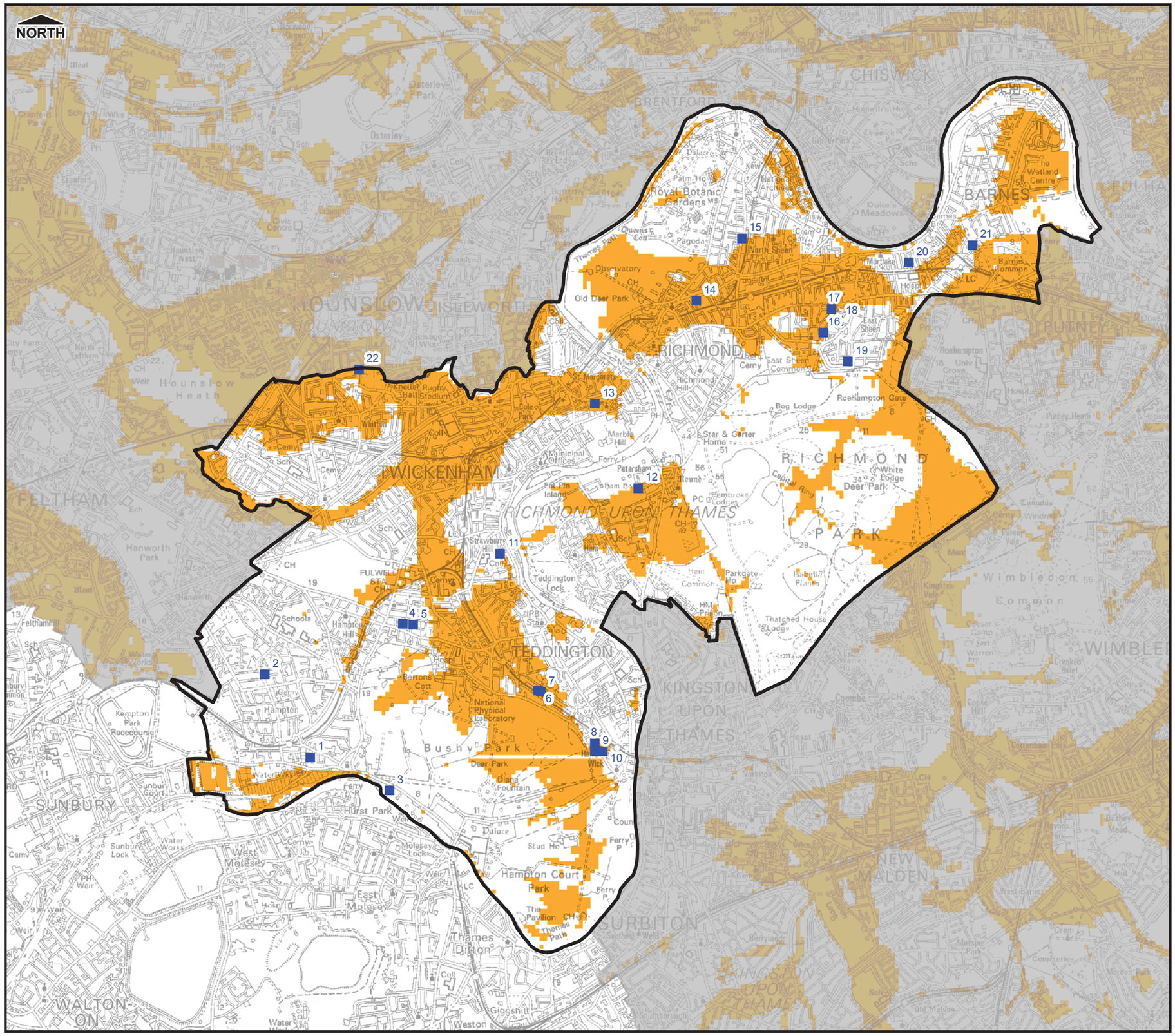

THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED

Legend

- Richmond Borough Council
- Groundwater Flood Incident (EA Records)

Increased Potential for Elevated Groundwater in

- Permeable Superficial Deposits
- Consolidated Aquifers

Notes

1.The increased Potential for Elevated Groundwater map shows those areas within the London Boroughs where there is an increased potential for groundwater to rise sufficiently to interact with the ground surface or be within 2m of the groundsurface. Such groundwater rise could lead to the following:

-Flooding of basements of buildings below ground level;
-Flooding of buried services or other assets below ground level;
-Inundation of farmland, roads, commercial, residental and amenity areas;
-Flooding of ground floors of buildings above ground level; and Overflowing of sewers and drains

2.Incident records shown are generally unconfirmed and may include issues such as water main bursts or non-groundwater related problems.
3.Areas not shown to have increased potential for elevated groundwater should be considered to have a low potential for elevated groundwater - Lack of information does not imply 'no potential' of elevated groundwater in that area.
4.Includes groundwater flood mapping provided by JBA consulting, Copyright. Jeremy Benn Associates Limited 2008-2011, partially derived from data supplied by the Environment Agency.

London Borough Richmond

LONDON BOROUGH OF RICHMOND UPON THAMES

Preliminary Flood Risk Assessment

Scale at A3	Date	Drawn by	Approved by
1:50,000	22/03/2011	C.Woolhouse	S.Cox

Increased Potential For Elevated Groundwater

Consultants
CAPITA SYMONDS Flood Risk Management
Scott Wilson
URS / Scott Wilson
6 - 8 Greencoat Place
London
SW1P 1PL

Drain London Programme Board Members

Environment Agency · Thames Water · LONDON COUNCILS · GREATER LONDON AUTHORITY

FIGURE 2

Filepath: D:\134786 Drain London_Tier 2_Group 8\700 Technical\711 GIS\01 Layout\Richmond\Increased Potential for Elevated GW.mxd

THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED

NORTH

TW8 0
TW9 3
TW9 4
TW9 2
TW9 1
SW138
SW139
SW130
SW151
SW147
SW148
SW156
SW155
SW154
SW153
TW106
TW105
TW107
TW1 1
TW1 2
TW1 3
TW1 4
TW3 2
TW7 7
TW4 5
TW2 7
TW2 6
TW2 5
TW136
TW121
TW123
TW118
TW119
TW110
TW165
TW122
KT2 5
KT2 7
KT1 4
KT8 1
KT8 9
KT7 0

London Borough of Hounslow
London Borough of Wandsworth
London Borough of Merton
Royal Borough of Kingston upon Thames

RICHMOND PARK
BARNES
TWICKENHAM
RICHMOND UPON THAMES

0 0.25 0.5 1 2 Kilometres

Legend

- Borough Administrative Boundary
- Sewer Flooding Incidents

No. of Sewer Flood Records

- None
- 1 - 5
- 6 - 10
- 11 - 20
- 21 - 50
- 51 - 100
- 101+

Notes

1. Sewer flood records relate to internal and external flooding of properties
2. Data supplied by Thames Water Ltd and is correct as at June 2010
3. Point data supplied by Borough Council

London Borough of Richmond

LONDON BOROUGH OF RICHMOND UPON THAMES

Preliminary Flood Risk Assessment

Scale at A3	Date	Drawn by	Approved by
1:45,000	13/05/2011	D.SKILTON	E.CRAVEN

Sewer Flooding Incidents

Consultants
CAPITA SYMONDS Flood Risk Management
Scott Wilson
URS / Scott Wilson
6 - 8 Greencoat Place
London
SW1P 1PL

Drain London Programme Board Members

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FIGURE 3

Filepath: N:\Water\Current Projects\D134785 D134786 DRAIN LONDON Tier 2\02 Group 8 (D134786)\05 GIS

NORTH

London Borough of Hounslow

London Borough of Wandsworth

London Borough of Merton

Royal Borough of Kingston upon Thames

London Borough of Sutton

0 1 2km

Legend

- Borough Administrative Boundary
- Permanent Water Bodies
- Main River
- Ordinary Watercourse

Flood Depth

- <0.1m
- 0.1m to 0.25m
- 0.25m to 0.5m
- 0.5m to 1.0m
- 1.0m to 1.5m
- >1.5m

Notes

1. This map only shows the predicted likelihood of surface water flooding (this includes flooding from sewers, drains, small watercourses and ditches that occurs in heavy rainfall) for defined areas, and due to the coarse nature of the source data used, are not detailed enough to account for precise addresses.
2. Users of this map should refer to section 3.2 of the Surface Water Management Plan for a complete description of limitations and accuracy of the flood/hazard extents shown.
3. This map provides a strategic overview of surface water flood risk and may be subject to further analysis in the future.

London Borough of Richmond

LONDON BOROUGH OF RICHMOND UPON THAMES

Preliminary Flood Risk Assessment

Scale at A3	Date	Drawn by	Approved by
1:45,000	13/05/2011	D.SKILTON	J.ROBINSON

Surface Water Depth (m) 1 in 200 Chance of rainfall event occuring in any given year (0.5% AEP)

Consultants
CAPITA SYMONDS Flood Risk Management
Scott Wilson
URS / Scott Wilson
6 - 8 Greencoat Place
London
SW1P 1PL

Drain London Programme Board Members

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FIGURE 4

Filepath: N:\Water\Current Projects\D134785 D134786 DRAIN LONDON Tier 2\02 Group 8 (D134786)\05 GIS

NORTH

London Borough of Hounslow

London Borough of Wandsworth

London Borough of Merton

Royal Borough of Kingston upon Thames

0 1 2km

Legend

- Borough Administrative Boundary
- Permanent Water Bodies
- Main River
- Ordinary Watercourse

Flood Hazard

- <0.75 Caution (Very low hazard)
- 0.75 - 1.25 Moderate (Danger for some)
- 1.25 - 2.0 Significant (Danger for most)
- <2.0 Extreme (Danger for all)

Notes

1. Flood Hazard has been defined based upon the joint EA and Defra R&D Technical Report FD2320 (January 2006).
2. Degree of flood hazard can be interpreted as follows:
- Caution: Flood zone with shallow flowing water or deep standing water
- Moderate: Flood zone with deep or fast flowing water. Dangerous for children, the elderly and the infirm
- Significant: Flood zone with deep fast flowing water. Dangerous for most people.
- Extreme: Flood zone with deep fast flowing water. Dangerous for all (including emergency services)

London Borough of Richmond

LONDON BOROUGH OF RICHMOND UPON THAMES

Preliminary Flood Risk Assessment

Scale at A3	Date	Drawn by	Approved by
1:45,000	13/05/2011	D.SKILTON	J.ROBINSON

Surface Water Flood Hazard Rating
1 in 200 Chance of rainfall event occuring in any given year (0.5% AEP)

Consultants
CAPITA SYMONDS Flood Risk Management
Scott Wilson
URS / Scott Wilson
6 - 8 Greencoat Place
London
SW1P 1PL

Drain London Programme Board Members

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FIGURE 5

Filepath: N:\Water\Current Projects\D134785 D134786 DRAIN LONDON Tier 2\02 Group 8 (D134786)\05 GIS

NORTH

London Borough of Hounslow

London Borough of Wandsworth

London Borough of Richmond

London Borough of Merton

Royal Borough of Kingston upon Thames

0 1 2km

Legend

- Borough Administrative Boundary
- Permanent Water Bodies
- Main River
- Ordinary Watercourse

Flood Depth

- <0.1m
- 0.1m to 0.25m
- 0.25m to 0.5m
- 0.5m to 1.0m
- 1.0m to 1.5m
- >1.5m

Notes

1. This map only shows the predicted likelihood of surface water flooding (this includes flooding from sewers, drains, small watercourses and ditches that occurs in heavy rainfall) for defined areas, and due to the coarse nature of the source data used, are not detailed enough to account for precise addresses.
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3. This map provides a strategic overview of surface water flood risk and may be subject to further analysis in the future.

London Borough of Richmond

LONDON BOROUGH OF RICHMOND UPON THAMES

Preliminary Flood Risk Assessment

Scale at A3	Date	Drawn by	Approved by
1:45,000	13/05/2011	D.SKILTON	J.ROBINSON

Surface Water Depth (m) 1 in 100 Chance of rainfall event occuring in any given year (1% AEP) plus Climate Change

Consultants
CAPITA SYMONDS
Scott Wilson
Flood Risk Management
URS / Scott Wilson
6 - 8 Greencoat Place
London
SW1P 1PL

Drain London Programme Board Members

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FIGURE 6

Filepath: N:\Water\Current Projects\D134785 D134786 DRAIN LONDON Tier 2\02 Group 8 (D134786)\05 GIS

NORTH

London Borough of Hounslow

London Borough of Wandsworth

London Borough of Merton

Royal Borough of Kingston upon Thames

0 1 2km

Legend

- Borough Administrative Boundary
- Permanent Water Bodies
- Main River
- Ordinary Watercourse

Flood Hazard

- <0.75 Caution (Very low hazard)
- 0.75 - 1.25 Moderate (Danger for some)
- 1.25 - 2.0 Significant (Danger for most)
- <2.0 Extreme (Danger for all)

Notes

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- Extreme: Flood zone with deep fast flowing water. Dangerous for all (including emergency services)

London Borough of Richmond

LONDON BOROUGH OF RICHMOND UPON THAMES

Preliminary Flood Risk Assessment

Scale at A3	Date	Drawn by	Approved by
1:45,000	13/05/2011	D.SKILTON	J.ROBINSON

Surface Water Flood Hazard Rating 1 in 100 Chance of rainfall event occuring in any given year (1% AEP) plus Climate Change

Consultants
CAPITA SYMONDS Flood Risk Management
Scott Wilson
URS / Scott Wilson
6 - 8 Greencoat Place
London
SW1P 1PL

Drain London Programme Board Members

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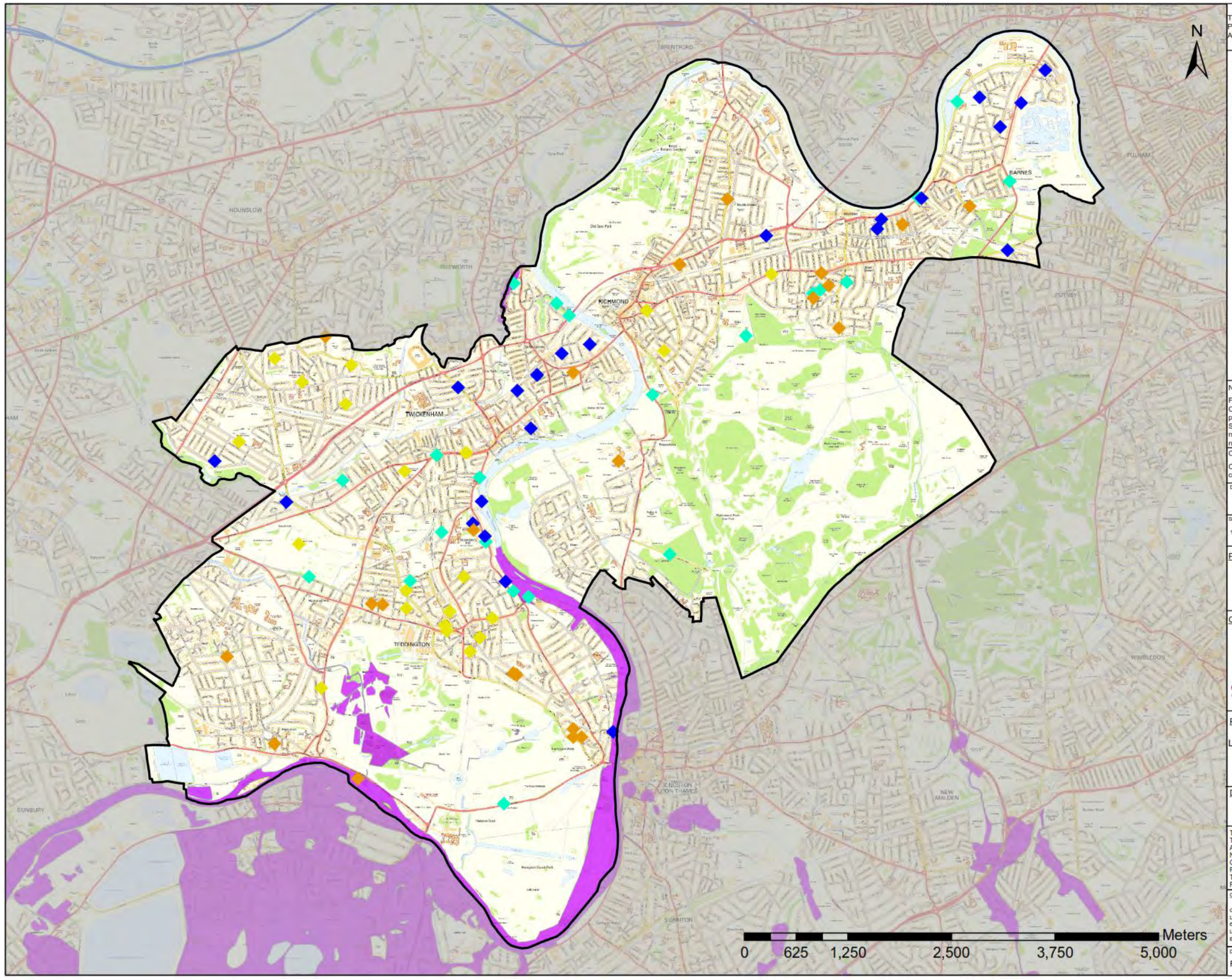
FIGURE 7

Appendix F SFRA Figures

SFRA Figures produced by Capita | ULS, date unknown unless otherwise stated:

- **Figure 1** 'Historic Flooding' dated June 2014
- **Figure 5** 'London Borough of Richmond Upon Thames Strategic Flood Risk Assessment Level 1'
- **Figure C 3** 'Tidal Breach Flood Hazard – River Thames and River Crane; Maximum Likely Water Level – Year 2100 Tidal Profile (Twickenham)'
- **Figure C 5** 'Fluvial Flood Hazard – River Thames; 1% chance in any one year plus climate change fluvial only flood extent (Twickenham)'
- **Figure D** 'Areas Benefiting from Defences and Groundwater, Flooding Incidents'
- **Figure E** 'BGS Susceptibility to Groundwater Flooding' date unknown
- **Figure G** 'Updated Flood map for Surface Water, 1% chance of flooding in any one year'
- **Figure I** 'Sewer Flooding Incidents'



THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

Legend

- Administrative Boundary
- Environment Agency Historic Flood Map

Reported Flooding Incidents

- River
- Multiple
- Surface Water
- Groundwater

Notes

Flooding incidents have been mapped based on Council records available at the time of the production of the Local Flood Risk Management Strategy.In many cases incidents of flooding may not been reported to the Council and will therefore not be shown on this map.

DRAWN BY	CHECKED BY	PASSED BY	DATE
GA	LT	PH	June 2014

SCALE @ A3	ISSUING OFFICE
1:42,000	Gresham Street

Purpose of Issue

DRAFT REPORT
FOR CONSULTATION

Client

Wandsworth merton CROYDON www.croydon.gov.uk Sutton Royal Kingston

Project Title

LONDON BOROUGH OF RICHMOND
LOCAL FLOOD RISK
MANAGEMENT STRATEGY

Drawing Title

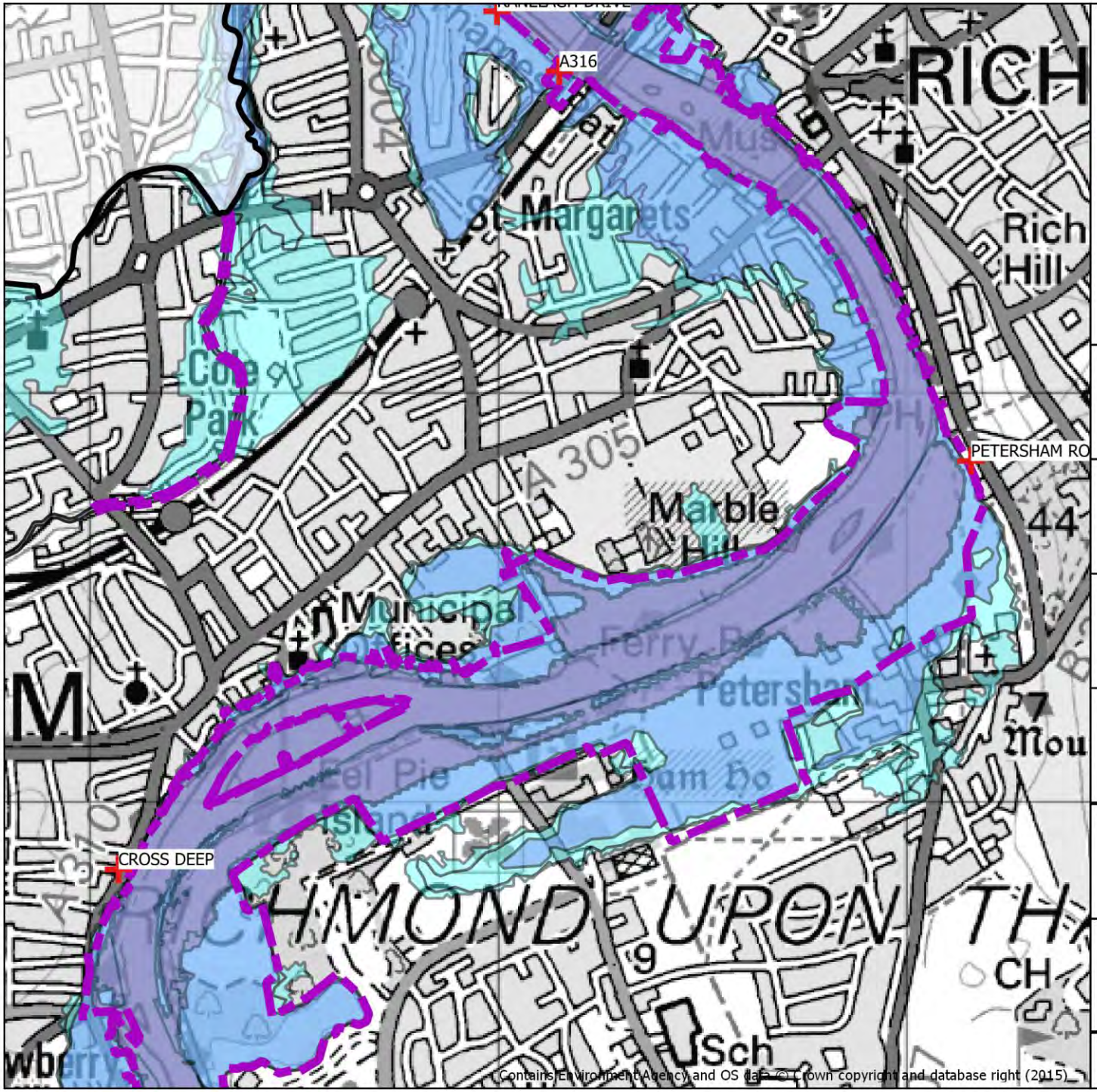
HISTORIC FLOODING

Consultant

Capita
Level 4,
65 Gresham Street
London
EC2V 7NQ

CAPITA | URS

DRAWING NUMBER	REV
FIGURE 1	A



Legend

- Borough Boundary
- Localised Drainage Issues
- Flood Defences
- Flood Zone 3b
- Flood Zone 3a
- Flood Zone 2

in association with

Environment Agency

Metis Consultants Limited

METIS

Client

LONDON BOROUGH OF RICHMOND UPON THAMES

Project Title

London Borough of Richmond Upon Thames Strategic Flood Risk Assessment Level 1

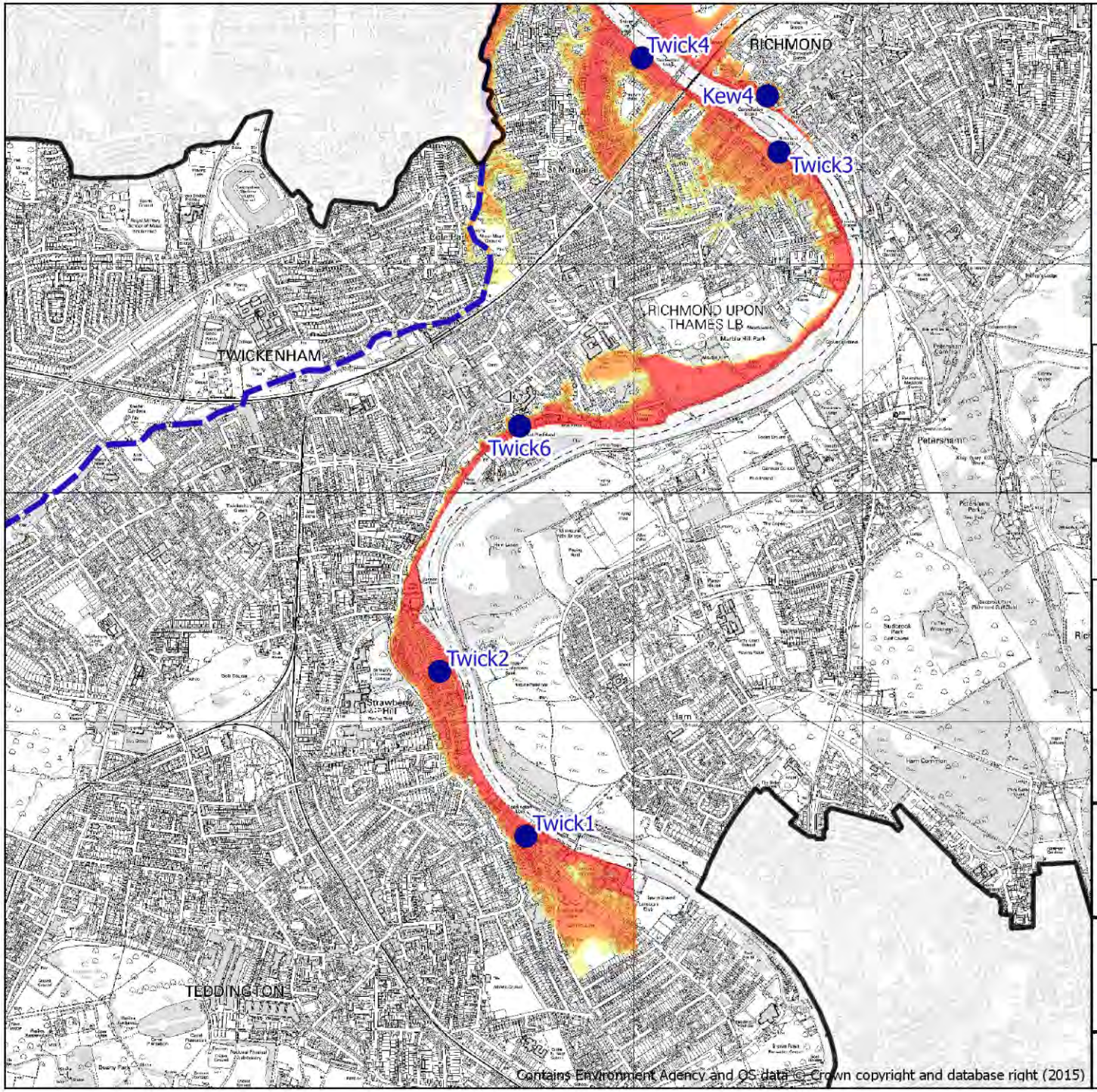
Drawing Title

Risk of fluvial and tidal flooding within character area R5 - Twickenham, Eel Pie & St Margarets

Drawing Number

FIGURE 5

1:14,000



Legend

- Borough Boundary
- River Crane

Breach Hazard Rating

- Low
- Moderate
- Sigificant
- Extreme
- Modelled Defence Breach Locations

In association with

Environment Agency

Metis Consultants Limited

METIS

Client

LONDON BOROUGH OF RICHMOND UPON THAMES

Project Title

London Borough of Richmond Upon Thames Strategic Flood Risk Assessment Level 1

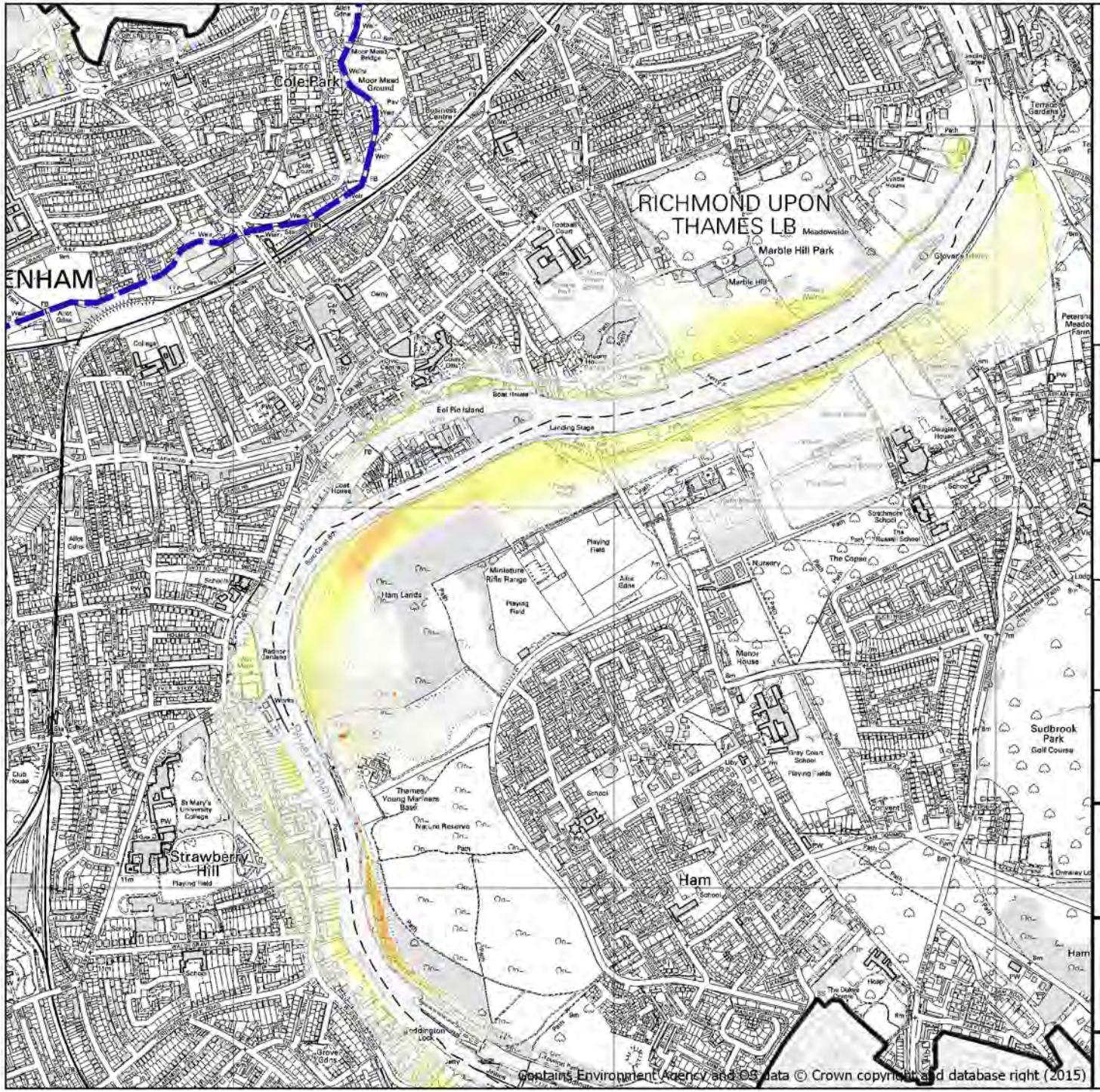
Drawing Title

Tidal Breach Flood Hazard - River Thames and River Crane Maximum Likely Water Level - Year 2100 Tidal Profile (Twickenham)

Drawing Number

Figure C 3

1:25,000



Legend

- Borough Boundary
- River Crane

Hazard Rating

- Low
- Moderate
- Sigificant
- Extreme

In association with

Environment Agency

Metis Consultants Limited

METIS

Client

LONDON BOROUGH OF RICHMOND UPON THAMES

Project Title

London Borough of Richmond Upon Thames Strategic Flood Risk Assessment Level 1

Drawing Title

Fluvial Flood Hazard - River Thames
1% chance in any one year plus climate change fluvial only flood extent (Twickenham)

Drawing Number

Figure C 5

1:15,000