

It is noted that no flooding is shown to occur at breach locations Barn07 and Clp02. The invert levels of the breaches are above the Mean Likely Water Level for the Year 2100.

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### LEGEND

Borough Boundary

Main River (open)

Main River (culverted)

Ordinary Watercourse (open)

Ordinary Watercourse (culverted)

Maximum Flood Depth (m)

<0.1m

0.1m - 0.25m

0.25m - 0.5m

0.5m - 1m

1m - 1.5m

> 1.5m

Flood Defences

Modelled Breach Locations

Riverside Analysis Categories

1

2

3

4

**Notes**

As part of the Environment Agency rolling programme of flood risk modelling studies, tidal breach modelling has been undertaken for the River Thames for a number of breach locations along the Thames tidal frontage (Thames Embayment Modelling, CH2M-Hill February 2015). One of the outputs of this modelling is maximum flood depth mapping.

The study area for this SFRA is upstream of the Thames Barrier. In this location, return periods cannot be applied to water levels in the same way as they can downstream of the barrier, as they are a function of the maximum tide level allowed through the barrier, as defined by the barrier closure rule matrix. As a result, a Maximum Likely Water Level (MLWL) is applied. Upstream of the barrier, the following modelled scenarios were simulated:

- Maximum Likely Water Level for the year 2014
- Maximum Likely Water Level for the year 2065
- Maximum Likely Water Level for the year 2100

Riverside Analysis Categories:

The 2008 Level 1 SFRA analysed the riverside topography to determine the potential consequences of a breach in the defences occurring. This information has been provided to supplement the breach modelling and provide an indication of residual risk for the entire Borough. LIDAR data was analysed and compared with peak flood levels to estimate the flow of water through a theoretical breach at any point along the river frontage. The results were then used to classify the riverside into categories of increasing residual risk from RC-1 (topography above 1 in 1000 year tidal flood level) to RC-4 (topography more than 1m below the 1000 year level).

This map is intended to provide a strategic overview of the residual risk of tidal flooding and should not be used to assess

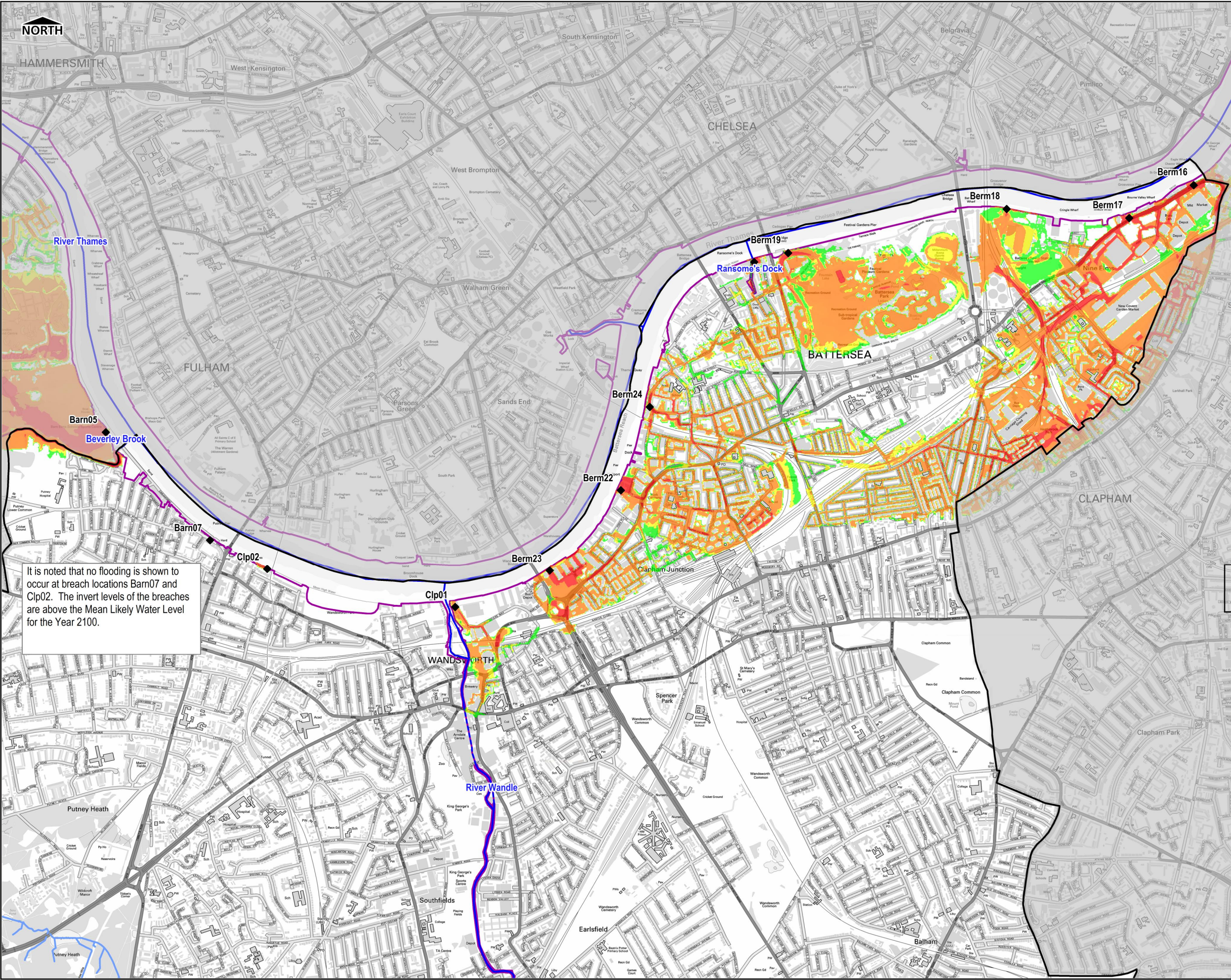
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| FINAL  |            |
| Client   |            |
| CROYDON merton Sutton Wandsworth   |            |
| Project Title  |            |
| London Boroughs of Croydon, Sutton, Merton and Wandsworth Level 2 Strategic Flood Risk Assessment  |            |
| Drawing Title  |            |
| Tidal Breach Modelling MLWL for the Year 2100  |            |
| Drawn  | Checked    |
| SL   | SK         |
| Approved   | Date       |
| CP   | 27/07/2016 |
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| FIGURE A3  | 2          |



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It is noted that no flooding is shown to occur at breach locations Barn07 and Clp02. The invert levels of the breaches are above the Mean Likely Water Level for the Year 2100.

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**LEGEND**

- Borough Boundary
- Main River (open)
- Main River (culverted)
- Ordinary Watercourse (open)
- Ordinary Watercourse (culverted)
- Flood Hazard Rating
  - Low (Caution)
  - Moderate (Danger for some)
  - Significant (Danger for most people)
  - Extreme (Danger for all)
- Flood Defences
- Modelled Breach Locations

**Notes**

Main Rivers are designated by Defra on a 'Main River Map'. The Environment Agency has permissive powers to carry out flood defence works, maintenance and operational activities for Main Rivers only. However overall responsibility for maintenance lies with the riparian owner.

As part of the Environment Agency rolling programme of flood risk modelling studies, tidal breach modelling has been undertaken for the River Thames for a number of breach locations along the Thames tidal frontage (Thames Embayment Modelling, CH2M-Hill February 2015). One of the outputs of this modelling is flood hazard mapping which categorises the danger to people for different combinations of flood water depth and velocity. The derivation of these categories is based on the methodology set out by Defra in Flood Risks to People FD2320 using the following equation: Flood Hazard Rating =  $(v+0.5)^2 D$  + DF Where  $v$  = velocity (m/s),  $D$  = depth (m), DF = debris factor

The study area for this Level 1 SFRA is upstream of the Thames Barrier. In this location, return periods cannot be applied to water levels in the same way as they can downstream of the barrier, as they are a function of the maximum tide level allowed through the barrier, as defined by the barrier closure rule / matrix. As a result, a Maximum Likely Water Level (MLWL) is applied. Upstream of the barrier, the following modelled scenarios were simulated:

- Maximum Likely Water Level for the year 2104
- Maximum Likely Water Level for the year 2065
- Maximum Likely Water Level for the year 2100

This map is intended to provide a strategic overview of the residual risk of tidal flooding and should not be used to assess flood risk for individual properties.

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Purpose of Issue

FINAL

Client

CROYDON merton Sutton Wandsworth

Project Title

London Boroughs of Croydon, Sutton, Merton and Wandsworth Level 2 Strategic Flood Risk Assessment

Drawing Title

Tidal Breach Modelling MLWL for the Year 2100

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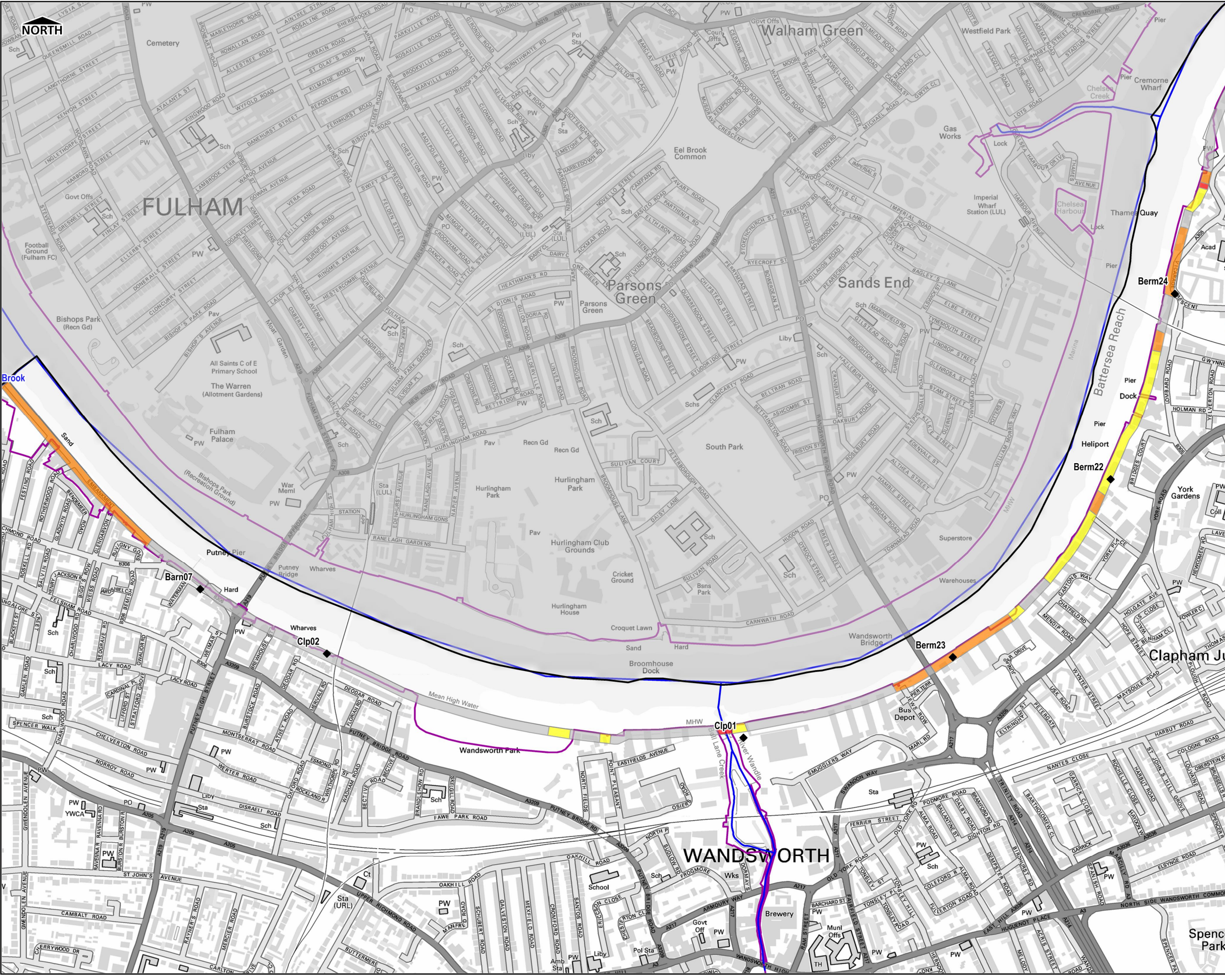
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| FIGURE A4      | 2   |





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**LEGEND**

- Borough Boundary
- Main River (open)
- Main River (culverted)
- Ordinary Watercourse (open)
- Ordinary Watercourse (culverted)

**Riverside Analysis Category**

|   |                          |
|---|--------------------------|
| 1 | Increasing residual risk |
| 2 |                          |
| 3 |                          |
| 4 |                          |

- Flood Defences
- Modelled Breach Locations

**Notes**

**Breach Locations**

As part of the Environment Agency rolling programme of flood risk modelling studies, tidal breach modelling has been undertaken for the River Thames for a number of breach locations along the Thames tidal frontage (Thames Embayment Modelling, CH2M-Hill February 2015). 12 of these breach locations are within London Borough of Wandsworth and are shown on Figures A5 and A6.

**Riverside Analysis Categories:**

The 2008 Level 1 SFRA analysed the riverside topography to determine the potential consequences of a breach in the defences occurring. This information has been provided to supplement the breach modelling and provide an indication of residual risk for the entire Borough.

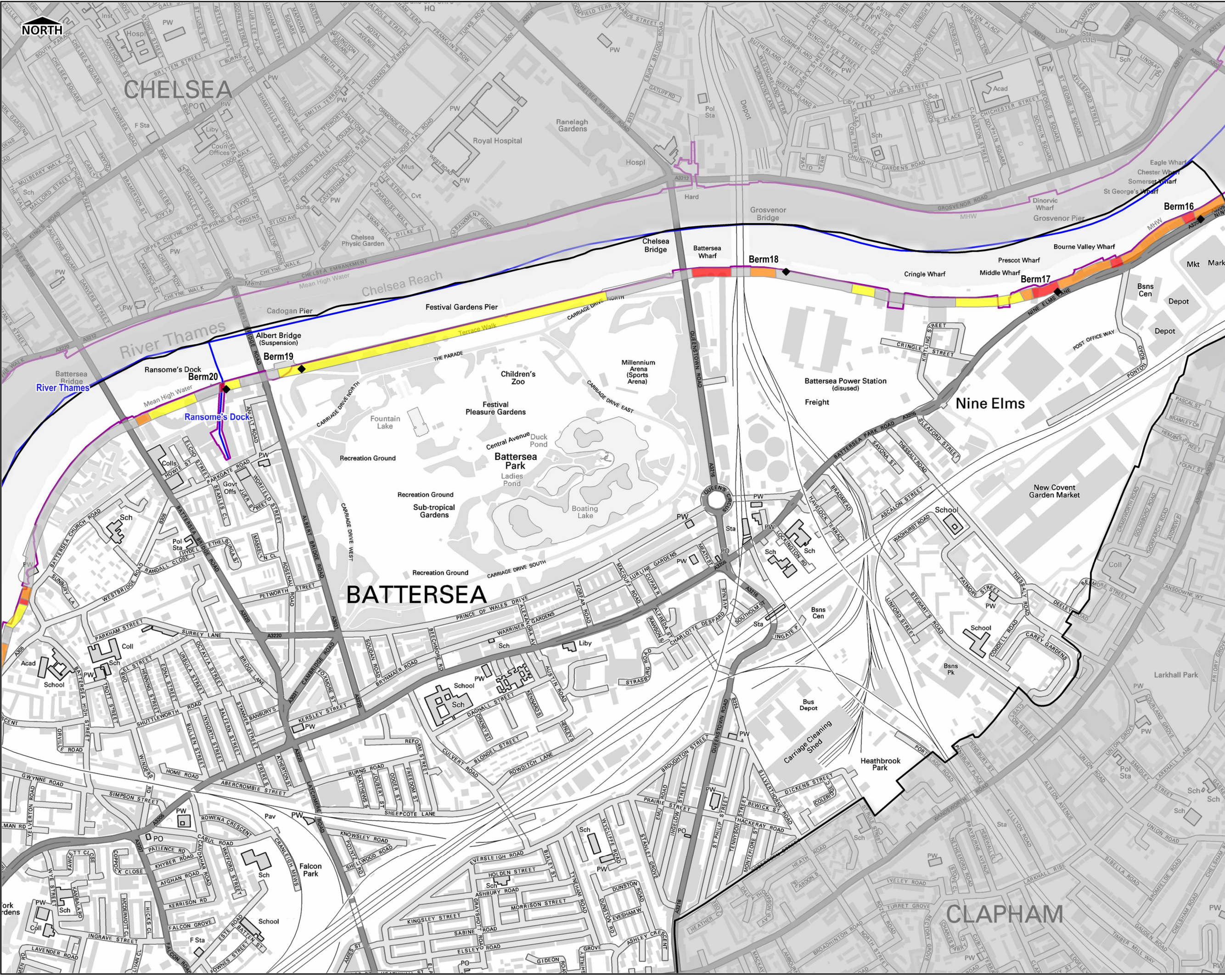
LIDAR data was analysed and compared with peak flood levels to estimate the flow of water through a theoretical breach at any point along the river frontage. The results were then used to classify the riverside into categories of increasing residual risk from RC-1 (topography above 1 in 1000 year tidal flood level) to RC-4 (topography more than 1m below the 1000 year level).

This map is intended to provide a strategic overview of the residual risk of tidal flooding and should not be used to assess

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| London Boroughs of Croydon, Sutton, Merton and Wandsworth Level 1 Strategic Flood Risk Assessment   |         |             |            |
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| FIGURE A5   |         |             | 3          |

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### LEGEND

- Borough Boundary
- Main River (open)
- Main River (culverted)
- Ordinary Watercourse (open)
- Ordinary Watercourse (culverted)

Riverside Analysis Category

|   |                          |
|---|--------------------------|
| 1 | Increasing residual risk |
| 2 |                          |
| 3 |                          |
| 4 |                          |

- Flood Defences
- Modelled Breach Locations

Notes

Breach Locations

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| Riverside Analysis Categories  |         |             |            |
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| FIGURE A6  |         |             | 3          |

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