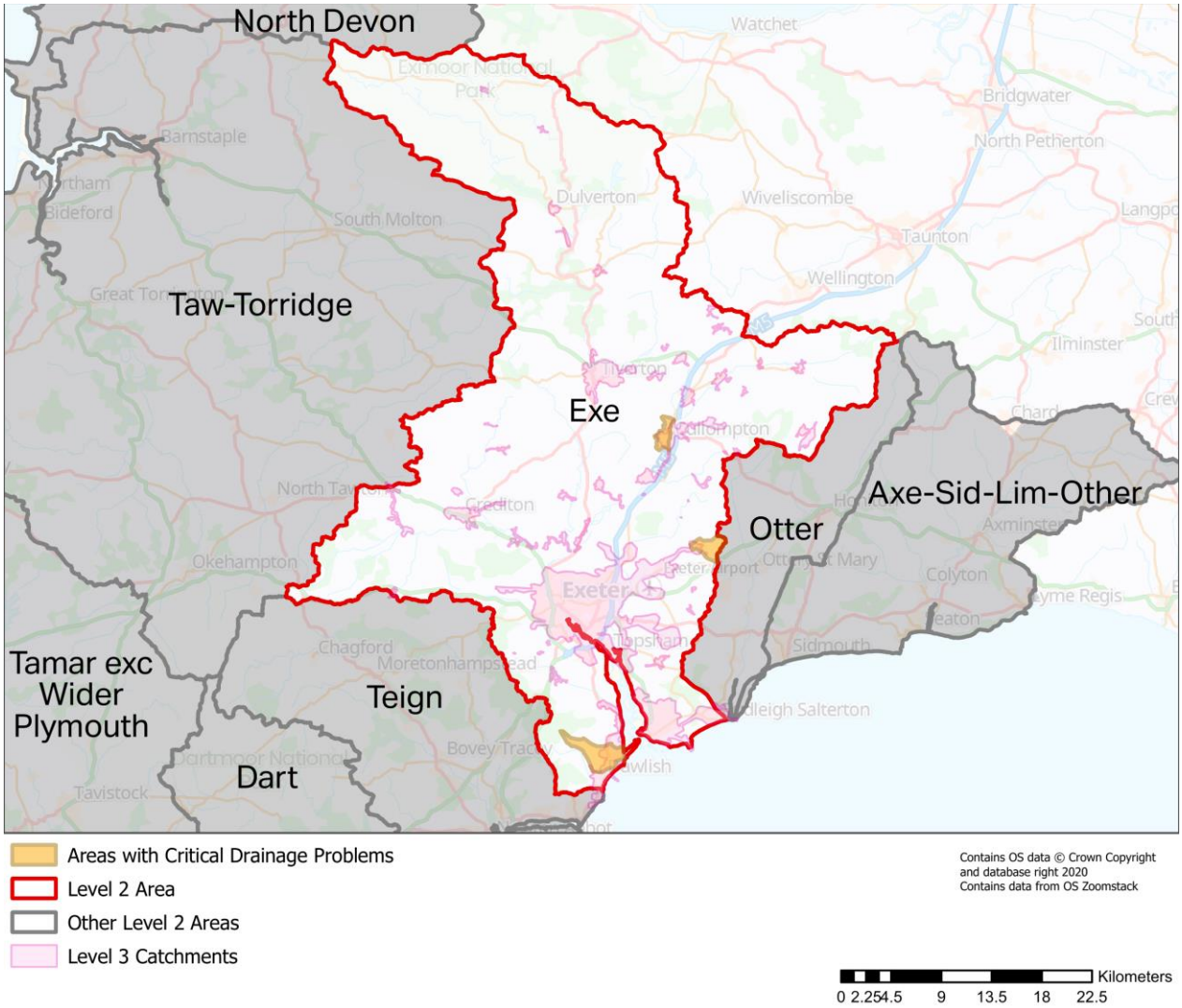

Figure 9: Critical Drainage Areas

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 Exe 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
KENTON & STARCROSS_STW_STARCROSS	2019	Disinfection	24 Hour Rule

Table 13 shows the Dry weather flow (DWF) performance of the treatment works in the Exe catchment.

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

Asset Name	Permitted (m3/d)	Comments
AYLESBEARE_STW_AYLESBEARE	103	Spare capacity available
BAMPTON_STW_BAMPTON	230	Approaching design capacity
BRADNINCH_STW_BRADNINCH	404	Spare capacity available
BRAMPFORD SPEKE_STW_BRAMPFORD SPEKE	104	Spare capacity available
BRUSHFORD_STW_BRUSHFORD	124	Spare capacity available
BURLESCOMBE_STW_BURLESCOMBE	155	Spare capacity available
CHERITON BISHOP_STW_CHERITON BISHOP	144	Spare capacity available
CHERITON FITZPAINE_STW_CREDITON	115	Spare capacity available
COUNTESS WEAR_STW_EXETER	40,486	Spare capacity available
CULLOMPTON_STW_CULLOMPTON	2,955	Approaching design capacity
CULMSTOCK_STW_CULMSTOCK	118	Spare capacity available
DULVERTON_STW_DULVERTON	468	Spare capacity available
DUNKESWELL_STW_DUNKESWELL	314	Spare capacity available
EXFORD_STW_EXFORD	120	Spare capacity available
HALBERTON_STW_HALBERTON	208	Spare capacity available
HEMYOCK_STW_HEMYOCK	446	Spare capacity available
HOLCOMBE ROGUS_STW_HOLCOMBE ROGUS	119	Spare capacity available
KENN & KENNFORD_STW_EXETER	262	Spare capacity available

Asset Name	Permitted (m3/d)	Comments
KENTON & STARCROSS_STW_STARCROSS	1,750	Spare capacity available
LORDS MEADOW_STW_CREDITON	4,100	Spare capacity available
MAER LANE_STW_EXMOUTH	11,825	Spare capacity available
NEWTON ST CYRES_STW_NEWTON ST CYRES	300	Spare capacity available
PLYMTREE_STW_PLYMTREE	97	Spare capacity available
REWE_STW_REWE	429	Approaching design capacity
SAMPFORD PEVERELL_STW_SAMPFORD PEVEREL	296	Spare capacity available
SANDFORD_STW_SANDFORD	118	Spare capacity available
SILVERTON_STW_SILVERTON	562	Spare capacity available
TEDBURN ST MARY_STW_TEDBURN ST MARY	383	Spare capacity available
THORVERTON_STW_THORVERTON	309	Spare capacity available
TIMARU_STW_DAWLISH	4,856	Spare capacity available
TIVERTON_STW_TIVERTON	6,900	Spare capacity available
UFFCULME_STW_UFFCULME	564	Spare capacity available
UPLOWMAN_STW_TIVERTON	42	Spare capacity available
WILLAND_STW_WILLAND	613	Spare capacity available
WINSFORD_STW_WINSFORD	84	Spare capacity available
WOODBURY_STW_WOODBURY	408	Spare capacity available
YEOFORD_STW_CREDITON	493	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 Exe catchment.

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

Significant water management issue (SWMI)	Activity	Count
Changes to the natural flow and levels of water	Surface water abstraction	2
Non-native invasive species	North american signal crayfish	3
	Other riparian plants	3
Physical modifications	Barriers - ecological discontinuity	14
	Flood protection - structures	1
	Other (not in list, must add details in comments)	7
	Reservoir / Impoundment - non flow related	1
	Urbanisation - transport	1
Pollution from rural areas	Farm/site infrastructure	20
	Forestry	1
	Poor Livestock Management	60
	Poor nutrient management	49
	Poor pesticide management	3
	Poor soil management	53

Significant water management issue (SWMI)	Activity	Count
	Riparian/in-river activities (inc bankside erosion)	21
Pollution from towns, cities and transport	Contaminated land	2
	Misconnections	3
	Other (not in list, must add details in comments)	2
	Private Sewage Treatment	1
	Septic Tanks	9
	Trade/Industry discharge	6
	Urbanisation - urban development	4
Pollution from wastewater	Discharge	43
	Discharge (intermittent)	3
	Incidents	1
	Other (not in list, must add details in comments)	1
	Barriers - ecological discontinuity	1
	Drought	2
	Natural conditions - other	2
	Not applicable	6
	Other (not in list, must add details in comments)	2
	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

216 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
Care Home / Assisted Living	3
Employment	14
Flats	1
Hotel	2
Housing Development	166
Mixed Use Development	40
Student Flats	9
Student Flats & Hotel	1
Tourist Accommodation	1
Tourist Park	1

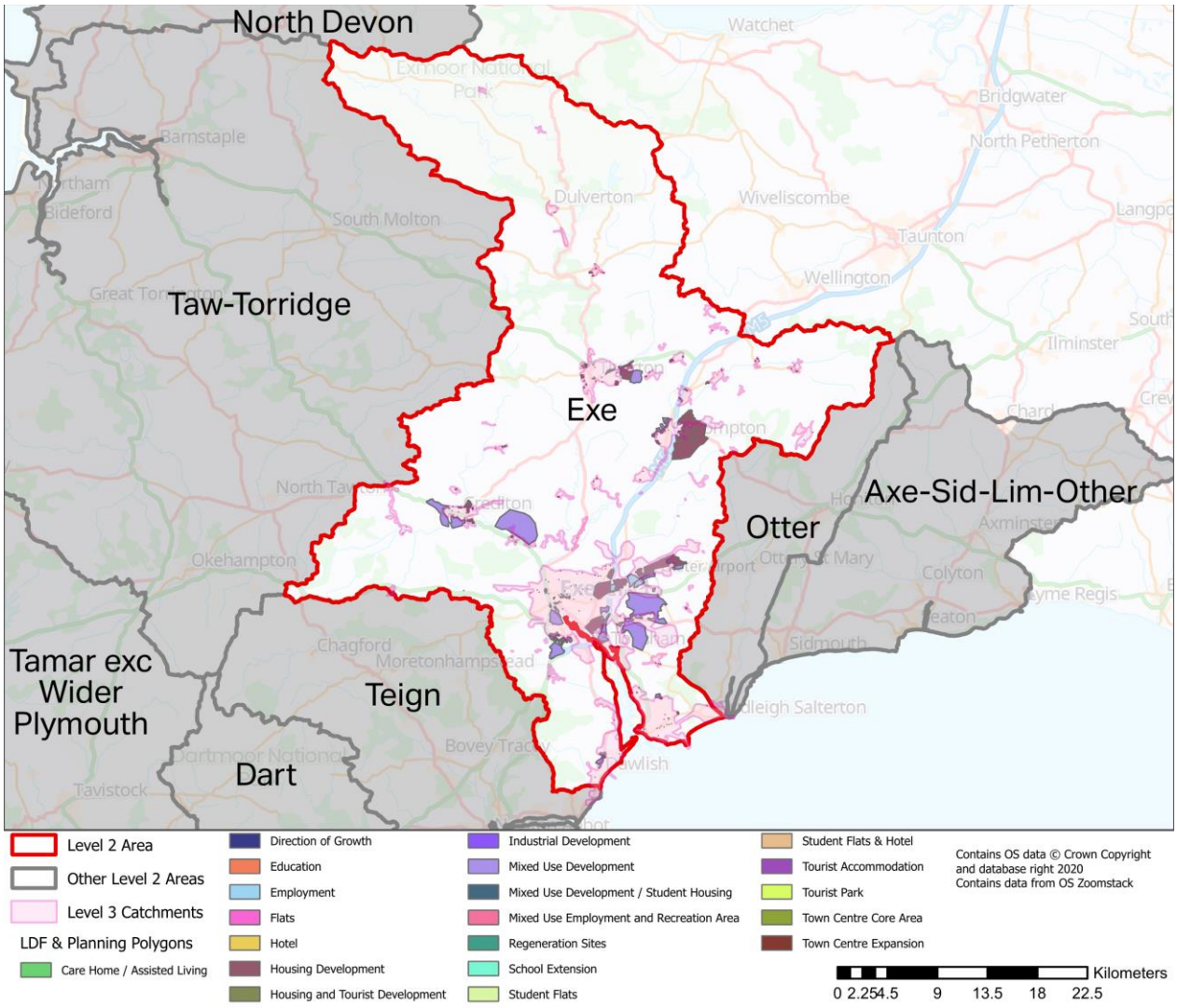

Figure 10: Local Development Framework Areas

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 haracteri 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 haracteriz 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 Exe catchment are haracteri in Table 16.

Ninety-Nine investment needs are recorded for this catchment. Locations are shown in Figure 11.

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

	Capital Maintenance	Health & Safety	NA	Total
AM Review	1			1
Completed	15	1	1	17
Confirm Scope	47		1	48
Contractor Scoping	6			6
Investment Initialisation	2			2
Programmed	3			3
Quotation Review	1			1
Review Scope	8		1	9
Total	83	1	3	87

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 Exe catchment if present, with locations are shown in Figure 11.

There are currently 35 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
DCS00065	Lower Batherm	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS00143	Lower Culm	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS00183	lower barle	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS00209	Spratford Stream	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.
DCS00253	Ford Brook (Exe)	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS00256	Holly Water	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS00329	Lower Creedy	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS00335	Middle Culm	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS00428	EXE	Transitional	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS00436	Exe (Source to Quarme)	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.
DCS00565	Middle Culm	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS00577	Spratford Stream	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS00814	Lower Creedy	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS00928	Upper Clyst	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS00982	Lower Culm	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS01011	Spratford Stream	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.
DCS01014	Middle Creedy	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS01032	Lower Culm	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS01205	Exe (Barle to Culm)	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS01241	Lower Culm	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS01314	Polly Brook	River	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
DCS01328	Upper Yeo (Creedy)	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.
CHM00180	n/a	n/a	WFD_INV_CHEM3	2021-09-30	Investigation to be carried out in accordance with the requirements detailed in the current UKWIR CIP3 Technical Specification and Guidance	n/a
CHM00181	n/a	n/a	WFD_INV_CHEM5	2021-09-30	Investigation to be carried out in accordance with the requirements detailed in the current UKWIR CIP3 Technical Specification and Guidance	n/a
CHM00183	Exe (Creedy to Estuary)	River	WFD_INV_CHEM14	2021-09-30	Investigation to be carried out in accordance with the requirements detailed in the current UKWIR CIP3 Technical Specification and Guidance	n/a
CHM00184	Madford River	River	WFD_INV_CHEM11	2021-09-30	Investigation to be carried out in accordance with the requirements detailed in the current UKWIR CIP3 Technical Specification and Guidance	n/a
CHM00195	n/a	n/a	WFD_INV_CHEM12	2021-09-30	Investigation to be carried out in accordance with the requirements detailed in the current UKWIR CIP3 Technical Specification and Guidance	n/a
CHM00200	n/a	n/a	WFD_INV_CHEM8	2021-09-30	Project management costs and Synthesis report costs for investigations	n/a
CHM00201	n/a	n/a	WFD_INV_CHEM1	2021-09-30	Investigation to be carried out in accordance with the requirements detailed in the current UKWIR CIP3 Technical Specification and Guidance	n/a
BAW00013	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
EDM00542	Lower	River	U_INV	2022-03-31	Undertake full investigation following the Storm Overflow Assessment Framework to Stage 4	n/a

WINEP ID	Name of Waterbody	Waterbody Type	Driver Code	Planned Completion Date	Investigations Scope	Additional Comments
	Bartherm				(Decision), including Environmental Impact Assessment and Cost Benefit Assessment of Options to determine an agreed (between WaSC and Environment Agency) outcome (Need for spill reduction scheme and detail of that scheme).	
EDM00550	Exe	Transitional	U_INV	2022-03-31	Undertake full investigation following the Storm Overflow Assessment Framework to Stage 4 (Decision), including Environmental Impact Assessment and Cost Benefit Assessment of Options to determine an agreed (between WaSC and Environment Agency) outcome (Need for spill reduction scheme and detail of that scheme).	n/a
FLO00607	Lyme Bay West	Coastal	U_INV2	2022-03-31	n/a	U_INV2 Investigation required as to suitability of existing inlet or outlet monitor to measure PFF.
FLO00622	Halberton Stream	River	U_INV2	2022-03-31	n/a	Relationship between spills and Final Effluent flow measurement to be investigated to prove FTT compliance
FLO00705	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.

There are currently 17 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
DCS00060	Aylesbeare stream	River	U_IMP6	2023-03-31	n/a	n/a
DCS00066	Lower Batherm	River	U_IMP5	2023-03-31	n/a	n/a
DCS00327	Lower Creedy	River	WFD_IMPg	2024-12-22	n/a	n/a
DCS00346	Dawlish Water	River	BW_IMP3	2025-03-31	Average of no more than 2 spills per bathing seasons > 50m3 at DAWLISH SSO (BROOK STREET).	See column AD – Implementation scope.
DCS00377	Lower Barle	River	U_IMP5	2023-03-31	n/a	n/a
DCS00378	Madford River	River	WFD_IMPg	2024-12-22	n/a	n/a
DCS00437	Exe (Source to Quarme)	River	U_IMP6	2023-03-31	n/a	n/a
DCS00563	Middle Culm	River	WFD_IMPg	2024-12-22	n/a	n/a
DCS00622	Kenn	River	WFD_IMPg	2024-12-22	n/a	n/a
DCS00754	Lyme Bay West	Coastal	BW_IMP3	2025-03-31	Average of no more than 2 spills per bathing seasons > 50m3 at Meadow Road Tank CSO.	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
DCS01012	Spratford Stream	River	U_IMP6	2025-03-31	n/a	n/a
DCS01243	Lower Culm	River	U_IMP6	2025-03-31	n/a	n/a
DCS01288	Lower Culm	River	WFD_IMPg	2024-12-22	n/a	n/a
DCS01329	Upper Yeo (Creedy)	River	U_IMP5	2025-03-31	n/a	n/a
DCS01330	Upper Yeo (Creedy)	River	U_IMP6	2025-03-31	n/a	n/a
FLO00620	Halberton Stream	River	U_IMP6	2024-03-31	n/a	n/a
FLO00630	Kenn	River	U_IMP5	2024-03-31	n/a	n/a

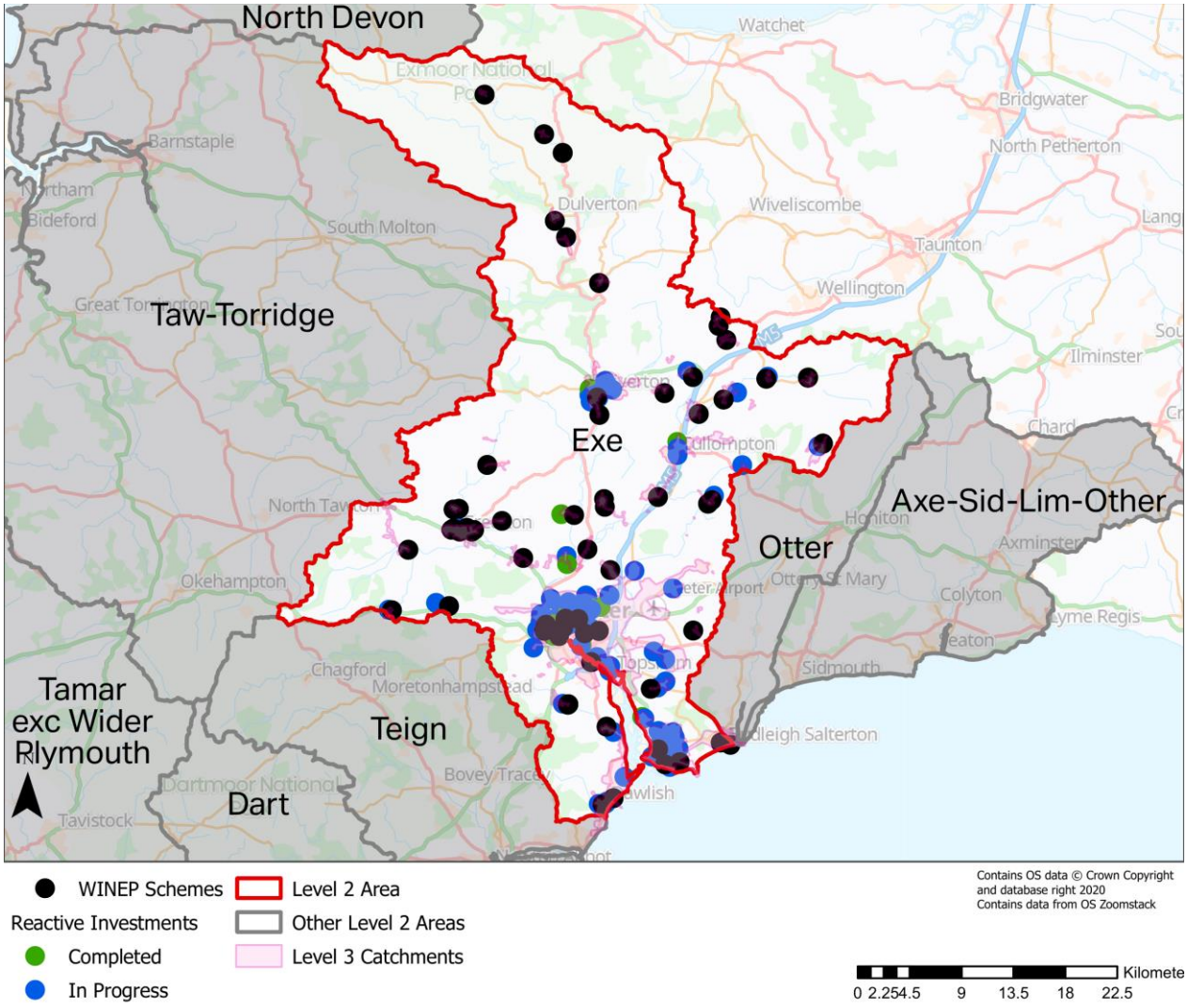

Figure 11: Reactive and WINEP Investment locations

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 haracteri 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 haracterization
- 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 Exe 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 haracterization
- 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 Exe 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?
53115	Initial	736.1	NO	NO	NO	NO	YES	YES	NO	NO	YES	NO	NO	YES	YES	NO	NO	NO	YES	5	NO	YES
53385	Initial	1,329.9	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO	YES	3	NO	YES
53395	Initial	2,042.0	NO	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	YES	NO	NO	NO	NO	YES	3	NO	YES
53401	Initial	343.8	YES	NO	NO	NO	YES	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	4	NO	YES
53403	Initial	715.1	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	1	YES	YES
53424	Enhanced	168,170.2	YES	YES	NO	NO	YES	YES	YES	NO	YES	NO	NO	YES	YES	YES	NO	YES	YES	9	NO	YES
53432	Initial	10,547.2	YES	NO	NO	NO	YES	NO	NO	NO	YES	NO	YES	NO	NO	YES	NO	YES	YES	5	NO	YES
53444	Initial	1,224.4	NO	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	2	NO	YES
53462	Initial	791.3	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	YES	2	NO	YES
53488	Initial	48,992.2	YES	YES	NO	NO	YES	YES	NO	NO	YES	NO	NO	YES	NO	YES	NO	YES	YES	7	NO	YES
53510	Initial	467.9	NO	NO	NO	NO	YES	YES	NO	NO	NO	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?
53517	Initial	852.2	NO	NO	NO	NO	YES	NO	NO	NO	YES	NO	YES	NO	NO	NO	NO	NO	YES	3	NO	YES
53520	Initial	1,153.7	NO	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	2	NO	YES
53545	Initial	23,079.4	YES	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	YES	NO	YES	NO	YES	YES	4	NO	YES
53551	Initial	2,462.1	YES	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	YES	NO	NO	NO	YES	YES	4	NO	YES
53561	Initial	3,462.0	YES	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	YES	3	NO	YES
53569	Initial	2,092.2	YES	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	2	NO	YES
53662	Initial	346.5	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	1	YES	YES
53713	Initial	1,644.2	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	YES	2	NO	YES
54218	Initial	18,218.5	YES	YES	NO	NO	YES	NO	YES	YES	YES	YES	NO	NO	NO	YES	NO	YES	YES	8	NO	YES
10236255	Initial	50.2	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	1	YES	YES
53408	Initial	40.2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53425	Initial	135.6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	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?
10051333	Initial	46.2	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	1	YES	YES
53494	Initial	6.4	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53442	Initial	78.3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53491	Initial	110.6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53946	Initial	145.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53405	Initial	91.6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
54215	Initial	20.3	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	1	YES	YES
53474	Initial	70.4	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
10579933	Initial	28.1	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53514	Initial	159.2	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	1	YES	YES
10143959	Initial	12.3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53445	Initial	8.2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53116	Initial	2,855.1	YES	YES	NO	NO	NO	YES	YES	NO	YES	YES	NO	NO	NO	NO	NO	NO	YES	6	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?
53471	Initial	17.6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	1	YES	YES
53706	Initial	0.5	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53557	Initial	80.6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53383	Initial	225.7	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53715	Initial	176.4	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53792	Initial	2.5	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53389	Initial	208.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
52702	Initial	55.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53529	Initial	1,619.4	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53088	Initial	12.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53397	Initial	183.9	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53472	Initial	90.5	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53526	Initial	67.6	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	1	YES	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?
10505968	Initial	22.3	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	1	YES	YES
53492	Initial	710.8	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53400	Initial	79.2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53128	Initial	0.5	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53947	Initial	0.5	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53521	Initial	622.4	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53538	Initial	198.6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53515	Initial	136.7	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53507	Initial	141.6	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53564	Initial	136.7	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53384	Initial	317.9	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53787	Initial	0.5	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
10705636	Initial	25.7	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?
53796	Initial	1,148.4	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	1	NO	NO
53567	Initial	1,897.1	NO	YES	NO	NO	NO	YES	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	3	NO	YES
53661	Initial	22.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53479	Initial	141.0	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	YES	NO	NO	NO	YES	2	NO	YES
53427	Initial	13,039.4	YES	NO	NO	NO	NO	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	YES	YES	3	NO	YES
53542	Initial	724.2	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	0	NO	NO
53493	Initial	116.9	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	1	YES	YES
53413	Initial	602.4	NO	NO	NO	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO	NO	NO	NO	YES	2	NO	YES
53854	Initial	195.4	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	1	YES	YES
53407	Initial	14.0	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
54217	Initial	30.7	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	1	YES	YES
53482	Initial	20.3	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	0	NO	NO
53436	Initial	522.7	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	1	YES	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?
53396	Initial	532.1	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	1	YES	YES
53410	Initial	496.5	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	1	YES	YES
53659	Initial	1,763.3	NO	NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO	YES	1	YES	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	Exe
Physical Characteristics	Total Population Equivalent	302596
	Baseline sewer length (km)	3093
Baseline Score 2020	Planning Objective - Internal Sewer Flooding Risk	0
	Planning Objective - Pollution Risk	1
	Planning Objective - Sewer Collapse Risk	0
	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	
		2

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 Exe 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
BAMPTON_STW_BAMPTON	A	F	F	A	A	G	F	F	A
CULLOMPTON_STW_CULLOMPTON	A	F	F	G	A	F	F	G	A
WOODBURY_STW_WOODBURY	A	F	G	A	A	F	G	A	G
YEOFORD_STW_CREDITON	A	F	F	A	A	G	B	A	A
CULMSTOCK_STW_CULMSTOCK	A	F	F	G	A	A	A	A	A
WILLAND_STW_WILLAND	A	B	F	A	A	F	A	A	A
COUNTESS WEAR_STW_EXETER	A	F	F	F	A	F	C	A	A
LORDS MEADOW_STW_CREDITON	F	A	F	A	A	F	A	A	A
BRUSHFORD_STW_B	G	F	F	A	A	G	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
RUSHFORD									
TPU 75: BRUSHFORD_STW_BRUSHFORD	G	F	F	A	A	G	A	A	A
BRADNINCH_STW_BRADNINCH	A	G	G	A	A	G	A	A	A
CHERITON BISHOP_STW_CHERITON BISHOP	A	F	F	A	A	A	A	A	A
DULFORD_STW_DULFORD	A	F	F	A	A	A	A	A	G
HEMYOCK_STW_HEMYOCK	A	F	F	A	A	A	A	A	A
NEWTON ST CYRES_STW_NEWTON ST CYRES	A	F	F	A	A	A	C	A	A
REWE_STW_REWE	A	G	G	A	A	G	A	G	A
WINSFORD_STW_WINSFORD	A	F	F	A	A	A	A	A	G

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 78: Cheriton Fitzpaine	A	C	C	A	A	A	C	A	A
KERSWELL_STW_KERSWELL	A	F	F	G	A	A	A	A	A
MAER LANE_STW_EXMOUTH	A	G	G	F	A	F	F	A	A
TIVERTON_STW_TIVERTON	A	G	G	F	A	F	B	A	A
UFFCULME_STW_UFFCULME	F	F	G	A	A	A	F	A	F
TPU 3: Timaru	F	F	G	G	A	F	A	A	G
TPU 1: Kenn & Kennford	A	G	G	A	A	G	G	A	A
TPU 2: Kenton & Starcross	F	G	G	A	A	A	A	A	A
HALBERTON_STW_HALBERTON	A	F	F	A	A	F	G	A	A
HOLCOMBE	A	F	F	A	A	G	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
ROGUS_STW_HOLCOMBE ROGUS									
MOSTERTON_SPS_Mosterton	A	G	G	A	A	G	A	A	A
SHILLINGFORD ABBOTT_STW_SHILLINGFORD	A	F	F	A	A	A	A	A	A
THORVERTON_STW_THORVERTON	A	F	F	A	A	A	A	A	A
ALLER GROVE_STW_WHIMPLE	A	B	B	A	A	A	A	A	A
ASHILL_STW_ASHILL	A	A	A	A	A	A	A	A	A
AYLESBEARE_STW_AYLESBEARE	A	A	A	A	A	A	A	A	A
BRAMPFORD SPEKE_STW_BRAMPFORD SPEKE	A	A	A	G	A	A	A	A	G
BURLESCOMBE_STW_BURLESCOMBE	A	A	A	A	A	G	G	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
CLYST ST LAWRENCE_STW_CULLOMPTON	A	A	A	A	A	A	A	A	A
DULVERTON_STW_DULVERTON	A	A	A	A	A	G	F	A	A
DUNKESWELL_STW_DUNKESWELL	A	A	A	A	A	A	F	A	A
EXFORD_STW_EXFORD	A	A	A	A	A	A	A	A	G
MARSH GREEN_STW_ROCKBEARE	A	A	A	A	A	A	A	A	A
PARK CLOSE_STW_CLYST HYDON	A	A	A	A	A	A	A	A	A
PLYMTREE_STW_PLYMTREE	A	A	A	A	A	F	F	A	A
POUGHILL_STW_POUGHILL	A	A	A	A	A	A	A	A	A
SAMPFORD	A	A	A	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
PEVERELL_STW_SAMPFORD PEVEREL									
SANDFORD_STW_SANDFORD	A	B	B	A	A	A	C	A	A
SHILLINGFORD ST GEORGE_STW_SHILLINGFORD	A	A	A	A	A	A	A	A	A
SIDELING CLOSE_STW_DUNCHIDEOCK	A	A	A	A	A	A	A	A	A
SILVERTON_STW_SILVERTON	A	A	A	A	A	A	A	A	A
UPLOWMAN_STW_TIVERTON	A	A	A	A	A	F	A	A	A
WHITEWAYS_STW_HELE	A	B	B	A	A	A	A	A	A

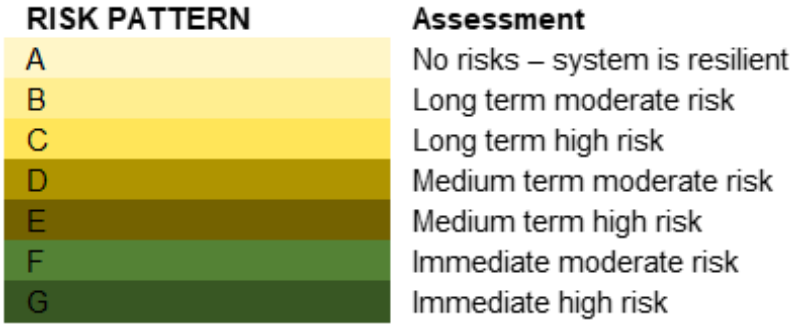

Figure 14: Problem Characterisation legend

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

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
ALLER GROVE_STW_WHIMPLE	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There are no overflows in this catchment.	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.
ASHILL_STW_ASHILL	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There is a total of 1 overflow in the catchment. It has been classified as follows: Not classified - 100%.	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
AYLESBEARE_STW_AYLESBEARE	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There is a total of 1 overflow in the catchment. It has been classified as follows: Not classified - 100%.	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.
BAMPTON_STW_BAMPTON	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; top of Frog Street and School Close.	A non modelled approach was used to determine future flood risk.	There are a total of 3 overflows in the catchment. They have been classified as follows: Sub-standard (High) - 33%; Not classified - 67%.	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.
BRADNINCH_STW_BRADNINCH	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; Kensham Farm. There is 1 external flooding hotspot attributed to other causes in the catchment, located	A non modelled approach was used to determine future flood risk.	There is a total of 1 overflow in the catchment. It has been classified as follows: Sub-standard (High) - 100%.	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
		near; Hornbeam Gardens.			
BRAMPFORD SPEKE_STW_BRAMPFORD SPEKE	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There are no overflows in this catchment.	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.
BRUSHFORD_STW_BRUSHFORD	This catchment requires additional investment to make it resilient for the future.	There are 3 total internal flooding incidents in the catchment; this is 1.91% of the total number of properties within the catchment. There is 1 external flooding hotspot attributed to other causes in the catchment, located near; Ellersdown Lane.	A non modelled approach was used to determine future flood risk.	There is a total of 1 overflow in the catchment. It has been classified as follows: Sub-standard (High) - 100%.	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.
BURLESCOMBE_STW_BURLESCOMBE	This catchment is changing & requires a long-term strategy.	There were no substantial flooding or pollution hotspots	A non modelled approach was used to determine future	There are a total of 2 overflows in the catchment. They have been classified	We are monitoring performance at the treatment works and there may be a need

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
		in the catchment.	flood risk.	as follows: Sub-standard (High) - 50%; Not classified - 50%.	to increase capacity as part of a short/medium term strategy.
CHERITON BISHOP_STW_CHERITON BISHOP	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; Church Lane. There is 1 external flooding hotspot attributed to other causes in the catchment, located near; Church Lane.	A non modelled approach was used to determine future flood risk.	There are a total of 3 overflows in the catchment. They have been classified as follows: Not classified - 100%.	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.
CLYST ST LAWRENCE_STW_CULLOMPTON	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There are no overflows in this catchment.	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.
COUNTESS WEAR_STW_EXETER	This catchment requires additional investment to make it resilient for the	There are 3 pollution hotspots in the catchment, located near; Countess Wear	4.9% of the total number of properties within the catchment are predicted to be	There are a total of 71 overflows in the catchment. They have been classified	We are monitoring performance at the treatment works and there may be a need

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
	future.	STW (Id:171), Greendale, Woodbury Salterton (Id:31) & Northbrook Golf Course CSO (Id:114). There is 1 external flooding hotspot attributed to hydraulic overload in the catchment, located near; Clyst St Mary. There are 7 external flooding hotspots attributed to other causes in the catchment, located near; Marsh Barton, St Loyes, Whipton, Okehampton Road St Thomas, Redhills, London Road Cranbrook and Beacon Lane.	at risk of sewer flooding. There are 5 predicted future flooding hotspots in the catchment, located near; St Thomas, Exeter Quay, St James, Heavitree and St Loyes.	as follows: Satisfactory - 20%; Sub-standard (Medium) - 65%; Sub-standard (High) - 11%; Unsatisfactory - 1%; Not classified - 3%. Overflows in this catchment impact on the following bathing beaches/shell fish waters; EXE.	to increase capacity as part of a medium/long term strategy.
CULLOMPTON_STW_ CULLOMPTON	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	3.5% of the total number of properties within the catchment are predicted to be at risk of sewer	There are a total of 5 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
		near; bottom end of Exeter Road and Knightwood SPS.	flooding. There are 2 predicted future flooding hotspots in the catchment, located near; Exeter Hill and Higher Street / Station Road.	Satisfactory - 20%; Sub-standard (Medium) - 40%; Sub-standard (High) - 20%; Not classified - 20%.	as part of a medium/long term strategy.
CULMSTOCK_STW_CULMSTOCK	This catchment is changing & requires a long-term strategy.	There are 2 pollution hotspots in the catchment, located near; Bridge House (Id:107) and Culmstock STW (Id:179).	A non modelled approach was used to determine future flood risk.	There are a total of 3 overflows in the catchment. They have been classified as follows: Not classified - 100%.	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.
DULFORD_STW_DULFORD	This catchment is changing & requires a long-term strategy.	There is 1 external flooding hotspot attributed to other causes in the catchment, located near; Off A373.	A non modelled approach was used to determine future flood risk.	There is a total of 1 overflow in the catchment. It has been classified as follows: Not classified - 100%.	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.
DULVERTON_STW_DULVERTON	This catchment is changing & requires a long-term strategy.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There are a total of 3 overflows in the catchment. They have been classified as follows: Sub-	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
				standard (High) - 33%; Unsatisfactory - 67%.	as part of a medium/long term strategy.
DUNKESWELL_STW_DUNKESWELL	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There are a total of 3 overflows in the catchment. They have been classified as follows: Sub-standard (Medium) - 67%; Not classified - 33%.	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.
EXFORD_STW_EXFORD	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There are no overflows in this catchment.	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.
HALBERTON_STW_HALBERTON	This catchment is changing & requires a long-term strategy.	There were no substantial flooding hotspots in the cacthment.	A non modelled approach was used to determine future flood risk.	There is a total of 1 overflow in the catchment. It has been classified as follows: Sub-standard (High) - 100%.	We are monitoring performance at the treatment works and there may be a need to increase capacity as part of a short/medium term strategy.

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
HEMYOCK_STW_HEMYOCK	This catchment is changing & requires a long-term strategy.	There is 1 external flooding hotspot attributed to other causes in the catchment, located near; Longmead.	A non modelled approach was used to determine future flood risk.	There are a total of 2 overflows in the catchment. They have been classified as follows: Not classified - 100%.	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.
HOLCOMBE ROGUS_STW_HOLCOMBE ROGUS	This catchment is changing & requires a long-term strategy.	There were no substantial flooding hotspots in the cacthment.	A non modelled approach was used to determine future flood risk.	There are a total of 3 overflows in the catchment. They have been classified as follows: Sub-standard (High) - 67%; Not classified - 33%.	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.
KERSWELL_STW_KERSWELL	This catchment requires additional investment to make it resilient for the future.	There is 1 pollution hotspot in the catchment, located near; Kerswell SPST (Id:53). There is 1 external flooding hotspot attributed to hydraulic overload in the catchment, located near; Off Catkins. There are 2 external flooding	A non modelled approach was used to determine future flood risk.	There are no overflows in this catchment.	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
		hotspots attributed to other causes in the catchment, located near; Off Catkins.			
LORDS MEADOW_STW_CREDITON	This catchment is changing & requires a long-term strategy.	There are 3 total internal flooding incidents in the catchment; this is 0.07% of the total number of properties within the catchment. There are 3 external flooding hotspots attributed to other causes in the catchment, located near; Shobrooke, On A377 and Queen Elizabeth Drive.	2.3% of the total number of properties within the catchment are predicted to be at risk of sewer flooding. There are 3 predicted future flooding hotspots in the catchment, located near; Charlotte Street / A3072, Jockey Hill / Blagdon Terrace, and High Street.	There are a total of 19 overflows in the catchment. They have been classified as follows: Sub-standard (Medium) - 42%; Not classified - 58%.	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.
MAER LANE_STW_EXMOUTH	This catchment requires additional investment to make it resilient for the future.	There is 1 pollution hotspot in the catchment, located near; Sandy Bay SPS (Id:8). There are 2 external flooding hotspots attributed	12.6% of the total number of properties within the catchment are predicted to be at risk of sewer flooding. There are 5 predicted future	There are a total of 20 overflows in the catchment. They have been classified as follows: Satisfactory - 30%, Sub-standard	We are monitoring performance at the treatment works and there may be a need to increase capacity as part of a medium/long term

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
		to hydraulic overload in the catchment, located near; Springfield Road and Exmouth Community College. There are 4 external flooding hotspots attributed to other causes in the catchment, located near; Deepway SPS, Queen Street / Beacon Place, Cranford Avenue and Midway/Nelson Drive.	flooding hotspots in the catchment, located near; Hartop Road SPS, Queen Street / Beacon Place, Magnolia Avenue / The Crescent / The Broadway, Hulham and Rock Mansions SPS.	(Medium) - 35%; Sub-standard (High) - 20%; Not classified - 15%. Overflows in this catchment impact on the following bathing beaches/shell fish waters; BUDLEIGH SALTERTON BEACH, SANDY BAY BEACH, EXMOUTH BEACH, BUDLEIGH SALTERTON BEACH, EXE.	strategy.
MARSH GREEN_STW_ROCKBEARE	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There are no overflows in this catchment.	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.
MOSTERTON_SPS_Mosterton	This catchment requires additional investment to make	There were no substantial flooding hotspots in the	A non modelled approach was used to determine future	There are no overflows in this catchment.	There is no sewage treatment works in the catchment.

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
	it resilient for the future.	cacthment.	flood risk.		
NEWTON ST CYRES_STW_NEWTON ST CYRES	This catchment is changing & requires a long-term strategy.	There is 1 external flooding hotspot attributed to other causes in the catchment, located near; West Town Road/Woodlands.	A non modelled approach was used to determine future flood risk.	There are a total of 3 overflows in the catchment. They have been classified as follows: Not classified - 100%.	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.
PARK CLOSE_STW_CLYST HYDON	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There are no overflows in this catchment.	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.
PLYMTREE_STW_PLYMTREE	This catchment is changing & requires a long-term strategy.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There are a total of 3 overflows in the catchment. They have been classified as follows: Sub-standard (Medium) - 33%; Sub-standard (High) - 33%; Not classified - 33%.	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
POUGHILL_STW_POUGHILL	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There are no overflows in this catchment.	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.
REWE_STW_REWE	This catchment is changing & requires a long-term strategy.	There is 1 external flooding hotspot attributed to other causes in the catchment, located near; Chestnut Crescent.	A non modelled approach was used to determine future flood risk.	There are a total of 2 overflows in the catchment. They have been classified as follows: Sub-standard (High) - 50%; Not classified - 50%.	We are monitoring performance at the treatment works and there may be a need to increase capacity as part of a short/medium term strategy.
SAMPFORD PEVERELL_STW_SAMPFORD PEVEREL	This catchment is changing & requires a long-term strategy.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There are a total of 3 overflows in the catchment. They have been classified as follows: Sub-standard (Medium) - 67%; Sub-standard (High) - 33%.	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.
SANDFORD_STW_SANDFORD	This catchment is changing & requires a long-term strategy.	There were no substantial flooding or pollution hotspots	A non modelled approach was used to determine future	There are a total of 2 overflows in the catchment. They	We are monitoring performance at the treatment works and

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
		in the catchment.	flood risk.	have been classified as follows: Sub-standard (Medium) - 50%; Not classified - 50%.	there may be a need to increase capacity as part of a medium/long term strategy.
SHILLINGFORD ABBOTT_STW_SHILLINGFORD	This catchment is performing well and is resilient for the future.	There were no substantial flooding hotspots in the cacthment.	A non modelled approach was used to determine future flood risk.	There is a total of 1 overflow in the catchment. It has been classified as follows: Not classified - 100%.	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.
SHILLINGFORD ST GEORGE_STW_SHILLINGFORD	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There is a total of 1 overflow in the catchment. It has been classified as follows: Not classified - 100%.	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.
SIDELING CLOSE_STW_DUNCHIDEOCK	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There are no overflows in this catchment.	We are monitoring performance at the treatment works and we are not expecting any compliance issues due to lack of capacity between

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
					now and 2050.
SILVERTON_STW_SILVERTON	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There are a total of 3 overflows in the catchment. They have been classified as follows: Sub-standard (Medium) - 67%; Not classified - 33%.	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.
THORVERTON_STW_THORVERTON	This catchment is changing & requires a long-term strategy.	There were no substantial flooding hotspots in the cacthment.	A non modelled approach was used to determine future flood risk.	There are a total of 3 overflows in the catchment. They have been classified as follows: Sub-standard (Medium) - 100%..	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.
TIVERTON_STW_TIVERTON	This catchment requires additional investment to make it resilient for the future.	There is 1 pollution hotspot in the catchment, located near; Tiverton STW (Id:170). There is 1 external flooding hotspot attributed to hydraulic overload in the catchment, located near; St Andrews Street.	14.5% of the total number of properties within the catchment are predicted to be at risk of sewer flooding. There are 2 predicted future flooding hotspots in the catchment, located near; King Street / St Paul's	There are a total of 15 overflows in the catchment. They have been classified as follows: Satisfactory - 7%; Sub-standard (Medium) - 47%; Sub-standard (High) - 7%; Unsatisfactory - 13%; Not classified -	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
		There are 7 external flooding hotspots attributed to other causes in the catchment, located near; St Andrews Street, Wellbrook Street, Roundhill, Palmerston Park, Westfield Road SPS, Blundells Road and Lime Kiln Road.	Church and Queensway.	27%.	
UFFCULME_STW_UFFCULME	This catchment requires additional investment to make it resilient for the future.	There is 1 total internal flooding incidents in the catchment; this is 0.09% of the total number of properties within the catchment. There is 1 external flooding hotspot attributed to hydraulic overload in the catchment, located near; Bridge Street. There is 1 external flooding hotspot attributed to other causes in the	6.4% of the total number of properties within the catchment are predicted to be at risk of sewer flooding. There are 4 predicted future flooding hotspots in the catchment, located near; Culm Haven, Markers Road, Bridge Street and Kitwell Street / Mill Street.	There are a total of 2 overflows in the catchment. They have been classified as follows: Sub-standard (Medium) - 50%; Sub-standard (High) - 50%.	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; Bridge Street.			
UPLOWMAN_STW_TIVERTON	This catchment is changing & requires a long-term strategy.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There is a total of 1 overflow in the catchment. It has been classified as follows: Sub-standard (High) - 100%.	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.
WHITEWAYS_STW_HELE	This catchment is performing well and is resilient for the future.	There were no substantial flooding or pollution hotspots in the catchment.	A non modelled approach was used to determine future flood risk.	There are no overflows in this catchment.	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.
WILLAND_STW_WILLAND	This catchment is changing & requires a long-term strategy.	There are 3 external flooding hotspots attributed to other causes in the catchment, located near; South View Road, Fir Close and Willand Old Village.	2.6% of the total number of properties within the catchment are predicted to be at risk of sewer flooding. There are 3 predicted future flooding hotspots in the catchment, located near; Silver	There are a total of 4 overflows in the catchment. They have been classified as follows: Sub-standard (High)- 50%; Not classified - 50%.	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
			Street / Plum Way, Park Street and Jubilee Fields / Somerlea.		
WINSFORD_STW_WINSFORD	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; Exford Road.	A non modelled approach was used to determine future flood risk.	There is a total of 1 overflow in the catchment. It has been classified as follows: Not classified - 100%.	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.
WOODBURY_STW_WOODBURY	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; Broadway and Town Lane.	8.4% of the total number of properties within the catchment are predicted to be at risk of sewer flooding. There are 5 predicted future flooding hotspots in the catchment, located near; Parsonage Way, Castle Lane, Flower Street, Church Stile Lane / Broadmead and Broadway.	There are a total of 2 overflows in the catchment. They have been classified as follows: Sub-standard (High)-100%. Overflows in this catchment impact on the following bathing beaches/shell fish waters; EXE.	We are monitoring performance at the treatment works and there may be a need to increase capacity as part of a short/medium term strategy.
YEOFORD_STW_CRE	This catchment is	There are 2 external	A non modelled	There are a total of 2	We are monitoring

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
DITON	changing & requires a long-term strategy.	flooding hotspots attributed to other causes in the catchment, located near; Colebrooke and Sunnymead.	approach was used to determine future flood risk.	overflows in the catchment. They have been classified as follows: Sub-standard (High) - 50%; Not classified - 50%.	performance at the treatment works and there may be a need to increase capacity as part of a medium/long term strategy.
KENN & KENNFORD_STW_EXETER	This catchment requires additional investment to make it resilient for the future.	There are 2 external flooding hotspost attributed to other causes in catchment, located near; Exeter Road, Kennford. Mount rise, Kenn	9% of the total number of properties within the catchment that are predicted to be at risk of sewer flooding. There is 1 predicted future flooding hotspot in the catchment, located on Exeter Road, Kennford	There is 1 overflow in the catchment. This has been classified as follows; Substandard (high)	We are monitoring performance at the treatment works and there may be a need to increase capacity as part of a short/medium term strategy
KENTON & STARCROSS_STW_STARCROSS	This catchment requires additional investment to make it resilient for the future.	There is 1 internal flooding incident in the catchment, this is 0.08 % of the total number of properties within the catchment. There is 1 external flooding hotspot	20% of the total number of properties within the catchment that are predicted to be at risk of sewer flooding. There are 3 predicted future flooding hotspots in the	There are a total of 3 overflows in the catchment. They have been classified as follows; Satisfactory - 1 Substandard (high) - 2 Overflows in this	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
		attributed to hydalulic overload in the catchment, located on; Exeter Road, Kenton There are 2 external flooding hotspots attributed to other causes in catchment, located near; Heywood Drive	catchment, located near; Mamhead Road SPS Bonhay Road SPS Generals Lane SPSt	catchment impact on the following shellfish waters; Exe	
TIMARU_STW_DAWLISH	This catchment requires additional investment to make it resilient for the future.	There are 16 total internal flooding incidents in the catchment, this is 0.19% of the total number of properties within the catchment. There are 2 external flooding hotspots attributed to hydalulic overload in the catchment, located near; Sandy Lane SPS Marina Shops SPS There are 5 external flooding hotspots	12% of the total number of properties within the catchment that are predicted to be at risk of sewer flooding. There are 11 predicted future flooding hotspots in the catchment, located near; Dawlish Warren (3) Dawlish town (5) Oaklands Smugglers Lane SPS Broad Leaf Park SPS	There are a total of 22 overflows in the catchment. They have been classified as follows; Satisfactory - 8 Substandard (medium) - 8 Substandard (high) - 5 Overflows in this catchment impact on the following bathing beaches/shellfish waters; Dawlish (Town) Teigmouth (Holcombe)	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
		attributed to other causes in catchment, located near; Dawlish Town (2) Smugglers Lane SPS, Ladys Mile SPS Broad Leaf Park SPS There are 2 pollution hotspots in the catchment, located near; Cockwood CSO (ID 78) Shutterton Bridge SPS (ID 4)		Exe	
CHERITON FITZPAINE_STW_CREDITON	Your catchment is changing & requires a long-term strategy.	There is 1 external flooding hotspot attributed to other causes in the catchment, located near Cherry Meadow and Cherry Close	A non modelled approach was used to determine future flood risk.	There are no overflows in the catchment.	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.
BRUSHFORD_STW_BRUSHFORD	Your catchment requires additional investment to make it resilient for the future.	There are 3 total internal flooding incidents in the catchment; this is 1.91% of the total	A non modelled approach was used to determine future flood risk.	There is a total of 1 overflow in the catchment. It has been classified as follows: Sub-	We are monitoring performance at the treatment works and we are not expecting any compliance

TPU	Conclusion Narrative	Historical Pollution and Flooding	Future Flood Risk	Overflows	WwTW
		number of properties within the catchment. There is 1 external flooding hotspot attributed to other causes in the catchment, located near; Ellersdown Lane.		standard (High) - 100%.	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.

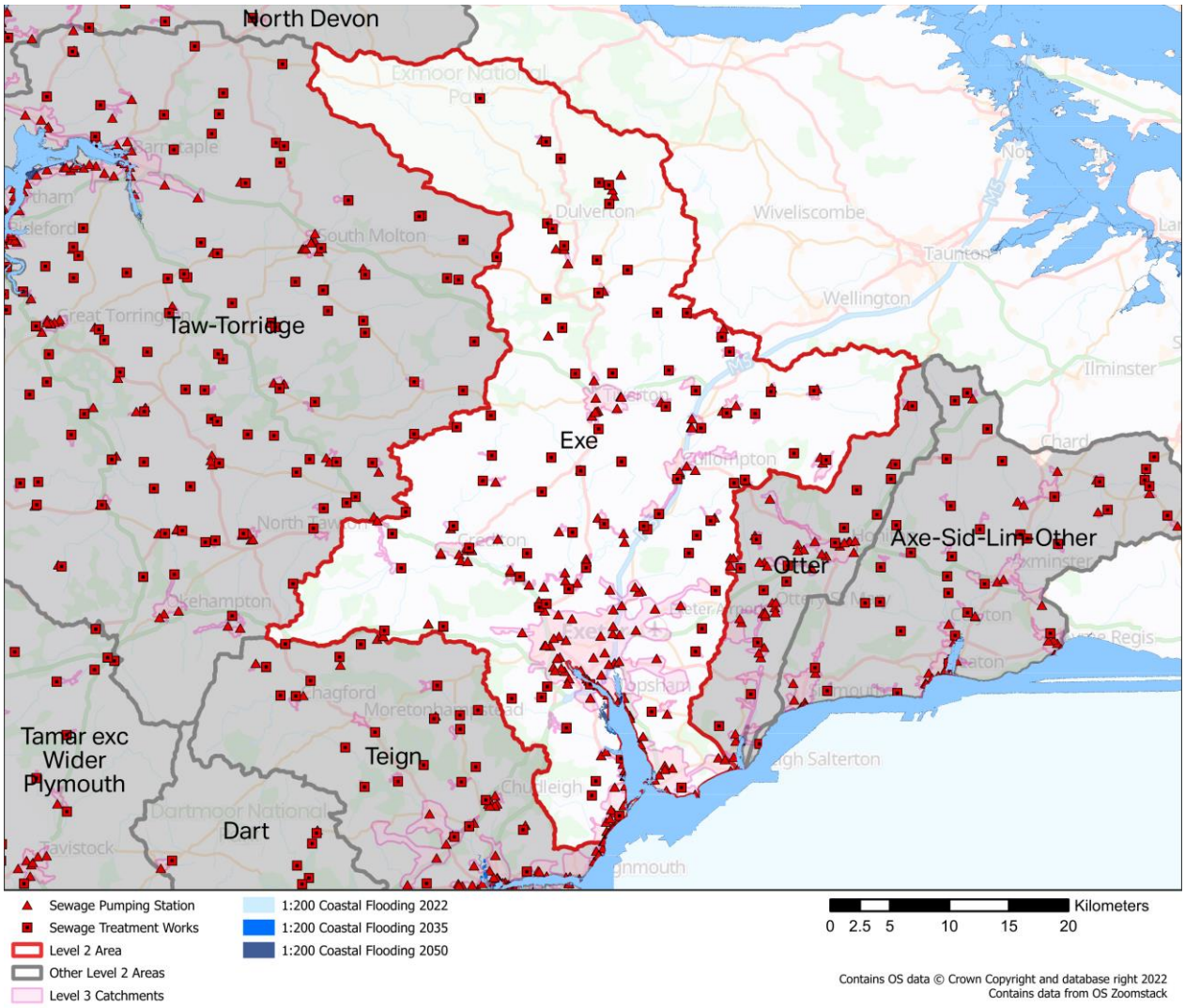

Figure 15: Extent of coastal flooding

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

[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'

collaboration with the EA and responsible RMAs. The sewer infrastructure identified at risk 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.

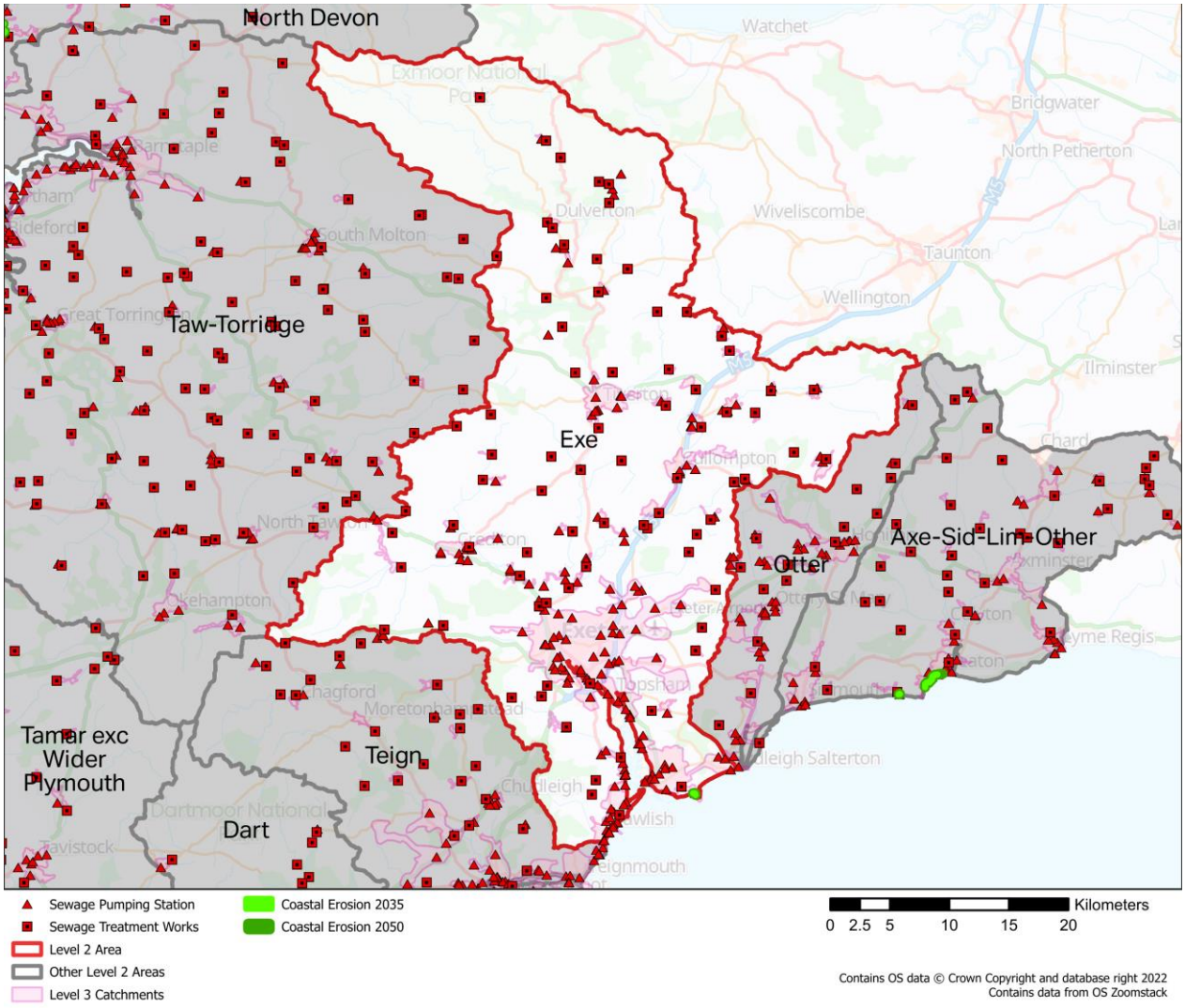

Figure 16: Extent of coastal erosion in 2035 and 2050

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
ALLER GROVE_STW_WHIMPLE	YES	YES	NO	N/A
ASHILL_STW_ASHILL	YES	YES	NO	N/A
AYLESBEARE_STW_AYLESBEARE	YES	YES	NO	N/A
BAMPTON_STW_BAMPTON	YES	YES	YES	Extended
BRADNINCH_STW_BRADNINCH	YES	YES	YES	Standard
BRAMPFORD SPEKE_STW_BRAMPFORD SPEKE	YES	YES	NO	N/A
BRUSHFORD_STW_BRUSHFORD	YES	YES	YES	Standard
BURLESCOMBE_STW_BURLESCOMBE	YES	YES	YES	Standard
CHERITON BISHOP_STW_CHERITON BISHOP	YES	YES	YES	Standard
CHERITON FITZPAINE_STW_CREDITON	YES	YES	YES	Standard
CLYST ST LAWRENCE_STW_CULLOMPTON	YES	YES	NO	N/A
COUNTESS WEAR_STW_EXETER	YES	YES	YES	Complex
CULLOMPTON_STW_CULLOMPTON	YES	YES	YES	Complex
CULMSTOCK_STW_CULMSTOCK	YES	YES	YES	Standard
DULFORD_STW_DULFORD	YES	YES	NO	N/A
DULVERTON_STW_DULVERTON	YES	YES	YES	Standard
DUNKESWELL_STW_DUNKESWELL	YES	YES	YES	Standard
EXFORD_STW_EXFORD	YES	YES	NO	N/A
HALBERTON_STW_HALBERTON	YES	YES	YES	Standard
HEMYOCK_STW_HEMYOCK	YES	YES	NO	N/A
HOLCOMBE ROGUS_STW_HOLCOMBE ROGUS	YES	YES	YES	Standard
KENN & KENNFORD_STW_EXETER	YES	YES	YES	Extended
KENTON & STARCROSS_STW_STARCROSS	YES	YES	YES	Extended
KERSWELL_STW_KERSWELL	YES	YES	YES	Standard
LORDS MEADOW_STW_CREDITON	YES	YES	YES	Extended

TPU	RBCS	BRAVA	ODA	TPU Class
MAER LANE_STW_EXMOUTH	YES	YES	YES	Complex
MARSH GREEN_STW_ROCKBEARE	YES	YES	NO	N/A
NEWTON ST CYRES_STW_NEWTON ST CYRES	YES	YES	NO	N/A
PARK CLOSE_STW_CLYST HYDON	YES	YES	NO	N/A
PLYMTREE_STW_PLYMTREE	YES	YES	YES	Standard
POUGHILL_STW_POUGHILL	YES	YES	NO	N/A
REWE_STW_REWE	YES	YES	YES	Extended
SAMPFORD PEVERELL_STW_SAMPFORD PEVEREL	YES	YES	YES	Standard
SANDFORD_STW_SANDFORD	YES	YES	NO	N/A
SHILLINGFORD ABBOTT_STW_SHILLINGFORD	YES	YES	NO	N/A
SHILLINGFORD ST GEORGE_STW_SHILLINGFORD	YES	YES	NO	N/A
SIDELING CLOSE_STW_DUNCHIDEOCK	YES	YES	NO	N/A
SILVERTON_STW_SILVERTON	YES	YES	NO	N/A
THORVERTON_STW_THORVERTON	YES	YES	NO	N/A
TIMARU_STW_DAWLISH	YES	YES	YES	Complex
TIVERTON_STW_TIVERTON	YES	YES	YES	Extended
UFFCULME_STW_UFFCULME	YES	YES	YES	Extended
UPLOWMAN_STW_TIVERTON	YES	YES	NO	N/A
WHITEWAYS_STW_HELE	YES	YES	NO	N/A
WILLAND_STW_WILLAND	YES	YES	YES	Standard
WINSFORD_STW_WINSFORD	YES	YES	NO	N/A
WOODBURY_STW_WOODBURY	YES	YES	YES	Complex
YEOFORD_STW_CREDITON	YES	YES	YES	Standard
ALLERS S T_STW_ALLERS WTW	YES	NO	NO	N/A
BICKLEIGH_STW_BICKLEIGH	YES	NO	NO	N/A
BRIDGETOWN_STW_BRIDGETOWN	YES	NO	NO	N/A

TPU	RBCS	BRAVA	ODA	TPU Class
BROMPTON REGIS_STW_BROMPTON REGIS	YES	NO	NO	N/A
BUTTERLEIGH_STW_TIVERTON	YES	NO	NO	N/A
CADBURY_STW_CADBURY	YES	NO	NO	N/A
CADELEIGH_STW_CADELEIGH	YES	NO	NO	N/A
COWLEY_STW_EXETER	YES	NO	NO	N/A
DULVERTON REC S T_SEPTNK_DULVERTON	YES	NO	NO	N/A
HUNTSHAM_STW_HUNTSHAM	YES	NO	NO	N/A
KNOWLE_STW_CREDITON	YES	NO	NO	N/A
MAMHEAD_STW_STARCROSS	YES	NO	NO	N/A
MOREBATH_STW_BAMPTON	YES	NO	NO	N/A
NEW BUILDINGS_STW_COPPLESTONE	YES	NO	NO	N/A
OAKFORD_STW_OAKFORD	YES	NO	NO	N/A
OAKLEIGH_STW_SHELDON	YES	NO	NO	N/A
OLDWAYS END_STW_EAST ANSTEY	YES	NO	NO	N/A
PENNYMOOR_STW_TIVERTON	YES	NO	NO	N/A
PORT ROAD_STW_DAWLISH	YES	NO	NO	N/A
PUDDINGTON_STW_PUDDINGTON	YES	NO	NO	N/A
PYNES S T_SEPTNK_EXETER	YES	NO	NO	N/A
SHILLINGFORD_STW_BAMPTON	YES	NO	NO	N/A
SHUTE_STW_SHUTE	YES	NO	NO	N/A
STAPLE CROSS_STW_HOCKWORTHY	YES	NO	NO	N/A
STOODLEIGH_STW_STOODLEIGH	YES	NO	NO	N/A
TEDBURN ST MARY_STW_TEDBURN ST MARY	YES	NO	NO	N/A
WASHFIELD_STW_TIVERTON	YES	NO	NO	N/A
WIGGINS TEAPE_STW_HELE	YES	NO	NO	N/A
WIMBLEBALL DAM S T_SEPTNK_BAMPTON	YES	NO	NO	N/A
WIMBLEBALL RES S T_STW_BAMPTON	YES	NO	NO	N/A

Of the 78 TPUs in the Exe catchment, 48 proceeded through RBCS to BRAVA (the 30 remaining catchments had 1 or no indicators breached, and if 1 indicator was breached it was not tier 1) and 27 proceeded to ODA. Of these, 15 were classed as Standard, 7 Extended and 5 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 Exe 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
BAMPTON_STW_BAMPTON	Extended	SWW: Potential SUDS for SW separation	Short term: EA: Bampton on FDGiA programme, EA worked with Motts, struggled to fund. Investment needs linking to other RMA activity to be viable. Any DWMP work will help deliver FRMP measures for Bampton SWW: Potential SUDS	CFS2	SWM4	SWM6	WWT3		Wastewater treatment intervention WWT3 and Surface water management interventions SWM4,SWM6 and Combined and foul sewer systems CFS2 carried over.

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
BRADNINCH_STW_BRADNINCH	Standard	SWW: Potential SUDS for SW separation identified	Short and long term, Devon CC: Connecting the Culm SWW: Potential SUDS identified	CFS2	SWM4	SWM6	SWM2	WWT3	Surface water management intervention SWM6 carried forward with SWM2 and SWM4 added. Combined and foul sewer systems CFS5 replaced with CFS2. Wastewater treatment intervention WWT3 added.
BRUSHFORD_STW_BRUSHFORD	Standard	SWW: Potential SUDS for SW separation	SWW: Potential SUDS	CFS2	SWM4	SWM6			Combined and foul sewer systems CFS2 carried over alongside SWM4 and SWM6.
BURLESCOMBE_STW_BURLESCOMBE	Standard	SWW: Potential SUDS for SW separation	SWW: Potential SUDS	SWM6	WWT3				Wastewater treatment intervention WWT3 carried over but

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
									WWT2 removed alongside CSF2. Surface water management intervention SWM6 carried over but SWM4 removed.
CHERITON BISHOP_STW_ CHERITON BISHOP	Standard	SWW: Potential SUDS for SW separation	SWW: Potential SUDS	CFS2	SWM4	SWM6	WWT3		Combined and foul sewer systems CFS2 carried over with Surface water management SWM4 and SWM6. WWT3 added.
CHERITON FITZPAINE_ST W_CREDITON	Standard	SWW: Potential SUDS for SW separation	SWW: Potential SUDS	CFS2	SWM4	WWT3			Combined and foul sewer systems CFS2 carried over, CFS1 removed alongside SWM6. WWT3

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
									and SWM4 carried over.
COUNTESS WEAR_STW_EXETER	Complex	SWW: Potential SUDS for SW separation	Short and long term, EA: NFM in urban catchments' above' Exeter (Red Cow) ECC/EA SWW: Potential SUDS	CFS2	SWM4	SWM3	WWT3		Combined and foul sewer systems CFS2 carried over with Surface water management SWM4,SWM3 and WWT3. SWM6 removed.
CULLOMPTON_STW_CULLOMPTON	Complex	SWW: Potential SUDS for SW separation	Short term, Devon CC: NFM in upper catchments of the Crow Green Stream and Cole Brook. Connecting the Culm. SWW: Potential SUDS	CFS2	SWM4	SWM6	WWT3		Surface water management intervention SWM4 & SWM6 carried over. Combined and foul sewer systems CFS2 carried over. Waste Water Treatment WWT3 also carried over.

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
CULMSTOCK_STW_CULMSTOCK	Standard	SWW: Potential SUDS for SW separation	Short and long term, Devon CC: Connecting the Culm SWW: Potential SUDS	CFS2	SWM4	SWM6			Surface water management intervention SWM4 & SWM6 carried over. Combined and foul sewer systems CFS2 also carried over.
DULVERTON_STW_DULVERTON	Standard	SWW: Potential SUDS for SW separation	SWW: Potential SUDS	CFS2	SWM4	SWM6	WWT3		Wastewater treatment intervention WWT2 removed. Wastewater treatment intervention WWT3 and Surface water management intervention SWM4 carried over. Combined and foul sewer systems CFS2 and Surface

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
									water management intervention SWM6 added
DUNKESWELL_STW_DUNKESWELL	Standard	SWW: Potential SUDS for SW separation identified	Short and long term, Devon CC: Connecting the Culm SWW: Potential SUDS identified	CFS2	SWM4	SWM6	WWT3	SWM2	Combined and foul sewer systems CFS2 and Surface water management intervention SWM6 and SWM2 carried over. Surface water management intervention SWM4 and Wastewater Treatment WWT3 added. Surface water management intervention SWM5 removed.
HALBERTON_STW_HALBERT	Standard	SWW: Potential	SWW: Potential	CFS2	SWM4	SWM6	WWT3		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
ON		SUDS for SW separation	SUDS						systems CFS2, Surface water management intervention SWM4 and WWT3 Wastewater treatment carried over. Surface water management intervention SWM6 added. Combined and foul sewer systems CFS5 and WWT2 Wastewater treatment removed.
HOLCOMBE ROGUS_STW_ HOLCOMBE ROGUS	Standard	SWW: Potential SUDS for SW separation identified	Short and long term, Devon CC: Connecting the Culm SWW: Potential SUDS identified	CFS2	SWM4	SWM6	SWM2	WWT3	Combined and foul sewer systems CFS2, Surface Water management SWM2 & SWM6 carried over. 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 and Wastewater treatment WWT3 added.
KENN & KENNFORD_STW_EXETER	Extended	SWW: Potential SUDS for SW separation	Short and Long term, EA: NFM in upper catchment SWW: Potential SUDS, UST	CFS2	SWM4	SWM6	WWT3	SWM3	Combined and foul sewer systems CFS2, Surface water management SWM4, SWM3 and SWM6 carried over. Wastewater treatment WWT3 carried over.
KENTON & STARCROSS_STW_STARCROSS	Extended	SWW: Potential SUDS for SW separation	Short and Long term, EA: NFM in upper catchment SWW: Potential SUDS	CFS2	SWM4				Combined and foul sewer systems CFS2 and Surface water management SWM4 carried over. Surface water management SWM6

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
									removed.
KERSWELL_STW_KERSWELL	Standard	SWW: Potential SUDS for SW separation identified	SWW: Potential SUDS identified						continue to monitor risk, no intervention needed
LORDS MEADOW_STW_CREDITON	Extended	SWW: Potential SUDS for SW separation identified	SWW: Potential SUDS identified	CFS2	SWM4	SWM6	WWT3	SWM2	Combined and foul sewer systems CFS2, Surface Water management SWM2, SWM4, SWM6, Wastewater treatment WWT3 carried over.
MAER LANE_STW_EX MOUTH	Complex	SWW: Potential SUDS for SW separation	SWW: Potential SUDS	CFS2	SWM4	WWT3			Surface Water management SWM4, Combined and foul sewer systems CFS2, Wastewater treatment WWT3 carried over. Combined 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
									foul sewer systems CFS3 removed.
MOSTERTON_SPS_Mosterton	Standard	SWW: Potential SUDS for SW separation	SWW: Potential SUDS			SWM6			Surface water management SWM4 and Combined and foul sewer systems CFS2 removed. Surface water management SWM6 was retained.
PLYMTREE_STW_PLYMTREE	Standard	SWW: Potential SUDS for SW separation	SWW: Potential SUDS	SWM6	WWT3				Wastewater treatment intervention WWT2 and Combined and foul sewer systems CFS2 and Surface water management SWM4 removed. Wastewater treatment

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
									intervention WWT3 and Surface water management SWM6 retained.
REWE_STW_REWE	Extended	SWW: Potential SUDS for SW separation	Short and long term, Devon CC: Connecting the Culm SWW: Potential SUDS	CFS2	SWM4	SWM6	WWT3		Combined and foul sewer systems CFS2, Surface water management SWM4 & SWM6 and Wastewater treatment WWT3 carried over.
SAMPFORD PEVERELL_STW_SAMPFORD PEVEREL	Standard	SWW: Potential SUDS for SW separation identified	Short and long term, Devon CC: Connecting the Culm SWW: Potential SUDS identified	CFS2	SWM4	SWM6			Surface water management SWM6 carried over with CFS2. Surface water management SWM2 replaced with SWM4.

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
TIMARU_STW_DAWLISH	Complex	SWW: Potential SUDS for SW separation	Short and Long term, EA: NFM in upper catchment. Dawlish Water scheme on programme Long term, EA: Shutteron Brook tidal scheme SWW: Potential SUDS identified	CFS2	SWM4	SWM3			Combined and foul sewer systems CFS2 and Surface water management SWM4 & SWM3 carried over. Surface water management SWM6 & SWM1 removed.
TIVERTON_STW_TIVERTON	Extended	SWW: Potential SUDS for SW separation	Short term, EA: Tiverton being surveyed for fluvial re-modelling. Potential joint scheme using Tiverton line	CFS2	SWM4	WWT3			Combined and foul sewer systems CFS2 and Surface water management SWM4 carried over. Customer side management

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
			on current capital prog. SWW: Potential SUDS						options CE3 and Surface water management SWM6 removed. Wastewater treatment WWT3 added.
UFFCULME_STW_UFFCULME	Extended	SWW: Potential SUDS for SW separation	Short and long term, Devon CC: Connecting the Culm SWW: Potential SUDS	CFS2	SWM4	SWM6	WWT3		Combined and foul sewer systems CFS2, Wastewater treatment WWT3 and Surface water management SWM4 and SWM6 Carried over.
WILLAND_STW_WILLAND	Standard	SWW: Potential SUDS for SW separation	SWW: Potential SUDS	CFS2	SWM4	SWM6			Combined and foul sewer systems CFS2 and Surface water management 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. Wastewater treatment WWT2 was removed.
WOODBURY_STW_WOODBURY	Complex	SWW: Potential SUDS for SW separation	Short and Long term, EA: Woodbury scheme being considered for capital prog, no work done to date, potential for collaboration - modelling/scheme etc SWW: Potential SUDS	CFS2	SWM4	SWM6	WWT3		Combined and foul sewer systems CFS2, Wastewater treatment intervention WWT3 and Surface water management SWM4 and SWM6 carried over.
YEOFORD_STW_CREDITON	Standard	SWW: Potential SUDS for SW separation	SWW: Potential SUDS	CFS2	SWM4	SWM6			Surface water management SWM6 & 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
									Combined and foul sewer systems CFS2 carried over.

For the Exe catchment, 27 TPUs progressed to ODA. Stakeholder feedback was received on 16 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	4
SWM3: Upper Catchment Solution/Up Stream Thinking	3
SWM4: Separate surface water from combined systems by constructing new surface water networks (and/or modify existing)	24
SWM5: Integrate surface water pathway measures into new and upgraded third party designs	0
SWM6: Develop a program to reduce infiltration	21
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	24
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)	19
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	95

There were no interventions selected in the Exe 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 Exe 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
ALLER GROVE_STW_WHIMPLE	0	0.00	0.00	0	0	0
ALLERS S T_STW_ALLERS WTW	0	0.00	0.00	0	0	0
ASHILL_STW_ASHILL	0	0.00	0.00	0	0	0
AYLESBEARE_STW_AYLESBEARE	0	0.00	0.00	0	0	1
BAMPTON_STW_BAMPTON	1,613	7.16	2.10	1	0	1
BICKLEIGH_STW_BICKLEIGH	424	2.95	0.76	0	0	0
BRADNINCH_STW_BRADNINCH	1,760	4.35	8.92	0	1	0
BRAMPFORD SPEKE_STW_BRAMPFORD SPEKE	0	0.00	0.00	0	1	1
BRIDGETOWN_STW_BRIDGETOWN	0	0.00	0.00	0	0	0
BROMPTON REGIS_STW_BROMPTON REGIS	0	0.00	0.00	0	0	0
BRUSHFORD_STW_BRUSHFORD	579	3.26	3.28	0	0	0
BURLESCOMBE_STW_BURLESCOMBE	0	0.00	3.49	1	1	1
BUTTERLEIGH_STW_TIVERTON	0	0.00	0.00	0	0	0
CADBURY_STW_CADBURY	0	0.00	0.00	0	0	0
CADELEIGH_STW_CADELEIGH	0	0.00	0.00	0	0	0
CHERITON BISHOP_STW_CHERITON BISHOP	24	0.11	3.08	0	0	1
CLYST ST LAWRENCE_STW_CULLOMPTON	0	0.00	0.00	0	0	0
COUNTESS	17,476	54.93	0.00	1	2	0

TPU	Storage (m3)	SWS (ha)	Network Enhancement (km)	No. WWTW for Capacity increase	No. WWTW for DWF increase	No. WWTW for Nutrient reduction
WEAR_STW_EXETER						
COWLEY_STW_EXETER	0	0.00	0.00	0	0	0
CULLOMPTON_STW_CULLOMPTON	386	4.48	48.12	1	1	1
CULMSTOCK_STW_CULMSTOCK	166	2.03	2.79	0	0	0
DULFORD_STW_DULFORD	0	0.00	0.00	0	0	0
DULVERTON REC ST_SEPTNK_DULVERTON	0	0.00	0.00	0	0	0
DULVERTON_STW_DULVERTON	10,050	13.29	6.38	1	0	0
DUNKESWELL_STW_DUNKESWELL	196	3.03	9.70	1	0	0
EXFORD_STW_EXFORD	0	0.00	1.06	0	0	0
HALBERTON_STW_HALBERTON	287	2.57	4.18	1	1	1
HEMYOCK_STW_HEMYOCK	0	0.00	0.00	0	0	1
HOLCOMBE ROGUS_STW_HOLCOMBE ROGUS	1,999	7.58	2.67	0	0	1
HUNTSHAM_STW_HUNTSHAM	0	0.00	0.00	0	0	0
KENN & KENNFORD_STW_EXETER	5,000	7.00	5.95	1	1	0
KENTON & STARCROSS_STW_STARCROSS	41	0.70	0.00	0	0	0
KERSWELL_STW_KERSWELL	0	0.00	0.00	0	0	0
KNOWLE_STW_CREDITON	0	0.00	0.00	0	0	0
LORDS MEADOW_STW_CREDITON	2,430	11.05	19.30	1	0	0
MAER LANE_STW_EXMOUTH	3,824	9.60	0.00	1	0	0
MAMHEAD_STW_STARCROSS	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
MARSH GREEN_STW_ROCKBEARE	0	0.00	0.00	0	0	0
MOREBATH_STW_BAMPTON	0	0.00	0.00	0	0	0
NEW BUILDINGS_STW_COPPLESTONE	0	0.00	0.00	0	0	0
NEWTON ST CYRES_STW_NEWTON ST CYRES	0	0.00	6.79	0	0	1
OAKFORD_STW_OAKFORD	0	0.00	0.00	0	0	0
OAKLEIGH_STW_SHELDON	0	0.00	0.00	0	0	0
OLDWAYS END_STW_EAST ANSTEY	0	0.00	0.00	0	0	0
PARK CLOSE_STW_CLYST HYDON	0	0.00	0.00	0	0	0
PENNYMOOR_STW_TIVERTON	0	0.00	0.00	0	0	0
PLYMTREE_STW_PLYMTREE	0	0.00	1.86	1	0	1
POUGHILL_STW_POUGHILL	0	0.00	0.00	0	0	0
PUDDINGTON_STW_PUDDINGTON	0	0.00	0.00	0	0	0
PYNES S T_SEPTNK_EXETER	0	0.00	0.00	0	0	0
REWE_STW_REWE	2,017	4.48	6.23	0	0	1
SAMPFORD PEVERELL_STW_SAMPFORD PEVEREL	1,154	4.27	6.57	0	0	0
SANDFORD_STW_SANDFORD	72	1.21	3.06	0	0	1
SHILLINGFORD ABBOTT_STW_SHILLINGFORD	0	0.00	0.00	0	0	0
SHILLINGFORD ST GEORGE_STW_SHILLINGFORD	0	0.00	0.00	0	0	0
SHILLINGFORD_STW_BAMPTON	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
SHUTE_STW_SHUTE	0	0.00	0.00	0	0	0
SIDELING CLOSE_STW_DUNCHIDEOCK	0	0.00	0.00	0	0	0
SILVERTON_STW_SILVERTON	25	0.15	9.72	0	0	0
STAPLE CROSS_STW_HOCKWORTHY	0	0.00	0.00	0	0	0
STOODLEIGH_STW_STOODLEIGH	0	0.00	3.09	0	0	0
TEDBURN ST MARY_STW_TEDBURN ST MARY	34	0.46	6.55	0	0	1
THORVERTON_STW_THORVERTON	45	0.16	0.00	0	0	1
TIMARU_STW_DAWLISH	4,448	12.10	0.00	0	0	0
TIVERTON_STW_TIVERTON	11,507	14.36	0.00	0	1	1
UFFCULME_STW_UFFCULME	129	1.78	8.97	1	0	0
UPLOWMAN_STW_TIVERTON	0	0.00	0.96	0	0	0
WASHFIELD_STW_TIVERTON	0	0.00	0.61	0	0	0
WHITEWAYS_STW_HELE	0	0.00	0.00	0	0	0
WIGGINS TEAPE_STW_HELE	0	0.00	0.00	0	0	0
WILLAND_STW_WILLAND	658	5.40	16.16	0	0	0
WIMBLEBALL DAM ST_SEPTNK_BAMPTON	0	0.00	0.00	0	0	0
WIMBLEBALL RES ST_STW_BAMPTON	0	0.00	0.00	0	0	0
WINSFORD_STW_WINSFORD	0	0.00	0.00	0	0	0
WOODBURY_STW_WOODBURY	1,176	5.88	6.19	1	0	0
YEOFORD_STW_CREDITON	1,102	3.89	12.94	0	0	0

Our proposals for the Exe catchment include approximately 188ha of SWS by conventional or SUDS solutions, 68,621m^3 of storage, 211km of network enhancement, work to improve

DWF compliance at 9 treatment sites, upgrading of capacity at 13 treatment sites and work to reduce nutrients at 16 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.

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 Exe 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.

[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.

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
CD202410	Spratford Stream	Y	112	Y	207	Y	126
CD720710	Permian Aquifers in Central Devon	Y	235	Y	164	Y	261
CD401620	Lower Barle	Y	189	Y	151	Y	174
CD719240	Permian Aquifers in Central Devon	Y	78	Y	149	Y	186
CD706180	Permian Aquifers in Central Devon	Y	112	Y	146	Y	110
CD201620	Lower Barle	Y	165	Y	144	Y	92
CD204210	Permian Aquifers in Central Devon	Y	57	Y	134	Y	100
CD715280	Exe (Barle to Culm)	Y	125	Y	130	Y	123
CD200500	Central Devon and Exe - Aylesbeare Mudstone	Y	96	Y	124	Y	103
CD204330	Spratford Stream	Y	142	Y	123	Y	81
CD708940	Lowman	Y	97	Y	107	Y	99
CD205710	Polly Brook	Y	143	Y	106	Y	92

CD_Number	Waterbody	2019 Reportable	2019 Nr. Spills	2020 Reportable	2020 Nr. Spills	2021 Reportable	2021 Nr. Spills
CD402410	Spratford Stream	Y	79	Y	105	Y	93
CD400710	Lower Barle	Y	112	Y	105	Y	63
CD400180	Lower Batherm	N	n/a	Y	105	Y	0
CD205860	Permian Aquifers in Central Devon	Y	95	Y	83	Y	120
CD403980	Upper Clyst	Y	37	Y	78	Y	66
CD205630	Spratford Stream	Y	75	Y	75	Y	70
CD510730	Permian Aquifers in Central Devon	Y	73	Y	74	Y	0
CD200180	Lower Batherm	Y	120	Y	73	Y	0
CD405630	Spratford Stream	Y	61	Y	70	Y	71
CD511170	Exeter-Whiddon Down Culm	Y	89	Y	70	Y	71
CD714730	Permian Aquifers in Central Devon	Y	52	Y	69	Y	65
CD507160	Central Devon and Exe - Aylesbeare Mudstone	Y	69	Y	66	Y	12
CD201340	Permian Aquifers in Central Devon	Y	62	Y	65	Y	47
CD507130	Central Devon and Exe - Aylesbeare Mudstone	Y	49	Y	62	Y	74
CD507090	Otter Valley	Y	38	Y	60	Y	48

CD_Number	Waterbody	2019 Reportable	2019 Nr. Spills	2020 Reportable	2020 Nr. Spills	2021 Reportable	2021 Nr. Spills
CD201830	Central Devon and Exe - Aylesbeare Mudstone	Y	68	Y	59	Y	49
CD714570	Permian Aquifers in Central Devon	Y	46	Y	57	Y	41
CD716640	Permian Aquifers in Central Devon	Y	53	Y	57	Y	66
CD415250	Permian Aquifers in Central Devon	Y	32	Y	57	Y	26
CD707790	Permian Aquifers in Central Devon	Y	48	Y	56	Y	44
CD706190	Permian Aquifers in Central Devon	Y	38	Y	56	Y	30
CD401640	Blackdown Hills - Greensand	Y	0	Y	55	Y	24
CD716370	Permian Aquifers in Central Devon	Y	23	Y	54	Y	63
CD515380	Polly Brook	Y	47	Y	53	Y	56
CD721081	Alphin Brook	Y	61	Y	53	Y	65
CD205350	Central Devon and Exe - Aylesbeare Mudstone	N	n/a	Y	50	Y	43
CD200790	Spratford Stream	Y	74	Y	49	Y	17
CD716430	Permian Aquifers in Central Devon	Y	39	Y	47	Y	2
CD701850	Permian Aquifers in Central	Y	53	Y	47	Y	36

CD_Number	Waterbody	2019 Reportable	2019 Nr. Spills	2020 Reportable	2020 Nr. Spills	2021 Reportable	2021 Nr. Spills
	Devon						
CD719380	Permian Aquifers in Central Devon	Y	20	Y	45	Y	11
CD201640	Blackdown Hills - Greensand	Y	0	Y	45	Y	62
CD511130	Exeter-Whiddon Down Culm	Y	30	Y	45	Y	35
CD509060	Exe (Barle to Culm)	Y	40	Y	41	Y	44
CD707170	Central Devon and Exe - Aylesbeare Mudstone	Y	41	Y	38	Y	50
CD716320	Permian Aquifers in Central Devon	Y	31	Y	36	Y	16
CD516230	Permian Aquifers in Central Devon	Y	19	Y	33	Y	26
CD511090	North Brook (East Devon)	Y	18	Y	33	Y	32
CD510660	Alphin Brook	Y	50	Y	32	Y	44
CD716240	Permian Aquifers in Central Devon	Y	33	Y	32	Y	32
CD519740	Lower Barle	Y	62	Y	30	Y	14
CD511030	Permian Aquifers in Central Devon	Y	29	Y	28	Y	34
CD204500	Permian Aquifers in Central Devon	N	n/a	Y	28	Y	42
CD510740	Permian Aquifers in Central Devon	Y	21	Y	27	Y	28

CD_Number	Waterbody	2019 Reportable	2019 Nr. Spills	2020 Reportable	2020 Nr. Spills	2021 Reportable	2021 Nr. Spills
CD511110	Exeter-Whiddon Down Culm	Y	22	Y	27	Y	48
CD516660	Alphin Brook	Y	7	Y	25	Y	8
CD516280	Permian Aquifers in Central Devon	Y	15	Y	25	Y	21
CD201380	Permian Aquifers in Central Devon	Y	26	Y	25	Y	32
CD720380	n/a	Y	15	Y	24	Y	13
CD510640	Alphin Brook	Y	23	Y	23	Y	34
CD401340	Permian Aquifers in Central Devon	Y	17	Y	23	Y	25
CD716980	Central Devon and Exe - Aylesbeare Mudstone	Y	46	Y	23	Y	22
CD519020	Permian Aquifers in Central Devon	Y	15	Y	22	Y	0
CD517500	Permian Aquifers in Central Devon	Y	9	Y	20	Y	14
CD510670	Alphin Brook	Y	19	Y	20	Y	9
CD401380	Permian Aquifers in Central Devon	Y	39	Y	20	Y	34
CD510840	North Brook (East Devon)	Y	13	Y	20	Y	23
CD716340	Permian Aquifers in Central Devon	Y	15	Y	20	Y	21

CD_Number	Waterbody	2019 Reportable	2019 Nr. Spills	2020 Reportable	2020 Nr. Spills	2021 Reportable	2021 Nr. Spills
CD513540	Permian Aquifers in Central Devon	Y	16	Y	17	Y	16
CD514620	Permian Aquifers in Central Devon	Y	6	Y	17	Y	21
CD507220	Otter Valley	Y	16	Y	17	Y	14
CD507140	Central Devon and Exe - Aylesbeare Mudstone	Y	18	Y	16	Y	22
CD712990	Permian Aquifers in Central Devon	Y	25	Y	16	Y	14
CD519050	Permian Aquifers in Central Devon	Y	31	Y	15	Y	2
CD513520	Permian Aquifers in Central Devon	Y	33	Y	15	Y	22
CD205150	Exe (Barle to Culm)	Y	0	Y	15	Y	0
CD507150	Central Devon and Exe - Aylesbeare Mudstone	Y	11	Y	14	Y	15
CD510770	Permian Aquifers in Central Devon	Y	7	Y	14	Y	19
CD511020	Exeter-Whiddon Down Culm	Y	4	Y	14	Y	14
CD520510	North Brook (East Devon)	Y	6	Y	12	Y	18
CD514980	Spratford Stream	Y	15	Y	11	Y	8
CD707180	Central Devon and Exe - Aylesbeare Mudstone	Y	12	Y	11	Y	18

CD_Number	Waterbody	2019 Reportable	2019 Nr. Spills	2020 Reportable	2020 Nr. Spills	2021 Reportable	2021 Nr. Spills
CD516050	Permian Aquifers in Central Devon	Y	11	Y	11	Y	10
CD713570	Permian Aquifers in Central Devon	Y	5	Y	11	Y	8
CD510940	Exeter-Whiddon Down Culm	Y	6	Y	10	Y	14
CD515200	Exe (Barle to Culm)	Y	2	Y	10	Y	19
CD510830	Alphin Brook	Y	11	Y	10	Y	14
CD509080	Permian Aquifers in Central Devon	Y	8	Y	10	Y	11
CD510880	North Brook (East Devon)	Y	0	Y	9	Y	0
CD814950	Permian Aquifers in Central Devon	Y	6	Y	9	Y	3
CD510790	Permian Aquifers in Central Devon	Y	16	Y	8	Y	5
CD709920	Permian Aquifers in Central Devon	Y	4	Y	8	Y	12
CD516180	Permian Aquifers in Central Devon	Y	5	Y	8	Y	1
CD510850	North Brook (East Devon)	Y	5	Y	8	Y	5
CD813240	Lower Cranny Brook	Y	1	Y	8	Y	1
CD511010	Exeter-Whiddon Down Culm	Y	15	Y	8	Y	3
CD516350	Permian Aquifers in Central	Y	6	Y	8	Y	9

CD_Number	Waterbody	2019 Reportable	2019 Nr. Spills	2020 Reportable	2020 Nr. Spills	2021 Reportable	2021 Nr. Spills
	Devon						
CD515310	Permian Aquifers in Central Devon	Y	1	Y	7	Y	10
CD507120	Otter Valley	Y	4	Y	7	Y	6
CD506070	Central Devon and Exe - Aylesbeare Mudstone	Y	6	Y	7	Y	7
CD516270	Permian Aquifers in Central Devon	Y	6	Y	7	Y	21
CD511040	Permian Aquifers in Central Devon	Y	1	Y	7	Y	2
CD715130	Exe (Barle to Culm)	Y	2	Y	7	Y	11
CD515370	Upper Cranny Brook	Y	3	Y	6	Y	8
CD518030	Otter Valley	Y	18	Y	6	Y	16
CD507190	Otter Valley	Y	5	Y	6	Y	11
CD710650	North Brook (East Devon)	Y	16	Y	6	Y	10
CD505950	Permian Aquifers in Central Devon	Y	2	Y	5	Y	4
CD710960	Exeter-Whiddon Down Culm	Y	1	Y	5	Y	11
CD515290	Permian Aquifers in Central Devon	Y	5	Y	4	Y	9
CD510700	Permian Aquifers in Central Devon	Y	12	Y	4	Y	0

CD_Number	Waterbody	2019 Reportable	2019 Nr. Spills	2020 Reportable	2020 Nr. Spills	2021 Reportable	2021 Nr. Spills
CD520690	Exeter-Whiddon Down Culm	Y	0	Y	3	Y	7
CD511140	Exeter-Whiddon Down Culm	Y	6	Y	3	Y	9
CD519010	Permian Aquifers in Central Devon	Y	8	Y	3	Y	13
CD511080	North Brook (East Devon)	Y	0	Y	3	Y	18
CD717990	North Brook (East Devon)	Y	0	Y	3	Y	0
CD507080	Otter Valley	Y	3	Y	3	Y	9
CD510860	North Brook (East Devon)	Y	0	Y	2	Y	0
CD513510	Permian Aquifers in Central Devon	Y	8	Y	2	Y	5
CD519100	Exeter-Whiddon Down Culm	Y	0	Y	2	Y	1
CD710990	Permian Aquifers in Central Devon	Y	16	Y	2	Y	0
CD516020	Permian Aquifers in Central Devon	Y	1	Y	2	Y	2
CD510750	Permian Aquifers in Central Devon	Y	5	Y	2	Y	15
CD519040	Permian Aquifers in Central Devon	Y	2	Y	2	Y	2
CD711000	Permian Aquifers in Central Devon	Y	1	Y	2	Y	1
CD510720	Permian Aquifers in Central	Y	1	Y	2	Y	0

CD_Number	Waterbody	2019 Reportable	2019 Nr. Spills	2020 Reportable	2020 Nr. Spills	2021 Reportable	2021 Nr. Spills
	Devon						
CD510930	North Brook (East Devon)	Y	0	Y	1	Y	0
CD510810	Permian Aquifers in Central Devon	Y	0	Y	1	Y	1
CD813290	Permian Aquifers in Central Devon	Y	0	Y	1	Y	9
CD516220	Permian Aquifers in Central Devon	Y	1	Y	1	Y	1
CD510760	Permian Aquifers in Central Devon	Y	4	Y	1	Y	5
CD510900	North Brook (East Devon)	Y	0	Y	1	Y	9
CD513490	Permian Aquifers in Central Devon	Y	0	Y	1	Y	0
CD511060	Permian Aquifers in Central Devon	Y	0	Y	1	Y	4
CD816300	Permian Aquifers in Central Devon	Y	1	Y	1	Y	0
CD510820	Exeter-Whiddon Down Culm	Y	2	Y	1	Y	0
CD519260	North Brook (East Devon)	Y	0	Y	0	Y	4
CD510780	Permian Aquifers in Central Devon	Y	0	Y	0	Y	0
CD510890	North Brook (East Devon)	Y	0	Y	0	Y	0
CD510680	Exeter-Whiddon Down Culm	Y	6	Y	0	Y	14

CD_Number	Waterbody	2019 Reportable	2019 Nr. Spills	2020 Reportable	2020 Nr. Spills	2021 Reportable	2021 Nr. Spills
CD522050	Permian Aquifers in Central Devon	Y	0	Y	0	Y	1
CD701840	Exeter-Whiddon Down Culm	Y	0	Y	0	Y	0
CD720140	Central Devon and Exe - Aylesbeare Mudstone	Y	0	Y	0	Y	0
CD514970	Spratford Stream	Y	0	Y	0	Y	0
CD515170	Exe (Barle to Culm)	Y	0	Y	0	Y	3
CD511150	Exeter-Whiddon Down Culm	Y	0	Y	0	Y	1
CD510800	Permian Aquifers in Central Devon	Y	2	Y	0	Y	1
CD720450	Permian Aquifers in Central Devon	Y	1	Y	0	Y	0
CD510710	Permian Aquifers in Central Devon	Y	0	Y	0	Y	18
CD522100	Permian Aquifers in Central Devon	Y	0	Y	0	Y	0
CD511160	Exeter-Whiddon Down Culm	Y	0	Y	0	Y	0
CD718010	Exe (Barle to Culm)	Y	0	Y	0	Y	0
CD507200	Otter Valley	Y	0	Y	0	Y	0
CD718180	Permian Aquifers in Central Devon	Y	0	Y	0	Y	0
CD515230	Permian Aquifers in Central	Y	0	Y	0	Y	0

CD_Number	Waterbody	2019 Reportable	2019 Nr. Spills	2020 Reportable	2020 Nr. Spills	2021 Reportable	2021 Nr. Spills
	Devon						
CD807100	Otter Valley	Y	0	Y	0	Y	0
CD507210	Central Devon and Exe - Aylesbeare Mudstone	Y	0	Y	0	Y	0
CD707110	Central Devon and Exe - Aylesbeare Mudstone	Y	0	Y	0	Y	0
CD516420	Permian Aquifers in Central Devon	Y	4	Y	0	Y	12
CD710970	Permian Aquifers in Central Devon	Y	0	Y	0	Y	0
CD510870	North Brook (East Devon)	Y	15	Y	0	Y	10
CD809550	Central Devon and Exe - Aylesbeare Mudstone	Y	0	Y	0	Y	0
CD716360	Permian Aquifers in Central Devon	Y	11	Y	0	Y	2
CD511120	Exeter-Whiddon Down Culm	Y	0	Y	0	Y	0
CD710950	Alphin Brook	Y	0	Y	0	Y	3
CD205120	Exe (Barle to Culm)	Y	0	Y	0	Y	4
n/a	n/a	n/a	n/a	n/a	n/a	Y	20
n/a	n/a	n/a	n/a	n/a	n/a	Y	0
n/a	n/a	n/a	n/a	n/a	n/a	Y	0
n/a	n/a	n/a	n/a	n/a	n/a	Y	72

CD_Number	Waterbody	2019 Reportable	2019 Nr. Spills	2020 Reportable	2020 Nr. Spills	2021 Reportable	2021 Nr. Spills
n/a	n/a	n/a	n/a	n/a	n/a	Y	12
n/a	n/a	n/a	n/a	n/a	n/a	Y	3
n/a	n/a	n/a	n/a	n/a	n/a	Y	0
n/a	n/a	n/a	n/a	n/a	n/a	Y	0
n/a	n/a	n/a	n/a	n/a	n/a	Y	0
n/a	n/a	n/a	n/a	n/a	n/a	Y	1
n/a	n/a	n/a	n/a	n/a	n/a	Y	0
n/a	n/a	n/a	n/a	n/a	n/a	Y	79
n/a	n/a	n/a	n/a	n/a	n/a	Y	53
n/a	n/a	n/a	n/a	n/a	n/a	Y	8
n/a	n/a	n/a	n/a	n/a	n/a	Y	0

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
BAMPTON STW_SSO_BAMPTON	CD400180
BAMPTON STW_SSO_BAMPTON	CD200180
BRADNINCH STW_SSO_BRADNINCH	CD200500
BRUSHFORD STW_SO_BRUSHFORD	CD400710
BURLESCOMBE STW_SSO_BURLESCOMBE	CD200790
CORNER LANE SPS_PSCSOEO_HALBERTON	CD714730
COUNTESS WEAR STW_SSO_EXETER	CD201340
DUKE STREET SPST_PSCSOEO_CULLOMPTON	CD714570
DULVERTON STW_SO_DULVERTON	CD401620
DULVERTON STW_SSO_DULVERTON	CD201620
DUNKESWELL STW_SO_DUNKESWELL	CD401640
DUNKESWELL STW_SSO_DUNKESWELL	CD201640
EXETER RD_CSO_EXMOUTH	CD507160
EXMINSTER SPST_PSCSOEO_EXMINSTER	CD716430
EXTON NORTH SPS_PSCSOEO_EXMOUTH	CD706180
EXTON SOUTH SPS_PSCSOEO_EXMOUTH	CD701850
HOLCOMBE ROGUS STW_SO_HOLCOMBE ROGUS	CD402410
HOLCOMBE ROGUS STW_SSO_HOLCOMBE ROGUS	CD202410
HOLLOWAY ST_CSO_EXETER	CD510730

Site Name	CD Number
KENN/KENNFORD SPS_PSCSOEO_KENNFORD	CD719240
LIME KILN PS_CSO_BUDLEIGH SALTERTON	CD507090
LITTLE SILVER SPST_PSCSOEO_TIVERTON	CD708940
LWR NORTH ST I_CSO_EXETER	CD511170
MAER LANE STW_SSO_EXMOUTH	CD201830
MAER RD SPS_CSO_EXMOUTH	CD507130
NADDERWATER SPS_PSCSOEO_WHITESTONE	CD721081
ODAMS WHARF SPS_PSCSOEO_EBFORD	CD720710
PENNSYLVANIA ROAD_CSO_EXETER	CD511130
WITHYBRIDGE SPS_PSEO_BROADCLYST	CD814950
PLYMTREE STW_SO_PLYMTREE	CD403980
HEATHCROSS SPS_PSEO_BROADCLYST	CD813240
REWE STW_SSO_REWE	CD204210
SAMPFORD PEVERELL STW_SSO_SAMPFORD P	CD204330
SANDY LANE LF SPST_PSCSOEO_DAWLISH	CD707790
SMUGGLERS LANE SPS_PSCSOEO_DAWLISH	CD716640
TEIGNMOUTH ROAD_PSCSOEO_HOLCOMBE	CD706190
UFFCULME STW_SSO_UFFCULME	CD205350
UPLOWMAN STW_SO_TIVERTON	CD415250
WEAVER CRESCENT_CSO_TIVERTON	CD509060
WESTEXE SPST_PSCSOEO_TIVERTON	CD715280
WILLAND STW_SO_WILLAND	CD405630
WILLAND STW_SSO_WILLAND	CD205630
YEOFORD STW_SSO_CREDITON	CD205860

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 Exe catchment are also shown in Table below.

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

IM Number	Driver	Route	Stage	Status	Stage No
N84170	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Investment Initialisation	In Progress	Stage 1
N43370	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Investment Initialisation	In Progress	Stage 1
N80317	Capital Maintenance	Rapid Investment - WWS-Networks (Pollution)	AM Review	In Progress	Stage 2
N82424	Capital Maintenance	Rapid Investment - WWS-Networks (Pollution)	Contractor Scoping	In Progress	Stage 3
N93766	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Contractor Scoping	In Progress	Stage 3
N84416	Capital Maintenance	Rapid Investment - WWS-Networks (Pollution)	Contractor Scoping	In Progress	Stage 3
N80616	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Contractor Scoping	In Progress	Stage 3
N85966	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Contractor Scoping	In Progress	Stage 3
N85967	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Contractor Scoping	In Progress	Stage 3
N85617	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Quotation Review	In Progress	Stage 4

IM Number	Driver	Route	Stage	Status	Stage No
N92567	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Review Scope	In Progress	Stage 6
N91319	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Review Scope	In Progress	Stage 6
N79321	Capital Maintenance	Rapid Investment - WWS-Networks (Pollution)	Review Scope	In Progress	Stage 6
N91174	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Review Scope	In Progress	Stage 6
N91216		Rapid Investment - WWS-Networks (Flooding)	Review Scope	In Progress	Stage 6
N86166	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Review Scope	In Progress	Stage 6
N85919	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Review Scope	In Progress	Stage 6
N92066	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Review Scope	In Progress	Stage 6
N91867	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Review Scope	In Progress	Stage 6
N82620	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N74519	Capital Maintenance	Rapid Investment - WWS-Networks (Transferred Sewers)	Confirm Scope	In Progress	Stage 7
N72069	Capital Maintenance	Rapid Investment - WWS-Networks (Transferred Sewers)	Confirm Scope	In Progress	Stage 7
N82669	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N72768	Capital	Rapid Investment - WWS-Networks	Confirm Scope	In Progress	Stage 7

IM Number	Driver	Route	Stage	Status	Stage No
	Maintenance	(Flooding)			
N80320	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N79719	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N75273	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N82569	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N74268	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N77066		Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N82670	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N79319	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N44416	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N83666	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N83666	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N80119	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N73571	Capital Maintenance	Rapid Investment - WWS-Networks (Transferred Sewers)	Confirm Scope	In Progress	Stage 7
N82716	Capital	Rapid Investment	Confirm Scope	In Progress	Stage 7

IM Number	Driver	Route	Stage	Status	Stage No
	Maintenance	- WWS-Networks (Pollution)			
N44857	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N74116	Capital Maintenance	Rapid Investment - WWS-Networks (Transferred Sewers)	Confirm Scope	In Progress	Stage 7
N80766	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N71619	Capital Maintenance	Rapid Investment - WWS-Networks (Transferred Sewers)	Confirm Scope	In Progress	Stage 7
N79766	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N69971	Capital Maintenance	Rapid Investment - WWS-Networks (Transferred Sewers)	Confirm Scope	In Progress	Stage 7
N82568	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N85868	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N75367	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N79316	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N69019	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N74419	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N69920	Capital Maintenance	Rapid Investment - WWS-Networks	Confirm Scope	In Progress	Stage 7

IM Number	Driver	Route	Stage	Status	Stage No
		(Transferred Sewers)			
N83917	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N82470	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N85618	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N74269	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N73918	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N85968	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N74068	Capital Maintenance	Rapid Investment - WWS-Networks (Transferred Sewers)	Confirm Scope	In Progress	Stage 7
N91217	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N85616	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N80321	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N83017	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N74918	Capital Maintenance	Rapid Investment - WWS-Networks (Transferred Sewers)	Confirm Scope	In Progress	Stage 7
N76920	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7

IM Number	Driver	Route	Stage	Status	Stage No
N82626	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N71767	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Confirm Scope	In Progress	Stage 7
N74166	Capital Maintenance	Rapid Investment - WWS-Networks (Transferred Sewers)	Confirm Scope	In Progress	Stage 7
N44976	Capital Maintenance	Rapid Investment - WWS-Networks (Transferred Sewers)	Programmed	In Progress	Stage 8
N85567	Capital Maintenance	Rapid Investment - WWS-Networks (Pollution)	Programmed	In Progress	Stage 8
N77616	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Programmed	In Progress	Stage 8
N75666	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Completed	Completed	Stage 9
N79117	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Completed	Completed	Stage 9
N75516		Rapid Investment - WWS-Networks (Flooding)	Completed	Completed	Stage 9
N86216	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Completed	Completed	Stage 9
N77218	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Completed	Completed	Stage 9
N79921	Capital Maintenance	Rapid Investment - WWS-Networks (Pollution)	Completed	Completed	Stage 9
N71817	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Completed	Completed	Stage 9
N83919	Capital	Rapid Investment - WWS-Networks	Completed	Completed	Stage 9

IM Number	Driver	Route	Stage	Status	Stage No
	Maintenance	(Flooding)			
N73868	Capital Maintenance	Rapid Investment - WWS-Networks (Transferred Sewers)	Completed	Completed	Stage 9
N78866	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Completed	Completed	Stage 9
N83918	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Completed	Completed	Stage 9
N75169	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Completed	Completed	Stage 9
N82480	Health & Safety	Rapid Investment - WWS-Networks (Pollution)	Completed	Completed	Stage 9
N83417	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Completed	Completed	Stage 9
N68716	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Completed	Completed	Stage 9
N78016	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	Completed	Completed	Stage 9
N43255	Capital Maintenance	Rapid Investment - WWS-Networks (Flooding)	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.

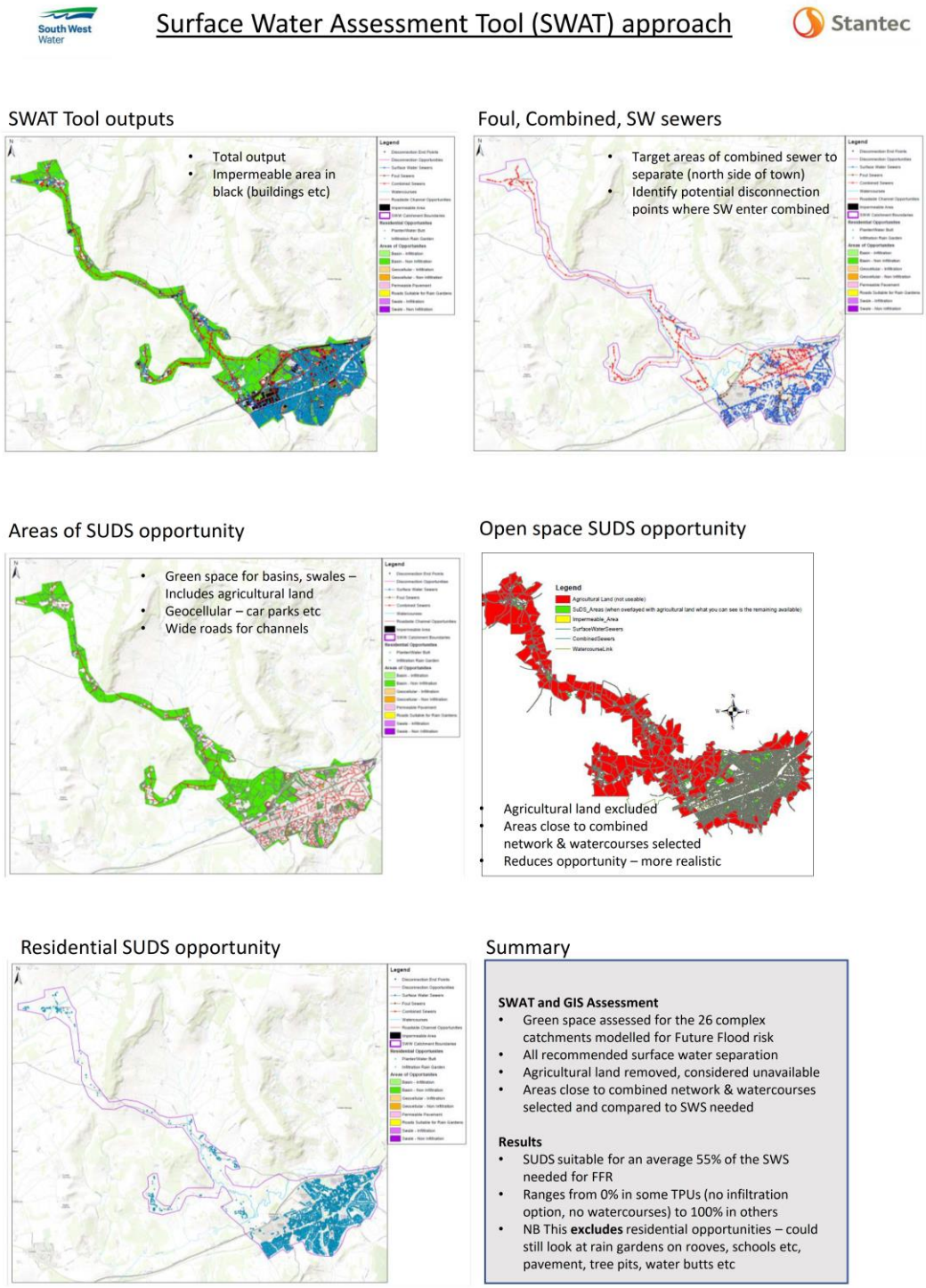

Figure 17: Approach to assessing opportunity for SuDS solutions for Surface Water Separation

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 Exe 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 Exe catchment where upper catchment solutions are being explored; the intention is to expand this approach.

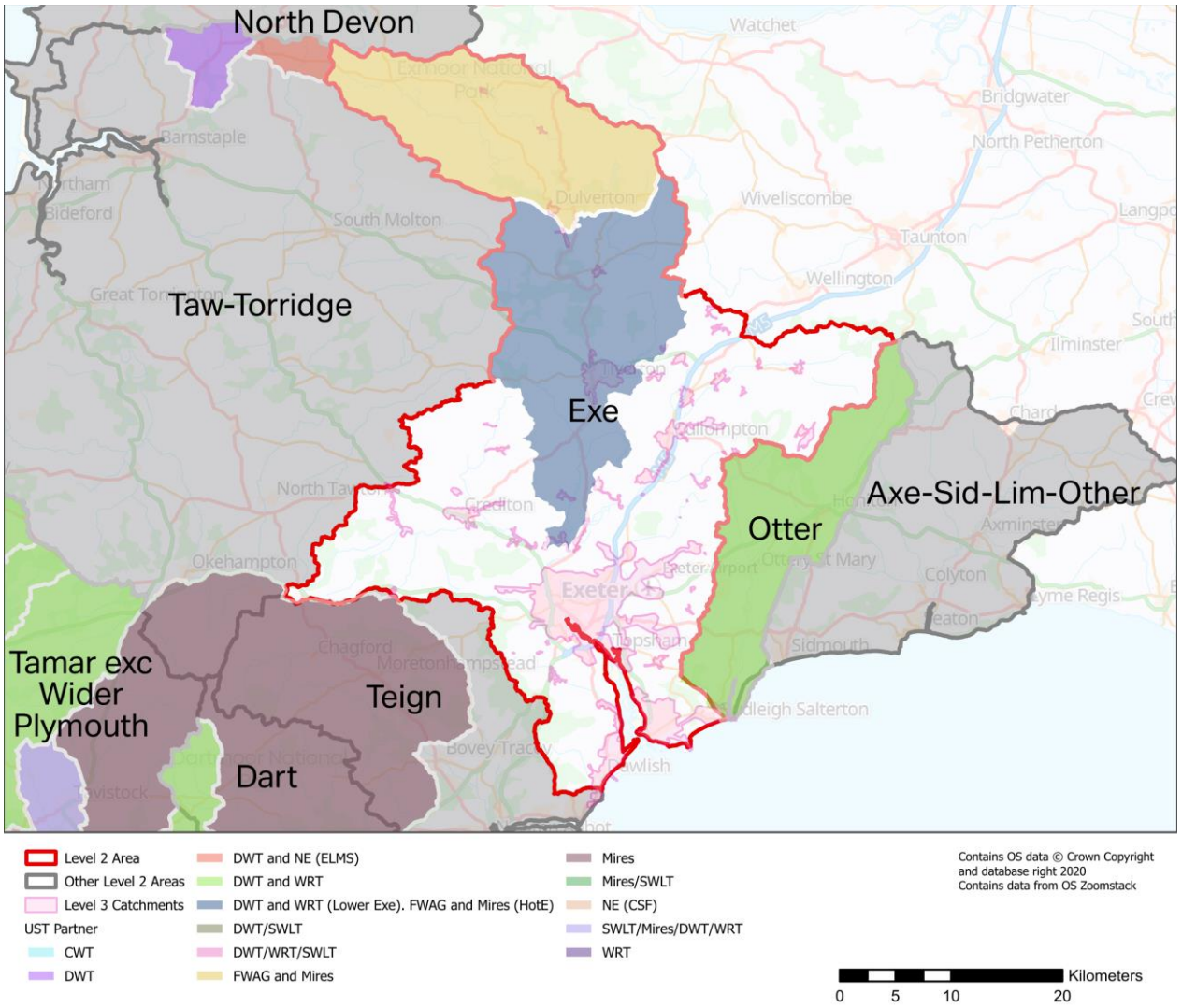

Figure 18: Catchments with Upstream Thinking Programmes