Colchester City Council Preferred Options Local Plan Topic Paper

Water

August 2025

Colchester Local Plan

Contents

Executive Summary

There is a regulatory framework for water and wastewater planning, which is outside of the planning process. The government sets the overall direction of travel for water companies and Ofwat acts as the economic regulator. Water companies must prepare and maintain a water resources management plan (WRMP) and a drainage and wastewater plan (DWMP). WRMPs set out how water companies intend to achieve a secure supply of water and a protected and enhanced environment and are supported with a drought plan. DWMPs are required to maintain, improve, and extend robust and resilient drainage and wastewater systems. Both plans must cover a minimum period of 25 years and be prepared at least every 5 years. The Environment Agency and Natural England are statutory consultees on WRMPs and DWMPs and the Environment Agency is the regulator on environmental standards. The Drinking Water Inspectorate assesses whether drinking water is safe. Business plans are submitted to Ofwat, which determines how water companies will fund efficient expenditure from customer bills.

The government's Environmental Improvement Plan (2023) includes policies designed to transform how the water system is managed in a holistic way as a first step in a broader water reform programme and states that transformation of the water system is required to drive the scale of progress and improvements needed. There are numerous organisations and plans involved in the water planning process.

A Level 1 Strategic Flood Risk Assessment (SFRA) forms part of the evidence base for the Local Plan. A SFRA is a live document which provides an overview of the risk of flooding from all sources in the district. It takes into account the impacts of climate change, as well as assessing the impact that land use changes and development in the area could have on flood risk. The SFRA includes a database that provides an assessment of potential development sites against the latest flood risk information available. The sequential test ensures that development is steered away from areas at risk of flooding, and that areas with little or no risk of flooding (from any source) are developed in preference to areas at higher risk.

Anglian Water Services (AWS) operates and maintains the public sewer network and Water Recycling Centres (WRCs) in the Council's administrative area. AWS provides public water supply to the majority of the Council area, with Affinity Water supplying Wivenhoe and Dedham.

The objective of the Colchester Water Cycle Study (WCS), which forms part of the evidence base for the Local Plan, was to identify any constraints on planned housing and employment growth that may be imposed by the water cycle. The WCS then identifies how these constraints can be resolved i.e. by identifying appropriate Water Services Infrastructure which could be provided to support the proposed development, and the planning policy required to support delivery.

Consultation with both water companies has indicated that the number of dwellings to be delivered over the plan period is broadly in-line with the forecast dwelling and

population increases assumed within the Water Resource Management Plan (WRMP) supply and demand forecasting process. The Affinity Water WRMP shows that the Brett Water Resource Zone (covering Dedham and Wivenhoe) would have a surplus for most of the Local Plan period, until 2040. Current and future demand management and changes to supply volume from Ardleigh Reservoir would enable the current surplus of supply to continue beyond the Local Plan period. The AWS WRMP shows that the Essex South Water Resource Zone is predicted to go into supply deficit by 2025 if no water resource interventions are implemented. AWS' WRMP explains how AWS plan to overcome the predicted deficit, which is mainly through a demand management strategy (reducing water used by the existing users) as well as new, or changes to, existing water supply sources.

The WCS determined the capacity for the collection and treatment of wastewater that would be generated from growth planned in the Local Plan. It considered the physical capacity of the treatment infrastructure i.e. sewer network and Water Recycling Centres (WRC), and the capacity of the environment to accept discharge of treatment treated wastewater without detriment.

The WCS identified WRCs that are at capacity and those that would exceed capacity due to growth in the plan period. Recommendations were made regarding a water efficiency target, phasing and capacity agreement from AWS in some locations, and SuDS. Recommendations also included further discussion with the water companies. Essentially, the WCS identified where there would be a shortfall in water infrastructure due to growth in the Local Plan and identified potential solutions, which have been written into policy as requirements for developers.

There are policy safeguards in the Preferred Options Local Plan to ensure that where there are currently issues with capacity at Water Recycling Centres, development within the catchment will be phased and/or permission will not be granted until there is capacity. This is an appropriate position and supported by the planning practice guidance, which states that development can be phased with no occupation until necessary works relating to water and wastewater have been carried out and that planning conditions and / or obligations can be used to secure mitigation and compensatory measures (Paragraph: 019 Reference ID: 34-019-20140306).

1. Introduction and Purpose

1.1 To help with the consideration, interpretation and consultation on the Preferred Options Regulation 18 Plan and later stages of plan making, a series of Topic Papers have been prepared which summarise the evidence base and details how this evidence has helped shape the policies in the Preferred Options Local Plan. These Topic Papers are 'live' documents and will be updated as the plan making process progresses.

1.2 This is the Water Topic Paper. It summarises the evidence and plan making considerations which relate to water supply, wastewater and flood risk and provides the context for a number of policies including Policy EN8 Flood Risk and Sustainable Drainage Systems in the Environment chapter, Policy NZ3 Wastewater and Water Supply in the Net Zero Homes and Buildings, Renewable Energy and Water chapter and relevant policies in the Place Policies chapter of the Preferred Options Local Plan.

1.3 This Topic Paper summarises the relevant evidence base documents, which are:

- Level 1 Strategic Flood Risk Assessment
- The Water Cycle Study including the Interim Report

1.4 These documents provide recently prepared, comprehensive and robust evidence sources that are drawn on at various points throughout the paper and have informed the Plan. Whilst the final Water Cycle Study report wasn't published until summer 2025, the emerging findings were available throughout plan preparation, with regular meetings between Officers, the consultants preparing the study and Anglian Water, and the evidence informed the Preferred Options Local Plan. Like most of the Local Plan evidence base, the WCS is carried out in stages alongside plan making.

1.5 Much of the evidence is lengthy, technical, and in part complex. The Topic Papers aim to help make the evidence clearer where necessary and also bridge the gap between the evidence and how it has informed the plan.

2. Background

Background and Context

2.1 Having enough water in the environment to sustain wildlife whilst also ensuring a secure supply to homes and business is becoming increasingly challenging. The government's Environmental Improvement Plan (2023) states that an additional 4,000 megalitres (Ml) of water a day will be needed in England by 2050 to meet future pressures on public water supply. Water companies currently provide around 14,000 Ml/day of water for public water supply. The Environmental Improvement Plan states that improving the way water is managed is essential and tackling sources of water pollution must remain a top priority. Transformation of the water system is required to drive the scale of progress and improvements needed and the Environmental Improvement Plan includes policies designed to transform how the water system is managed in a holistic way as a first step in a broader water reform programme.

2.2 The whole of Essex, like many locations in the UK, is a water-stressed area. Water is a resource which is taken for granted by most in the developed countries and is used by all not only for domestic use but in agriculture, horticulture, other business sectors such as food processing, power and leisure.

2.3 Anglian Water Services' (AWS) Thriving East report identified that Essex is the most populous county in our region, with almost 1.9 million people - 20% of the overall population. The Thriving Index ranks the region AWS serves as England's second most challenged area, behind London. The Thriving Index pillars of climate change, economy and society, sustainable growth, nature and environment, highlight the specific challenges faced by the diverse landscapes, businesses, and people, offering a comparison across other English regions — and highlighted specific opportunities to address them. The future outlook identified high climate change impact in our region with the second lowest rainfall projections, the highest average temperatures in the region, and above average population increase.

2.4 The combination of challenges including climate change and population growth means that water-stress is likely to get worse. The Water Strategy for Essex (2024) states that 'It is estimated that by 2050 the East of England will experience a public water supply shortage of around 730 million litres of water per day, equal to over a third of the predicted future need.'

2.5 As provision for growth is planned through Local Plans it is essential that planning seeks to influence solutions to help address this challenge. Opportunities to influence water resources and water quality through the Local Plan include:

- Reducing the demand for water by building water efficient or water neutral development.
- Changing land use for water by incorporating more trees, hedges and green infrastructure and using wetlands and Sustainable Drainage Systems (SuDS) to reduce flood risk and improve water quality.
- Improving future water supply by reusing and recycling water and supporting provision of new water infrastructure.

2.6 The Water Industry Act 1991 places a duty on water companies to prepare and maintain a water resources management plan (WRMP). WRMPs set out how water companies intend to achieve a secure supply of water over a minimum period of 25 years and a protected and enhanced environment. WRMPs must be prepared at least every 5 years and reviewed annually.

2.7 WRMPs forecast supply and demand over a minimum period of 25 years and if a deficit is forecast, plans must consider supply-side options to increase the amount of water available and demand-side options, which reduce the amount of water customers require.

2.8 The Environment Agency and Natural England are statutory consultees for WRMPs and work with water companies as they prepare their WRMP. The Environment Agency has a statutory duty to secure the proper use of water resources in England. Natural England works closely with the water sector to ensure that objectives for designated sites are delivered and that all public bodies play their part in contributing to the achievement of nature recovery targets and objectives set out in the government's 25 Year Environment Plan and the Environment Act 2021.

2.9 Ofwat, the water regulator, aims to ensure that water companies deliver their statutory duties. Ofwat is a statutory consultee for WRMPs and determines the extent to and conditions under which water companies can recover the costs of investment through charges to customers. WRMPs inform the supply-demand balance part of water companies business plans, which are submitted to Ofwat. Water companies business plans set out investment plans for the next asset management period, which is agreed on a 5 year cycle. Investment plans are the mechanism to achieve the planned outcomes set out in WRMPs and deliver wider water system resilience. Business plans must reflect Ofwat's price review methodology and are assessed through Ofwat's price review process. This results in a final determination which sets out how water companies will fund efficient expenditure from customer bills. Water Companies can challenge this through an appeal process, but the final decision rests with Ofwat.

2.10 WRMPs are complemented by a drought plan, which sets out the short-term operational steps the water company will take if the area faces a drought in the

next 5 years. Water companies WRMPs and drought plans contribute to the objectives set out in River Basin Management Plans, which are the key source of information on the water environment, including the condition of water bodies and measures to help meet the objectives of the Water Environment Regulations 2017. River basin management plans have long term objectives and describe the river basin district and the pressures that the water environment faces.

2.11 Water and sewerage companies are also required to produce drainage and wastewater plans (DWMPs) to maintain, improve, and extend robust and resilient drainage and wastewater systems. DWMPs must cover a minimum of 25 years and look at current and future capacity, pressures, and risks such as climate change and population growth. DWMPs must identify current capacity and actions needed in 5, 10 and (minimum) 25 year periods and align with strategic plans.

2.12 This Topic Paper summarises the evidence in respect of these issues and explains how the Preferred Options Local Plan has taken forward approaches in response to these matters.

Legislation

2.13 The Water Framework Directive aims to improve EU water legislation by expanding on the scope of water protection to all waters and sets out clear objectives with specified dates.

2.14 The Flood and Water Management Act 2010 requires flood and coastal erosion risk management authorities to aim to contribute towards the achievement of sustainable development when exercising their flood and coastal erosion risk management functions.

2.15 The Water Environment Regulations 2017 apply to surface waters (including some coastal waters) and groundwater (water below the surface of the ground). These regulations set out requirements to prevent the deterioration of aquatic ecosystems; protect, enhance and restore water bodies to ‘good’ status; and achieve compliance with standards and objectives for protected areas. Local planning authorities must, in exercising their functions, have regard to River Basin Management Plans. These plans contain the main issues for the water environment and the actions needed to tackle them.

2.16 The Environment Act 2021 strengthens requirements related to water resource management including measures to improve effective collaboration between water companies through statutory water management plans; making drainage and sewerage management planning a statutory duty; requirements to minimise damage water extraction may cause on the environment and modernise the process for modifying water and sewerage company license conditions

2.17 The government's Environmental Improvement Plan (2023), which builds on the vision set out in the 25 Year Environment Plan (2018), includes a target to work with the water industry to set an ambitious personal consumption target. The current mandatory consumption in Part G of the Building Regulations is 125 litres per person per day (l/p/d) with an optional requirement of 110 l/p/d (the optional requirement is a requirement in the adopted Local Plan). The Environmental Improvement Plan includes a long-term target to reduce the public water supply per head by 20% by 2038, with interim targets. To achieve this statutory water demand target, household water use is planned to be reduced to 122 litres per person per day (l/p/d), leakage reduced by 37% and reduce non-household (for example, business) water use reduced by 9% by 31 March 2038. These targets are part of the trajectory to achieving 110 l/p/d household water use, a 50% reduction in leakage and a 15% reduction in non-household water use by 2050.

2.18 The government followed the EIP with the development of the 2023 'Plan for Water', which includes the following actions that build on, or are additional to the actions within the EIP:

- Establishing targets for water efficiency in new homes - the plan supports achieving a design standard of up to 85 l/p/d in new residential developments in some parts of England.
- Offering incentives to developers who incorporate water-saving measures and technologies in new homes - this includes financial incentives and support for implementing water reuse systems.
- Encouraging Integrated Water Management - promoting the use of integrated water management practices in new developments, such as rainwater harvesting and greywater recycling, to reduce reliance on mains water supply.

2.19 As part of the delivery of these actions, the Written Ministerial Statement (WMS) 'The Next Stage in Our Long Term Plan for Housing Update' (2023) encourages LPAs to set more stringent standards in Local Plans and in planning permissions in areas of water stress.

National Context

2.20 The national policy context for water resources and management is set out in the National Planning Policy Framework (NPPF) and the Planning Practice Guidance (PPG). More information is described below under the relevant themes which apply to this Topic Paper.

Planning and flood risk

2.21 The NPPF (paragraphs 170-182) stipulates that Local Plans should be supported by SFRAs and should develop policies to manage flood risk from all sources, taking into account the advice from the Environment Agency and other relevant

risk management bodies such as Lead Local Flood Authorities (LLFAs) and Internal Drainage Boards (IDBs). The NPPF requires inappropriate development in areas at risk of flooding to be avoided.

2.22 The Sequential and Exception Tests are established by the NPPF as the primary decision-making tools which LPAs should use to direct development to areas with the lowest risk of flooding wherever possible. The SFRA provides the basis for applying these tests.

Sustainable Drainage Systems

2.23 The NPPF (paragraph 182) requires applications which could affect drainage on or around the site to incorporate sustainable drainage systems (SuDS) to control flow rates and reduce volumes of runoff. SuDS should provide multifunctional benefits wherever possible, through facilitating improvements in water quality and biodiversity, as well as benefits for amenity. SuDS should take account of advice from the Lead Local Flood Authority; have appropriate proposed minimum operational standards; and have maintenance arrangements.

Water Supply and Wastewater

2.24 The NPPF (paragraph 20) requires strategic policies to make sufficient provision for water supply and wastewater infrastructure. Local Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for water supply (NPPF paragraph 162).

2.25 The planning practice guidance recognises that development can be phased with no occupation until necessary works relating to water and wastewater have been carried out and that planning conditions and / or obligations cane be used to secure mitigation and compensatory measures (Paragraph: 019 Reference ID: 34-019-20140306).

2.26 The planning practice guidance recognises that early discussions between strategic policy-making authorities and water and sewerage companies can help to ensure that proposed growth and environmental objectives are reflected in water companies business plans. Growth that requires new water supply should be reflected in companies' long-term water resources management plans. This will help ensure that the necessary infrastructure is funded through the water industry's price review (Paragraph: 002 Reference ID: 34-002-20140306).

2.27 The planning practice guidance also requires consideration of the objectives in the government's 25 Year Environment Plan to reduce the damaging abstraction of water from rivers and groundwater, and to reach or exceed objectives for rivers, lakes, coastal and ground waters that are specially protected (Paragraph: 002 Reference ID: 34-002-20140306).

2.28 The planning practice guidance (Paragraph: 005 Reference ID: 34-005-20140306, Paragraph: 006 Reference ID: 34-006-20161116 and Paragraph: 007 Reference ID: 34-007-20140306) states that plan-making may need to consider:

- identifying suitable sites for new or enhanced waste water and water supply infrastructure;
- whether new development is appropriate near to sites used (or proposed) for water and wastewater infrastructure;
- phasing new development so that water and wastewater infrastructure will be in place when and where needed;
- the impact on designated sites of importance for biodiversity and required infrastructure to be in place before any environmental effects occur;
- how to help protect and enhance local surface water and groundwater;
- whether measures to improve water quality, for example SuDS, can be used to address impacts on water quality in addition to mitigating flood risk;
- the sufficiency and capacity of wastewater infrastructure;
- the circumstances where wastewater from new development would not be expected to drain to a public sewer;
- the capacity of the environment to receive effluent from development in different parts of a strategic policy-making authority's area without preventing relevant statutory objectives being met.

Regional and Local Policy and Guidance

2.29 Appendix A of the WCS includes full details of relevant regulatory strategies or plans which relate to the water environment or provision of WSI for development in Colchester.

2.30 Shoreline Management Plans (SMPs) form part of Defra's strategy for flood and coastal defences. They provide a large-scale assessment of risks associated with coastal change and present the policy framework to address these risks in a sustainable manner. The SMP relevant to the study area is the Essex and Suffolk SMP (2010). SMPs divide areas into frontages and policies defined by Defra, over three time periods (short 0-20 years, medium 20-50 years and long term 50-100 years), are:

• Hold the line – maintain or upgrade the level of protection provided by defences,

• Advance the line – build new defences seaward of the existing defence line,

• Managed realignment – allowing retreat of the shoreline with management to control or limit the movement, and

• No active intervention – a decision not to invest in providing or maintaining defences

2.31 River Basin Management Plans (RBMPs) are prepared in accordance with the Water Framework Directive (WFD) and they assess the pressure facing the water environment in River Basin Districts (RBD). Each RBMP comprises a collection of documents that describes the framework by which the quality of waterbodies will be protected or enhanced in each respective RBD.

2.32 Catchment Flood Management Plans (CFMPs) are high-level strategic plans providing an overview of flood risk across each river catchment. The Environment Agency use CFMPs to work with other decision makers to identify and agree long-term policies for sustainable flood risk management. The Colchester area encompasses the North Essex CFMP (2009).

2.33 Flood Risk Management Plans (FRMPs) explain the objectives and actions needed to manage flood risk at a national and local level in England. Under the Flood Risk Regulations (2009), FRMPs must be reviewed by the Environment Agency and LLFAs every 6 years. The current FRMPs cover the period 2021-2027, and are separated into a part A, which provides an overview of national measures that apply to all river basin districts, and part B, which is composed of ten local flood risk management plans that outline the measures that apply to specific River Basin Districts. The entirety of the Colchester area is covered by the Anglian RBD Flood Risk Management Plan 2021 to 2027.

2.34 Under the 2009 Flood Risk Regulations, all Lead Local Flood Authorities (LLFAs) are required to prepare a Preliminary Flood Risk Assessment (PFRA), as undertaken by ECC in 2011 with an addendum produced in 2017. The PFRA (2011) provides a high-level overview of flood risk from local flood sources such as surface water, groundwater, and Ordinary Watercourses for which ECC are responsible. Information contained within the PFRA informed the development of the LFRMS and helped to identify areas that should be prioritised for Surface Water Management Plans (SWMPs). The PFRA addendum concluded that there were five Flood Risk Areas in Essex, including an area in Colchester. The Flood Risk Areas broadly align with the Critical Drainage Areas (CDAs) identified in Surface Water Management Plans.

2.35 The ECC Local Flood Risk Management Strategy (LFRMS) (2018) sets out how ECC carries out its flood risk responsibilities that are a statutory requirement of the Flood and Water Management Act 2010.

2.36 Essex County Council, in partnership with Water Resource East, has prepared a Water Strategy for Essex. The Strategy explains why Essex is vulnerable to

water shortages, the challenges faced, and the numerous organisations with responsibilities for water or commitments to improve it. The Strategy identified 30 different actions that will contribute to addressing the water issues we face in Essex over the next five years. They all relate to the main themes of reducing demand, changing land use and developing alternative supply. If the recommendations in this strategy are followed, with all parties collaborating together, Essex County Council believe that all of us in Essex can look forward to a brighter future where fresh, clean water is readily available and the problems of droughts and floods are considerably reduced.

2.37 Recommendations in the Water Strategy for Essex for local planning authorities to lead on are:

- Set ambitious policies for water efficiency and resilience for new homes and non-residential development within Local Plans (policies to be locally appropriate based on further evidence particularly considering the impact of water security on economic growth). Ensure water efficiency standards are being inspected and enforced through building regulations.
- Require the provision of grey and rainwater reuse systems for all new developments in line with the Essex SUDS Design Guide drainage hierarchy and further supporting water efficiency design guidance.

2.38 Those recommendations for local planning authorities to support are:

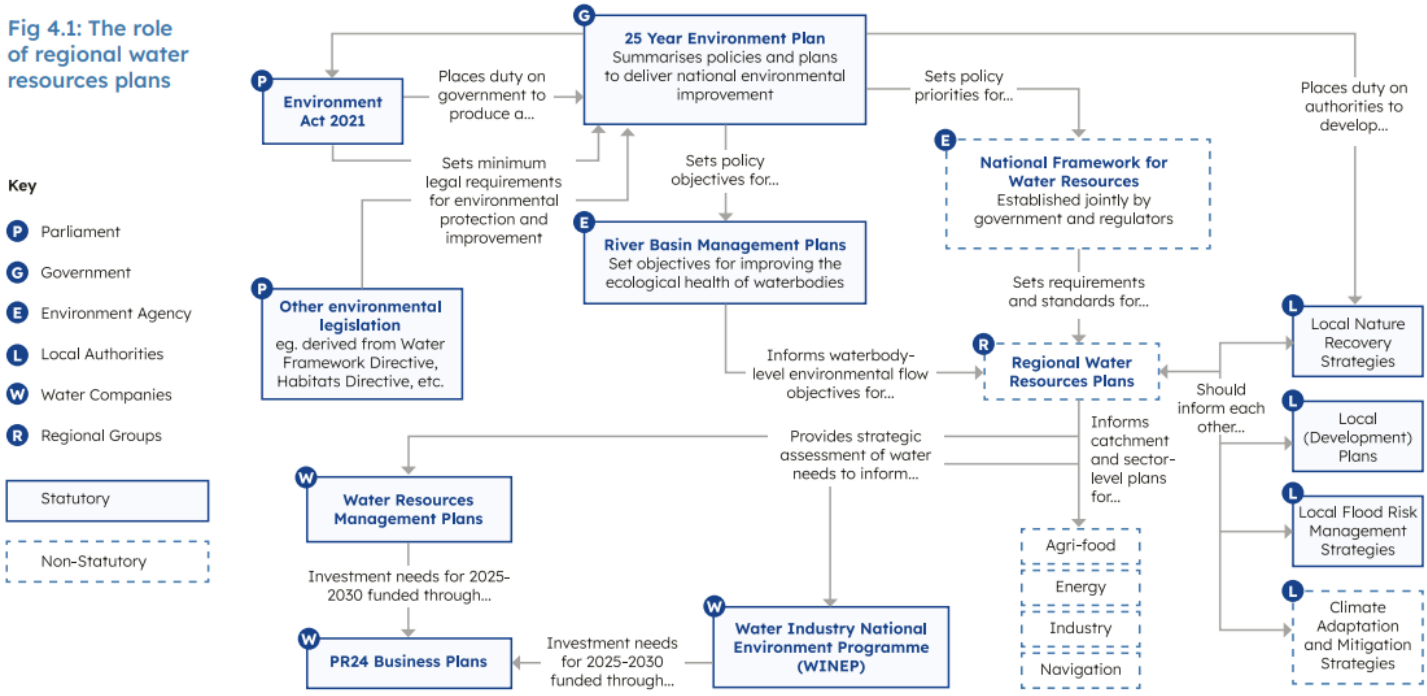
- Increase climate engagement and communications programmes to include the water crisis, water efficiency advice and behaviour change.
- Provide further guidance for public services to assess their water usage and the feasibility of options for grey and rainwater recycling. Support public sector bodies to be retrofitted with water efficiency and water recycling measures by 2035.
- Utilise water improvement funds, such as Water Industry Nature and Environment Programmes (WINEP), to deliver green infrastructure and nature based solutions in Essex which work towards reducing phosphorus loadings from treated wastewater by 50% by 31 January 2028.
- Develop and prioritise nature based solutions in Essex which deliver Local Nature Recovery Strategy targets and restore 75% of our water bodies to good ecological status. Nature based solutions include wildlife corridors, wetlands, flood storage, sustainable drainage, and other green infrastructure.
- Allocate more resource over the next five years for project coordinator and management roles working with Catchment Partnerships and Farm Clusters in Essex. Contribute to emerging catchment plans and projects

and ensure that all opportunities for collaboration and water management funding are utilised to reduce pollution and increase water efficiency.

- Developers of new schools, housing, community and public buildings should integrate grey and/ or rainwater harvesting systems as a key design requirement in line with the Essex SUDS Design Guide drainage hierarchy and further supporting water efficiency design guidance.
- As a statutory consultee on surface water for major planning applications, Essex County Council will require that all new developments must implement the Essex SUDS Design Guide and Green Infrastructure Standards to ensure they do not add pressure to existing sewerage systems or negatively impact the ecological status of waterbodies.
- As a statutory consultee on surface water for major planning applications, Essex County Council should promote regional and/or rural Sustainable Drainage Systems (SUDS) within the master planning process to create new opportunities for development runoff to be used for local water supply.

2.39 The diagram below from the Water Strategy for Essex explains the role of regional water resources plan. It shows the different plans and organisations involved in water planning.

Fig 4.1: The role of regional water resources plans



Local Plan engagement

2.40 The iterative Local Plan Issues and Options engagement included numerous themed engagements. The Green Network and Waterways engagement resulted in 13 comments about waterways. However, most of these comments are not relevant to Planning.

2.41 Anglian Water Services commented on the net zero carbon homes and buildings engagement and said they are supportive of the policy position for net zero carbon homes and buildings in Greater Essex, which align with their long-term strategic priorities to become a net zero business by 2030 and reduce the carbon in building and maintaining our assets by 70%. Climate change is one of the most significant impacts for our region with the future outlook identifying high climate change impact in our region with the second lowest rainfall projections, the highest average temperatures in the region, and above average population increase.

2.42 Enform commented that there is nothing in the net zero policy about sustainable use of water and dealing with sewage, which needs to be addressed as water use has a large carbon footprint.

2.43 A few comments were made about water in the Placemaking engagement. Protecting the natural environment through water conservation was mentioned and integration of water management was identified as good design. A design code including clear guidelines for sustainable water management, including innovations like rainwater harvesting and greywater recycling, to enhance resilience against climate challenges was suggested.

3. Evidence Base

Strategic Flood Risk Assessment

3.1 AECOM have prepared a Level 1 Strategic Flood Risk Assessment (SFRA) as evidence to support the Local Plan. A SFRA is a live document which provides an overview of the risk of flooding from all sources in the district. It takes into account the impacts of climate change, as well as assessing the impact that land use changes and development in the area could have on flood risk.

3.2 SFRAs rely on a large number of datasets and information from a range of stakeholders. The SFRA report describes the datasets that have been obtained and the methods that have been applied to assess the risk from all sources of flooding across the Colchester district. The models used take account of the impacts of climate change, which is anticipated to increase the frequency, extent and impact of flooding as reflected in higher peak river flows. Wetter winters and more intense rainfall may increase fluvial flooding and surface water runoff and there may be increased storm intensity in summer. Rising sea levels at the Blackwater Estuary may also increase flood risk. Fluvial flood risk may also be increased in low lying areas close to tidal rivers as rising tidal levels will prolong tide locking durations at outfalls. The Environment Agency have prepared guidance on the climate change allowances that should be applied, which will help minimize vulnerability and provide resilience to flooding. The SFRA takes a conservative approach to future flood risk.

3.3 The SFRA report explains the different types of flooding: flooding from rivers, tidal (generally caused by the combination of storm surges and astronomical tides), overland flow and surface water flooding (which typically arise following periods of intense rainfall), groundwater (usually occurs in low lying areas underlain by permeable rock and aquifers that allow groundwater to rise to the surface through the permeable subsoil following long periods of wet weather), flooding from the sewer system, and flooding from reservoirs. It includes a section summarising historical flooding in the district (SFRA section 6.4).

3.4 Colchester has extensive defences to manage flood risks from tidal inundation, including tidal defences walls in built-up areas such as Colchester city and Wivenhoe, earth embankments in more rural locations such as around Mersea Island, and the Colne Barrier at Wivenhoe. The Colne Barrier protects areas upstream, in particular Colchester city from flooding caused by tidal surges.

3.5 The Sequential Test is a decision-making tool designed to ensure that development is steered away from areas at risk of flooding, and that areas with little or no risk of flooding (from any source) are developed in preference to areas at higher risk. The Sequential Test should be applied to the whole LPA area to increase the likelihood of allocating development in areas not at risk of flooding. Following the application of the Sequential Test, it may be concluded that there

are no reasonable available alternative sites in areas of lower risk, and in some cases the Exception Test may be required. To pass the Exception Test it should be demonstrated that the development would provide wider sustainability benefits to the community that outweigh the flood risk; and the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall. Section 4 of the SFRA reports explains the application of the Sequential and Exception Tests. A sequential test report is currently being drafted, using the evidence in the SFRA, and will be published in due course.

3.6 All opportunities to locate new developments (except water compatible developments) in reasonably available areas of little or no flood risk should be explored, prior to any decision to locate them in areas of higher risk. The SFRA includes a database that provides an assessment of potential development sites against the latest flood risk information available, which has enabled the Council to apply the sequential test. An initial example ranking of the sites has been undertaken, based on the Flood Risk criteria below which take account of the risk posed to the site by all sources of flooding (fluvial, surface water, groundwater and reservoirs).

Score	Criteria*
1	Over 5% of the site is within the Flood Zone 3b extent
2	Over 5% of the site is within either the Higher Central Combined flood extent or the Central Combined flood extent
3	Over 5% of the site is within either the Groundwater Class C or the 30 year ROFSW extents
4	Over 5% of the site is within either the Groundwater Class B or the 100 year ROFSW extents
5	Over 5% of the site is within either the Groundwater Class A or the 1000 year ROFSW extents
6	There is either a Recorded Flood Outline or a Recorded Flood Incident within 500m of the site
7	The site is within 10m of a Main River
8	The site is defined as Flood Zone 1 and is not shown to be susceptible to surface water or groundwater flooding.

3.7 Sites with a rank of 1 require application of the exceptions test, these sites are:

- Hythe Quay - PP14 Gas Works and Hythe Scrapyard Site, Colchester
- Haven Road - OA1 King Edward Quay Opportunity Area
- Hawkins Road - OA2 Land East of Hawkins Road Opportunity Area

These three sites are within the Hythe, a long-established regeneration area adjacent to the River Colne. The exceptions test will be carried out as part of the Level 2 SFRA.

3.8 A sequential test report is currently being prepared, which will demonstrate that all other preferred site allocations pass the sequential test. With the exception of the above sites and small parts of PP9 North East Colchester [10616 Bromley Road (1% of site within flood zone 2 and 3% of site within flood zone 3b)], PP18 Land North of A120 [10747 Marks Tey (1% of site within flood zone 2 and 4% of site within flood zone 3b)] and PEP2 Knowledge Gateway (a very small proportion along the western boundary is located in Flood Zone 2, 3a and 3b, over 90% is located within Flood Zone 1), all preferred site allocations lie within flood zone 1.

3.9 North East Colchester and Land North of the A120 are both strategic sites that include small areas of flood risk. Policies for both of these sites require a comprehensive masterplan to be agreed prior to submitting a planning application and that the detailed site layout and design will ensure that no development occurs within the flood risk areas within the site and so the sequential test is passed. A very small proportion of the Knowledge Gateway is within flood zones 2 and 3. The detailed site layout and design will ensure that no development occurs within the flood risk areas within the site and so the sequential test is passed.

3.10 Section 9 of the SFRA identifies opportunities to reduce the causes and impacts of flooding in the local area and land required for flood risk management purposes and section 10 identifies recommendations of how to address flood risk in development. The SFRA recognises that it may not always be possible to avoid locating development in areas at risk of flooding and the recommendations build on the findings of the SFRA to provide guidance on the range of measures that could be considered on site in order to manage and mitigate flood risk. The recommendations relate to flood risk planning policy and development management decisions and should be considered when preparing a site-specific FRA.

3.11 In March 2025, the Environment Agency published updated flood zones. A Level 2 SFRA will be prepared prior to finalising the Submission Local Plan and this will take account of the updated flood zones. The Council has reviewed the updated flood zones, and the changes in Colchester are limited. Most of the changes for Colchester relate to changes to flood zones at the Hythe, which is a long-standing regeneration area adjacent to the River Colne. Appendix 2 includes maps showing the previous and updated flood zone 2 and flood zone 3 around the Hythe and Mersea Island.

Water Cycle Study

3.12 A Water Cycle Study (WCS) is a voluntary study that provides evidence for plans and helps to demonstrate that a Local Plan is deliverable. It uses water and planning evidence to understand environmental and infrastructure capacity. It

can identify joined up and cost-effective solutions, that are resilient to climate change for the lifetime of the development.

3.13 The Council, together with Tendring District Council, commissioned AECOM to prepare a Water Cycle Study (WCS) to inform the Local Plan. The WCS baseline was produced jointly with Tendring and a detailed WCS has been produced for Colchester. The planning practice guidance recognises that water supply and water quality issues often cross local authority boundaries and can be best considered on a catchment basis. Liaison between strategic policy-making authorities, the Environment Agency, catchment partnerships and water and sewerage companies from the outset will help to identify water supply and quality issues, the need for new water and wastewater infrastructure to fully account for proposed growth and other relevant issues such as flood risk (Paragraph: 008 Reference ID: 34-008-20140306).

3.14 The objective of the Colchester WCS is to identify any constraints on planned housing and employment growth that may be imposed by the water cycle. The WCS then identifies how these can be resolved i.e. by identifying appropriate Water Services Infrastructure which could be provided to support the proposed development, and the planning policy required to support it.

3.15 An Interim Findings technical document was published in February 2025. This summarised the interim findings of the detailed WCS. The detailed WCS report was published in summer 2025. Like most of the evidence in support of local plans, the WCS has been carried out iteratively throughout plan preparation and regular discussions between AECOM, the Council and AWS has informed the Preferred Options Local Plan.

3.16 The WCS report is structured as follows:

- Section 1: Introduction
- Section 2: Study drivers – explains why a WCS required, including the policy context.
- Section 3: Growth proposals and study area - defines the study area and growth sites assessed.
- Section 4: Water environment baseline summary - provides information on the existing hydrological and hydrogeological baseline context in the Colchester administrative area.
- Section 5: Water infrastructure baseline summary - provides information on the current Water Services Infrastructure (WSI) baseline, including capacity within the infrastructure before growth is assessed.

- Section 6: Wastewater capacity assessment - sets out the assessment of wastewater infrastructure capacity and environmental capacity allowing for the impact of growth and identifies required solutions.
- Section 7: Water supply assessment - sets out the assessment of available water supply allowing for the impact of growth and identifies required solutions.
- Section 8: Growth area scoping summary – acts as a summary of the WCS findings, presented spatially across the Council area according to areas of growth.
- Section 9: Recommendations – summarises key recommendations for the Local Plan emerging from the WCS, including policy recommendations.

3.17 The WCS focused on wastewater management (how it's currently delivered and how it needs to change) and water supply (how adequate and sustainable water supply can be provided to keep pace with planned growth). The WCS sets out:

- The current water environment condition and Water Services Infrastructure (WSI) issues and opportunities.
- Water environment and WSI capacity.
- How employment and housing growth affects capacity.
- What policy and types of infrastructure solutions are required to manage the effects of growth.

3.18 Essentially, the WCS identified where there will be a shortfall in water infrastructure due to growth in the Local Plan and identified potential solutions. Whilst there are measures that can be required by policy for developers to implement, Anglian Water Service (AWS) operates and maintains the public sewer network and Water Recycling Centres (WRCs) and provides public water supply to the majority of the Council area, with Affinity Water supplying small areas in Wivenhoe and Dedham. Water companies have a duty under Section 37 of the Water Industry Act 1991 to maintain, improve, and extend their water supply networks to account for future water needs; and have responsibility for the sewer network and Water Recycling Centres. Water companies have 5-year Asset Management Plans (AMP) with the current period being AMP8 - 2025 to 2030. Further investment during the plan period will be included in AMPs for the periods 2030-2035, 2035-2040 and 2040-2045.

Wastewater management

3.19 A baseline capacity assessment of Water Recycling Centres (WRCs) was completed which identified that, prior to growth, the capacity of existing WRCs across Colchester is variable. WRCs serving Dedham, Fingringhoe, Langham,

and West Bergholt are shown to have no capacity, and Colchester WRC is shown to have 10% capacity. 'No capacity' does not mean to imply the WRC cannot physically treat more flows. The capacity assessment is based on the difference between how much wastewater is currently being discharged and how much each WRC is allowed to discharge under its current Environment Agency permit. Each WRC has an environmental permit under the Environmental Permitting Regulations[1]. For the majority of WRCs, these permits set out limitations on the discharge of treated wastewater to a water body, with the key aim of protecting environmental quality. The conditions generally include a limit on how much treated flow can be discharged to a water body as well as limits on the quality of the water discharged across a range of potentially polluting substances.

3.20 Subject to agreeing a new permit (and any water quality controls required) these WRC are likely to be able to accept further wastewater flows once any required upgrades are undertaken. Growth in these locations would therefore trigger the potential for new permits to discharge and possible WRC investment and upgrades.

3.21 Both the flow capacity and environmental capacity of WRCs have been considered based on the spatial distribution and scale of allocated sites. Appendix C of the WCS sets out the results of the flow capacity assessments across all WRCs considering growth to the end of the plan period. The current capacity (prior to new housing connecting) of all WRCs has been based on the measured discharge from each WRC which takes account of the actual volume of current water used/disposed of in all existing properties. To calculate the impact of further wastewater from new homes, which are subject to Building Regulations and Local Plan policy, it is necessary to estimate water use based on future demand, not what is currently used in properties not subject to the same Building Regulation requirements or policy.

3.22 Section 6.2 of the WCS includes detailed assessments for the WRCs serving Colchester. There is sufficient capacity at Birch, Layer-de-Haye, West Mersea and Wormingford WRCs to cater for the preferred sites and level of growth allocated within the drainage catchments of these WRCs. Upgrades in process capacity may be required at some point in the plan period. The current WRC capacity figure is based on measured flow compared to the volume it is permitted to discharge within the Environment Agency issued permit. The DWMP identifies

[1] https://www.legislation.gov.uk/uksi/2016/1154/contents (accessed Dec 2004)

West Mersea WRC as having a very significant risk related to the planning objective of managing storm overflows, indicating there is a sewer spill risk in the catchment, which is linked to Bathing Waters compliance. To enable spills to be managed in the long-term, the WCS recommended a policy which prevents surface water generated from sites from being discharged to the foul sewer network.

3.23 The preferred site allocations in the Preferred Options Local Plan and the adopted Local Plan allocations that have not yet been developed (commitments) have been assigned to the drainage catchment of WRCs likely to serve those allocations. A calculation of future WRC capacity was undertaken, assuming people occupying those new dwellings would have a daily water use (per capita consumption, or PCC) of 125 litres per person per day (l/p/d). This assumption was agreed with AWS and is the Building Regulations requirement. The adopted Local Plan includes a requirement for 110 l/p/d and the Preferred Options Local Plan includes a requirement for 80 l/p/d.

3.24 A high-level review of sewer overflow spills in each WRC drainage catchment was also undertaken. Where annual spill frequency at outfalls is greater than the government's long-term targets, the WCS identified where the sewer network is sensitive to the addition of further wastewater to the system and recommended policy safeguards which will allow future solutions to be successfully delivered.

3.25 The WCS stated that for all sites over 150 dwellings, there is potential for on-site wastewater treatment to reduce the burden on the relevant WRC, or if required to accommodate the planned development prior to delivery of future WRC improvement schemes. Strategic sites over 150 dwellings have potential for inset providers to provide wastewater (and water supply infrastructure) outside of the AWS service area.

Colchester WRC

3.26 The cumulative effect of existing commitments, site allocations and the dwelling and employment contribution from the Tendring Colchester Borders Garden Community to 2041, would result in the Colchester WRC likely to utilise its capacity by 2031 (into the next investment period - AMP9).

3.27 Calculations show a change in permitted quality conditions would be required to ensure that a new permit to discharge would not significantly alter the quality of the Colne transitional WFD water body. The changes are within Technically Achievable Limits (TAL) and hence achievable within the plan period. However, upgrades in both flow and process capacity will be required and a new permit needs to be agreed and issued by the Environment Agency.

3.28 The DWMP refers to a 'wait and see' outcome for Colchester WRC. However, Colchester WRC was put forward by AWS for 'infrastructure to reserve' for a

future extension within the new plan, hence AWS acknowledge that a growth solution, via expansion is likely to be needed in the future.

3.29 At the time of completing the WCS, there is an issue related to where treated flows from Colchester WRC are measured at the site. This has impacted measured DWF since 2023 and has created an interim permit compliance reporting issue for the WRC, which in turn, prevents the capacity of the Colchester WRC being accurately defined. The data recorded since 2023 essentially shows there is no capacity within the limits of the WRC's environmental permit. This is an ongoing (but interim) issue and is in the process of being investigated by AWS to identify an appropriate solution. AWS plan to have a solution in place for this issue in the current AMP8 period (2025 - 2030). Once this issue is rectified, and a full year of revised measured flow data is available, the capacity for developments coming forward in the first 5 years of the Local Plan can be re-confirmed.

3.30 The WCS recommended that an 85 litres per person per day (l/p/d) per capita consumption (PCC) be imposed for allocated sites in this catchment as this approach would significantly improve available capacity at the WRC, reducing the scale of improvements required (related to growth) and increase the number of dwellings which can be delivered within the first half of the plan period.

3.31 Combined Sewer Overflows (CSO) in the Colchester WRC sewer network currently exceed long-term government targets. AWS are considering measures to address CSO spills to meet the future target. The WCS recommended a policy for development in the WRCs drainage catchment to significantly reduce the volume of surface water generated from sites being discharged to the combined sewer network, which will enable CSO spills to be managed in the long-term.

Copford WRC

3.32 There is baseline capacity at Copford WRC, however, the cumulative effect of existing commitments and future allocations in the catchment mean it is expected that capacity would be reached by 2033.

3.33 The AWS DWMP identifies that infiltration reduction, a new DWF permit, and improvements to the network are required at Copford in the medium term. The environmental capacity assessment concluded that it would be possible to set a new permit that ensures no deterioration in the WFD Status of the Roman River when taking account of future WRC discharges. This would require improvements in the quality of discharge for BOD and ammonia. In the longer term to 2050, the preferred strategy is to remove 50% of surface water from the sewer system.

3.34 The WCS recommended that an 85 l/p/d per capita consumption be imposed for allocated sites in this catchment as this approach would significantly improve

available capacity at the WRC, reducing the scale of improvements required (related to growth) and increase the number of dwellings which can be delivered within the first half of the plan period.

3.35 Combined Sewer Overflows (CSO) in the Copford WRC sewer network currently exceed long-term government targets. AWS are considering measures to address CSO spills to meet the future target. The WCS recommended a policy for development in the WRCs drainage catchment which prevents surface water generated from sites from being discharged to the foul sewer network.

Dedham WRC

3.36 Only one allocation of 15 dwellings is proposed in the Dedham WRC drainage catchment (there are no outstanding existing commitments). However, Dedham WRC is currently at its permitted maximum discharge volumes and has no capacity to accommodate further connections without a change in permit. The environmental capacity assessment found that it is possible to set a new permit that ensures no deterioration in the current quality of the Stour when taking account of future WRC discharges. This would not require improvements in the quality of discharge.

3.37 The AWS DWMP identifies improvements to the network with a mixed strategy with the main solution of SuDS in the medium term. In the longer term to 2050, the preferred strategy is to remove 50% of surface water from the sewer system. However, the current AWS Business Plan for the AMP8 investment period does not include for planned investment at Dedham WRC and so a growth solution would need to be considered in AMP9 (from 2030 onwards).

3.38 The WCS recommended that an 85 l/p/d PCC be imposed for the allocated site in this catchment given the limited current capacity of the WRC and the likely delivery of the site early in the plan period. The WCS also recommended that a policy be implemented which requires the developer to demonstrate they have agreed available capacity at the WRC (and the associated sewer network) with AWS prior to submitting a planning application.

3.39 No sewer spill risk increases have been identified; however, the DWMP identifies Dedham WRC as having a very significant risk related to the planning objective of managing storm overflows, indicating there is a sewer spill risk in the catchment. To enable spills to be managed in the long-term, the WCS recommended a policy for allocated development which prevents surface water generated from sites from being discharged to the foul sewer network.

Earls Colne WRC

3.40 Earls Colne WRC is located outside of the district but serves Chappel and Wakes Colne. The WRC is currently below its permitted maximum discharge volumes;

however, it is predicted to have inadequate capacity to accommodate flows from all planned growth without a change in permit and this is not likely to be required until the end of the plan period (after 2038). Environmental capacity assessment found that it would be possible to set a new permit that ensures no deterioration in the current quality of the River Colne when taking account of future WRC discharges. This would require relatively minor improvements in the quality of discharge for ammonia and BOD.

3.41 The AWS DWMP identifies that a new DWF permit, and improvements to the network are required at Earls Colne in the medium term. In the longer term to 2050, the preferred strategy is to remove 25% of surface water from the sewer system. Plans for the AMP8 investment period includes planned investment at Earls Colne between 2029 and 2030, hence the level of growth is likely to be achievable in the longer term. No sewer spill risk increases have been identified.

Eight Ash Green

3.42 Eight Ash Green WRC is currently below its permitted maximum discharge volumes. However, it is predicted to have inadequate capacity to accommodate all planned growth without a change in permit and this is likely to occur towards the end of the plan period (after 2038). The environmental capacity assessment found that it would be possible to set a new permit that ensures no deterioration in the current quality of the River Colne when taking account of future WRC discharges. This would require relatively minor improvements in the quality of discharge for ammonia, BOD, and phosphate, all within TAL.

3.43 The AWS DWMP identifies that a new DWF permit, and improvements to the network are required at Eight Ash Green in the medium term. In the longer term to 2050, the preferred strategy is to remove 50% of surface water from the sewer system. The current AWS Business Plan for the AMP8 investment period does not include for planned investment at Eight Ash Green WRC. However, the WCS has identified that the available capacity at the WRC is unlikely to be exceeded until towards the end of the AMP period allowing time for a growth solution to be implemented in later AMPs (AMP 9 or 10).

3.44 The WCS recommended that an 85 l/p/d PCC be imposed for the allocated sites in this catchment; a sensitivity test on lower PCC identified that the future capacity would not be exceeded if water demand is restricted to this level.

3.45 Combined Sewer Overflows (CSO) in the Eight Ash Green WRC sewer network currently exceed long-term government targets. AWS are considering measures to address CSO spills to meet the future target. The WCS recommended a policy for development in the WRC drainage catchment which prevents surface water generated from sites from being discharged to the foul sewer network.

Fingringhoe WRC

3.46 Fingringhoe WRC is currently at its permitted maximum discharge volumes and has no capacity to accommodate further connections without a change in permit. The environmental capacity assessment found that a small change in permitted quality conditions would be required to ensure that a new permit to discharge would not significantly alter the quality of the Colne transitional WFD water body. The changes are within TAL and hence achievable within the plan period. However, upgrades in both flow and process capacity may be required and a new permit needs to be agreed and issued by the Environment Agency.

3.47 The AWS DWMP identifies that an increase in capacity is required at the WRC in the medium term with 50% surface water removal by 2050. The current AWS Business Plan for the AMP8 investment period includes planned investment at Fingringhoe between 2025 and 2030, hence the level of growth is likely to be achievable in the longer term once the AMP8 solution is complete. However, the allocations in this WRC drainage catchment are likely to deliver housing early in the plan period, and there is likely to be early phasing implications whilst the growth solution is implemented.

3.48 No CSO locations were identified in the publicly available CSO GIS data. However, the DWMP identifies Fingringhoe WRC as having a very significant risk related to the planning objective of managing storm overflows, indicating there is a sewer spill risk in the catchment. To enable spills to be managed in the long-term, the WCS recommended a policy for allocated development which prevents surface water generated from sites from being discharged to the foul sewer network.

Great Tey WRC

3.49 Great Tey WRC is currently below its permitted maximum discharge volumes. However, it is predicted to have inadequate capacity to accommodate all future connections without a change in permit. Capacity at the WRC would likely be used by 2035. The environmental capacity assessment found that it would be possible to set a new permit that ensures no deterioration in the current quality of the Roman River when taking account of future WRC discharges. This would require relatively minor improvements in the quality of discharge for BOD. Further testing would be required by AWS to determine if a new permit condition for phosphate and ammonia would be required to protect the water quality of the Roman River.

3.50 The assessment of capacity has identified that there is likely to be scope to connect new dwellings to the WRC for treatment until at least 2035, which gives time for any required growth scheme to be developed and considered in AMP9 or AMP10. The WCS recommended that an 85 l/p/d PCC be imposed for the allocated sites in this catchment as this may mean capacity is not exceeded within the plan period. No sewer spill risk increases have been identified.

Langham WRC

3.51 Langham WRC is currently at its permitted maximum discharge volumes and has no capacity to accommodate further connections without a change in permit. The environmental capacity assessment found that it would be possible to set a new permit that ensures no deterioration in the current quality of the Stour when taking account of future WRC discharges. This would require improvements in the quality of discharge for ammonia, BOD and phosphate.

3.52 The current AWS Business Plan for the AMP8 investment period does not include for planned investment at Langham WRC. However, at the commencement of this WCS, AWS set out that Langham WRC had been identified for a growth scheme in AMP8. Until a growth scheme is confirmed, the available capacity at Langham until 2030 is uncertain. Water quality modelling reported in this WCS demonstrates a new solution is feasible within environmental limits, but it would require investment to provide improved quality and additional flow, and this may not be possible before 2030.

3.53 Some allocations in this WRC drainage catchment are likely to deliver housing early in the plan period, and hence there is likely to be early phasing implications whilst a growth solution is considered by AWS in later AMP periods (post 2030). The WCS recommended that an 85 l/p/d PCC be imposed for the allocated sites in this catchment given the limited current capacity of the WRC and the likely delivery of the sites early in the plan period. It also recommended that phasing of housing in Langham's WRC catchment is limited until 2030.

3.54 There are existing sewer capacity issues within the drainage catchment which are being investigated by AWS for a solution. These issues principally relate to infiltration of both surface water and groundwater into the sewer system which reduces capacity for wastewater connections. Given the known sewer network capacity issues, the WCS recommended that a policy be implemented which requires developers in this WRC drainage catchment to demonstrate they have agreed available capacity at the WRC and the associated sewer network with AWS prior to submitting planning applications.

Tiptree WRC

3.55 Tiptree WRC is currently below its permitted maximum discharge volumes. However, it is predicted to have inadequate capacity to accommodate further connections as a result of all proposed growth without a change in permit. Capacity is not likely to be used before 2038 (towards the end of the plan period). The environmental capacity assessment found that it would be possible to set a new permit that ensures no deterioration in the current quality of the Layer Brook when taking account of future WRC discharges. This would require improvements in the quality of discharge for ammonia.

3.56 The AWS DWMP identifies improvements to the network with a mixed strategy with the main solution of SuDS in the medium term. In the longer term to 2050, the preferred strategy is to remove 50% of surface water from the sewer system. The current AWS Business Plan for the AMP8 investment period does not include for planned investment at Tiptree WRC. However, capacity is not likely to be used until the end of the plan period allowing for growth schemes to be considered for AMP 9 or AMP10. The WCS recommended that an 85 l/p/d PCC be imposed for the allocated sites in this catchment as this may mean that capacity is not utilised prior to 2038.

3.57 There is a sewer spill risk in the Tiptree WRC sewer network where baseline (before growth) spill frequency exceeds the long-term improvement plan targets. AWS are considering measures to address spills to meet the future target, but to enable spills to be managed in the long-term, the WCS recommended a policy for allocated development to prevent surface water generated from sites being discharged to the foul sewer.

West Bergholt WRC

3.58 West Bergholt WRC is currently at its permitted maximum discharge volumes and has no capacity to accommodate further connections without a change in permit. The environmental capacity assessment found that it would be possible to set a new permit that ensures no deterioration in the current quality of the Colne when taking account of future WRC discharges. This would require relatively minor improvements in the quality of discharge for ammonia.

3.59 The AWS DWMP identifies that a new discharge permit solution is required at West Bergholt in the medium term, which the water quality assessment has demonstrated should be achievable with relatively minor improvements in the treatment quality for ammonia. In the longer term to 2050, the preferred strategy is to remove 50% of surface water from the sewer system. However, the current AWS Business Plan for the AMP8 investment period does not include for planned investment at West Bergholt WRC. Some allocations in this WRC drainage catchment are likely to deliver housing early in the plan period, and hence there is likely to be early phasing implications whilst a growth solution is considered by AWS in later AMP periods (post 2030).The WCS recommended that an 85 l/p/d PCC be imposed for the allocated sites in this catchment given the limited current capacity of the WRC and the likely delivery of the sites early in the plan period.

3.60 There is a CSO in the WRC sewer network where baseline (before growth) spill frequency exceeds the long-term improvement plan targets. AWS are considering measures to address CSO spills to meet the future target. To enable CSO spills to be managed in the long-term, the WCS recommended a policy for

allocated development to prevent surface water generated from sites being discharged to the foul sewer network.

3.61 Given the CSO spill frequency, and the lack of baseline WRC capacity, the WCS recommended that a policy be implemented which requires developers in this WRC catchment to demonstrate they have agreed available capacity at the WRC and the associated sewer network with AWS prior to submitting planning applications.

Water supply

3.62 The majority of Colchester district is in AWS' Essex South Water Resources Zone (WRZ). Affinity Water provides potable water to Dedham and Wivenhoe and these areas form part of Affinity Water's Brett WRZ. 190 dwellings from preferred allocations are within the Brett WRZ. Both Essex South WRZ and Brett WRZ are classed as under serious water stress by the Environment Agency.

3.63 Water Resource Management Plans forecast supply and demand over a minimum period of 25 years. Water companies carry out supply and demand balance forecasting, which takes into account growth and the impacts of climate change. All WRZs are assessed as having either a balanced supply and demand, a surplus (supply exceeds demand), or a deficit (demand exceeds supply). Where there is a forecast deficit water resource interventions are identified.

3.64 Consultation with both AWS and Affinity Water has indicated that the number of dwellings to be delivered over the plan period is broadly in-line with the forecast dwelling and population increases assumed within the Water Resource Management Plan supply and demand forecasting process. AWS have modelled both increases in demand and estimated reductions in current demand in their supply balance demand modelling and have developed deliverable options to ensure the increase in housing demand can be met. The WCS does not need to take account of existing commitments as those are already accounted for in the water companies baseline supply and demand modelling. The Affinity Water Water Resource Management Plan shows that the Brett WRZ would have a surplus for most of the Local Plan period, until 2040. Current and future demand management and changes to supply volume from Ardleigh Reservoir would enable the current surplus of supply to continue beyond the Local Plan period. The AWS Water Resource Management Plan shows that the Essex South WRZ is predicted to go into supply deficit by 2025 (and remaining so until 2050) if no water resource interventions are implemented. This is predominantly due to a growth in demand coupled with a fall in water supply available. There is therefore a need for AWS to implement water resource management measures.

3.65 AWS have recently undertaken measures in Colchester to improve water supply resilience. An optimisation project in the Colchester supply system was

completed in 2024 due to ongoing challenges with drought, supply-demand pressures and leakage. As the water system for the city has always operated as one large open network, it has been optimised through establishing four distribution zones to manage water resources, operate the network efficiently and tackle leakage effectively. This project had multiple benefits including enabling 35,000 properties to receive a more consistent service, facilitating 1.115 Ml/d in leakage savings, 1.319 Ml/d in distribution input savings, reduced annual average number of bursts from 21.46 to 12 and removal of high demand issues on Mersea Island.

3.66 AWS have set out in their Water Resource Management Plan that they plan to overcome the predicted deficit mainly through a demand management strategy (reducing water used by the existing users in the WRZ) as well as new, or changes to, existing water supply sources.

3.67 Demand management includes a smart metering programme, leakage reductions and water efficiency measures. The water supply source improvements include changes to imports and exports to, or from the Essex South WRZ (coupled with greater connectivity of WRZs to each other which allow sources to be shared), and the Colchester WRC indirect re-use and transfer to Ardleigh Reservoir. Planning consent has been granted for a 69km section of pipeline between Bury St Edmunds and Colchester, which will be capable of transferring up to 25 million litres per day (Ml/d).

3.68 There are supply side measures that can be implemented now to address the immediate deficit and in order to address the short to medium-term shortfall of supply for the Essex South WRZ (before the reservoirs are available), AWS are progressing with plans for a water reuse plant in Colchester. Rather than discharge all the treated effluent from Colchester WRC to the estuary, AWS will treat some of the already cleaned effluent again using membrane technology before transferring, discharging and storing it the Ardleigh Reservoir where it will mix with river water. This option would provide up to 15.2 Ml/d into Ardleigh Reservoir for supply across the WRZ. AWS have received Accelerated Infrastructure Delivery funding to progress this recycling scheme including delivery of a demonstration centre and the transfer pipeline to take water from the WRC to Ardleigh Reservoir. This option would also have the benefit on reducing DWF from the WRC potentially creating additional treatment capacity. The delivery timescale is 7-10 years.

3.69 AWS have also been granted planning permission by West Suffolk Council, Babergh and Mid Suffolk District Council and Colchester City Council for a 69 km section of pipeline between Bury St Edmunds and Colchester which will be capable of transferring up to 25 Ml/d. As part of this development, an 18 km spur from the proposed Whelnetham to Wherstead section will import potable water to an existing water reservoir at Great Horkesley.

3.70 The AWS Water Resource Management Plan shows that the combined impact of the proposed demand management measures and water supply improvements in the Essex South WRZ results in a forecast balance of supply and demand by the end of the Local Plan period (and beyond to 2050).

3.71 The Water Resource Management Plan process is long-term and subject to various statutory environmental assessments, including Strategic Environmental Assessment, Water Framework Directive Assessment and Habitat Regulations Assessment. As explained above, the number of dwellings to be delivered over the plan period is broadly in-line with the forecast dwelling and population increases assumed within AWS and Affinity Water's Water Resource Management Plan supply and demand forecasting process. The conclusions of both AWS and Affinity Water can be relied upon as evidence that water supply to meet domestic supply is planned for in the long-term and not a constraint to development proposed in the Local Plan.

3.72 Five household domestic water demand scenarios have been tested in the WCS to demonstrate the effect that lower per capita consumption (PCC) can have on managing demand. These reflect a range of possible future PCCs for new dwellings ranging from the Building Regulations mandatory standard to a PCC which would require both the highest efficiency fixtures and fittings as well as some level of water reuse technology for non-potable water uses (ranging from 80-125 litres per person per day). It is not appropriate to base future calculations of household demand on current average domestic water use because existing use averages are significantly influenced by usage in property that was built prior to building regulations on water efficiency.

3.73 The results show that, by 2041/42 the maximum increase in domestic water demand would be 5.5 Ml/d (assuming PCC limited only by Building Regulations mandatory standard). Adopting a policy delivering 85 l/p/d PCC would result in a significantly lower total demand by the end of the plan period, at 3.74 Ml/d (1.76 Ml/d less than if a business as usual approach is adopted). This saving would significantly improve the supply and demand balance in the Essex South WRZ increasing resilience and reducing reliance on the timing of new strategic resources. The Shared Standards in Water Efficiency for Local Plans[2] (referred to herein as the Shared Standards document) prepared by the Environment Agency, Natural England and AWS, sets out an evidence base for how a policy

[2] Shared Standards in Water Efficiency for Local Plans (2025)

of limiting water use in new homes to 85 l/p/d can be achieved. The document justifies this target using evidence, which is set out in the WCS.

3.74 This PCC is also recommended in the WCS as a measure which would have significant benefit in maintaining treatment headroom at many of the WRCs (because less wastewater would be generated). This may delay or prevent the need for upgrades to WRCs within the Local Plan period and would have the effect of reducing impact on waterbodies through reduced storm spills and reduced treated discharges from WRC.

3.75 There is no legislative requirement for water companies to supply water for non-residential use and there are actions in the government's Integrated Plan for Water and Environmental Improvement Plan to reduce non-household water demand by 9%. AWS requires all new requests for non-domestic water connection which require greater than 20 m3 /d to be subject to a Water Resource Assessment before they confirm whether this demand can be met. This assessment will require promoters of non-household development to demonstrate that they have considered water efficiency measures, sources of local supply and potential for water neutrality.

Habitat Regulations Assessment

3.76 The Preferred Options Local Plan Habitat Regulations Assessment identified water supply and wastewater as likely significant effects. The planning practice guidance requires plan-makers to consider the impact on designated sites of importance for biodiversity to ensure the required infrastructure is in place before any environmental effects occur (Paragraph: 005 Reference ID: 34-005-20140306) and the capacity of the environment to receive effluent from development in different parts of a strategic policy-making authority's area without preventing relevant statutory objectives being met (Paragraph: 007 Reference ID: 34-007-20140306).

3.77 In relation to water supply, the appropriate assessment concluded that provided the recommendations for the demand management strategy identified in the AWS WRMP, are taken forward and that safeguard measures, including those identified as recommended mitigation within the associated HRA reports, are implemented successfully, it can be concluded that no adverse effects on the integrity of Abberton Reservoir Ramsar site and SPA, Blackwater Estuary Ramsar site and SPA, Colne Estuary Ramsar site and SPA, Essex Estuaries SAC, or Stour and Orwell Estuaries Ramsar site and SPA, will occur as a result of impacts from water quantity. The complete WCS will be reviewed as part of the HRA for the Regulation 19 Local Plan. However, given the findings and recommendations of the WCS Technical Note and the recommendations of the AWS WRMP, it is concluded that there will be no adverse effects on integrity (AEoI).

3.78 In relation to water quality, the appropriate assessment concluded that the results of the detailed WCS will be used to inform the HRA of the Regulation 19 Local

Plan. The impacts of proposed growth and potential for water quality impacts as a result of water treatment and discharge on Habitats Sites can be concluded as having no AEoI provided the recommendations outlined in the WCS Technical Note are incorporated within the Local Plan policy and implemented successfully.

Sustainability Appraisal

3.79 The Sustainability Appraisal (SA) included the objectives: Manage and reduce flood risk from all sources and Protect the quality and quantity of water resources. The SA concluded a cumulative mixed minor positive and minor negative effect is expected in relation to SA objective 11: Manage and reduce flood risk from all sources; and SA objective 14: Protect the quality and quantity of water resources.

3.80 The SA reported that the district includes several areas of higher flood risk (Flood Zones 2 and 3) associated with the River Colne, River Stour, Layer Brook, and Roman River and the tributaries of these water courses. These areas take in parts of the south of the district and parts of urban area where the River Colne flows towards Chappel and Wakes Colne. Parts of the district's northern boundary is formed by the River Stour and there are areas of higher flood risk in these locations. Tidal flood risk is a concern along the coastal frontage adjacent to Mersea Island. Furthermore, there are areas of higher surface water flooding risk distributed across the district. The overall scale of development set out in the Local Plan could increase the risk of flooding in the area, as greenfield land take results in increases in impermeable surfaces. However, very few of the sites proposed for allocation include a substantial area of land affected by Flood Zones 2 and/or 3. These are the sites set through Policies PP15: Hawkins Road, Colchester, OA1: King Edward Quay Opportunity Area and OA2: Land East of Hawkins Road Opportunity Area. The SFRA undertaken in support of the Local Plan identifies that in addition to these sites, the site proposed for allocation through Policy PP14: Gas Works and Hythe Scrap Yard Site lies within an area of increased flood risk. At least 5% of this site is located within Flood Zone 3b. However, the site allocation policies for areas at risk of flooding contain mitigation to minimise flood risk.

3.81 The development principles set out in Policy ST8: Place shaping principles require that development proposals should address issues of flooding and surface water. Furthermore, development management policies are included in the Local Plan to directly address flood risk in the plan area. Policy EN8: Flood risk and sustainable drainage systems (SuDS) supports the positive management of flood risk and water resources including through the requirement for SuDS in new developments. This policy also includes requirements for developments to avoid flood-prone areas and not to increase flood risk on or off-site, as well as promoting proposals that include measures to enhance the flood resilience of new or renovated buildings. In addition, a number of policies support the enhancement and creation of green infrastructure and relates features, in particular Polices EN3: Biodiversity and geodiversity, EN5: New and existing trees and GN1: Green Network and

Waterways Principles. These policies have the potential to indirectly contribute to reductions in flood risk by promoting the natural filtration of water resources and incorporation of features that will slow the flow of rainwater, absorb rainwater and reduce erosion.

3.82 Source Protection Zones (SPZs) are identified to areas of higher risk in terms of safeguard drinking water quality. These areas relate to the risk of contamination of water resources as a result of various activities. The majority of Colchester is covered by areas of SPZ with the exception of its southern edge, including West Mersea, East Mersea and parts of Tiptree. Most of the plan area falls within SPZ 3, the least sensitive of the zones designated by the Environment Agency with very small areas of SPZ 1 within the urban area and areas of SPZ 2 along the district's northern boundary. Furthermore, Eastern England is classified as severely water stressed. The Environment Agency classified the East and South-East of England as areas of serious water stress in 2021. Water stress in this context applies to both the natural environment and to public water supplies, including how both are affected by climate change. A severe water stressed classification reflects that the household demand for water is a high proportion of effective rainfall that is available in the area to meet that demand. Therefore, ensuring that there is enough water to serve residents and businesses in the district will be challenging during the plan period. The revised draft Water Resources Management Plan 2024 sets out measures to ensure that water supply is maintained in the wider area. Most sites included for allocation in the plan are located within SPZ 3, with some also located close to watercourses and/or water bodies, with increased potential for contamination of water resources through run off as construction and site occupation occurs.

3.83 The Local Plan includes a number of policies that aim to protect and improve water quality in Colchester. Policy NZ3: Wastewater and water supply states that the Council will work with suppliers and developers to ensure that there is sufficient capacity in the water supply and wastewater infrastructure to serve new development. This policy also allocates land to allow for the extension of the Anglian Water Services Colchester Water Recycling Centre, which is expected to help address water stress in the area. Further to this, the policy supports the sustainable management of water resources, including promoting more innovative solutions such as rainwater harvesting and greywater recycling at new developments which will aid in ensuring there is sufficient water for the lifetime of a development. The development principles included under Policy ST8: Place shaping principles also prioritise measures to address water efficiency and the provision of appropriate water and wastewater and flood mitigation measures in new development. Furthermore, Policy EN8: Flood risk and sustainable drainage systems (SuDS) supports the positive management of flood risk and water resources, including the requirement for SuDS in new developments. The potential

for pollution that affects surface or ground water sources is addressed through Policy ENV9: Pollution and Contaminated Land.

Next steps

3.84 A sequential test report will be published, using data from the SFRA.

3.85 A Level 2 SFRA will be undertaken in support of the Submission Local Plan. This will apply the exception test where this is required and will be based on the new flood risk maps (released in March 2025).

3.86 An update to the WCS will be prepared to support the Submission Local Plan. This will reflect site allocations in the Submission Local Plan and include information from AWS on sewer connection capacity.

3.87 Updates to these studies will consider representations made as part of the Regulation 18 Preferred Options Local Plan consultation.

4. **Approach to the Local Plan**

4.1 The planning system can plan positively for water supply and water quality and bring multiple benefits for people and the environment through good design and mitigation. For example, Sustainable Drainage Systems reduce flood risk and enhance biodiversity and amenity, and water quality can be improved by protecting and enhancing green infrastructure, which is the priority for this Local Plan.

4.2 The NPPF states ‘Strategic policies should be informed by a strategic flood risk assessment, and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards.’ (NPPF paragraph 171)

4.3 In accordance with the NPPF, Policy EN8 includes requirements that will ensure that flood risk is not increased elsewhere. The policy conforms with the criteria in NPPF paragraphs 181 and 182 and is informed by the Colchester Level 1 SFRA. The overall aims of Policy EN8 are to steer development to land with the lowest risk from flooding and ensure its safety for the lifetime of the development. The policy also seeks to ensure Sustainable Drainage Systems are designed and implemented to enable the management of surface water flood risk through nature-based solutions which can also create and enhance green infrastructure.

4.4 The use of Sustainable Drainage Systems to manage water run-off is an important tool in minimising flooding by increasing the provision of permeable surfaces in an area by allowing water to seep gradually into the ground, rather than running directly into a drainage network, reducing the risk of overloading the system. Sustainable Drainage Systems should be multifunctional, with benefits for wildlife and recreation, and can improve water quality by enabling water treatment before water reaches its final outfall. The provision of multifunctional Sustainable Drainage Systems, natural flood management and green infrastructure makes a valuable contribution to mitigating the cumulative impacts of development on flood risk.

4.5 Section 9 of the SFRA identifies opportunities to reduce the causes and impacts of flooding in the local area and land required for flood risk management purposes and section 10 of the SFRA identifies recommendations of how to address flood risk in development. The SFRA recommendations are set out in the table below with an explanation of how recommendations that are relevant to planning policy have been incorporated into the Local Plan.

SFRA Policy Recommendation	How recommendation is addressed
SFRA Section 9: Opportunities to reduce the causes and impacts of flooding	
Where practical, retain at the very minimum an 8m undeveloped easement alongside Main Rivers or flood defence structure (at least 16m if it is a tidal Main River or defence structure) and explore opportunities for a larger buffer strip and/or riverside restoration. Undeveloped easements greater than 8m/16m will be encouraged where possible to provide biodiversity, flood risk and water quality benefits.	Development is proposed alongside the River Colne as part of the continuation of the longstanding Hythe regeneration area. Policies OA1 (King Edward Quay Opportunity Area) and OA2 (Land East of Hawkins Road) require consideration of a comprehensive approach to regeneration to respond to constraints such as flood risk; flood risk solutions, in accordance with Policy EN8 and recommendations in the Surface Water Management Plan for the relevant Critical Drainage Areas; opportunities to improve and enhance the river environment and explore opportunities for river restoration, enhancement and provision of flood storage areas.
Where practical, an undeveloped easement should be retained alongside Ordinary Watercourses for maintenance purposes. This should be discussed and agreed with the LLFA. Developers should explore opportunities for riverside restoration as part of any development adjacent to Ordinary Watercourses.	The Northeast Colchester allocation includes a watercourse. Policy PP9 includes a criteria requiring protection of water quality within Salary Brook water course and the conservation and enhancement of its biodiversity value and recommends that BNG measures include a gain in watercourse units.
All new development close to rivers should consider the opportunity to improve and enhance the river environment. Developers should explore opportunities for river restoration, enhancement and provision of FSAs as part of the development. Options include backwater creation, de-silting, in-channel habitat enhancement and removal of structures. When designed properly, such measures can have benefits such as reducing the costs of maintaining hard engineering structures, reducing flood risk, improving water quality and increasing biodiversity. Social benefits are also gained by increasing green space and access to watercourses.	See above policy requirements for Policies OA1 (King Edward Quay Opportunity Area) and OA2 (Land East of Hawkins Road). Additionally, Policy EN8 (Flood Risk and Sustainable Drainage Systems) states: Development must conserve and enhance the natural flood storage value of the water environment, including watercourse corridors and catchments. Proposals that open up culverted watercourses, where it is safe and practicable, will be supported.
All new development within Flood Zone 3 must not result in a net loss of flood storage capacity. Where proposed development results in a change in building footprint, land raising or other structures such as bunds, the developer must ensure that it does not impact upon the ability of the floodplain to store water and should seek opportunities to provide betterment with respect to floodplain storage. Floodplain compensation should be provided on a level for level, volume for volume basis on land which does not already flood and is within the site boundary. Where land is not within the site boundary, it must be in the immediate vicinity, in the applicant's ownership and linked to the site. Floodplain compensation must be considered in the context of the 1% AEP (1 in 100 year) flood level including an allowance for climate	Policy EN8 states: Where buildings have been demolished within the functional floodplain (Flood Zone 3b) for a significant length of time (i.e. over a year), the land should be reverted back to functional floodplain and consequently, development should be avoided within these areas. Where a building(s) is already located in the functional floodplain, any proposals to regenerate or replace such building(s) must not increase the building footprint any greater than the existing footprint. The Hawkins Road allocation includes land within flood zone 3 and Policy PP15 states: No residential development at ground floor level within flood zone 3.

change. This should be discussed and agreed with the Environment Agency.	
For all proposed developments in the CCC area identified as at risk of groundwater flooding at the surface or where there is a risk of groundwater flooding of property below ground level, construction phase groundwater monitoring during periods of high groundwater (October – March) should be mandated for inclusion in all FRAs to inform the design of developments and any mitigation measures, unless adequate justification can be provided by the applicant to exempt the proposed development from this requirement. Additionally, slope stabilisation and reprofiling measures shall be avoided wherever possible, to minimise/prevent disruption to groundwater flows, and the aggravation of groundwater flood risk elsewhere. Where the installation of foundations and associated excavation works is required for proposed developments, these should either take place above the maximum height of the groundwater table (as confirmed by on-site groundwater monitoring) or shall implement appropriate pumping and SuDS to dewater the excavated area and to mitigate against the loss of groundwater storage.	Where a preferred allocation lies within a Critical Drainage Area (CDA) this is referenced in the relevant Place policy with a requirement to contribute towards flood risk solutions and the recommendations for the CDA. Policy EN8 requires development at risk of groundwater flooding to include construction phase groundwater monitoring during periods of high groundwater (October – March) in the Flood Risk Assessment to inform the design and any mitigation measures, unless adequate justification can be provided by the applicant to exempt the proposed development from this requirement.
Where possible, all new developments should explore the opportunity to implement natural processes to alleviate flooding.	Policy EN8 states: Nature-based solutions are a priority for flood and water management, and Development must conserve and enhance the natural flood storage value of the water environment, including watercourse corridors and catchments.
All new developments should incorporate a range of SuDS to target the required water quantity, quality, amenity and biodiversity benefits, unless it can be demonstrated that SuDS are not technically appropriate. Proposed SuDS should be designed such that surface water runoff rates from greenfield developments should not exceed greenfield runoff rates for the annual and 1% AEP rainfall events, and so that surface water runoff rates for brownfield developments should not exceed existing runoff rates and should be as close to greenfield runoff rates as reasonably practicable. For each new development, SuDS guidance should be developed to inform future management. A maintenance schedule must be prepared for all proposed SuDS, which will identify the body responsible for the maintenance and continuing funding of these. Developers should adhere to the guidance within the ECC Sustainable Drainage Systems Design Guide.	Policy EN8 requires all development to incorporate Sustainable Drainage Systems. The policy includes criteria for SuDS, which includes management and maintenance of all SuDS for the lifetime of the development, and regard to the latest guidance including the CIRIA SuDS Manual, Essex County Council SuDS Design Gude, Essex County Council Green Infrastructure Strategy and Colchester's Green Network and Waterways Guiding Principles (and their successors).
All new development should not adversely affect flood routing and thereby increase flood risk elsewhere. Opportunities shall be sought within the site design to make space for water.	Policy EN8 requires all development to incorporate Sustainable Drainage Systems and includes criteria for SuDS. Policy PC6 (Design and Amenity) includes a requirement to consider flood risk at an early

	stage when deciding the layout and design of a site and take opportunities to make space for water.
Recommendations of how to address flood risk in development	
A sequential approach to site planning should be applied within new development sites.	A sequential test has been applied and a sequential test report is being prepared. For sites that include areas of flood risk, the relevant Place policy requires development to avoid the area of flood risk (or avoidance of residential development at ground flood in the case of the Hythe).
Location of development shall take into account the vulnerability of users to avoid the siting of inappropriate development in areas of flood risk.	See above
Where buildings have been demolished within the functional floodplain (Flood Zone 3b) for a significant length of time (i.e. over a year), the land should be reverted back to functional floodplain and consequently, development should be avoided within these areas. Where a building(s) is already located in the functional floodplain, any proposals to regenerate/replace such building(s) will not increase the footprint any greater than the existing footprint or will seek opportunities to reduce the historic footprint. A change of use within the functional floodplain will not be permitted where it may involve an increase in flood risk if the vulnerability of the development is changed.	This is set out in Policy EN8.
Safe access / egress must be provided for new development in areas which are at risk of flooding and must reflect the type of flooding (source of flooding, scale of flooding, floodwater depth, and floodwater velocity) that the location is vulnerable to.	This recommendation is relevant to site specific FRAs.
A Flood Warning and Evacuation Plan, including safe access/egress routes and emergency planning measures, should be prepared as part of an FRA for all developments sited within areas at risk of flooding and that have potentially vulnerable users.	This recommendation is relevant to site specific FRAs.
For More Vulnerable and Highly Vulnerable developments within Flood Zones 2 and 3a the finished floor levels for the lowest room of a building should be set above the minimum ground level of the site, above the adjacent road to the building, or above the estimated flood level for the design flood, depending on which of these three values is highest. For minor extensions, the finished floor levels of the lowest room of a building should be no lower than existing floor levels or above the estimated flood level for the design flood. The design flood here pertains to either the 1% AEP (1 in 100 year) fluvial event with an appropriate allowance for climate change, or the 0.5% AEP (1 in 200	This recommendation is relevant to site specific FRAs.

year) tidal event with an appropriate allowance for climate change. The required freeboard value for the finished floor levels of developments is defined within the Environment Agency's online standing advice for flood risk assessments.	
Where proposing development or redevelopment in areas at risk of flooding, flood resilience and resistance strategies must be implemented to reduce damage in a flood and increase the speed of recovery. These measures should be designed to accommodate the 1% AEP event plus climate change flood level and should not be normally relied on for new development as an appropriate mitigation method. Where resilience and resistance measures are required, proposals must include details of their construction, removal, the party responsible for their maintenance, and the cost of replacement when they deteriorate.	This recommendation is relevant to site specific FRAs.

4.6 In accordance with NPPF paragraph 172, a sequential, risk-based approach to the location of development has been applied, which takes into account all sources of flood risk and the current and future impacts of climate change to avoid, where possible, flood risk to people and property. The sequential test steers new development to areas with the lowest risk of flooding from any source. A sequential test report is being prepared and will be published once finalised. The SFRA includes a database that provides an assessment of potential development sites against the latest flood risk information available, which has enabled the Council to apply the sequential test. The majority of the preferred allocations lie wholly within flood zone 1 and therefore pass the sequential test. The following preferred sites include areas of flood risk:

- PP14 Gas Works and Hythe Scrapyard Site, Colchester [10979 (8% of site within flood zone 2 and 13% of site within flood zone 3b)]
- OA1 King Edward Quay Opportunity Area [10994 – Haven Road (24% of site within flood zone 2 and 60% of site within flood zone 3b)]
- OA2 Land East of Hawkins Road Opportunity Area [10981 & 10980 (100% of site within flood zone 3b)]
- PP9 North East Colchester [10616 Bromley Road (1% of site within flood zone 2 and 3% of site within flood zone 3b)]
- PP18 Land North of A120 [10747 Marks Tey (1% of site within flood zone 2 and 4% of site within flood zone 3b)].
- PEP2 Knowledge Gateway (a very small proportion along the western boundary is located in Flood Zone 2, 3a and 3b, over 90% is located within Flood Zone 1).

4.7 The Gas Works and Hythe Scrapyard Site, King Edward Quay Opportunity Area and Land East of Hawkins Road Opportunity Area are within the Hythe, a long-established regeneration area adjacent to the River Colne. Policy PP14 includes a criteria stating that residential development must not be located in the areas of the site that fall within flood zones 2 and 3. Policies OA1 and OA2 require a comprehensive approach to regeneration to respond to constraints such as flood risk, contribution towards flood risk solutions in accordance with recommendations in the Surface Water Management Plan for the relevant Critical Drainage Areas and provision of flood storage areas. These sites will be further considered in the Level 2 SFRA, which will include the exceptions test.

4.8 A small part of the strategic North East Colchester site allocation includes an area of flood risk. Policy PP9 requires the watercourse within the site to be protected and buffered. This is a large site, allocated for 2000 dwellings and a mix of uses. Policy PP9 requires a masterplan to be agreed with the Council prior to submission of any planning application and of sufficient detail to ensure

optimal placemaking and housing delivery outcomes for the allocation and should be informed by an appropriate evidence base. The detailed site layout and design will ensure that no development occurs within the flood risk areas within the site. The sequential test is passed.

4.9 A small part of the strategic Land North of the A120 site allocation includes an area of flood risk. The site has been promoted for a Garden Village scale, mixed-use development, but the development potential within the plan period is limited because of infrastructure constraints. Planning for the first phase of development is required to include masterplanning for the entire site to ensure residential development is supported by infrastructure including schools, community facilities and open space. The area of flood risk encompasses the Roman River corridor, which is required through Policy PP18 and GN2 to be enhanced to provide the required BNG watercourse unit uplift and support the Roman River corridor nature recovery area. The detailed site layout and design will ensure that no development occurs within the flood risk areas within the site. The sequential test is passed.

4.10 Only a very small proportion of the Knowledge Gateway, along the western boundary, is located in Flood Zone 2, 3a and 3b. Over 90% of the site is located within Flood Zone 1. The detailed site layout and design will ensure that no development occurs within the flood risk areas within the site. The sequential test is passed.

4.11 The Water Strategy for Essex identified three ways to influence water resources and water quality, and these can be influenced through the Local Plan:

- Reducing the demand for water by building water efficient or water neutral development.
- Changing land use for water by incorporating more trees, hedges and green infrastructure and using wetlands and Sustainable Drainage Systems (SuDS) to reduce flood risk and improve water quality.
- Improving future water supply by reusing and recycling water and supporting provision of new water infrastructure.

4.12 These actions are addressed through the Local Plan, by requirements for water efficiency measures, 80l/p/d per capita consumption, new trees and protection of existing trees, SuDS, green infrastructure and safeguarding land for the extension of Colchester WRC in policies NZ3, EN5, EN8 and GN1.

4.13 The Local Plan has a strong focus on protecting and enhancing Colchester's green network, with Policy GN1 including criteria that comply with and will help to deliver Colchester's Guiding Principles for the Green Network and Waterways, and through the inclusion of policy criteria in the Place policies. The planning practice guidance recognises that good design and mitigation measures can be

secured through site specific policies for allocated sites and through non-site specific policies on water infrastructure and protecting the water environment (Paragraph: 019 Reference ID: 34-019-20140306). The NPPF [paragraph 172 (c)] recognises the opportunities provided by new development and improvements in green and other infrastructure to reduce the causes and impacts of flooding, making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management.

4.14 In accordance with the planning practice guidance, early discussions have taken place between the Council, consultants carrying out the WCS, Anglian Water Services and Affinity Water to help to ensure that proposed growth and environmental objectives are reflected in company business plans. The growth proposed in the Local Plan is reflected in the water companies' long-term water resources management plans. This will help ensure that the necessary infrastructure is funded through the water industry's price review.

4.15 The Water Strategy for Essex included two recommendations for local planning authorities to lead on and these have been incorporated into the Local Plan. The first recommendation is to set ambitious policies for water efficiency and resilience for new homes and non-residential development within Local Plans (policies to be locally appropriate based on further evidence particularly considering the impact of water security on economic growth) and ensure water efficiency standards are being inspected and enforced through building regulations. Policy NZ3 includes a target of 80 l/p/d. This has been tested through the whole plan viability appraisal.

4.16 The second recommendation is to require the provision of grey and rainwater reuse systems for all new developments in line with the Essex SuDS Design Guide drainage hierarchy and further supporting water efficiency design guidance. Policy NZ3 states 'Residential proposals of 100 dwellings or more will be required to demonstrate that a full range of options to significantly reduce reliance on potable water demand, including water efficiency, rainwater harvesting and greywater recycling, has been fully explored and incorporated into the scheme.' Policy EN8 requires submission of a Sustainable Drainage Strategy, which has regard to the latest guidance including the CIRIA SuDS Manual, Essex County Council SuDS Design Gude, Essex County Council Green Infrastructure Strategy and Colchester's Green Network and Waterways Guiding Principles (and their successors).

4.17 Policy NZ3 includes a water efficiency target of 80 litres per person per day (l/p/d) per capita consumption. Policy NZ3 states 'To achieve greater water efficiencies and support demand management, all new buildings must include water efficiency measures. Residential development will be required to meet the water efficiency standard of 80 litres per person per day. Proposals should submit a water efficiency calculator report to demonstrate compliance and include clear evidence

on the approach to water conservation.' Since drafting the Preferred Options Local Plan, the Shared Standards in Water Efficiency for Local Plans has been published. The Shared Standards sets out an evidence base for how a policy of limiting water use in new homes to 85 l/p/d can be achieved and the WCS recommended this target is included in the Local Plan. It is proven that 85 l/p/d can be met through a fixtures and fittings approach. Whilst a target of 80 l/p/d is included in the Preferred Options Local Plan (this was a recommendation in the Interim WCS, February 2025, and has been included in the viability appraisal), it is highly likely that the water efficiency target in Policy NZ3 will be amended to 85 l/p/d to be in line with the recommendation in the WCS and Shared Standards.

4.18 The WCS recommended that an 85 l/p/d per capita consumption be imposed for allocated sites in the catchments of Colchester, Copford, Dedham, Earls Colne, Eight Ash Green, Fingringhoe, Great Tey, Langham, Tiptree and West Bergholt WRCs. This approach would significantly improve available capacity at the relevant WRC, reducing the scale of improvements related to growth that are required and helping to address potential phasing issues. For Earls Colne, Eight Ash Green and Tiptree if water demand is restricted to this level, future capacity may not be exceeded in the plan period.

4.19 Implementing the water efficiency target across the Colchester district will contribute towards meeting water supply. Colchester is a water stressed area and without interventions there is a predicted supply deficit. Whilst this deficit is planned to be overcome by AWS through reducing water used by existing users and changes to existing water supply sources, this will require significant investment and there are uncertainties in the timescale for delivery. The WCS stated that the 85 l/p/d requirement across the district would significantly contribute to managing and maintaining a surplus of supply in keeping with government plans to address water scarcity in response to the Environment Act 2021. The scale of the challenge; Environmental Improvement Plan target to reduce the public water supply per head by 20% by 2038; the Plan for Water's support for achieving a design standard of up to 85 l/p/d in new residential developments in some parts of England; the WMS 'The Next Stage in Our Long Term Plan for Housing Update' (2023) which encourages LPAs to set more stringent standards in Local Plans and in planning permissions in areas of water stress; and the Water Strategy for Essex advice for LPAs to target a PCC of between 80l/p/d to 90l/p/d for new homes through Local Plan updates to minimise water demand from housing growth are all justification for this water efficiency target.

4.20 AWS will not routinely meet potable water demand for non-domestic development (i.e. process water for non-residential sites) and AWS requires all new requests for non-domestic water connection which require greater than 20 m3 /d to be subject to a Water Resource Assessment before they confirm whether this demand can be met. The WCS recommended a policy for non-residential development reflecting

this approach. To support this and provide clarity for proposals for non-residential development, Policy NZ3 states ‘Major non-residential development that requires significant non-domestic water use will be required to prepare a Water Resources Assessment and undertake early discussions with Anglian Water Services to ascertain water availability and feasibility of the scheme and demonstrate innovative solutions to reduce water demands.’

4.21 It is appropriate to rely on policy safeguards requiring water infrastructure to be in place prior to development. The planning practice guidance recognises that the timescales for works to be carried out by the sewerage company do not always fit with development needs and that policies can be used to ensure that new development and mains water and wastewater infrastructure provision is aligned and to ensure new development is phased and not occupied until the necessary works relating to water and wastewater have been carried out. The guidance also states that local planning authorities can use planning conditions and/ or obligations to secure mitigation and compensatory measures and set out requirements relating to monitoring water quality, habitat creation and maintenance and the transfer of assets where this mitigates an impact on water quality (Paragraph: 019 Reference ID: 34-019-20140306). The timing of funding for WRC upgrades depends on how much housing is actually delivered year on year, which is generally variable, and it is not possible to undertake a year on year capacity assessment with any degree of accuracy.

4.22 The WCS explained that Combined Sewer Overflows (CSO) in the catchments of the following WRCs currently exceed long-term government targets: Colchester, Copford, Dedham, Eight Ash Green, Fingringhoe and West Bergholt and there is a sewer spill risk in the Tiptree WRC sewer network. AWS are considering measures to address CSO spills to meet the future government target. The WCS recommended a policy for development in the drainage catchments of these WRCs to prevent surface water generated from sites from being discharged to the foul sewer network. For Colchester WRC, the recommendation is to significantly reduce the volume of surface water generated from sites being discharged to the combined sewer network. The planning practice guidance states that plan-making may need to consider the circumstances where wastewater from new development would not be expected to drain to a public sewer (Paragraph: 007 Reference ID: 34-007-20140306). Policy NZ3 states ‘Development within the Colchester WRC drainage catchment must discharge attenuated surface water to a receiving waterbody and not to the combined sewer network, unless it can be demonstrated that there is no other option. Development within the drainage catchments of Copford, Tiptree and West Bergholt WRCs must not discharge surface water to the foul sewer network.’ Dedham and Eight Ash Green were not included in the policy in the Preferred Options Local Plan, and it is proposed that a modification is made to allocation policies within these WRC catchments.

4.23 For the following WRCs: Dedham, Fingringhoe, Langham, West Bergholt, and Colchester (until 2028 when the interim monitoring issue should be resolved) the WCS recommended that given the CSO spill frequency and the lack of baseline WRC capacity, a policy be implemented which requires developers in these WRC catchments to demonstrate they have agreed available capacity at the WRC and the associated sewer network with AWS prior to submitting planning applications. Policy NZ3 states 'Proposals within the catchments of the following Water Recycling Centres: Dedham, Fingringhoe, Great Tey, Langham and West Bergholt must demonstrate they have confirmed with Anglian Water Services that treatment capacity at the Water Recycling Centre (WRC) is available to serve the development at the point of anticipated connection and where appropriate phasing triggers to support development to be agreed.' The final WCS additionally refers to an interim monitoring issue at Colchester WRC and recommends reference to this be added to the policy. This can be addressed in the Submission Draft plan if the matter is not resolved at the time. This policy requirement will enable AWS to serve developments once occupied without breaching WRC discharge permit conditions and protect downstream water quality and connected water dependent habitats.

4.24 The Local Plan (Policy NZ3 and shown on the policies map) allocates a site for the extension of Colchester WRC. The planning practice guidance states plan-making may need to consider identifying suitable sites for new or enhanced waste water and water supply infrastructure (Paragraph: 005 Reference ID: 34-005-20140306).

4.25 This chapter has explained how the recommendations outlined in the WCS, the Level 1 SFRA and the Water Strategy for Essex are incorporated within the Preferred Options Local Plan.

Appendix 1. Roles and responsibilities

Multiple organisations have responsibilities for water or commitments to improve it, and the web of interactions is complex. The description in this appendix is taken from the Water Strategy for Essex.

Water companies (there are four serving Essex) all have Water Resources Management Plans (WRMPs), which set out how they plan to balance demand with supply.

OFWAT, the water regulator, aims to ensure that water companies deliver their statutory duties.

National Government has created a 25 Year Environment Plan (25YEP), which includes clear goals and targets for clean and plentiful water.

The Environment Agency's responsibilities include flood and coastal erosion risks, setting rules and strategy on water abstraction, and reviewing and updating river basin management plans.

Regional water planning groups, such as Water Resources East (WRE) in Essex, propose the major measures and infrastructure needed to enable water supply to meet water demand.

Essex County Council is a Lead Local Flood Authority (LLFA) which means they have powers and responsibilities for flooding from rainfall and local watercourses (non-main rivers). ECC are also the Responsible Authority to deliver the Local Nature Recovery Strategy (LNRS) on behalf of Greater Essex.

Essex Highways maintains highways drainage systems on behalf of Essex County Council.

Catchment partnerships (five in Essex) are officer groups who operate together at a local level and understand the water challenges and character of their area.

Local planning authorities work with their communities to identify the strategic priorities for the development and use of land and resources in their area.

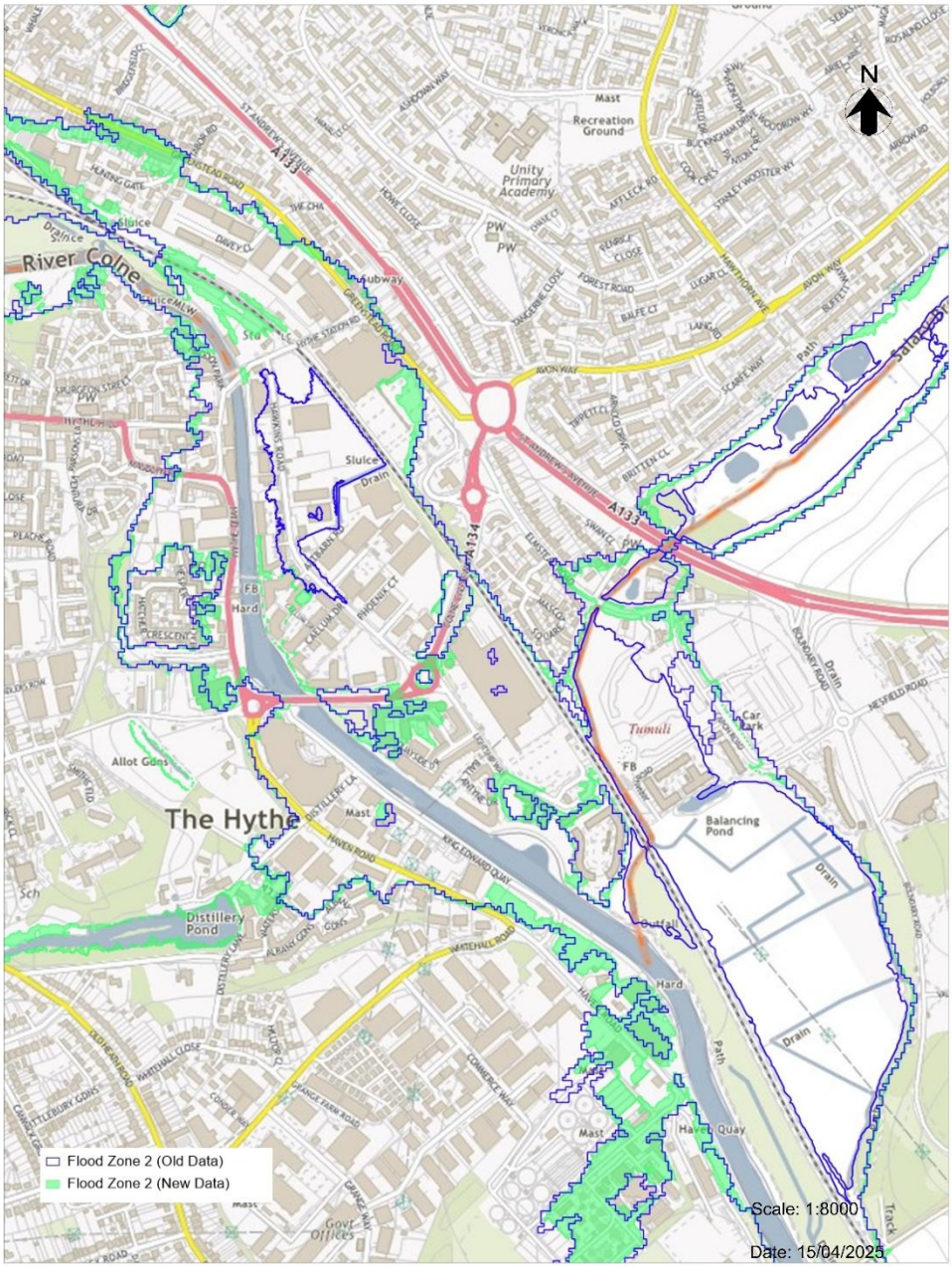
Charities and representative groups, like the National Farmers Union (NFU) and Country Land and Business Association (CLA), have plans which consider the importance of water for their own sectors.

Appendix 2. Changes to flood risk data

The maps in the appendix show the old and new flood risk zones at the Hythe and Mersea Island. These maps highlight the limited changes in these two flood risk areas of the district.

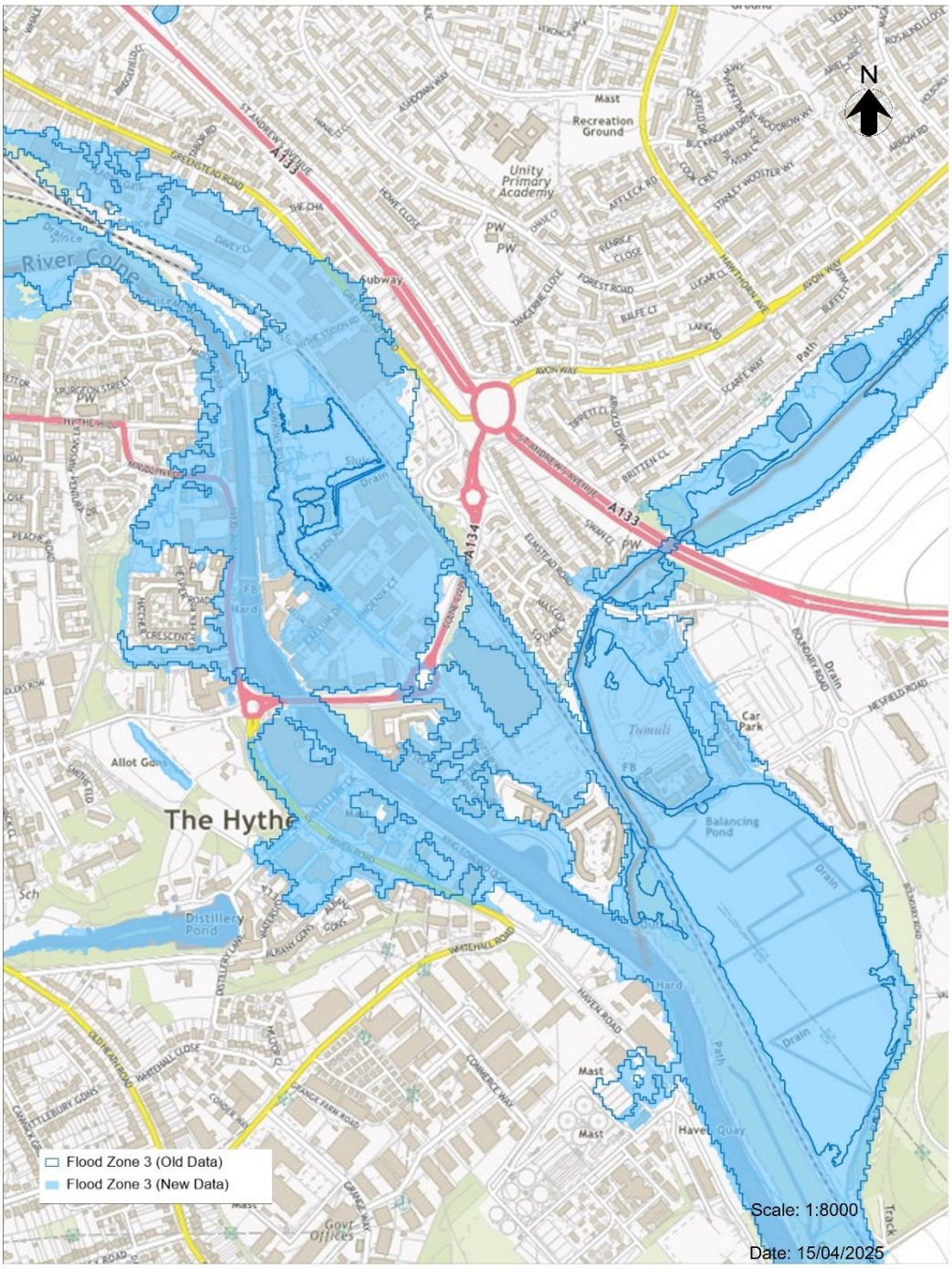
HYTHE - OLD & NEW FLOOD ZONE 2 DATA

Colchester City Council



HYTHE - OLD & NEW FLOOD ZONE 3 DATA

Colchester City Council



EAST MERSEA - OLD & NEW FLOOD ZONE 2 DATA

Colchester City Council

Scale: 1:15000
Date: 15/04/2025

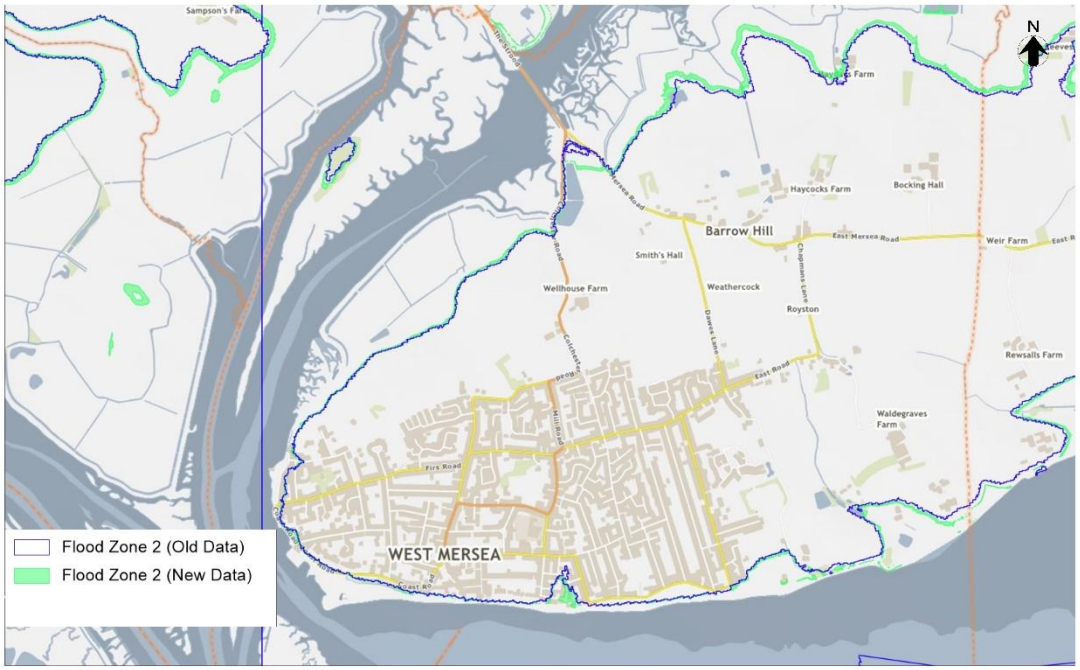
EAST MERSEA - OLD & NEW FLOOD ZONE 3 DATA

Colchester City Council

Scale: 1:15000
Date: 15/04/2025

WEST MERSEA - OLD & NEW FLOOD ZONE 2 DATA

Colchester City Council



Scale: 1:20000
Date: 15/04/2025

WEST MERSEA - OLD & NEW FLOOD ZONE 3 DATA

Colchester City Council

Scale: 1:20000
Date: 15/04/2025