

# City of Wolverhampton Council Strategic Flood Risk Assessment: Addendum

## Draft Report

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Prepared by	Ed Hartwell BSc MSc MCIWEM C.WEM Project Manager
Reviewed by	Lucy Archer-Lock BSc, MCIWEM, C.WEM Senior Analyst
Authorised by	Joanne Chillingworth BSc MSc MCIWEM C.WEM Project Director

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# Contract

JBA Project Manager	Ed Hartwell BSc MSc MCIWEM C.WEM
Address	Suite 1B, First Floor (Front Wing), Coleshill House, 1 Station Road, Coleshill, B46 1HT
JBA Project Code	2025s1876

This report describes work commissioned by The City of Wolverhampton Council by an instruction dated 13 March 2026. The Client's representative for the contract was Michele Ross of The City of Wolverhampton Council. Ed Hartwell of JBA Consulting carried out this work.

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# Contents

<b>1</b>	<b>Introduction</b>	<b>6</b>
	1.1 Context	6
	1.2 NaFRA2	6
	1.3 Recommendations for developers	7
<b>2</b>	<b>Overview of implications of NaFRA2 on the SFRA</b>	<b>8</b>
	2.1 Fluvial risk	8
	2.2 Surface water risk	11
<b>3</b>	<b>Conclusions</b>	<b>19</b>
<b>A</b>	<b>NaFRA2 data analysis</b>	<b>20</b>

## Abbreviations

AEP	Annual Exceedance Probability
FMfP	Flood Map for Planning
FRA	Flood Risk Assessment
NaFRA2	National Flood Risk Assessment 2
NCERM	National Coastal Erosion Risk Map
RoFSW	Risk of Flooding from Surface Water
SFRA	Strategic Flood Risk Assessment
SW	Surface Water

# 1 Introduction

## 1.1 Context

JBA Consulting were commissioned by the City of Wolverhampton Council (CWC) to produce Level 1 and Level 2 Strategic Flood Risk Assessments (SFRAs) in line with the updated Local Plan. The new SFRAs were prepared between June 2024 and October 2024, and were finalised in August 2024 and October 2024 respectively. These replace the 2020 Black Country Authorities SFRA.

Since the production of the SFRA, the Council have been working through their Regulation 19 Consultation and are preparing for Examination between September and November 2026. During this period, the Environment Agency published the first outputs of their National Flood Risk Assessment 2 (NaFRA2), updating the national flood mapping for England. Outputs were published in January 2025 (surface water mapping) and March 2025 (Flood Map for Planning).

Based on an assessment of the changes in the City of Wolverhampton, which showed generally minimal changes to the sites assessed as part of the 2024 SFRA, and considering the time and cost implications of updating the SFRA work within the Council's tight Local Plan timescales, it was agreed with the Council that the SFRA would be published with the data available at the time of preparation. Additionally, a short accompanying Addendum would be prepared to acknowledge these subsequent updates.

This Addendum provides a short overview of the new NaFRA2 mapping currently available, a summary of the risk shown at the sites assessed within the SFRA with the new NaFRA2 mapping, and recommendations for developers.

## 1.2 NaFRA2

The Environment Agency updated their [Risk of Flooding from Surface Water \(RoFSW\) dataset \(gov.uk\)](#) on 28 January 2025. This included extents and depths (based on probability bands).

The Environment Agency updated the [Flood Map for Planning \(FMfP\) \(gov.uk\)](#) on 25 March 2025. The FMfP now shows updated extents for Flood Zone 2 and Flood Zone 3 which incorporate new national modelling as well as local models where appropriate. In addition to the Flood Zones, the following information is now also provided in the FMfP:

- Surface water
- Mapping for the 1% AEP, and 0.1% AEP events combined with an allowance for climate change (using the Central allowance for the 2080s epoch) which ignores the presence and condition of flood defences (extents only).

### 1.3 Recommendations for developers

It is recommended that developers use the SFRA (Level 1 and 2) and this accompanying Addendum as a starting point to assess the flood risk to their sites. Developers should also identify the requirements for site-specific Flood Risk Assessments (FRAs) and further work that might be required. The [FRA guidance \(gov.uk\)](#) was last updated on 22 October 2025 by the Environment Agency. The Environment Agency's online datasets should be referred to for the latest available flood risk data. These can be accessed via the [Flood Map for Planning](#) and the [Defra Data Services Platform](#).

It should be noted that the Environment Agency intend to publish further NaFRA2 datasets over the course of the next 12-18 months. This data is expected to include fluvial and surface water depth information, as well as climate change outputs suitable for planning for surface water. Developers should consult with the Environment Agency as early as possible to understand the requirements for their site-specific FRA and additional assessments they may need to undertake in the interim before publication of the full data.

## 2 Overview of implications of NaFRA2 on the SFRA

### 2.1 Fluvial risk

The Environment Agency's Flood Zone mapping was updated in March 2025 with the publication of NaFRA2. Flood Zones are subdivided into the following four categories:

- **Flood Zone 1 - low probability:** Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
- **Flood Zone 2 - medium probability:** Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map).
- **Flood Zone 3a - high probability:** Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea. (Land shown in dark blue on the Flood Map)
- **Flood Zone 3b - the functional floodplain:** This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise:
  - land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or
  - land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding).

Flood Zone 3b is identified by the Local Planning Authority and therefore was not directly updated as part of the NaFRA2 updates.

Currently, the Level 1 and 2 SFRA state that where there is no modelled climate change extent available for the 0.1% Annual Exceedance Probability (AEP) event, which was the case in 2024, the Environment Agency's Flood Map for Planning (FMfP) Flood Zone 2 can be used to represent this as a proxy in the absence of modelled information. The current day Flood Zone 2 is not a suitable surrogate for representing the future Flood Zone 2/0.1% AEP climate change extent. However, this approach was agreed with the Environment Agency at the time of the study, in the absence of modelled data and in light of the agreed climate change approach overall.

Since the Local Plan was submitted, there is now a NaFRA2 generated climate change mapping included within the public output layers in the FMfP. This dataset shows how the combined extent of flood zones 2 and 3 could increase with climate change by 2125 (2080's epoch) under the 'Central' allowance. Developers should consult the Flood Map for Planning to understand the implications of this dataset on their proposals.

In the absence of any more recent detailed modelling, any future flood risk studies and FRAs should use the new Flood Map for Planning climate change data as a surrogate for assessing the future (climate change) extent of Flood Zone 2, rather than using current day Flood Zone 2.

The extent of each site at risk from Flood Zone 2 and Flood Zone 3a using both the previous mapping and the new NaFRA2 mapping has been assessed. The results of this, along with a brief comment on the change in risk shown with the NaFRA2 mapping, for the sites assessed within the site screening are shown in Table 2-1 (extracted from the spreadsheet provided in Appendix A). This should be used as a starting point to determine areas where the Level 2 SFRA information is likely to be outdated based on the mapping updates. Future assessments should use the updated Flood Zone mapping as a starting point, because the NaFRA2 mapping supersedes the previous SFRA Flood Zone mapping.

The Level 2 SFRA identified seven sites that were shown to be at fluvial flood risk based on the previous Environment Agency Flood Map for Planning. Of these sites, flood risk has increased by more than 1% in one location. No additional sites were identified to be at fluvial risk.

It should be noted that several sites are also at risk of fluvial flooding from smaller 'ordinary' watercourses, not previously shown in the FMfP. The flood risk at these sites was assessed using the surface water mapping, which often provides a good representation of the risk from smaller watercourses for the purposes of strategic assessment.

Table 2-1: NaFRA2 comparison - Flood Zones

Site	Previous FZ2 (% extent)	New (NaFRA2) FZ2 (% extent)	Previous FZ3 (% extent)	New (NaFRA2) FZ3 (% extent)	Comments
E2 - Rear of IMI Marstons, Wobaston Road	5.7	5.7	29.7	29.7	No change in FZ2 or FZ3 flood extents
E1 - Wolverhampton Business Park	0.0	0.8	0.3	0.0	Slight increase in FZ2 extent and decrease in FZ3 extent
WOE25 - South of Citadel Junction, Murdoch Road, Bilston	7.1	7.1	17.5	17.5	No change in FZ2 or FZ3 flood extents
WOE23 - Bilston Urban Village, Bath Street	1.2	1.2	4.4	4.4	No change in FZ2 or FZ3 flood extents
H21 - Former Stowheath Centres, Stowheath Lane	10.6	14.7	3.6	5.6	Slight increase <5% in FZ2 and FZ3 extents
H24a - Tarrans Housing Renewal (Portobello - Arnhem Road)	0.5	1.0	11.9	11.8	Slight decrease in FZ3 extent and increase in FZ2 extent
H24b - Tarrans Housing Renewal (Portobello - Alamein Road)	10.3	11.3	0.0	0.0	Slight increase in FZ2 extent

## 2.2 Surface water risk

The Environment Agency's RoFSW mapping was updated in January 2025 with the publication of NaFRA2. Surface water flood risk is subdivided into the following four categories:

- **Very Low:** An area has a chance of flooding of less than 0.1% AEP (1 in 1,000) each year.
- **Low:** An area has a chance of flooding between 0.1% AEP (1 in 1,000) and 1% AEP (1 in 100) each year.
- **Medium:** An area has a chance of flooding between 1% AEP (1 in 100) and 3.3% AEP (1 in 30) each year.
- **High:** An area has a chance of flooding greater than 3.3% AEP (1 in 30) each year.

There are a number of key differences noted with the Environment Agency's updated NaFRA2 RoFSW mapping compared with the previous RoFSW mapping:

- No velocity and hazard information is currently available within the NaFRA2 RoFSW mapping.
- Within the NaFRA2 RoFSW mapping, any areas of surface water risk with a depth of less than 75mm have been removed. In the previous mapping, areas of surface water risk with a hazard of less than 0.575 were removed (which is a factor of both depth and velocity).
- In areas where the new NaFRA2 RoFSW mapping overlaps the Risk of Flooding from Rivers and Sea (areas shown to be at fluvial risk) the flood risk extents have been removed from the RoFSW mapping, i.e. it no longer shows flow paths along any watercourses represented within the fluvial mapping.
- Building footprints have been infilled, based on how much of the building's exterior wall and area of the property is wet. Previously buildings were only shown as flooded when flood depths exceeded the modelled building threshold level.

Within the Environment Agency's RoFSW mapping, a climate change dataset was also published with the 'Central' allowance for the 2050s epoch applied to the 3.3%, 1%, and 0.1% AEP events. However, as set out in the [Environment Agency's climate change guidance \(gov.uk\)](#), this allowance is only deemed suitable for development with a lifetime up to 2060. This is below the 100-year minimum lifetime for residential development and typical 75-year lifetime for non-residential development set out in Planning Practice Guidance. Further assessment of the potential impacts of climate change on surface water will need to be considered at the site-specific FRA stage. It should be noted that if the mapped NaFRA2 RoFSW flood risk has change considerably compared with the previous RoFSW mapping, the surface water climate change extents provided as part of the Level 1 SFRA may no longer provide a suitable indication of the surface water risk with climate change. Therefore, the developer may need to undertake further surface water modelling

as part of a site-specific FRA. Further updates to the NaFRA2 surface water climate change mapping are anticipated later in 2026.

The extent of each site at risk from the 3.3%, 1%, and 0.1% AEP surface water events using both the previous RoFSW mapping and the new NaFRA2 mapping has been assessed. The results of this, along with a brief comment on the change in risk shown with the NaFRA2 mapping, for sites where there was a change of more than 5% are shown in Table 2-2 (extracted from the spreadsheet provided in Appendix A). This should be used as a starting point to determine areas where the Level 2 SFRA information is likely to be outdated based on the mapping updates. Future assessments should use the updated surface water mapping as a starting point, because the NaFRA2 mapping supersedes the previous surface water mapping.

The Level 2 SFRA identified six sites which were previously shown to not be at risk of surface water flooding. Of these sites, there is one where 4% of the site is now shown to be at risk during the 0.1% AEP event with the NaFRA2 data. There is no change to the other five sites.

Of the remaining 57 sites which were screened in the Level 2 SFRA, flood risk has increased by more than 5% in nineteen locations. In the majority of these locations, increases are the result of the changes in approach to the mapping, for example building footprints have been infilled in eleven of the nineteen sites, leading to increased extents in the mapping, these generally account for the larger increases in extents. Across the remaining eleven sites the 1% AEP extent is less than 20% suggesting that the sites are likely to remain developable despite the increased surface water flood mapping extents.

Table 2-2: NaFRA2 comparison - Risk of Flooding from Surface Water

Site	Previous 0.1% AEP (% extent)	New (NaFRA2 ) 0.1% AEP (% extent)	Previous 1% AEP (% extent)	New (NaFRA2 ) 1% AEP (% extent)	Previous 3.3% AEP (% extent)	New (NaFRA2 ) 3.3% AEP (% extent)	Comments
27350 - St Marks Road, adjoining Sainsbury's	11.4	23.4	2.5	6.2	0.1	3.8	Slight increase in extents within existing ponding in the east of the site. Building footprints infilled in centre of site, accounting for the majority of the increase in 0.1% AEP event.
36830 - Mill Street Depot, Canalside Quarter	0.2	10.0	0.0	3.5	0.0	0.1	Area of ponding in north of site occurs in NaFRA2 mapping but not in RoFSW mapping
36820 - Culwell Street Depot and adjoining land, Canalside Quarter	9.3	26.4	0.6	13.7	0.0	6.4	Slight increase in extents along access roads. Building footprints infilled in north of site leading to increases east of Kennedy Road

Site	Previous 0.1% AEP (% extent)	New (NaFRA2 ) 0.1% AEP (% extent)	Previous 1% AEP (% extent)	New (NaFRA2 ) 1% AEP (% extent)	Previous 3.3% AEP (% extent)	New (NaFRA2 ) 3.3% AEP (% extent)	Comments
44640 - Old Steam Mill and Sack Works, Corn Mill	0.4	8.0	0.0	4.6	0.0	2.9	Area of ponding north of Cornhill occurs in NaFRA2 mapping but not in RoFSW mapping
42550 - Fmr Beatties, Darlington Street	2.9	10.2	0.9	1.5	0.6	1.0	Increase in 0.1% AEP extent is the result of additional flood risk along Townwell Fold.
32690 - Fmr Eye Infirmary, Chapel Ash	6.0	45.4	0.0	3.0	0.0	0.0	Increase in flood extents associated with infilling of building footprints within the site.
WOE2 - Rear of IMI Marstons, Wobaston Road	9.7	22.9	1.6	12.0	0.0	5.8	Increase in flood extents associated with increased ponding in the centre of the site.

Site	Previous 0.1% AEP (% extent)	New (NaFRA2 ) 0.1% AEP (% extent)	Previous 1% AEP (% extent)	New (NaFRA2 ) 1% AEP (% extent)	Previous 3.3% AEP (% extent)	New (NaFRA2 ) 3.3% AEP (% extent)	Comments
WOE7 - Stratosphere Site, Wolverhampton Science Park	31.7	38.8	6.1	16.8	1.9	2.1	Largely similar flow paths but with increase in extents, particularly in the 1% AEP event. Flow paths cross the site from north-east to south-west.
WOE18 - Millfields Road, Ettingshall	16.6	37.4	2.3	7.1	0.1	0.6	Increased extents associated with flow path across south-east corner of the stie.
H14 - Lane Street / Highfields Road, Bradley	12.3	33.1	3.1	10.6	1.6	3.3	Slight increase in area of flood risk during 1% and 3.3% AEP events caused by additional ponding in the south and east of the site. Increase in the 0.1% AEP event caused by infilling of the building footprint in the northern corner.

Site	Previous 0.1% AEP (% extent)	New (NaFRA2 ) 0.1% AEP (% extent)	Previous 1% AEP (% extent)	New (NaFRA2 ) 1% AEP (% extent)	Previous 3.3% AEP (% extent)	New (NaFRA2 ) 3.3% AEP (% extent)	Comments
H3 - East of Qualcast Road	10.3	18.2	4.1	7.9	0.6	4.3	Increased areas of ponding in the centre of the site.
H11 - Delta Trading Estate, Bilston Road	1.7	14.4	1.0	13.4	0.0	12.7	Increase in flood extent associate with infilling of building located in the northern part of the site.
H12 - Land at Hall Street / The Orchard, Bilston Town Centre	0.7	12.8	0.0	9.8	0.0	1.1	Enlargement of off-site flow path has led to an increase in flood extents in the northern corner of the site. Potentially partially related to infilling of buildings.
H8 - Dobbs Street, Blakenhall	5.1	43.7	1.2	0.5	0.2	0.0	Ponding in similar location in centre of the site along Dobbs Street. Building footprint infilled in one location south of this road accounting for significant proportion of change.

Site	Previous 0.1% AEP (% extent)	New (NaFRA2 ) 0.1% AEP (% extent)	Previous 1% AEP (% extent)	New (NaFRA2 ) 1% AEP (% extent)	Previous 3.3% AEP (% extent)	New (NaFRA2 ) 3.3% AEP (% extent)	Comments
H5 - West of Colliery Road	2.7	8.7	0.5	3.9	0.0	2.4	Localised ponding in three additional locations on the site, minor increases to ponding in existing locations.
H23 - Former Gym, Craddock Street	29.9	67.2	6.5	9.5	0.0	4.5	Ponding in similar locations in centre of the site to the south of the existing warehouse. Building footprint infilled in one location accounting for significant proportion of change.
H22 - Former Probert Court / Health Centre, Probert Road	8.6	17.5	3.7	7.3	0.0	2.7	Ponding in similar locations in centre of the site. Building footprint infilled in one location accounting for significant proportion of change.

Site	Previous 0.1% AEP (% extent)	New (NaFRA2 ) 0.1% AEP (% extent)	Previous 1% AEP (% extent)	New (NaFRA2 ) 1% AEP (% extent)	Previous 3.3% AEP (% extent)	New (NaFRA2 ) 3.3% AEP (% extent)	Comments
H1 - Bluebird Industrial Estate and site to rear, Park Lane	28.5	59.9	9.7	26.3	5.1	14.1	Slight increase in extents within existing flow paths across the south-east of the site. Building footprints infilled in five locations, accounting for the majority of the increase
H24b - Tarrans Housing Renewal (Portobello - Alamein Road)	35.1	48.4	9.3	27.2	0.1	20.2	Slight increase in extents within existing flow paths across the centre and south-east of the site. Building footprints infilled in four locations, accounting for the majority of the increase

### 3 Conclusions

This Addendum has been prepared to summarise the implications of the Environment Agency's National Flood Risk Assessment 2 (NaFRA2) datasets following the completion of the City of Wolverhampton Council Level 1 and Level 2 Strategic Flood Risk Assessments (SFRAs). The Addendum provides an overview of the updated Flood Map for Planning and Risk of Flooding from Surface Water mapping and considers the implications of these updates for sites assessed within the SFRAs.

The review of NaFRA2 Flood Zone mapping indicates that changes to fluvial flood risk across Wolverhampton are generally limited. Of the sites identified as being at fluvial risk within the Level 2 SFRA, only one site shows an increase of more than 1% in flood extent, with no additional sites newly identified as being at fluvial risk. In most cases, changes to Flood Zone 2 and Flood Zone 3 extents are minor and do not materially alter the strategic conclusions of the SFRA. The publication of NaFRA2 climate change mapping within the Flood Map for Planning represents an important update and should now be used as the primary data for future fluvial flood risk where detailed modelling is unavailable.

The updated NaFRA2 surface water mapping shows more notable changes compared with previous datasets. Increases in mapped surface water flood risk extents are identified at a number of sites, largely reflecting changes in modelling and mapping approaches, including infilling of building footprints and revised treatment of shallow flow paths. While flood risk extents have increased at several locations, the majority of sites remain likely to be developable, subject to appropriate site-specific mitigation, as higher probability flood extents generally remain limited.

Developers should:

- Refer to the latest Environment Agency datasets alongside the SFRAs and this Addendum when preparing site-specific FRAs.
- Engage with the Environment Agency and Local Planning Authority at an early stage to agree the most appropriate dataset, particularly where flood risk extents have increased or climate change may be a key consideration.

Further NaFRA2 datasets are expected to be published over the coming months, and additional assessment or modelling may be required to demonstrate that development can be made safe for its lifetime without increasing flood risk elsewhere.

# Appendices

## A NaFRA2 data analysis

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Wallingford  
Warrington

Registered Office  
1 Broughton Park  
Old Lane North  
Broughton  
SKIPTON  
North Yorkshire  
BD23 3FD  
United Kingdom

+44(0)1756 799919  
info@jbaconsulting.com  
www.jbaconsulting.com  
Follow us:  

Jeremy Benn  
Associates Limited  
Registered in England  
3246693

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