TECHNICAL NOTE

JBA Project Code	2022s0177
Contract	Maldon District Council Level 1 SFRA
Client	Maldon District Council
Date / version	15 August 2023 / S3-P01
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Reviewer / Sign-off	Alastair Dale
Subject	Review of Anglian Water's DWMP

1 Introduction

Water companies were required to publish Drainage Water Management Plans (DWMPs) for river basin catchments across England as part of the Environment Act. Anglian Water has recently published their DWMP. This provides information over a wider geographical extent on sewer flood risk than has previously been available. In doing this, the DWMP's include risk assessment and mapping which could potentially be used in the proposed land use planning prioritisation process and could potentially be perceived as being appropriate for consideration in the Sequential and Exception Tests. As this is a matter that could be raised at Examination this review is performed to understand the nature of the DWMP mapping and data that is now available and the extent to which it can appropriately be used to support the preparation of the Sequential Test. The intention is that this review is used to support consultation with Anglian Water so formal confirmation can be given to the proposed methods and approach used in the preparation of the SFRA and the Plan.

2 Anglian Water DWMP

2.1 Background

The DWMP describes the basis for long term investment proposals by Anglian Water that span the next 25 years and set out the commitment needed to ensure they're robust and resilient to future pressures.

Anglian Water's plan contains substantive volumes of mapping, information and data that has not previously been made available by water companies. The focus is on planning for the future, so customer flooding is reduced. However, catchments were hydraulically modelled for the 2% annual exceedance probability (AEP) event. By comparison, fluvial, tidal and surface water modelling already used within the Sequential Test is for the 3.3%, 1% and 0.1% AEP events.

Anglian Water have prepared a regional (Level 1) DWMP which is supported by plans for each of the Catchment Based Approach areas (CaBA) (Level 2 DWMP) and wastewater recycling catchments (Level 3 DWMP). However, it was acknowledged at Level 2 that CaBA would not be appropriate or applicable to all, so a range of L2 options were made available: L2 information at CaBA, council boundaries, Regional Flood and Coastal Committees (RFCC), Internal Drainage Board (IDB) areas and by county. Maldon district is located within the Essex Rivers Hub CaBA.

2.2 DWMP objectives

The planning objectives in the DWMP assess the current and future performance of the drainage and wastewater systems and identify where action and/or future investment is required. The performance is considered as a risk where failure could have an impact on people and/or the environment. A total of 10 objectives were identified by Anglian Water to assess:

1 Risk of sewer flooding in a 1 in 50 year storm (2% AEP)

2 Storm overflow performance

3 External sewer flooding risk
4 Internal sewer flooding risk
5 Pollutions risk
6 Sewer collapse
7 Dry Weather Flow (DWF) compliance
8 Water Recycling Centres (WRC) quality compliance
9 Access to amenity areas
10 Green infrastructure

Further details can be found here: **https://www.anglianwater.co.uk/about-us/our-strategies-and-plans/drainage-wastewater-management-plan/brava/**

2.3 Risk based catchment screening

As part of the DWMP, a risk based catchment screening (RBCS) exercise was completed, where existing, readily available data was used to identify where there is a current and/or potential risk or vulnerability in the wastewater system to future changes, such as new residential development or changes in climate.

The screening exercise informed the scope of the Baseline Risk and Vulnerability Assessment (BRAVA) enabling comparison across wastewater systems based on different levels of risk. However, as some catchments have been screened out through the RBCS, the BRAVA does not provide an assessment of the entire catchment.

Further information on the RBCS process can be found here: **https://www.anglianwater.co.uk/about-us/our-strategies-and-plans/drainage-wastewater-management-plan/risk-based-catchment-screening/**

2.4 Baseline Risk and Vulnerability Assessment

Anglian Water conducted a BRAVA to understand their current system performance and future vulnerabilities. This includes substantial volumes of mapping, information and data that has not previously been made available. Further details regarding the BRAVA methodology can be found here: **https://www.anglianwater.co.uk/about-us/our-strategies-and-plans/drainage-wastewater-management-plan/brava/**

As part of the BRAVA, all water recycling catchments which progressed through RBCS were assessed for each of the 10 planning objectives listed in Section 2.2, using the following scoring system:

- 0 = Low risk
- 1 = Medium risk
- 2 = High risk

A table was prepared outlining the results which can be found here: **https://www.anglianwater.co.uk/siteassets/household/about-us/dwmp/dwmp---data-tables-may-2023.xlsx**

The table should be read in conjunction with the data tables commentary: **https://www.anglianwater.co.uk/siteassets/household/about-us/dwmp/dwmp---data-tables-commentary.pdf**

Anglian Water produced maps showing the results of the BRAVA for each of the DWMP planning objectives listed in Section 2.2, for 2020 and 2050.

The maps show the area covered by each of the wastewater recycling catchments assessed shaded with the risk band colour. As previously noted, not all wastewater recycling catchments within the Local Plan study area were assessed as part of the Level 3 BRAVA.

Examples of the maps prepared for two of the objectives, internal sewer flooding and flooding in a 1 in 50-year (2% AEP) storm, are shown in Figure 2-1 and Figure 2-2..

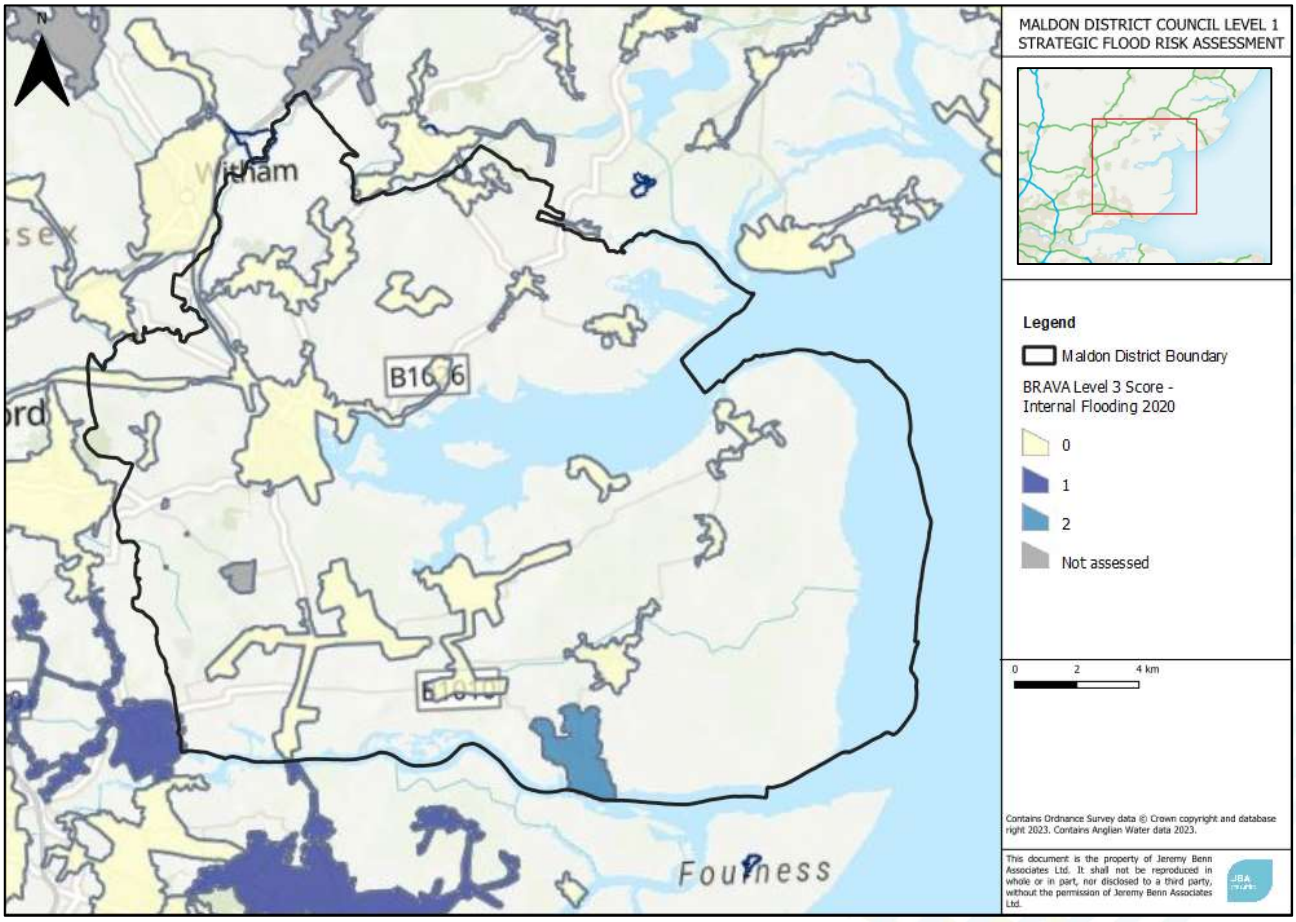

Figure 2-1: BRAVA Internal Sewer Flooding 2020 map

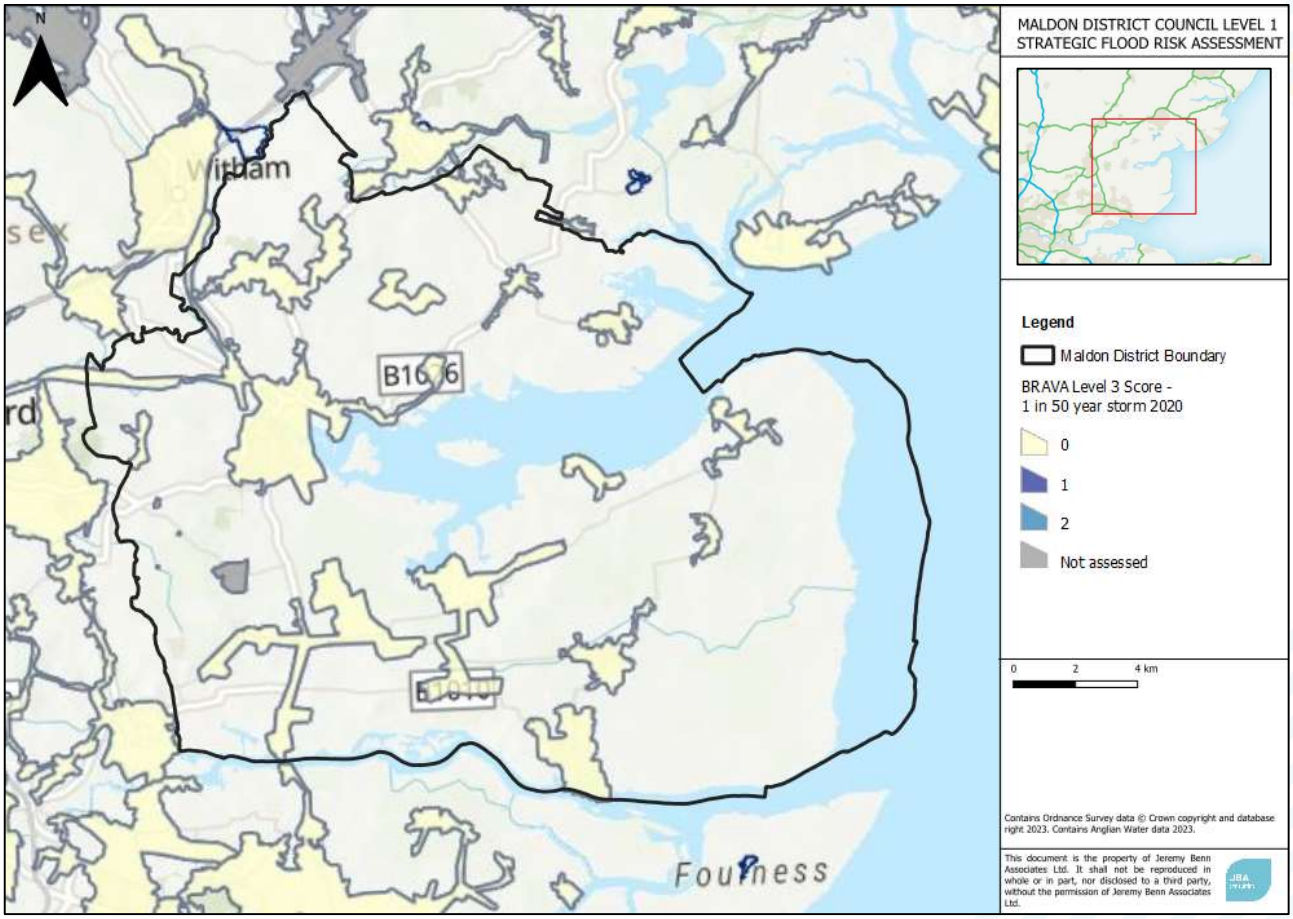

Figure 2-2: BRAVA Sewer Flooding in the 2020 1 in 50 year (2% AEP) storm

3 Implications

The implications of the DWMP BRAVA data are outlined below:

- It is understood that the BRAVA table and mapping have been prepared for the purpose of Long-Term Investment Planning and not for the sequential placement of new development. The mapping shows where certain wastewater systems would require investment. However, as there is no certainty about any potential investment and the benefits this may bring, it is not necessarily possible to conclude that this should be used as the basis for the Sequential Test.
- As shown in Figure 2-1 and 2-2, results do not cover the entire Local Plan area and provide one risk category for each wastewater recycling catchment, the actual level of risk within the areas shown might potentially vary substantially and thus the spatial resolution might not be appropriate for use in a comparative analysis of specific sites. The data resolution used as part of the DWMPs does not appear to be

comparable to the river and sea flooding information and thus could not easily used alongside the existing data and mapping on a site-specific basis.

- The data provided on Anglian Water's website is not provided in .shp format, which would be required to undertake the site screening as part of the Level 1 SFRA. The availability of the data in GIS format will be discussed with Anglian Water.
- Whilst it might not be possible to use the DWMP data and mapping in a comparative assessment to support the Sequential Test the content might influence the timing and viability of potential allocations that are identified. The mapping indicates that generally the risk of sewer flooding is low across the Council area, but even if the risk is indicated as higher at some locations these are not defined with sufficient resolution to enable a comparative assessment to be performed. However, it isn't possible to report on the extent to which risk considerations might affect viability or sustainability of development (for reasons other than directly related to flood risk) from the information available, but this matter should be discussed and a formal position agreed with Anglian Water. For potential sites where it is understood that the DWMP data does potentially introduce sewer flooding matters that affect the implementation of development then appropriate content should be included in the Level 2 SFRA by way of demonstrating that the principle of development can be supported. The content in the SFRA can also be used as a means of informing the approach to windfall development proposals not included in the Plan.

4 Implications of other BRAVA products

4.1 Introduction

As noted in Section 2.2, the DWMP has a number of objectives. As such there are several BRAVA products. Although we understand that these products are not influential to the Sequential Test, they might have implications for other planning considerations which are outside the scope of this report.

4.2 Summary of implications

A summary of the implications of the BRAVA products is outlined in Table 4-1. We will seek clarification with Anglian Water that our understanding about each BRAVA product and whether intended use (or not) in the Sequential Test is appropriate. All data is provided on a sewer catchment basis.

Table 4-1: Summary of implications of BRAVA products

BRAVA product	Implication	Action
Risk of sewer flooding in a 1 in 50 year storm (2% AEP)	Data sources include the results of 2D hydraulic modelled using the most recent catchment model to understand hydraulic overload risk for the 1 in 50 year (2%	Confirmation should be sought from Anglian Water that this does not affect the viability or timing of

	AEP) storm. Although this is useful information in terms of flood risk, the spatial resolution is not appropriate for use in the Sequential Test.	development at particular locations (this could be included in a Level 2 SFRA if necessary).
Storm overflow performance	Data is based on event and duration monitoring (monitors installed on 620 of ~1,500 overflows at time of assessment), time series rainfall, population growth and new development, urban creep, environmental designations and combined sewer overflow investigations. Again, although this is useful information in terms of flood risk, the spatial resolution is not appropriate for use in the Sequential Test. These datasets could also have implications for other planning considerations which are outside the scope of this report.	Confirmation should be sought from Anglian Water that this does not affect the viability or timing of development at particular locations (this could be included in a Level 2 SFRA if necessary).
External sewer flooding risk	A risk category is assigned to each sewer catchment based on historical incidents (number of outside areas flooded within a boundary curtilage). Although this is potentially informative, it is not clear that the spatial resolution is appropriate for use in the Sequential Test.	Confirmation should be sought from Anglian Water that this does not affect the viability or timing of development at particular locations (this could be included in a Level 2 SFRA if necessary).
Internal sewer flooding risk	A risk category is assigned to each sewer catchment based on historical incidents (flooding incidences within properties). Although this is potentially informative, it is not clear that the spatial resolution is appropriate for use in the Sequential Test.	Confirmation should be sought from Anglian Water that this does not affect the viability or timing of development at particular locations (this could be included in a Level 2 SFRA if necessary).
Pollutions risk	Data sources include historic pollution incidents classed as Category 1-3 by the Environment Agency. Could have implications for other planning considerations which are outside the scope of this report.	Confirmation should be sought from Anglian Water that this does not affect the viability or timing of development at particular locations (this could be included in a Level 2 SFRA if necessary).
Sewer collapse	Data is based on Historic Sewer Collapse data. This could be useful information in terms of flood risk. However, the spatial	Confirmation should be sought from Anglian Water that this does not affect

	resolution is not appropriate for use in the Sequential Test.	the viability or timing of development at particular locations (this could be included in a Level 2 SFRA if necessary).
Dry Weather Flow (DWF) compliance	Data is based on percentage of measured dry weather flow versus permitted dry weather flow. Again, although this is useful information in terms of flood risk, the spatial resolution is not appropriate for use in the Sequential Test. These datasets could also have implications for other planning considerations which are outside the scope of this report.	Confirmation should be sought from Anglian Water that this does not affect the viability or timing of development at particular locations (this could be included in a Level 2 SFRA if necessary).
Water Recycling Centres (WRC) quality compliance	Data is based on compliance with the environmental obligations outlined in the permitted sanitary standards. Although this is useful information in terms of flood risk, the spatial resolution is not appropriate for use in the Sequential Test. These datasets could also have implications for other planning considerations which are outside the scope of this report.	Confirmation should be sought from Anglian Water that this does not affect the viability or timing of development at particular locations (this could be included in a Level 2 SFRA if necessary).
Access to amenity areas	Amenity of land within a catchment assessed using geospatial mapping, where greenspace was classed as any non-urbanised area (fields, parks, nature reserves, etc.), not including gardens. Although this is useful information in terms of flood risk, it is not appropriate for use in the Sequential Test. These datasets could also have implications for other planning considerations which are outside the scope of this report.	Confirmation should be sought from Anglian Water that this does not affect the viability or timing of development at particular locations (this could be included in a Level 2 SFRA if necessary).
Green infrastructure	The level of green infrastructure within a catchment assessed using geospatial mapping. Although this is useful information in terms of flood risk, it is not appropriate for use in the Sequential Test. These datasets could also have implications for other planning considerations which are outside the scope of this report.	Confirmation should be sought from Anglian Water that this does not affect the viability or timing of development at particular locations (this could be included in a Level 2 SFRA if necessary).

5 Recommendation

5.1 Sewer flood risk mapping and data

On the basis of our understanding, it is recommended that the DWMP information and mapping is not used to assess sewer flooding to inform the Sequential Test alongside river, sea and surface water flooding on the basis that the available information is not of appropriate resolution or format. This understanding should be addressed with Anglian Water and formal confirmation obtained as necessary to support the Plan and Examination. This will be clearly stated in the Level 1 SFRA and where possible the DWMP information will be used to inform the scope of site specific FRAs.

Further consultation with Anglian Water should clarify the necessity and extent to which identified DWMP sewer flood risk should be addressed at sites where this is potentially an influential matter. This can then inform the necessity to include content on sewer flood risk in a Level 2 SFRA.