

- Council Boundary
- Ashton, Bridgewater and Rochdale Canals
- Areas at risk of GW Flooding
- Areas of shallow GW
- Areas at risk of GW rebound
- Employment
- Housing
- Mixed Use
- Other
- Regional Centre Boundary
- Manchester Ship Canal / Grey Irwell
- Other Waterbodies
- Main Rivers (V8.0)**
- Culverted
- Open
- Digitised River Lines**
- Culverted
- Open

The map has been produced in accordance with PPS25: Development and Flood Risk and its Practice Guide. This map shows areas that are potentially at risk from groundwater flooding and should be used to scope suitable mitigation measures in a site specific Flood Risk Assessment.

The Main River information shown in the SFRA is provided by the Environment Agency; the centreline data may deviate from that shown on basemapping due to inherent differences in data resolution. Further information on Main Rivers is provided on the Environment Agency's website. The mapping of culverted sections of watercourse is a strategic screening only based upon Ordnance Survey 1:10,000 mapping and should be confirmed for more detailed studies such as site specific Flood Risk Assessment. The canals layer does not necessarily cover all the canal arms, but the modelled overtopping/breaching and hydraulic interactions with rivers and other waterbodies is complete and accurate as appropriate for a Strategic Flood Risk Assessment.

The information on the map is based on Environment Agency potential groundwater rebound areas, data from the Coal Authority, BGS drift geology mapping and Defra Groundwater Emergence Maps.

The River Irwell between Victoria Station and Pomona Island is not shown as a Main River on the Environment Agency's Flood Map although Flood Zones related to the river are. The same approach has been taken in this SFRA.

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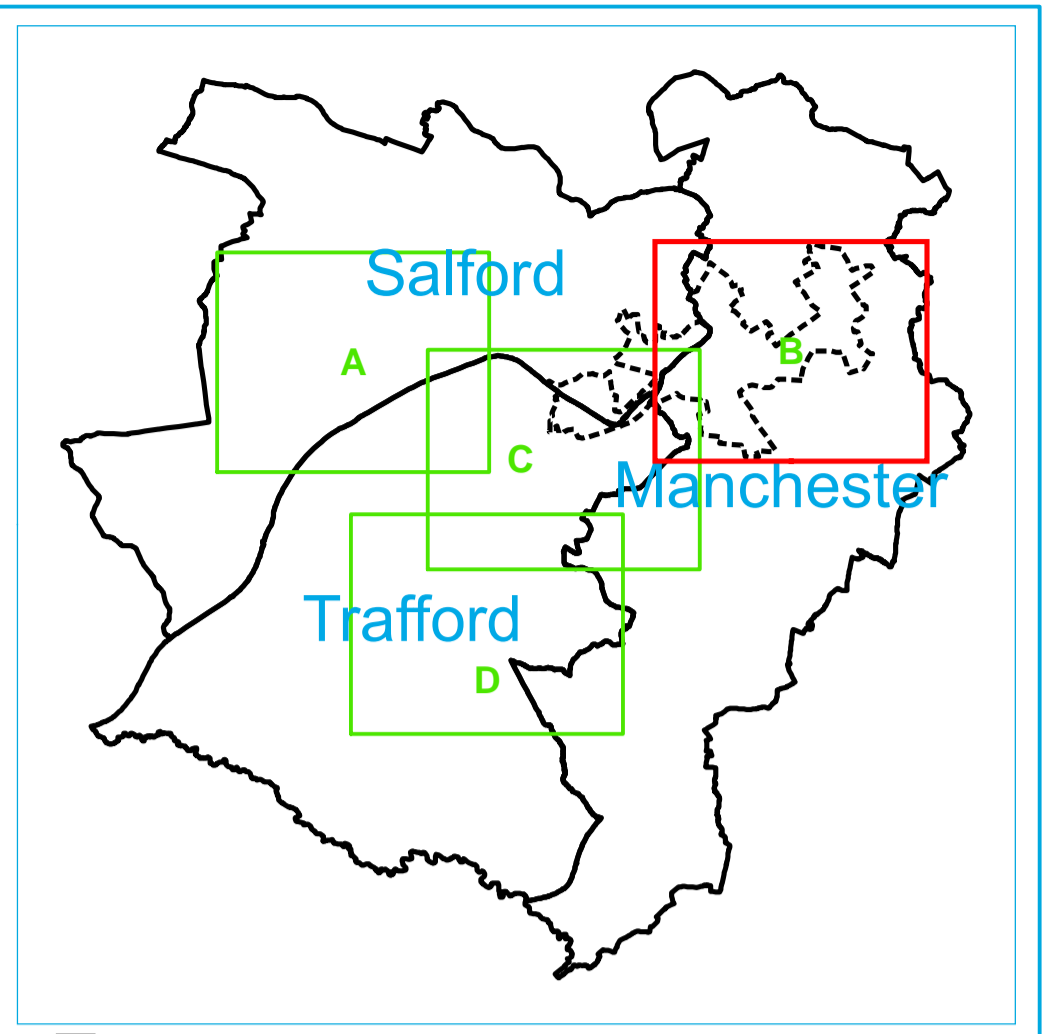
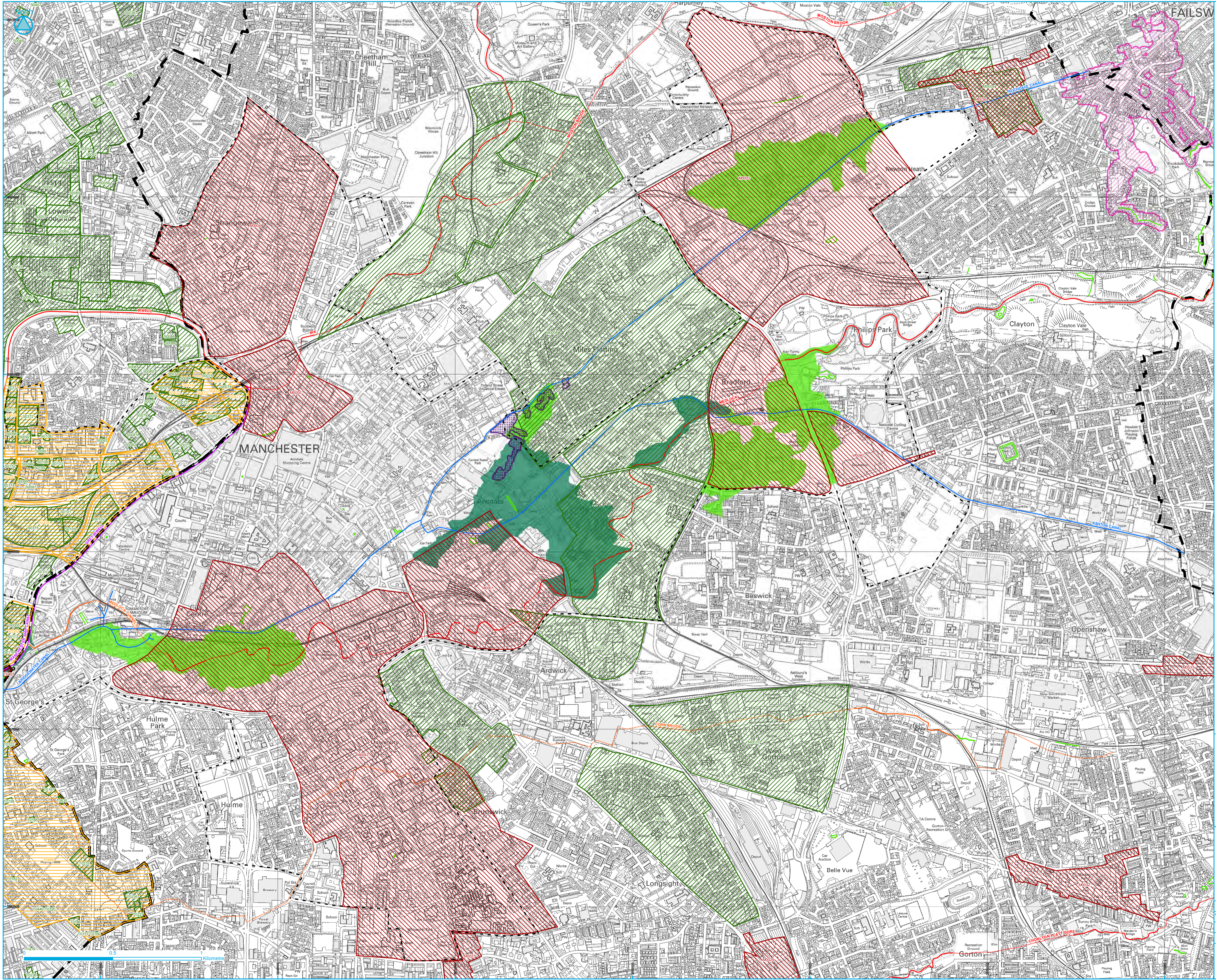
for

Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA

Groundwater Flooding

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APPENDIX D – SFRA – Groundwater Flooding



- Council Boundary
- Ashton, Bridgewater and Rochdale Canals
- Manchester Ship Canal / Grey Inwell
- Other Waterbodies
- Main Rivers (V8.0)
 - Culverted
 - Open
- Digitised River Lines
 - Culverted
 - Open
- Regional Centre Boundary

This map has been produced in accordance with PPS25: Development and Flood Risk.

Two indicative "Canal Hazard Zones" have been created for the Bridgewater, Ashton and Rochdale Canals. These have been generated using broadscale 2D modelling to show areas that could potentially be affected by flooding in the event of:

- *Canal Overtop Hazard Zone
- *Canal Breach Hazard Zone

The potential breach locations / areas were sub-divided into two Canal Breach Zones:

- *Canal Breach Zone A: A walkover survey of the canal was undertaken to identify the embankments more likely to breach, based on their height and width. This zone shows those areas that would be affected by a breach of one of these embankments. In this zone a detailed examination of canal breach flood risks is required in a site specific FRA.
- *Canal Breach Zone B: Less likely breach locations, such as at wide, low or very low embankments, were identified by a walkover survey of the canal. At such locations it is more likely that this source of risk could be scoped out within any site specific FRA.

It should be noted that these outlines are based on broadscale modelling techniques and should only be taken as an indication of areas that might be at risk and inform Flood Risk Assessments. There are a number of uncertainties associated with the simulation of flooding from canals in either overtopping or breach conditions. The assumptions behind the modelling should be considered when using and reviewing the hazard zones that have been produced. Full details of the methodology used to derive Canal Hazard Zones is provided in Chapter 3 of the Level 2 SFRA and guidance on the use of the Canal Hazard Zones is provided in Chapter 3 of the SFRA User Guide.

The Canal Hazard Zone resulting in a breach from the Rochdale Canal in Oldham has also been included on the map and has been taken from the Oldham SFRA (2010). This was based on a similar broadscale methodology.

Interactions between the Bridgewater Canal and the River Medlock in Castlefield may result in overtopping of the Canal during severe weather events, as shown elsewhere in the SFRA.

For further information please see the Level 2 SFRA Chapter 3.

The Main River information shown in the SFRA is provided by the Environment Agency; the resolution data may deviate from that shown on basemapping due to inherent differences in data reline. Further information on Main Rivers is provided on the Environment Agency's website. The mapping of culverted sections of watercourse is a strategic concern only based upon Ordnance Survey 1:10,000 mapping and should be confirmed for more detailed studies such as site specific Flood Risk Assessment. The canals layer does not necessarily cover all the canal arms, but the modelled overtopping/breaching and hydraulic interactions with rivers and other waterbodies is complete and accurate as appropriate for a Strategic Flood Risk Assessment.

The River Inwell between Victoria Station and Pomona Island is not shown as a Main River on the Environment Agency's Flood Map although Flood Zones related to the river are. The same approach has been taken in this SFRA.

The map should be considered when applying the Sequential Test and used to scope the inclusion of canal flood risk within a site specific FRA.

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Canal Hazard Zones

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Approved by: J Cooper	Date: 01/02/2011	
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Drawing Number: MM_3.2B	Status: FINAL	Scale: 1:10,000



APPENDIX E – Surface Water Flood Flow Route