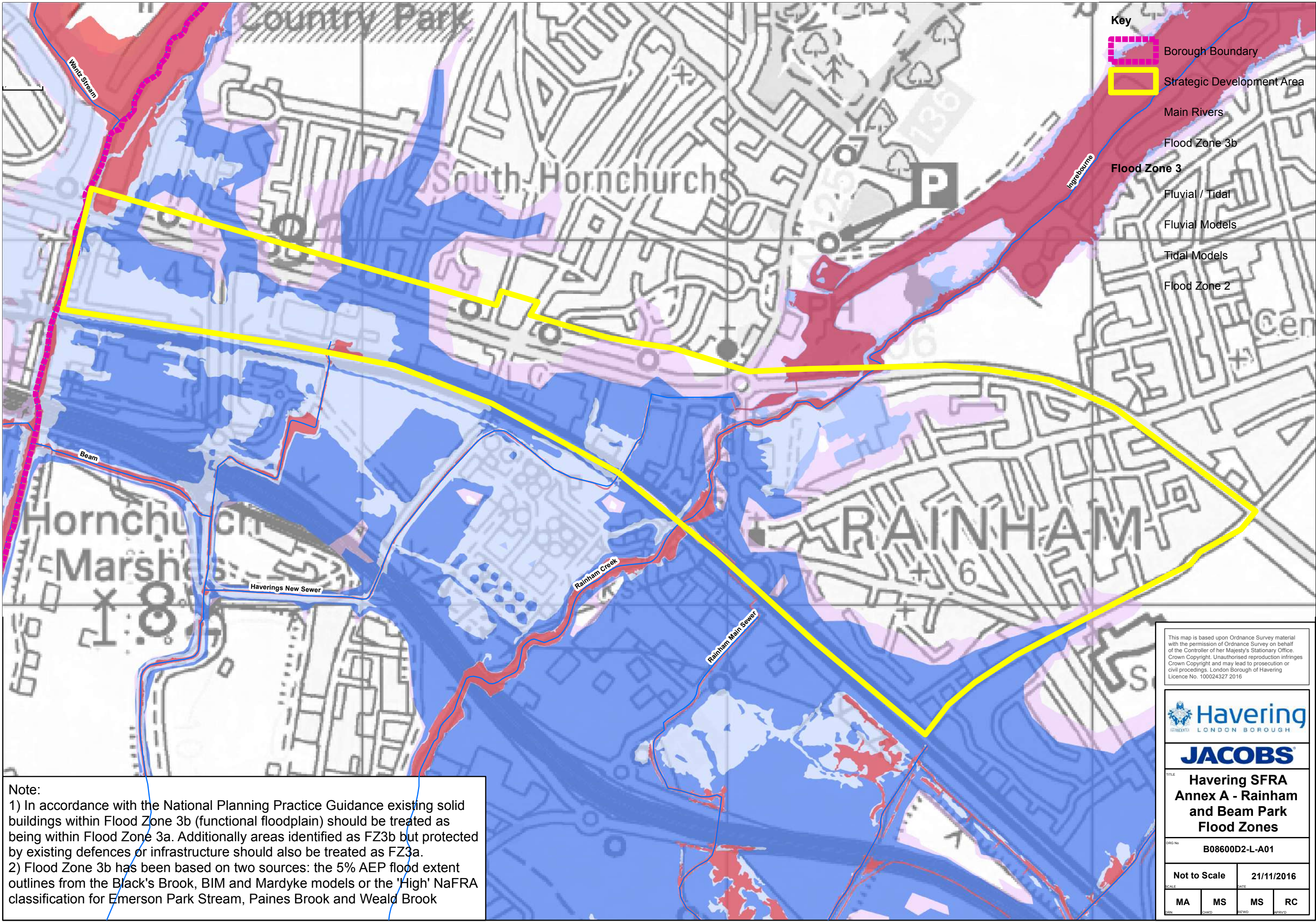




Key

- Borough Boundary
- Strategic Development Area
- Main Rivers
- Flood Zone 3b
- Flood Zone 3
- Flood Zone 2
- Fluvial / Tidal
- Fluvial Models
- Tidal Models

Note:

1) In accordance with the National Planning Practice Guidance existing solid buildings within Flood Zone 3b (functional floodplain) should be treated as being within Flood Zone 3a. Additionally areas identified as FZ3b but protected by existing defences or infrastructure should also be treated as FZ3a.

2) Flood Zone 3b has been based on two sources: the 5% AEP flood extent outlines from the Black's Brook, BIM and Mardyke models or the 'High' NaFRA classification for Emerson Park Stream, Paines Brook and Weald Brook

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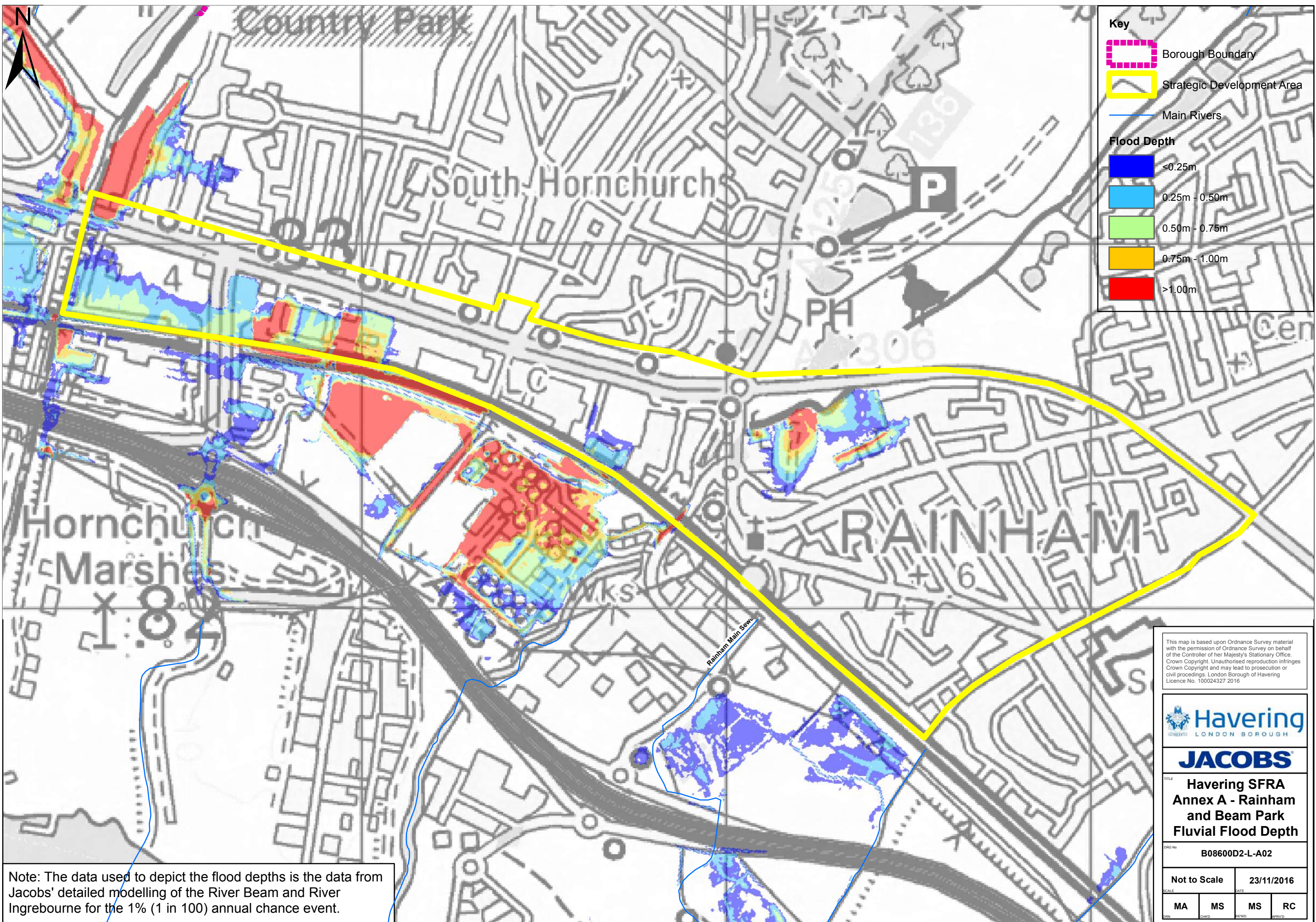
Havering
LONDON BOROUGH

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**Havering SFRA
Annex A - Rainham
and Beam Park
Flood Zones**

DRG No: **B08600D2-L-A01**

Not to Scale		21/11/2016	
SCALE	DATE		
MA	MS	MS	RC
DRN	CHKD	REWD	APRVD



Key

Borough Boundary

Strategic Development Area

Main Rivers

Flood Depth

<0.25m

0.25m - 0.50m

0.50m - 0.75m

0.75m - 1.00m

>1.00m

Note: The data used to depict the flood depths is the data from Jacobs' detailed modelling of the River Beam and River Ingrebourne for the 1% (1 in 100) annual chance event.

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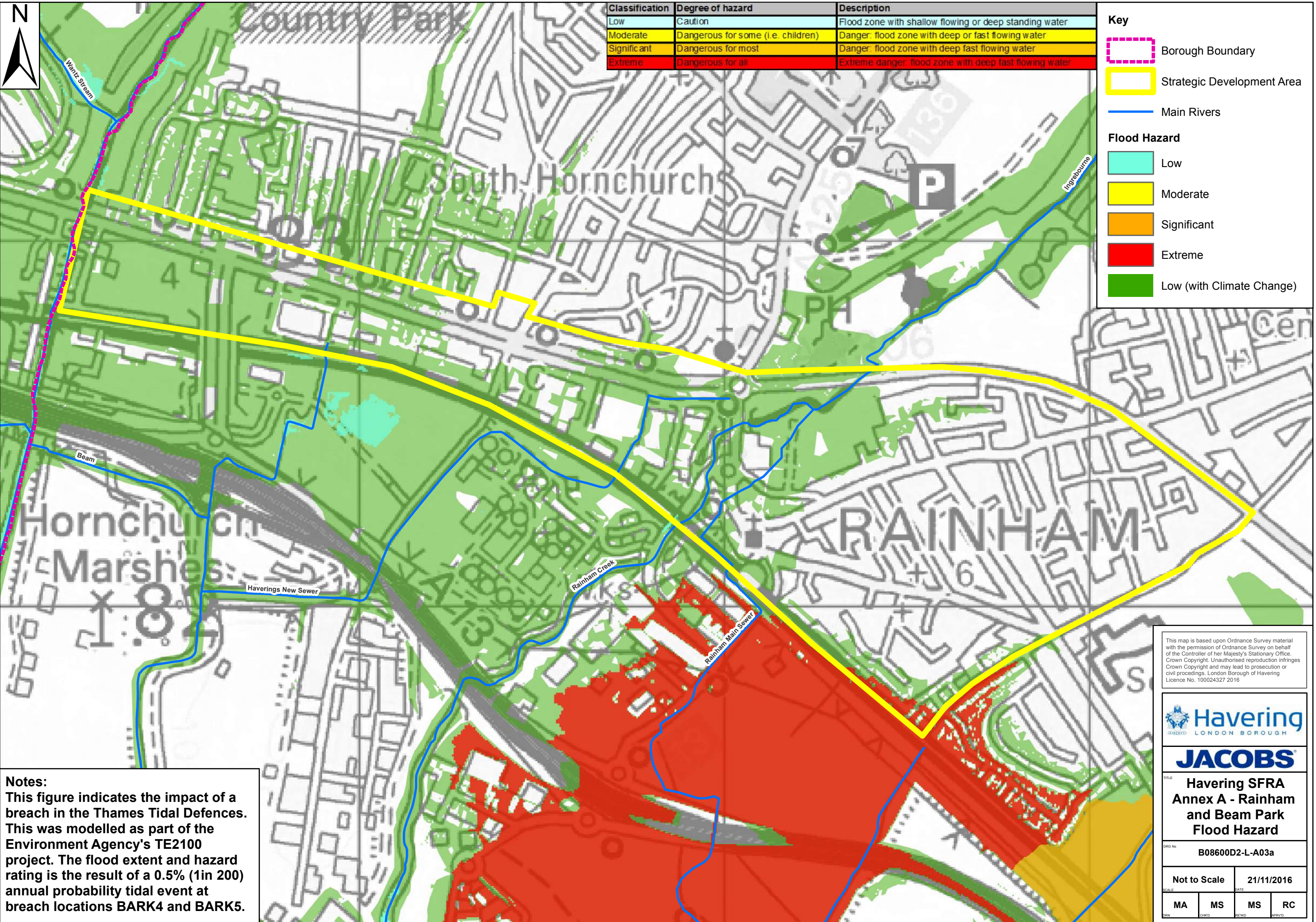


TITLE
**Havering SFRA
Annex A - Rainham
and Beam Park
Fluvial Flood Depth**

DRG No
B08600D2-L-A02

Not to Scale	23/11/2016
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SCALE	DATE
MA	MS
MS	RC



Classification	Degree of hazard	Description
Low	Caution	Flood zone with shallow flowing or deep standing water
Moderate	Dangerous for some (i.e. children)	Danger: flood zone with deep or fast flowing water
Significant	Dangerous for most	Danger: flood zone with deep fast flowing water
Extreme	Dangerous for all	Extreme danger: flood zone with deep fast flowing water

Key

Borough Boundary

Strategic Development Area

Main Rivers

Flood Hazard

Low

Moderate

Significant

Extreme

Low (with Climate Change)

Notes:
This figure indicates the impact of a breach in the Thames Tidal Defences. This was modelled as part of the Environment Agency's TE2100 project. The flood extent and hazard rating is the result of a 0.5% (1in 200) annual probability tidal event at breach locations BARK4 and BARK5.

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TITLE

Havering SFRA
Annex A - Rainham
and Beam Park
Flood Hazard

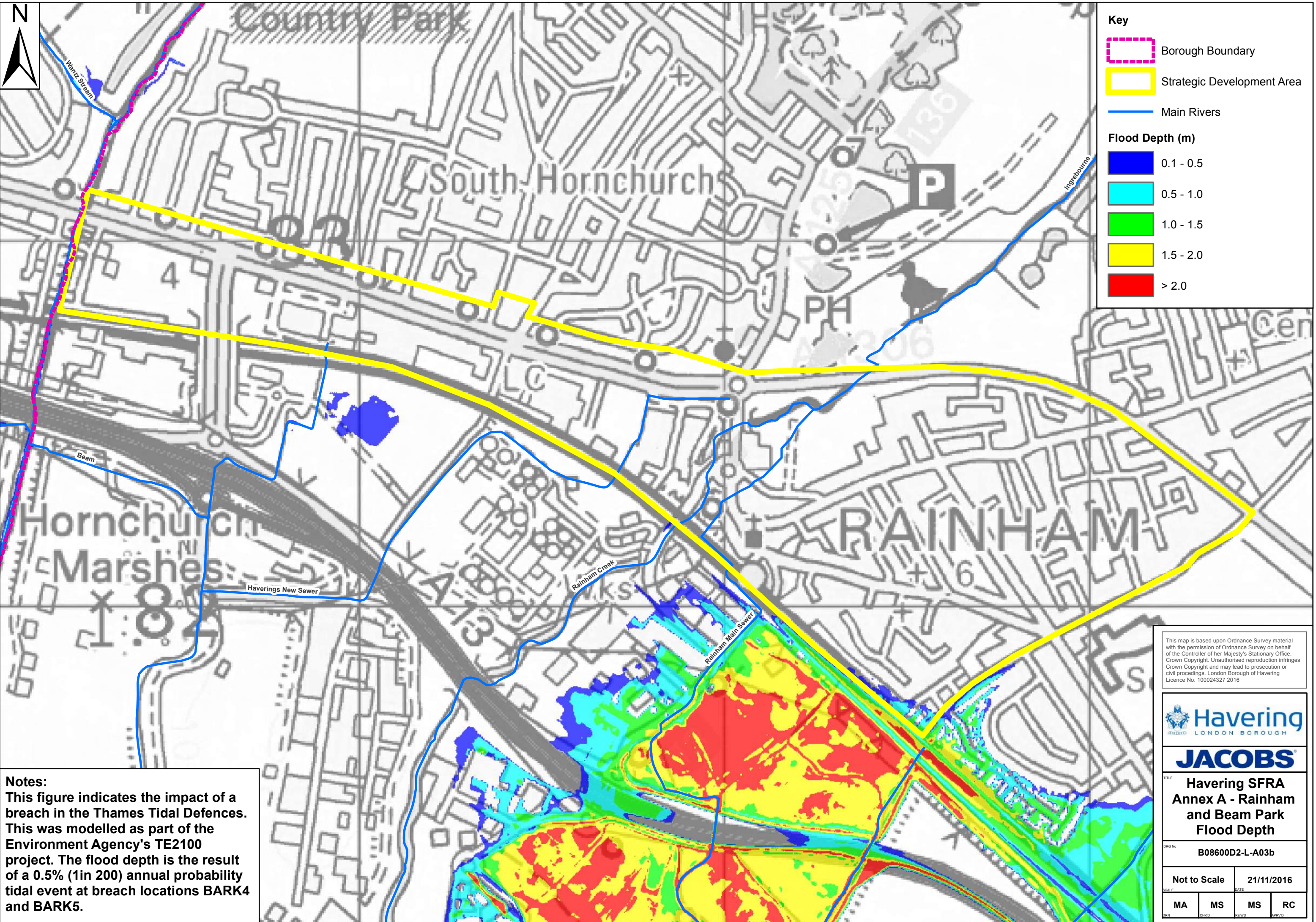
DRG No

B08600D2-L-A03a

Not to Scale

21/11/2016

MA	MS	MS	RC
DRN	CHCD	REWD	APRVD



Notes:
This figure indicates the impact of a breach in the Thames Tidal Defences. This was modelled as part of the Environment Agency's TE2100 project. The flood depth is the result of a 0.5% (1in 200) annual probability tidal event at breach locations BARK4 and BARK5.

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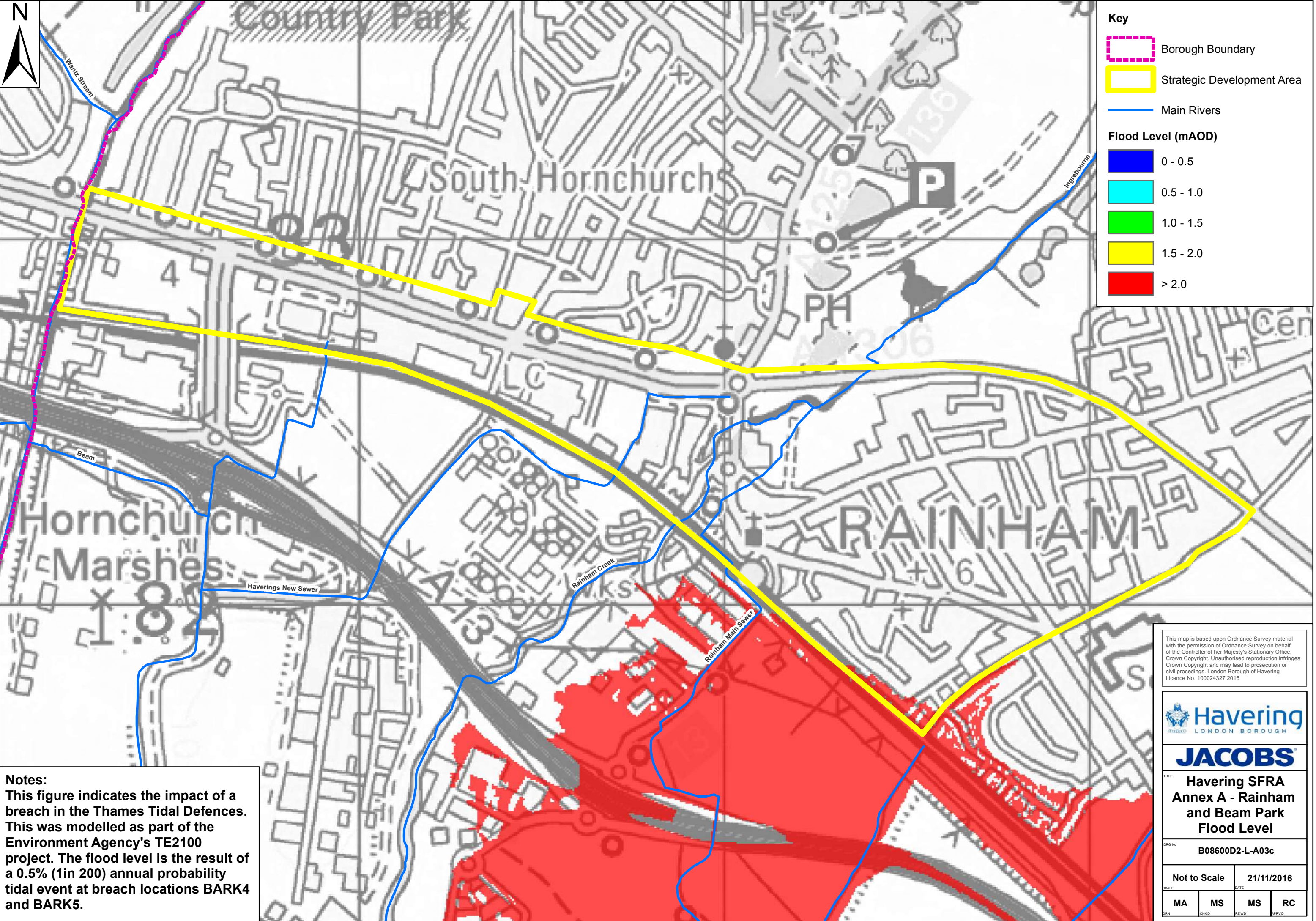
TITLE

**Havering SFRA
Annex A - Rainham
and Beam Park
Flood Depth**

DRG No

B08600D2-L-A03b

Not to Scale		21/11/2016	
SCALE	DATE		
MA	MS	MS	RC
DRN	CHCD	REWD	APRVD



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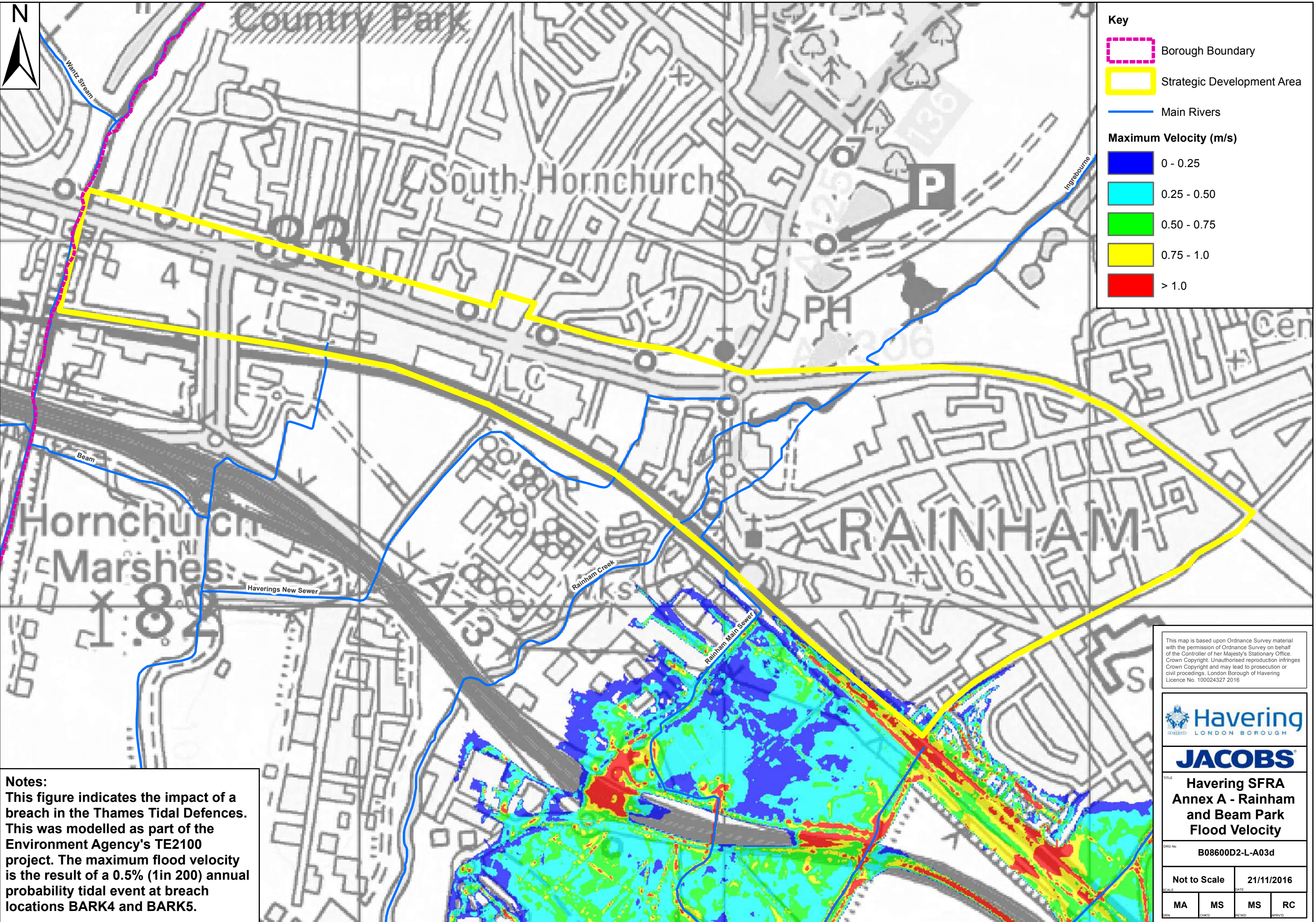


TITLE
Havering SFRA
Annex A - Rainham
and Beam Park
Flood Level

DRG No
B08600D2-L-A03c

Not to Scale	21/11/2016
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MA	MS	MS	RC
DRN	CHKD	REWD	APRVD



Notes:
This figure indicates the impact of a breach in the Thames Tidal Defences. This was modelled as part of the Environment Agency's TE2100 project. The maximum flood velocity is the result of a 0.5% (1in 200) annual probability tidal event at breach locations BARK4 and BARK5.

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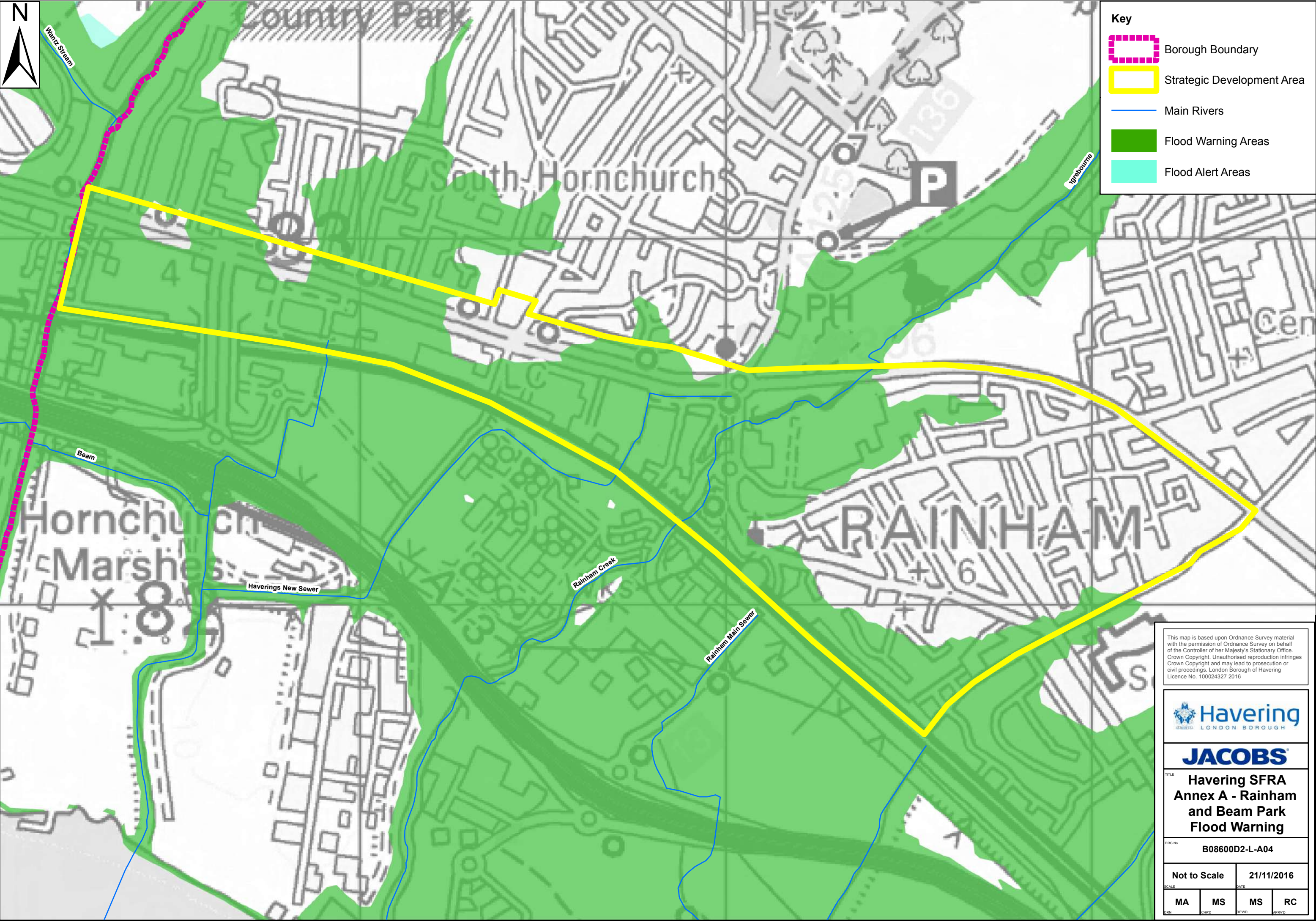
TITLE

**Havering SFRA
Annex A - Rainham
and Beam Park
Flood Velocity**

DRG No

B08600D2-L-A03d

Not to Scale		21/11/2016	
MA	MS	MS	RC
DRN	CHCD	REWD	APRVD



Key

Borough Boundary

Strategic Development Area

Main Rivers

Flood Warning Areas

Flood Alert Areas

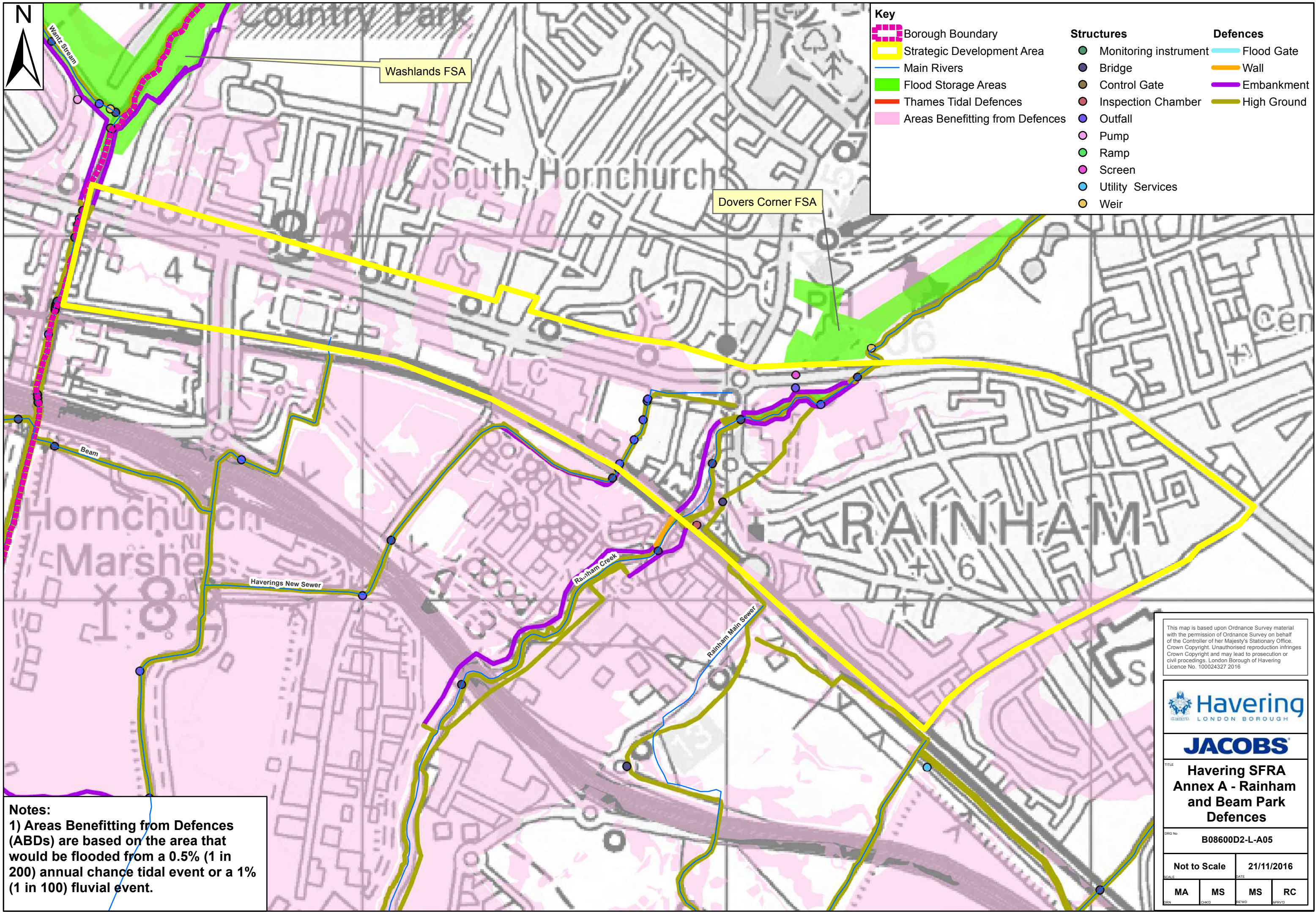
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TITLE
**Havering SFRA
Annex A - Rainham
and Beam Park
Flood Warning**

DRG No
B08600D2-L-A04

Not to Scale	21/11/2016
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SCALE	DATE
MA	MS
MS	RC
DRN	CHKD
REWD	APPROV



Notes:
1) Areas Benefitting from Defences (ABDs) are based on the area that would be flooded from a 0.5% (1 in 200) annual chance tidal event or a 1% (1 in 100) fluvial event.

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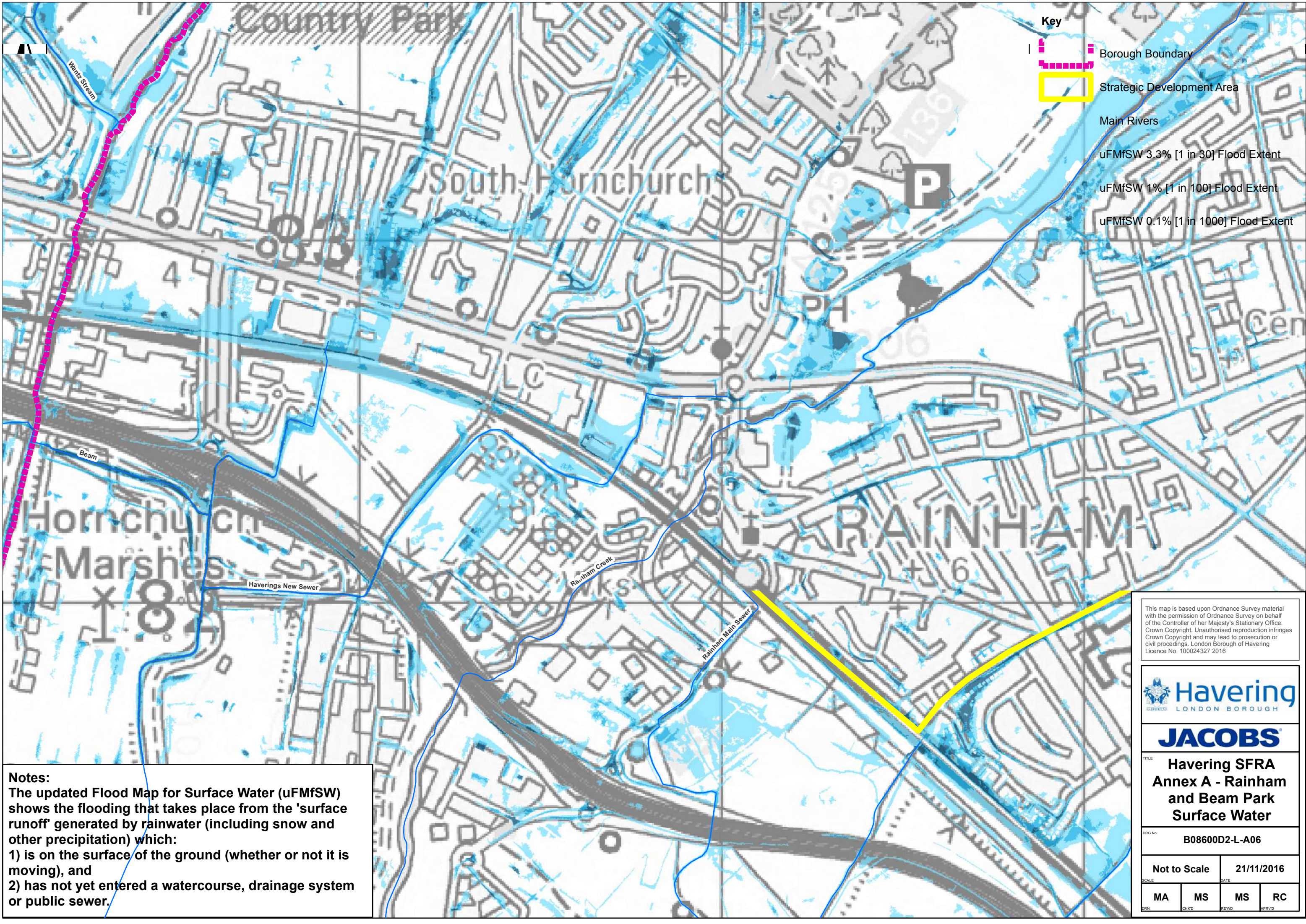


TITLE
**Havering SFRA
Annex A - Rainham
and Beam Park
Defences**

ORG No
B08600D2-L-A05

Not to Scale		21/11/2016	
SCALE	DATE	SCALE	DATE

MA	MS	MS	RC
DRN	CHRD	REWD	APPRD



Key

- Borough Boundary
- Strategic Development Area
- Main Rivers
- uFMfSW 3.3% [1 in 30] Flood Extent
- uFMfSW 1% [1 in 100] Flood Extent
- uFMfSW 0.1% [1 in 1000] Flood Extent

Notes:
The updated Flood Map for Surface Water (uFMfSW) shows the flooding that takes place from the 'surface runoff' generated by rainwater (including snow and other precipitation) which:
1) is on the surface of the ground (whether or not it is moving), and
2) has not yet entered a watercourse, drainage system or public sewer.

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**Havering**
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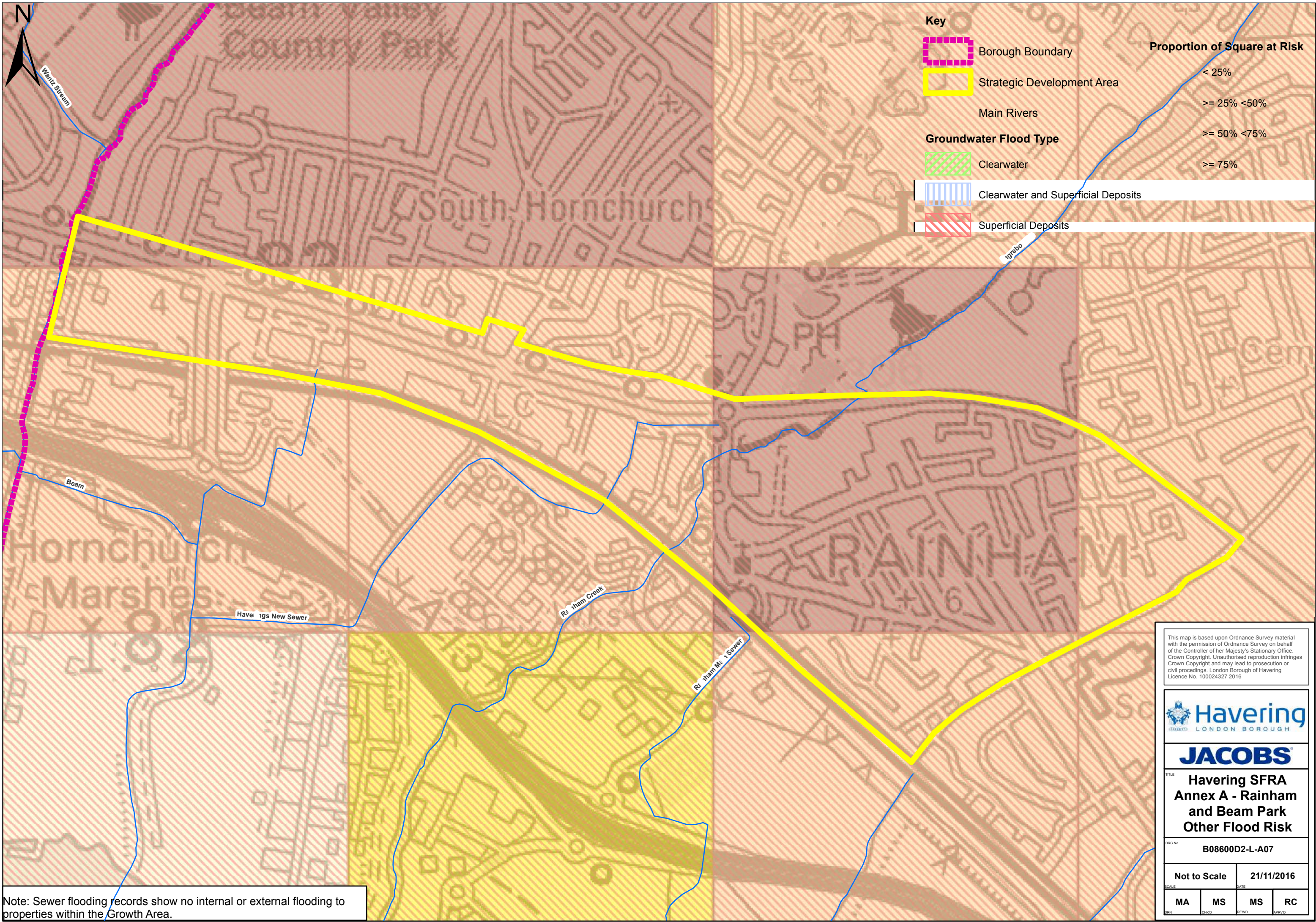
TITLE

**Havering SFRA
Annex A - Rainham
and Beam Park
Surface Water**

DRG No

B08600D2-L-A06

Not to Scale		21/11/2016	
SCALE	DATE		
MA	MS	MS	RC
DRN	CHKD	REWD	APRVD



Note: Sewer flooding records show no internal or external flooding to properties within the Growth Area.

Key

Borough Boundary

Strategic Development Area

Main Rivers

Groundwater Flood Type

Clearwater

Clearwater and Superficial Deposits

Superficial Deposits

Proportion of Square at Risk

< 25%

>= 25% <50%

>= 50% <75%

>= 75%

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**Havering SFRA
Annex A - Rainham
and Beam Park
Other Flood Risk**

DRG No: **B08600D2-L-A07**

Not to Scale	21/11/2016
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SCALE	DATE
MA	MS
DRN	APPROV