

Appendix A: GeoPDF User Guide

Please tick the boxes next to the dataset titles in the map legend to display data. If data does not display, it means it is not present in that particular area.

Legend	Description	Reference
<u>Authority Information</u> <ul style="list-style-type: none"> Rugby Borough Boundary Watercourses 	<ul style="list-style-type: none"> Rugby Borough Boundary - the boundary of the Rugby Borough, the study area for this SFRA. Watercourses – the Environment Agency (EA) Detailed River Network representing the river network based on Ordnance Survey (OS) MasterMap for surface features and EA culvert surveys for underground features (where available). 	Section 1.5 SFRA study area Figure 1.1 Figure 1.4 Figure 1.5
<u>Historic</u> <ul style="list-style-type: none"> Historic Flood Map (EA) 	<ul style="list-style-type: none"> The EA Historic Flood Map shows areas of land that have been previously subject to fluvial flooding in the area. This includes flooding from rivers, the sea and groundwater springs but excludes surface water. <p>If an area is not covered by the Historic Flood Map, it does not mean that it has never flooded, only that currently there are no records of flooding in this area from the EA records. Other historic information is supplemented in the Level 1 report (section 5.1).</p>	Section 5.1 Historical Flooding Figure 5-1 Table 6.3 Appendix E
<u>Risk of Flooding from Surface Water (EA) (High Risk)</u> <ul style="list-style-type: none"> RoFSW 3.3% AEP RoFSW 1% AEP RoFSW 0.1% AEP 	<p>The EA’s Risk of Flooding from Surface Water (RoFfSW) flood maps give an indication of the broad areas likely to be at risk of surface water flooding. This includes flooding that takes place from the surface runoff generated by rainwater. The data includes the extent, velocity, depth and hazard mapping for each AEP event listed below.</p> <ul style="list-style-type: none"> 3.3% - each year the area has greater than a 1 in 30 chance of flooding 1% - each year the area has between a 1 in 100 and a 1 in 30 chance of flooding 0.1% - each year the area has greater than a 1 in 1000 chance of flooding 	Section 5.5 Surface water flood risk Appendix E
<u>Risk of Flooding from Rivers and Sea (EA)</u> <ul style="list-style-type: none"> Low Medium High 	<p>The Risk of Flooding from Rivers and Sea maps have been generated from the EA’s National Flood Risk Assessment (NaFRA) and National Receptor Dataset (NRD).</p> <ul style="list-style-type: none"> Low risk: each year there is a chance of flooding of between 1 in 1000 (0.1%) and 1 in 100 (1%) Medium risk: each year there is a chance of flooding of between 1 in 100 (1%) and 1 in 30 (3.3%) High risk: each year there is a chance of flooding of greater than 1 in 30 (3.3%) 	Section 5.4 Fluvial flood risk Appendix E

Legend	Description	Reference
<p><u>Flood Zones</u></p> <ul style="list-style-type: none"> Flood Zone 3b Flood Zone 3a Flood Zone 2 	<p>The EA's Flood Map for Planning (FMFP) is an online mapping portal which shows the Flood Zones in England. They are formed from older national 2D generalised (broadscale) modelling and updated periodically every year with detailed modelling outputs. In most places they should therefore reflect latest modelling where available. The Flood Zones are for use in development planning and flood risk assessments.</p> <ul style="list-style-type: none"> Flood Zone 3b – Functional Floodplain: This zone comprises land where water has to flow or be stored in times of flood. Flood Zone 3b is identified as land which would flood with an annual probability of 1 in 30 years (or 1 in 50, or 1 in 100 years), where detailed hydraulic modelling exists. Where the 1 in 30 year event is not available, the layer has been based on the larger, more conservative event outline. Flood Zone 3a – High probability: greater or equal to a 1% chance of river flooding in any given year or greater than a 0.5% chance of sea flooding in any given year. (Excludes Flood Zone 3b, which is derived as part of the SFRA). Flood Zone 2 – Medium probability: between a 1% and 0.1% chance of river flooding in any given year or 0.5% and 0.1% chance of sea flooding in any given year. This also includes the Historic Flood Map. 	<p>Section 3.2.1 Flood Zones – river risk</p> <p>Appendix B – for model details and relevant flood outlines</p>
<p><u>Climate Change Extent (Modelled)</u></p> <p>Fluvial:</p> <ul style="list-style-type: none"> Climate Change Central allowance <p>Surface Water</p> <ul style="list-style-type: none"> 3.3% AEP CC+25% 3.3% AEP CC+35% 1% AEP CC+25% 1% AEP CC+40% 	<p>These extents are from existing hydraulic models, where the 1% AEP (100-year flow) is upscaled by the EA's climate change allowances for the 2080s epoch for the relevant management catchment.</p> <p>Climate change modelled flood extents can be compared to the 100-year flood extent (Flood Zone 3a), and where no detailed modelling exists, compared against Flood Zone 2, for an indication of areas most sensitive to climate change. The models available for the Rivers within the Rugby area are within the Avon Warwickshire management catchment (see Table 4-1 of the main report for allowances). From the modelled outlines available, the following allowances have been included (note there are no modelled climate change outlines within the Higher Central and Upper End Categories).</p> <p>Central allowance:</p> <ul style="list-style-type: none"> River Swift 2019 – 1% AEP plus 20% CC River Avon 2010 – 1% AEP plus 20% CC <p>Surface Water Climate Change uplifts were modelled for this assessment for the following events and scenarios:</p> <ul style="list-style-type: none"> 3.3% AEP CC+25% 	<p>Section 4 Impact of Climate Change</p> <p>Appendix B</p>

Legend	Description	Reference
	<ul style="list-style-type: none"> 3.3% AEP CC+35% 1% AEP CC+25% 1% AEP CC+40% 	
<u>EA Flood Alert and Warning Areas</u> <ul style="list-style-type: none"> Flood Warning Flood Alert 	<ul style="list-style-type: none"> Flood Warnings are issued to designated Flood Warning Areas when a river level hits a certain threshold, heavy rainfall or high tides and strong winds are forecast. "Flooding is expected, immediate action is required". Flood Alerts are issued when there is water out of bank for the first time <i>anywhere in the catchment</i> and when forecasts indicate flooding may be possible. "Flooding is possible, be prepared". Both of these datasets are a polygon GIS shapefile where the above are issued; they are not flood extents. 	<p>Section 5.10 Flood Alert and Flood Warnings</p> <p>Appendix D Flood Alert and Flood Warnings</p>
<u>Groundwater Levels Emergence Mapping (JBA)</u> <ul style="list-style-type: none"> Less than 0.025m below surface Between 0.025-0.5m below surface Between 0.5-5m below surface At least 5m below surface No risk 	<p>JBA's Groundwater Flood emergence map shows the level of groundwater below the surface, at a resolution of 5m. Flood risk could increase when groundwater is already high or emerged, causing additional overland flow paths or areas of still ponding, which may occur at sites other than those shown in the emergence mapping.</p>	<p>Section 5.7 Groundwater flooding</p> <p>Appendix E</p>
<u>Defences</u> <ul style="list-style-type: none"> Wall Embankment Natural High Ground Flood Gate 	<p>EA Asset Information Management System (AIMS) spatial Flood Defence dataset, shows flood defences currently owned, managed or inspected by the EA. A defence is any asset that provides flood defence or coastal protection functions.</p> <p>The main defences within the Rugby Borough Boundary are natural high ground, but there are also some embankments, walls and areas of engineered high ground.</p>	<p>Table 6-2 Locations shown in the 'EA AIMS' dataset</p> <p>Section 6.5 Existing and future flood alleviation schemes</p>