

## **A.1**

### ***Planning Policy Statement 25 and its Companion Guide***

#### **A.1.1**

##### ***General***

The Government has updated its planning advice contained within Planning Policy Guidance Notes (PPGs) with the publication of new style Planning Policy Statements (PPSs). In December 2005 the Government published a consultation document on PPS25: Development and Flood Risk. It reflected the general direction set out in 'Making Space for Water' (DEFRA, 2004), the evolving new strategy to shape flood and coastal erosion risk over the next 10-20 years.

PPS25 restates that flooding, in all its forms, is a material planning consideration in the determination of planning applications and in the formulation of planning policy. PPS25 states that Flood risk should be considered alongside other spatial planning concerns such as transport, housing, economic growth, natural resources, regeneration and the management of other hazards.

A Practice Guide Companion to PPS25 has recently been published in February 2007. The document provides details of how PPS25 can be applied. It is a 'living draft' web-based consultation paper, however it is fairly comprehensive and incorporates many recommendations from previous Guidance documents.

This study complies with PPS25 (December 2006) and the recently published Practice Guide Companion to PPS25 (the two documents can be seen at <http://www.communities.gov.uk/index.asp?id=1504639>).

#### **A.1.2**

##### ***Key Aims of PPS25***

The aims of planning policy on development and flood risk are to ensure that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas at highest risk. Where new development is, exceptionally, necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere and where possible, reducing flood risk overall.

Regional planning bodies and local planning authorities (LPAs) should prepare and implement planning strategies that help to deliver sustainable development by:

##### **Appraising Risk**

- identifying land at risk and the degree of risk of flooding from river, sea and other sources in their areas;
- preparing Regional Flood Risk Appraisals (RFRA) or Strategic Flood Risk Assessments (SFRAs) as appropriate, as freestanding

assessments that contribute to the Sustainability Appraisal of their plans;

#### Managing Risk

- framing policies for the location of development which avoid flood risk to people and property where possible, and manage any residual risk, taking account of the impacts of climate change;
- only permitting development in areas of flood risk when there are no reasonably available sites in areas of lower flood risk and benefits of the development outweigh the risks from flooding;

#### Reducing Risk

- safeguarding land from development that is required for current and future flood management e.g. conveyance and storage of flood water, and flood defences;
- reducing flood risk to and from new development through location, layout and design, incorporating sustainable drainage systems (SUDS);
- using opportunities offered by new development to reduce the causes and impacts of flooding eg surface water management plans; making the most of the benefits of green infrastructure for flood storage, conveyance and SUDS; re-creating functional floodplain; and setting back defences;

#### A Partnership Approach

- working effectively with the Environment Agency, other operating authorities and other stakeholders to ensure that best use is made of their expertise and information so that plans are effective and decisions on planning applications can be delivered expeditiously; and
- ensuring spatial planning supports flood risk management policies and plans, River Basin Management Plans and emergency planning.

These broad planning objectives effectively set the scope for the specific outcomes of the SFRA process. The SFRA in turn then informs planning and development control decisions that ensure the objectives set out above can be achieved.

#### *A.1.3*

#### *PPS25 Flood Zone Definition*

The PPS25 Flood Zones subdivide the spatial variation of flood probability from rivers and the sea. These are the functional floodplain and the high, medium and low probability flood zones.

PPS25 defines the flood zones as follows:

- **Zone 1 - Low Probability**

This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).

- **Zone 2 - Medium Probability**

This zone comprises land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% – 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% – 0.1%) in any year.

- **Zone 3a - High Probability**

This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

- **Zone 3b - The Functional Floodplain**

This zone comprises land where water has to flow or be stored in times of flood. SFRA's should identify this Flood Zone (land which would flood with an annual probability of 1 in 20 (5%) or greater in any year or is designed to flood in an extreme (0.1%) flood, or at another probability to be agreed between the LPA and the Environment Agency, including water conveyance routes).

**APPENDIX B: Data Register**

Title	Data Holder	Date Requested	Format	Location/contact	Date Received
<b>Topographic Data, Asset Surveys and Models</b>					
OS Tiles - 1:10000 & 1:50000	OS	07/03/07	Data	-	09/03/2006
LIDAR - Floodplain LiDAR	Environment Agency	07/03/07	Data	Chris Bienemann	09/03/2006
Photogrammetry	Environment Agency	07/03/07	Data	Chris Bienemann	16/03/2007
National Fluvial and Coastal Defence Database	Environment Agency	07/03/07	GIS Layers	Chris Bienemann	09/03/2006
Upper Colne ISIS Model	Environment Agency	07/03/07	ISIS	Already held by SFRA consultant	N/A
Upper Lee SFRM Model	Environment Agency	07/03/07	ISIS	Already held by SFRA consultant	N/A
River Centrelines	Environment Agency	07/03/07	GIS Layers	Chris Bienemann	09/03/2006
Flood Map Data to include Flood Zones 2 & 3, Areas Benefiting from Defence, Flood Defences and Flood Storage	Environment Agency	07/03/07	GIS Layers	Chris Bienemann	09/03/2006
Thames Water Flooding Records	Thames Water / Three Valleys	07/03/07	Database	Bruno Venturini (Halcrow)	10/03/2007
Groundwater Flooding Records / Borehole Data	Environment Agency	07/03/07	Data and Reports	Chris Bienemann	09/03/2006
Flood history data	Environment Agency	07/03/07	GIS Database	Chris Bienemann	09/03/2006
Geological maps and soils	Environment Agency	07/03/07	GIS Database/hard copy	Chris Bienemann	09/03/2006
J-flow node map	Environment Agency	07/03/07	GIS Database	Chris Bienemann	19/03/2007
<b>Planning and Environmental Information</b>					
Regional Spatial Strategy - Latest version of Draft East of England Plan	East of England Regional Assembly	26/02/07	Report	tbc	01/03/2006
Regional Flood Risk Appraisal or any relevant Flood Risk (Zone) information	East of England Regional Assembly	26/02/07	Report	tbc	01/03/2006
Current Hertfordshire Structure Plan	Hertfordshire County Council	26/02/07	Report	tbc	01/03/2006
Hertfordshire Flood Risk Assessment or any relevant County Flood Risk (Zone) information	Hertfordshire County Council	26/02/07	Report	tbc	01/03/2006
Current Local Plans - Dacorum, St Albans, Three Rivers and Watford (including Proposals Map GIS layers showing: areas liable to flood - zones 2 and 3, urban areas, Habitat Directive designations, AONB, SAM, Historic Park and Gardens, Green Belt, Major Developed Sites, etc)	Dacorum, St Albans, Three Rivers and Watford	26/02/07	Reports & GIS Layers	tbc	01/03/2006
Local Development Documents - Dacorum, St Albans, Three Rivers and Watford, particularly Core Strategy and Site Allocation Development Plan Documents (including Proposals Map GIS layers showing: potential development sites, preferred sites, etc)	Dacorum, St Albans, Three Rivers and Watford	26/02/07	Reports & GIS Layers	tbc	01/03/2006
Other Environmental Information inc. Nature Conservation Designations (SSSIs, RAMSAR etc.), Heritage and Landscape Designations (SAMs etc.)	Environment Agency	26/02/07	GIS Layers	Brian Wilson	01/03/2006
Relevant Supplementary Planning Guidance and / or Supplementary Planning Documents	Dacorum, St Albans, Three Rivers and Watford	26/02/07	Report	tbc	01/03/2006
County Council and Borough Council boundaries	Dacorum, St Albans, Three Rivers and Watford	26/02/07	GIS Layers	tbc	01/03/2006
Watford District Plan 2000 Adopted Dec 03: Proposals Map and Town Centre Inset Map	Watford Borough Council	26/02/07	Map	Petra Klemm	05/03/2007
Watford District Plan 2000 (Adopted December 2003)	Watford Borough Council	26/02/07	CD	Petra Klemm	05/03/2007
Willow Grange, Church Road, Watford FRA and Preliminary Foul & SW Drainage Strategy	Watford Borough Council	26/02/07	Report	Petra Klemm	05/03/2007
Planning for a Better Watford' The LDF Core Strategy Issues and Options Consultation December 2005	Watford Borough Council	26/02/07	Report	Petra Klemm	05/03/2007
Watford Football Club Proposed Residential Development, Flood Risk Assessment	Watford Borough Council	26/02/07	Report	Petra Klemm	05/03/2007
Sun Chemicals, EIA	Watford Borough Council	26/02/07	Report	Petra Klemm	05/03/2007
Dacorum BC, Three Rivers DC and Watford BC Urban Capacity Studies (Volumes 1 - 4)	Watford Borough Council	26/02/07	Report	Petra Klemm	05/03/2007
West Herts College Flood Risk Assessment	Watford Borough Council	26/02/07	Report	Petra Klemm	05/03/2007

Title	Data Holder	Date Requested	Format	Location/contact	Date Received
Annual Monitoring Report 2006	Watford Borough Council	26/02/07	Report	Petra Klemm	05/03/2007
Watford Development Plan documents: SEA and SA scoping report	Watford Borough Council	26/02/07	Report	Petra Klemm	05/03/2007
Watford Springs Planning Brief: Approved March 2006	Watford Borough Council	26/02/07	Report	Petra Klemm	05/03/2007
Issues from SEA/SA consultation relevant for the Preferred Options Paper (POP)	Watford Borough Council	26/02/07	Report	Petra Klemm	05/03/2007
Watford Borough Council Maps: county and borough boundaries, flood zones 2&3, conservation areas, potential development sites	Watford Borough Council	26/02/07	Maps	Petra Klemm	05/03/2007
Landscape Character Assessments	Three Rivers District Council	26/02/07	Report	Renato Messere	05/03/2007
Three Rivers Local Plan 1996 - 2011	Three Rivers District Council	26/02/07	Report	Renato Messere	05/03/2007
Former Maintenance Depot, Whiteleaf Road, Hemel Hempstead FRA	Dacorum Borough Council	26/02/07	Report	Kirstin Smart	08/03/2007
Stag Lane, Berkhamsted FRA	Dacorum Borough Council	26/02/07	Report	Kirstin Smart	08/03/2007
Spectrum Hemel Hempstead Hertfordshire FRA	Dacorum Borough Council	26/02/07	Report	Kirstin Smart	08/03/2007
Apsley Mills Flood Risk Investigat	Dacorum Borough Council	26/02/07	Report	Kirstin Smart	08/03/2007
<b>Additional Studies/Reports &amp; Data</b>					
Upper Lee SFRM Study Report	Environment Agency	26/02/07	Report	Already held by SFRA consultant	N/A
Upper Lee Flood Risk Management Strategy Report	Environment Agency	26/02/07	Report/Internet	Already held by SFRA consultant	N/A
Flood Risk Assessment Reports (recent major planning applications)	Dacorum, St Albans, Three Rivers and Watford	26/02/07	Report	tbc	21/03/2006
The Bulbourne ALF Study	Environment Agency	26/02/07	Report	Already held by SFRA consultant	N/A
Upper Colne Catchment Flood Management Plan	Environment Agency	26/02/07	Report	Already held by SFRA consultant	N/A
Upper Colne Flood Risk Management Strategy	Environment Agency	26/02/07	Report	Already held by SFRA consultant	N/A
Groundwater Flooding NE Thames: MSc Thesis bu Justine Jones	Environment Agency	26/02/07	Report and CD	Chris Bienemann	21/03/2007
Identification of Flood Risk in dacorum, Hertfordshire and Flood Hazard Management, 1998	Middlesex University	N/A	Report	Roger Hands	28/03/2006

## APPENDIX C: Communication Plan

Contact Name	Role in project	Organisation	Address	Tel	Email
Richard Blackburn	Development Plans Manager	Dacorum Borough Council	Civic Centre, Marlowes, Hemel Hempstead, Hertfordshire, HP1 1HH	1442228584	Richard.Blackburn@dacorum.gov.uk
Kirstin Smart	Planning Officer	Dacorum Borough Council	Civic Centre, Marlowes, Hemel Hempstead, Hertfordshire, HP1 1HH	1442228663	Kirstin.Smart@dacorum.gov.uk
Manpreet Kanda	Planning Officer (Policy)	St Albans District Council	Council Offices, Civic Centre, St Peters Street, St Albans, Hertfordshire, AL1 3JE	1727866100	m.kanda@stalbens.gov.uk
Petra Klemm	Planning Officer	Watford Borough Council	Town Hall, Watford, Hertfordshire, WD17 3EX	01923 226400	petra.klemm@watford.gov.uk
Renato Messere	Planning Policy Manager	Three Rivers District	Three Rivers House Northway, Rickmansworth, Herts WD3 1RL	01923 727102	Renato.messere@threerivers.gov.uk
Peta Wolmarans	Project Director	Halcrow Group Ltd	Vineyard House, 44 Brook Green, Hammersmith, London, W6 7BY	020 7348 3185	wolmaranspj@halcrow.com
Paul Wilkinson	Project Manager	Halcrow Group Ltd	Windsor House, Britannia Road, Waltham Cross, Herts, EN8 7NX	1992707100	WilkinsonP@halcrow.com
James Wells	Associate Planner	Halcrow Group Ltd	Vineyard House, 44 Brook Green, Hammersmith, London, W6 7BY	020 7348 3065	wellsj@halcrow.com
Laura de Smith	Hydrologist	Halcrow Group Ltd	Windsor House, Britannia Road, Waltham Cross, Herts, EN8 7NX	1992707100	desmithl@halcrow.com
Chris Bienemann	Data Manager	Environment Agency	North East Area Office, Apollo Court, 2 Bishops Square Business Park, St Albans Road West, Hatfield, Hertfordshire, AL10 9EX	08708 506506	bienec.Hatfield1.TH@environment-agency.gov.uk
Trevor Brawn	Development Control	Environment Agency	North East Area Office, Apollo Court, 2 Bishops Square Business Park, St Albans Road West, Hatfield, Hertfordshire, AL10 9EX	08708 506506	trevor.brawn@environment-agency.gov.uk
Steven Howe	Senior Hydrogeologist	Three Valleys Water	Three Valleys Water, Blackwell House, Three Valleys Way, Bushey, Herts, WD23 2LG	01707 268111	Steven.Howe@3valleys.co.uk
Steve Dummer	Data Manager	Thames Water	Unknown	Unknown	Steve.Dummer@thameswater.co.uk
Alex Hurst	3rd Party Engineer	British Waterways	Ground Floor, Witan Gate House, 500-600 Witan Gate, Milton Keynes, MK9 1BW	1908302577	alex.hurst@britishwaterways.co.uk

Contact Name	Role in project	Organisation	Address	Tel	Email
Koorosh Mofazzali	Hydrologist	British Waterways	Willow Grange, Watford Office and Hatton	01926626110/0 7885248447	koorosh.mofazzali@britishwaterways.co.uk
Steve Howe	Senior Hydrogeologist	Three Valleys Water	Three Valleys Water, Blackwell House, Three Valleys Way, Bushey, Herts, WD23 2LG	01923 814354	steven.howe@veoliawater.co.uk
Alex Back	Unknown	Three Valleys Water	Three Valleys Water, Blackwell House, Three Valleys Way, Bushey, Herts, WD23 2LG	01923 814354	
Peter Lamprell	District Manager for Highways in Dacorum	Herts Highways	Trident House 42-48 Victoria Street St Albans Herts AL1 3HZ	1727816018	peter.lamprell@hertshighways.org.uk
Stuart Walmsley	District Manager for Highways in St Albans	Herts Highways	Trident House 42-48 Victoria Street St Albans Herts AL1 3HZ	1727816018	stuart.walmsley@hertshighways.org.uk
Nick Gough	Watford District Manager	Herts Highways	Bridle Path Watford WD17 1AL	01923 257030	nick.gough@hertshighways.org.uk
Keith Watkins	Three Rivers District Manager	Herts Highways	Bridle Path Watford WD17 1AL	01923 471320	keith.watkins@hertshighways.org.uk
Roger Hands	Lead	Dacorum Environmental Forum Water Group	Unknown	1442393381	rjhands@hotmail.co.uk
Andy Smith	Assitant Engineer: Watford	Herts Highways	Bridle Path Watford WD17 1AL	01923 471320	andy.smith@hertshighways.org.uk
Ian Brownell	Assitant Engineer: Three Rivers	Herts Highways	Bridle Path Watford WD17 1AL	01923 471320	ian.brownell@hertshighways.org.uk
Tim Woodridge	Engineer	Watford Borough Council	Watford Borough Council Town Hall, Watford, Hertfordshire WD17 3EX	Unknown	Unknown

## ***D.1***

### ***Detailed Hydraulic Modelling***

This section briefly describes the basis of the existing models and flood mapping outputs for the Upper River Colne and Upper River Lee and provides an overview of model confidence.

#### ***D.1.1***

##### ***Suitability of Upper Lee Model***

###### **(a) Background and Development**

An iSIS hydraulic model for the Upper Lee was developed during the Lee Hydrology and Mapping Study (2006) and the Upper River Lee Flood Risk Management Strategy (2007). The model extends from Luton Hoo gauging station to Water Hall gauging station. The upstream and downstream boundary of the model is Luton Hoo Gauging Station and Water Hall Gauging Station, respectively.

The model was originally part of the iSIS model developed during the Upper River Lee Flood Defence Project carried out by Halcrow in 2002. The original model extended from Luton to Wheathampstead and contained inflows derived from a Flood Frequency Simulation (FRQSIM) hydrological model. The model was then split into two and these were improved during the Moat Factory Flood Risk Assessment (also carried out by Halcrow in 2005).

The following updates were made to the original model under the Lee Hydrology and Mapping Study (2006).

- Fully geo-referenced cross sections;
- FRQSIM hydrological boundaries were replaced by new Flood Estimation Handbook (FEH) sub-catchments as lumped or lateral inflows (updated in November 2006);
- Updating of the schematisation locally at Luton Hoo gauging station for the purpose of re-rating;
- The model upstream of Luton Hoo gauging station was deleted and replaced with a lumped FEH boundary in order to represent the catchment upstream of Luton Hoo; and
- The model has been extended 15.6km from Wheathampstead to Water Hall gauging station using a new model constructed from channel surveys 8157 Wheathampstead High Street to A414 (2005) and 8153 Water Hall Farm Bridge to A414 (2005), and LiDAR data.

The FEH hydrology used in the Lee Hydrology and Mapping Study (2006) predicts slightly lower flows at key flood risk areas compared to those predicted using FRQSIM hydrology. However, the flood outlines

remain largely unchanged and are considered suitable for the SFRA (note: these have recently been approved by the Environment Agency).

(b) Model Calibration and Design Events

In the Lee Mapping and Hydrology report it was noted that the iSIS hydraulic model had been previously successfully calibrated against several observed events (including May 1992, September 1992 and September 1998). As such, re-calibration of the hydraulic model was not undertaken. However, due to significant changes in the hydrology it was necessary to undertake verification and calibration of the hydrological model.

For three significant flood events (in 1993, 1998 and 2000), estimates of the Time to Peak, Standard Percentage Runoff and Baseflow were derived from gauged data and used to parameterise the hydrological model. Calibration of the hydrological model was then undertaken for each event to match recorded and estimated river volumes and peak flows for each event. The predicted results closely correlated with the recorded data (within an acceptable tolerance of +/-15%).

Using the calibrated model parameters, design hydrographs were then derived for the 1 in 5, 20, 100, 100+20% and 1000 year return periods for a number of critical storm durations.

(c) Suitability of Flood Outlines

The flood maps (for defended and undefended scenarios) produced under the Lee Mapping and Hydrology Study have been compared to historical flood maps (and other observational information) and are found to be in broad agreement with one another. Overall, confidence in the hydraulic model and resultant flood maps for the Batford and Wheathampstead areas is high. The updated maps are considered to provide an improvement over the existing Environment Agency Flood Zone Maps and are therefore recommended for use within the SFRA to inform Flood Zones 2, 3a, and 3b, including climate change scenarios.

D.1.2

*Suitability of Upper Colne Model*

(a) Background and Development

The most recent model in existence for the Upper Colne catchment is the catchment strategy model constructed by Halcrow in 2005. This model was constructed by updating and incorporating five existing models and two new models developed within the Upper Colne catchment. Each of these models is briefly described below.

- *Mimmshall Brook, 1998*

The iSIS model extends from the A1081 St Albans Road Bridge to the west of Potter's Bar to North Mymms Park to the south-west of Welham

Green. The model was built by Carl Bro (1998) and was used for the Mimmshall Brook Flood Alleviation Scheme to investigate solutions to the frequent flooding of residential properties in the lower area of the catchment.

- *Colney Heath Model, 1997 and 1998*

Halcrow updated and extended the Carl Bro iSIS model for the 'London Colney and Colney Heath Pre-Feasibility Study', based on a river survey carried out in Spring 2002. The survey stretched from the upstream end of the gravel pits north of London Colney to the M25 motorway bridge, south of London Colney. The survey included Salisbury Hall Brook, as well as cross-sections across the gravel pits, Bowman's Lakes and the lakes in London Colney, itself.

- *Watford Area: M1 Motorway to Moor Park, 1984/1985*

Originally an 8km long ONDA model, built between 1984 and 1985 extending along the Upper Colne from the M1 motorway to Moor Park. The model was updated several times between 1992 and 1999 in localised areas for specific studies. Halcrow revised the model for the 'Watford Pre-Feasibility Study' using the summer 2002 survey cross-sections. Hayden Hill Stream was included in the model in some detail to investigate possible solutions to the frequent flooding in the Water Lane and Bushey Hall Road areas.

It should be noted that from Riverside Road at Oxhey in south Watford to Brightwells Farm near Hamper Mills near The Rookery, the confidence of the rating of the river model is low because the 2003 survey from which the model was built did not include the inter-connecting watercourses such as the Power Station Loop and Silk Mill loop.

- *Rickmansworth to Denham Model, 1984/1985*

The ONDA model from the west of Rickmansworth (Railway Bridge over the Upper Colne north of Moor Park) extending to the River Thames, was built in 1984-1985. The model was originally built by Halcrow for the study of flooding and flood alleviation of the Lower Colne (the Lower Colne Improvement Scheme, LCIS). The LCIS has now been implemented. The model was updated to some extent by the NRA in the early 1990s but is predominantly as it was in 1984/1985.

- *Lower Colne Model, 1984/1985*

The Lower Colne model was originally built by Halcrow in the early 1980s. Peter Brett Associates (PBA) have recently updated this model from Denham southwards as part of Section 105 work. This model was incorporated into the Strategy model (Halcrow, 2005) to include the River Misbourne, and to extend to the Strategy study boundary. Only the upper most section of this model was incorporated into the Strategy model.

Two new model sections were required to allow the existing models to be connected to form the Strategy model. These are:

- *Colney Street Model Section*

The Colney Street model section was built using the surveyed sections from the M1 to M25 topographic survey. This is by far the largest section of new model created, as the Colne meanders for approximately 8km through this section. LiDAR DTM data was used to determine the extended cross sections, iSIS 'reservoir units' and 'spill units' that have been conceptualised to represent the River Colne floodplain.

- *North Mymms Park Model Section*

This 2km model section was constructed from 18 cross-sections surveyed in March 2004. These replaced the assumed sections in the initial version of the Strategy model.

The hydrological model developed for the Strategy model is considered a significant improvement over the peak flow statistical estimates (using FEH catchment descriptors) used in the JFlow modelling exercise since they are based on actual flow data from gauging stations (including Berrygrove, Denham and four more gauges on the Chess, Ver, Gade and Bulbourne). Furthermore, FEH catchment boundaries were schematised to accurately represent actual inflows to the river.

(b) *Model Calibration*

The Strategy model was calibrated using three historic events (October 1993, October 2000 & January 2003). The model flow and stage results were compared to the observed data at the Berrygrove (Watford) and Denham gauging stations. The calibration exercise showed a significant mismatch for flow and stage results for the 1993 event, a good match to the peak water level at Berrygrove for the October 2000 event, as well as a close match to the observed peak flow. A closer fit for the January 2003 event was also observed for the Denham gauge results in terms of peak level and timing but not for the Berrygrove gauge.

Good calibration of the model was achieved at the Berrygrove gauge but the calibration at the Denham gauge could only be considered moderate. The poor fit for the Denham gauge was attributed to reflect the low rating of the iSIS model between Riverside Road, south Watford and the A40 at Denham.

(c) *Suitability of Flood Outlines*

Defended flood outlines showing the actual risk of flooding are available for the 1 in 5, 20, 50, 100 and 200 year return period events. The 200 year event represents an average increase in flows of around 15-20% from the 100 year event and may therefore be used to inform the effects of climate

change for the 100 year event (i.e. Flood Zone 3a). It should be noted that there is no 1000 year event outline. Given the extremity of this event (and inherent uncertainty), subject to review, it may be necessary to adopt the existing Environment Agency Flood Zone 2 to inform the Sequential Test.

The flood maps produced during the Strategy correspond well with known flooding areas (from comparison with historical flood maps, a movie file taken from a helicopter during the last major flood and other observational information). Model confidence is considered medium to high in the upper most section of the model from Colney Heath to the downstream end of Watford.

Downstream of Watford the confidence in the model output is lower given the relatively poor calibration achieved at the Denham gauge. However significant improvements were made to the model in this area (including replacement of spills and reservoir units using LIDAR data) but no site visits were made to ground-truth the model and check for the presence of localised defences which may have been missed from the model (i.e. defences built as part of the Lower Colne Improvement Scheme).

It should also be noted that the Strategy model is only intended for use in informing strategic studies (such as this Level 1 SFRA) and should not be used to directly inform site-specific flood risk assessments (accompanying planning applications for proposed developments). Further review and possible refinement would need to be undertaken by those submitting site-specific FRA's with guidance from Environment Agency Development Control. This will be stated within the FRA guidance to developers section.

**APPENDIX E: Fluvial Flooding History**

Watercourses	Location	Date	Magnitude	Damages	Comments	Reference
River Colne	Colne Catchment (down to Watford)	1936	Unknown	Serious	Some loss of life	Upper Colne FDS Inception Report
	Colne Catchment (down to Watford)	Mar-47	Unknown	Unknown	Caused by combined snow melt with moderately heavy rainfall causing widespread flooding	Upper Colne FDS Inception Report
	Colne Catchment (down to Watford)	Dec-54	Unknown	Unknown	Unknown	Upper Colne FDS Inception Report
	Colne Catchment (down to Watford)	Jan-59	Unknown	Unknown	Unknown	Upper Colne FDS Inception Report
	Colne Catchment (down to Watford)	Nov-60	Unknown	Unknown	Unknown	Upper Colne FDS Inception Report
	Colne Catchment (down to Watford)	Nov-74	Unknown	Unknown	Unknown	Upper Colne FDS Inception Report
	Colne Catchment (down to Watford)	Nov-79	Unknown	Unknown	Unknown	Upper Colne FDS Inception Report
	Colne Catchment (down to Watford)	1992	Unknown	Unknown	Unknown	Upper Colne FDS Inception Report
	Colne Catchment (down to Watford)	2000-2001	Unknown	Unknown	Flooding occurred in the winter of 2000/2001. Most severe overall for over 50 years	Upper Colne FDS Inception Report
	Hythe End	2000	Estimated return period of highest flow in 2000 2 - 5 yrs	Unknown	Unknown	EA Flood Report
	Watford	1926	Unknown	Unknown	Sourced from Colne LEAP Consultation Report	Upper Colne FDS Inception Report
	Watford	Jul-87	Unknown	Unknown	Unknown	EA Historical flood outlines
	Watford	May-88	Unknown	Unknown	Unknown	EA Historical flood outlines
	Watford	1993	Unknown	Unknown	Unknown	EA Historical flood outlines
	Watford (Bushey Mill Lane, Lower High Street, Water Lane and south west Watford areas)	2000 (Late Oct and Nov)	Estimated return period of highest flow in 2000 > 1 in 50 years. Most severe flooding for at least 20 years. Flood peak more severe than any flow record for Berrygrove gauging station.	20 commercial properties flooded and roads flooded for several days in autumn 2000.	A major electricity substation near Bushey Mill Lane was threatened by the flood and needed emergency protection. Water Lane is very low lying and is often flooded by heavy rainfall, but this is made worse by the flooding of the Colne. Thought to be caused by rapid runoff from relatively impermeable clay areas and from urban areas. Lower High Street Area(Watford) / Riverside Road Area (Oxhey) both have a history of flooding.	Upper Colne FDS Inception Report/NE Flood Report October/November 2000
	Watford (Frogmore Cottages and Lower High Street)	Dec-02	One newsagent shop flooded but properties which did not have floodwaters enter them but were surrounded or cut off by flood water.	Unknown	Lower High Street would have been impassable during the peak of the flood.	EA Flood Report
	Watford (Lower High Street/Waterfields Way)	Jan-03	Unknown	Unknown	Unknown	EA Flood Report
	Colney Heath	1947	Unknown	Unknown	Unknown	London Colney and Colney Heath Pre-feasibility Study
	Colney Heath	Dec-79	Unknown	3 properties flooded internally	Unknown	London Colney and Colney Heath Pre-feasibility Study
	Colney Heath	Sep-92	Similar in magnitude to the September 2000 event	5 properties flooded internally	Following this event a flood alleviation study was carried out but no economically viable schemes were found.	Upper Colne FDS Inception Report
Colney Heath	1993	Unknown	Flooding of gardens	Unknown	London Colney and Colney Heath Pre-feasibility Study	
Colney Heath (St Mark's Close and Park Lane)	Oct-00	Similar in magnitude to the September 1992 event	6 properties on Park Lane and 1 property on St Marks's close were flooded and other gardens at both locations.	Some houses in Colney Heath have been flooded, on average, about once in 10 years. Park Lane house numbers 17,19,21,23,25,27.	Upper Colne FDS Inception Report	

Watercourses	Location	Date	Magnitude	Damages	Comments	Reference
	London Colney	1992	Unknown	4 properties flooded in Lowbell Lane. Waterside was flooded up to the boundary with Nos 1-5 High Street and to Waterside House on the south side. The thresholds of the Green Dragon Public House and Watermeade and Riverview Cottages.	Unknown	Unknown
	London Colney (Lowbell Lane, Colne Gardens, Waterside, Willowside and Armstrong Close)	Oct-00	Unprecedented in living memory	38 properties flooded due to exceedance of Agency defence standards. Incident potential for 43 properties.	Flooding in October 2003 was unprecedented in living memory. Related to the antecedent rainfall conditions which may have reduced the flood attenuation effect of the Bowmans lakes. Thought to be caused by rapid runoff from relatively impermeable clay areas and from urban areas. Flooding occurred in Lowbell Lane, Colne Gardens, Waterside, Willowside and Armstrong Close, Green Dragon pub. The Shenley Lane area near Broad Colney was also flooded including a British Legion Club.	Upper Colne FDS Inception Report
	Broad Colney	Oct-00		39 properties suffered internal flooding in the 3 villages	Unknown	Upper Colne FDS Inception Report
	Hilfield Brook, Upper Colne	Unknown	Unknown	Unknown	Suffer from flooding caused by heavy short duration rainfall	Upper Colne FDS Inception Report
	Oxhey Brook, Upper Colne	Unknown	Unknown	Unknown	Suffer from flooding caused by heavy short duration rainfall	Upper Colne FDS Inception Report
	The Hartsbourne, Upper Colne	Unknown	Unknown	Unknown	Suffer from flooding caused by heavy short duration rainfall	Upper Colne FDS Inception Report
	Rickmansworth	Jul-87	Unknown	Unknown	Unknown	EA Historical flood outlines
<b>River Ver</b>	Markyate	Unknown	Unknown	Unknown	History of flooding caused by the capacity of a culvert being inadequate to pass peak flows arising from	Upper Colne FDS Inception Report
	Markyate (Roman Way, London Road, Hicks Road, Church End)	June-93 / Oct-93	Unknown	34 of 173 properties at risk were flooded. 20 houses in Roman Way.	Localised problem caused by an existing undersized culvert.	Upper Colne FDS Inception Report Addendum
	Redbourn (Redbournbury Lane, field flooding)	June-93 / Oct-93	Unknown	3 of 211 properties at risk were flooded	Unknown	Upper Colne FDS Inception Report Addendum
	St Albans (Redbourn Road)	June-93 / Oct-93	Unknown	Unknown	Unknown	EA Flood Report
<b>River Bulbourne</b>	Boxmoor, King's Langley and Great Gaddesden	1879	1 in 100 year	Unknown	Unknown	Flood Hazard Centre Report
	Unknown	1946	1 in 50 year	Unknown	Unknown	Flood Hazard Centre Report
	Aldbury	1988	Unknown	Unknown	Unknown	Flood Hazard Centre Report
	Aldbury	1992	Unknown	Unknown	Unknown	Flood Hazard Centre Report
<b>River Gade</b>	Boxmoor, King's Langley and Great Gaddesden	1879	1 in 100 year	Unknown	Unknown	Flood Hazard Centre Report
	Unknown	1946	1 in 50 year	Unknown	Unknown	Flood Hazard Centre Report
<b>River Chess</b>	No previous flood events recorded by the EA in our study area					
	WaterHall	2000	Estimated return period of highest flow in 2000 20 yrs			EA Flood Report
	Batford	Mar-47	Unknown	Unknown	Unknown	EA Historical flood outlines
	Batford	Jul-1959	Unknown	Severe	Industrial area	Upper Lee FRMS

Watercourses	Location	Date	Magnitude	Damages	Comments	Reference
Upper Lee River	Batford	Jul-62	Unknown	Unknown	Allotments at Coldharbour	Upper Lee FRMS
	Batford	Sep-68	Between 5% and 20% flood event (peak flow 6.79m3/s)	Severe	Industrial area	Upper Lee FRMS
	Batford	Dec-72	Unknown	Unknown	Allotments at Coldharbour	Upper Lee FRMS
	Batford	May-75	Unknown	Unknown	Allotments at Coldharbour	Upper Lee FRMS
	Batford	May-78	Unknown	Unknown	Unknown	EA Historical flood outlines
	Batford	Jun-84	Between 5% and 2% flood event (peak flow 9.12m3/s)	Severe	350mm water depth at industrial area	Upper Lee FRMS
	Batford	Aug-84	Between 5% and 20% flood event	Severe	Through the catchments	Upper Lee FRMS
	Batford	Jul-87	Unknown	Unknown	Unknown	EA Historical flood outlines
	Batford (Coldharbour Lane, Batford Industrial Estate)	May-92	Between 1.33% and 2%.	Severe	Industrial units	Upper Lee FRMS
	Batford	Sep-92	Less than 20%. 5 industrial units flooded.	Moderate	Industrial units	Upper Lee FRMS
	Batford (Lee Valley Industrial Estate, Lower Luton Road, Coldharbour Lane)	Sep-98	Between 5% and 2% flood event	Severe - flooding described as 'the worst for 12 years'	Industrial units	Upper Lee FRMS
	Wheathampstead	Mar-47	Unknown	Unknown	Unknown	EA Historical flood outlines
	Wheathampstead	Sep-68	Between 5% and 20% flood event (peak flow 6.79m3/s)	Severe	Mill culvert	Upper Lee FRMS
	Wheathampstead	May-78	Unknown	Unknown	Mill culvert	Upper Lee FRMS
	Wheathampstead	Dec-79	Between 5% and 20% flood event (peak flow 6.3m3/s)	Severe	Bull Public house, butchers shop and road	Upper Lee FRMS
	Wheathampstead	Aug-84	Between 5% and 20% flood event	Severe	Through the catchments	Upper Lee FRMS
	Wheathampstead	Sep-87	Less than 20%	Unknown	Mill culvert	Upper Lee FRMS
	Wheathampstead	Oct-87	Less than 20%	Unknown	Mill culvert	Upper Lee FRMS
	Wheathampstead	May-92	Between 1.33% and 2%	Severe	Shops and roads within Mill culvert	Upper Lee FRMS
	Wheathampstead	Sep-92	Less than 20%. 5 shops flooded.	Moderate	High street	Upper Lee FRMS
Wheathampstead ( Stations Road, Old Mill Building shops)	Sep-98	Between 5% and 2% flood event	Severe	Village centre and shops around Mill culvert	Upper Lee FRMS	
Wheathampstead	May-07	Not known	Moderate	The High Street, Mill Walk, Ash Grove and King Edward Place	EA Flood Report	
River Thames	Tring	1992	Unknown	Unknown	Unknown	EA Historical flood outlines
	Tring (Cow Lane, Western Road, Park Road, Wingrave Road, Rosebery Way)	1993	Unknown	Unknown	Unknown	EA Historical flood outlines

**APPENDIX F: Sewer Flooding History**

<b>All post codes</b>	Total number Properties flooded from overloaded sewer in last ten years	176
	Total number properties flooded by surface water from overloaded sewers in last ten years	53
	Total number properties flooded by foul water from overloaded sewers in the last ten years	115
	Total number properties flooded by Combined overloaded sewers in the last ten years	8
<b>AL1</b>	Total number Properties flooded from overloaded sewer in last ten years	17
	Total number properties flooded by surface water from overloaded sewers in last ten years	2
	Total number properties flooded by foul water from overloaded sewers in the last ten years	14
	Total number properties flooded by Combined overloaded sewers in the last ten years	1
<b>AL2</b>	Total number Properties flooded from overloaded sewer in last ten years	20
	Total number properties flooded by surface water from overloaded sewers in last ten years	1
	Total number properties flooded by foul water from overloaded sewers in the last ten years	18
	Total number properties flooded by Combined overloaded sewers in the last ten years	1
<b>AL3</b>	Total number Properties flooded from overloaded sewer in last ten years	18
	Total number properties flooded by surface water from overloaded sewers in last ten years	2
	Total number properties flooded by foul water from overloaded sewers in the last ten years	16
	Total number properties flooded by Combined overloaded sewers in the last ten years	0
<b>AL4</b>	Total number Properties flooded from overloaded sewer in last ten years	28
	Total number properties flooded by surface water from overloaded sewers in last ten years	0
	Total number properties flooded by foul water from overloaded sewers in the last ten years	26
	Total number properties flooded by Combined overloaded sewers in the last ten years	2
<b>AL5</b>	Total number Properties flooded from overloaded sewer in last ten years	6
	Total number properties flooded by surface water from overloaded sewers in last ten years	0
	Total number properties flooded by foul water from overloaded sewers in the last ten years	6
	Total number properties flooded by Combined overloaded sewers in the last ten years	0
<b>UB9</b>	Total number Properties flooded from overloaded sewer in last ten years	0
	Total number properties flooded by surface water from overloaded sewers in last ten years	0
	Total number properties flooded by foul water from overloaded sewers in the last ten years	0
	Total number properties flooded by Combined overloaded sewers in the last ten years	0



<b>WD5</b>	Total number Properties flooded from overloaded sewer in last ten years	0
	Total number properties flooded by surface water from overloaded sewers in last ten years	0
	Total number properties flooded by foul water from overloaded sewers in the last ten years	0
	Total number properties flooded by Combined overloaded sewers in the last ten years	0
<b>WD17</b>	Total number Properties flooded from overloaded sewer in last ten years	9
	Total number properties flooded by surface water from overloaded sewers in last ten years	9
	Total number properties flooded by foul water from overloaded sewers in the last ten years	0
	Total number properties flooded by Combined overloaded sewers in the last ten years	0
<b>WD18</b>	Total number Properties flooded from overloaded sewer in last ten years	22
	Total number properties flooded by surface water from overloaded sewers in last ten years	0
	Total number properties flooded by foul water from overloaded sewers in the last ten years	22
	Total number properties flooded by Combined overloaded sewers in the last ten years	0
<b>WD19</b>	Total number Properties flooded from overloaded sewer in last ten years	1
	Total number properties flooded by surface water from overloaded sewers in last ten years	0
	Total number properties flooded by foul water from overloaded sewers in the last ten years	1
	Total number properties flooded by Combined overloaded sewers in the last ten years	0
<b>WD24</b>	Total number Properties flooded from overloaded sewer in last ten years	4
	Total number properties flooded by surface water from overloaded sewers in last ten years	4
	Total number properties flooded by foul water from overloaded sewers in the last ten years	0
	Total number properties flooded by Combined overloaded sewers in the last ten years	0
<b>WD25</b>	Total number Properties flooded from overloaded sewer in last ten years	1
	Total number properties flooded by surface water from overloaded sewers in last ten years	1
	Total number properties flooded by foul water from overloaded sewers in the last ten years	0
	Total number properties flooded by Combined overloaded sewers in the last ten years	0
<b>WD26</b>	Total number Properties flooded from overloaded sewer in last ten years	0
	Total number properties flooded by surface water from overloaded sewers in last ten years	0
	Total number properties flooded by foul water from overloaded sewers in the last ten years	0
	Total number properties flooded by Combined overloaded sewers in the last ten years	0

<b>HP1</b>	Total number Properties flooded from overloaded sewer in last ten years	0
	Total number properties flooded by surface water from overloaded sewers in last ten years	0
	Total number properties flooded by foul water from overloaded sewers in the last ten years	0
	Total number properties flooded by Combined overloaded sewers in the last ten years	0
<b>HP2</b>	Total number Properties flooded from overloaded sewer in last ten years	3
	Total number properties flooded by surface water from overloaded sewers in last ten years	0
	Total number properties flooded by foul water from overloaded sewers in the last ten years	0
	Total number properties flooded by Combined overloaded sewers in the last ten years	3
<b>HP3</b>	Total number Properties flooded from overloaded sewer in last ten years	0
	Total number properties flooded by surface water from overloaded sewers in last ten years	0
	Total number properties flooded by foul water from overloaded sewers in the last ten years	0
	Total number properties flooded by Combined overloaded sewers in the last ten years	0
<b>HP4</b>	Total number Properties flooded from overloaded sewer in last ten years	2
	Total number properties flooded by surface water from overloaded sewers in last ten years	1
	Total number properties flooded by foul water from overloaded sewers in the last ten years	1
	Total number properties flooded by Combined overloaded sewers in the last ten years	0
<b>HP8</b>	Total number Properties flooded from overloaded sewer in last ten years	0
	Total number properties flooded by surface water from overloaded sewers in last ten years	0
	Total number properties flooded by foul water from overloaded sewers in the last ten years	0
	Total number properties flooded by Combined overloaded sewers in the last ten years	0
<b>HP23</b>	Total number Properties flooded from overloaded sewer in last ten years	0
	Total number properties flooded by surface water from overloaded sewers in last ten years	0
	Total number properties flooded by foul water from overloaded sewers in the last ten years	0
	Total number properties flooded by Combined overloaded sewers in the last ten years	0

**APPENDIX G: Indicative Sites**

Reference	Location	Flood Zone (2007)	Flood Zone (2115)	Groundwater	Surface water	Sewer
<b>Dacorum Borough Council</b>						
M/h1	Cheverells Green, Markyate	1	1	Low	Low	High
H/h18	Frogmore Road Industrial Estate, Hemel Hempstead	3b	3b	Low	Low	Low
M/h2	Land at Hicks Road/A5, Markyate	3b	3b	Low	Low	High
H/h23	The Hive, Featherbed Lane, Felden, Hemel Hempstead	1	1	Low	Low	Low
Bov/h2	Land off Louise Walk, Green Lane, Bovingdon	1	1	Low	Low	Low
T/h2	Marshcroft Lane, Tring	1	1	Low	Low	Low
T/h3	Land Lowrth of Icknield Way, Tring	1	1	Low	Low	Low
H/h26	Land south of Redbourn Road, Hemel Hempstead	1	1	Low	Low	Low
H/h29	Land at Lowrth East Hemel Hempstead	1	1	Low	Low	Low
H/h28	Land at Westwick Farm, Pancake Lane, Hemel Hempste	1	1	Low	Low	Low
Be/h3	Lockfield, New Road, Lowrthchurch, Berkhamsted	1	1	Low	Low	Low
H/h24	Three Horseshoes Petrol Filling Station, Leverstoc	1	1	Low	Low	Low
H/h17	Land between Frogmore Road and Ebbens Road, Hemel	3b	3b	Low	Low	Low
H/h30	74-78 Wood Lane End, Hemel Hempstead	1	1	Low	Low	Low
H/h1	Marchmont Farm, Hemel Hempstead	1	1	Low	Low	Low
Be/h1	Land at Ivy House Lane, Berkhamsted	1	1	Low	Low	Low
Be/h2	Land south of Berkhamsted	1	1	Low	Low	Low
H/h32	Shendish MaLow, Hemel Hempstead	1	1	Low	Low	Low
H/h6	Blocks 1-10, 18-27 and 76-105 Driftway, Hemel Hemp	1	1	Low	Low	Low
H/h5	106-148 Windmill Road, Hemel Hempstead	1	1	Low	Low	Low
H/h7	25-32 Paston Road, Hemel Hempstead	1	1	Low	Low	Low
H/h8	Mimas Road, Hemel Hempstead	1	1	Low	Low	Low
H/h9	Blocks 9-13 Malvern Way, Hemel Hempstead	1	1	Low	Low	Low
H/h10	Eastwick Row, Hemel Hempstead	1	1	Low	Low	Low
H/h11 a	Blocks 1-42 Marlin's Turn, Hemel Hempstead	1	1	Low	Low	Low
H/h11 b	Blocks 43-81 Marlin's Turn, Hemel Hempstead	1	1	Low	Low	Low
H/h12	Cuttisfield Terrace, Hemel Hempstead	1	1	Low	Low	Low
H/h13	Cumberlow Place, Hemel Hempstead	1	1	Low	Low	Low
H/h14 a	Blocks 1-18 Kimpton Place, Hemel Hempstead	1	1	Low	Low	Low
H/h14 b	Blocks 19-35 Kimpton Place, Hemel Hempstead	1	1	Low	Low	Low
H/h15	Claymore, Hemel Hempstead	1	1	Low	Low	Low
H/h16 a	Eskdale Court, Hemel Hempstead	1	1	Low	Low	Low
H/h16 b	Borrowdale, Hemel Hempstead	1	1	Low	Low	Low
H/h16 c	Westerdale, Hemel Hempstead	1	1	Low	Low	Low
KL/h3, KL/L1	Rectory Farm, Rectory Lane, Kings Langley	3b	3b	Low	Low	Low
T/h1	Land rear of Western Road, Tring	1	1	Low	High	Low
O/h3	Bourne End Mills, Bourne End.	2	2	Low	Low	Low
T/h4	Land adjoining Tring Business Centre, Tring	1	1	Low	Low	Low
O/h1	Bourne End Mills, Bourne End.	2	2	Low	Low	Low
KL/h4	Land at Rucklers Wood, Rucklers Wood Lane, Kings L	1	1	Low	Low	Low
O/h5	Land adjoining Grange Road, Wilston	1	1	Low	Low	Low
M/t1 a	Land east and west of M1 directly south of Stockwo	1	1	Low	Low	Low
M/t1 b	Land east and west of M1 directly south of Stockwo	1	1	Low	Low	Low
Be/h5	Shootersway, Berkhamsted	1	1	Low	Low	Low
H/h34	British Gas Site, London Road, Hemel Hempstead	1	1	Low	Low	Low
H/h51	Land adjacent to 37 Coleridge Crescent, Hemel Hemp	1	1	Low	Low	Low
Be/C1	Hospice Site, Shootersway, Berkhamsted	1	1	Low	Low	Low
Bov/C1	Bovingdon Prison, Bovingdon	1	1	Low	Low	Low
O/h4	Grange Road, Wilstone	1	1	Low	Low	Low
H/h3 a	Land at Hemel Hempstead General Hospital, Hemel He	1	1	Low	Low	Low
H/h3 b	Land at Hemel Hempstead General Hospital, Hemel He	1	1	Low	Low	Low
Bov/h1	Duck Hall Farm, Bovingdon	1	1	Low	Low	Low
T/h6, T/e2	Station Road/Marshcroft Lane, Tring	1	1	Low	Low	Low
H/h37	Garages at Lime Walk, Hemel Hempstead	1	1	Low	Low	Low
H/h36	Hoselers, Hemel Hempstead	1	1	Low	Low	Low
H/h35	Great Elms Road, Hemel Hempstead	1	1	Low	Low	Low
H/h39	Ritcroft Street, Hemel Hempstead	1	1	Low	Low	Low
H/h33	Barnacres/Candlefield, Hemel Hempstead	1	1	Low	Low	Low
H/h55	Martindale Primary School, Boxted Road, Hemel Hemp	1	1	Low	Low	Low
H/h56	Pixies Primary School, Pixies Hill Crescent, Hemel	1	1	Low	Low	Low
H/h57	Barncroft Primary School, Washington Avenue, Hemel	1	1	Low	Low	Low
H/h58	Jupiter Drive JMI School, Jupiter Drive, Hemel Hem	1	1	Low	High	Low
T/h9	Miswell Lane, Tring	1	1	Low	Low	Low
T/h8	Brook Street, General Employment Area, Tring	3b	3b	Low	Low	Low
T/h7	Akeman Street, General Employment Area, Tring	1	1	High	Low	Low
H/h4	Paradise Fields (H40), Hemel Hempstead	1	1	Low	Low	Low
H/h22	Three Cherry Trees Lane, Hemel Hempstead	1	1	Low	High	Low
H/h19	Frogmore End, Hemel Hempstead	3b	3b	Low	Low	Low
H/h53	Former Kodak Site, Hemel Hempstead	1	1	Low	Low	Low
H/h52	The Civic Zone, Hemel Hempstead	3b	3b	Low	High	Low
H/h2	West Hertfordshire College, Hemel Hempstead	3b	3b	Low	High	Low
H/h38	Reddings, Hemel Hempstead	1	1	Low	Low	Low
T/t1	Tring Station, Tring	1	1	Low	Low	Low
H/L5	Lucas Sports Ground, Breakspear Way, Hemel Hempste	1	1	Low	Low	Low
H/L2, H/h70	Westwick Farm, Hemel Hempstead	1	1	Low	High	Low
H/h50	Hemel Hempstead Football Club, Vauxhall Road, Heme	1	1	Low	Low	Low
H/h21	Leverstock Green Football Club, Hemel Hempstead	1	1	Low	Low	Low
Be/h6	Blegberry, Shootersway, Berkhamsted	1	1	Low	Low	Low
O/h6	Bourne End Lane, Bourne End	2	2	Low	Low	Low
H/h31 a	Hemel Gateway	1	1	Low	Low	Low
H/h31 b	Hemel Gateway	1	1	Low	Low	Low
H/h31 c	Hemel Gateway	1	1	Low	Low	Low
O/L1	Piccotts End Pumping Station, Picotts End	3b	3b	Low	Low	Low
T/h11	Station Road, Cow Roast	1	1	Low	Low	Low
H/L4 a	Land at West Hemel Hempstead	1	1	Low	Low	Low
H/L4 b	Land at West Hemel Hempstead	1	1	Low	Low	Low
O/h8	End of Nunfield, Chipperfield	1	1	Low	Low	Low
T/L4	Land east of Cow Lane	1	1	Low	Low	Low
T/L2	Dunsley and Cow Lane Farms	1	1	Low	Low	Low

Reference	Location	Flood Zone (2007)	Flood Zone (2115)	Groundwater	Surface water	Sewer
T/L1, T/L3, T/e3	Land West of Cow Lane	1	1	Low	Low	Low
T/h10	Land between Station Road, Cow Road and London Road	1	1	Low	Low	Low
T/h5	Land at New Mill	1	1	Low	Low	Low
T/h13	Cattle Market, Brook Street, Tring	1	1	Low	Low	Low
H/e1	Junction of Eastman Way and Swallowdale Lane	1	1	Low	Low	Low
Be/h8	Land at Bank Mill Lane	3b	3b	Low	Low	Low
Be/h7	Land to the West of Durrants Lane	1	1	Low	Low	Low
H/h69, H/h27	Buncefield Lane/Green Lane	1	1	Low	High	Low
H/r1	Marlowes/Bridge St/Waterhouse St	3b	3b	Low	Low	Low
H/r1	Marlowes/Bridge St/Waterhouse St	3a	3a	Low	Low	Low
H/r3	Jarman Fields Local Centre	1	1	Low	Low	Low
M/h9	Land off Cheverels Green, Markyate	1	1	Low	Low	High
H/h72	Sheethanger Lane, Felden	1	1	Low	Low	Low
H/h68, H/h32	Shendish MaLowr, Apsley	1	1	Low	Low	Low
H/h64, H/h66	Breakspear Way, Hemel Hempstead	1	1	Low	Low	Low
H/h71	London Road, Boxmoor	1	1	Low	Low	Low
H/h65	Land Lowrth of Gadebridge	1	1	Low	Low	Low
Bov/h4	Land at Middle Lane, Bovingdon	1	1	Low	Low	Low
Bov/h3	Little Gables, Long Lane	1	1	Low	Low	Low
O/h7	Wilstone Bridge, Tring Road	1	1	Low	Low	Low
H/L3	Bunkers Farm, Hemel Hempstead	1	1	Low	Low	Low
Be/h9	Land at Ashlyns School	1	1	Low	Low	Low
H/c1	Land at Featherbed Lane, Two Waters Way, Apsley	1	1	Low	Low	Low
H/h9	Breakspear Way	1	1	Low	Low	Low
H/t10	Water Gardens Lowrth Car Park	3a	3a	Low	High	Low
Be/h4	Pea Lane, Lowrthchurch	1	1	Low	Low	Low
H/h59	Land at former John Dickinsons, London Road	3b	3b	Low	Low	Low
H/h60	Sappi Site, Nash Mill, Belswains Lane	3b	3b	Low	Low	Low
H/h61	Lord Alexander House, Waterhouse Street	3a	3a	Low	Low	Low
H/h73	Land at Horseshoe, Leverstock Green	1	1	Low	Low	Low
H/h74	Land between Westwick Farm and Green Lane	1	1	Low	High	Low
T/r1	Land adj to Tring Station Car Park, Station Rd	1	1	Low	Low	Low
Bov/h5	Land at Shantock, Hall Lane, Bovingdon	1	1	Low	Low	Low
Bov/h7	Land at Long Lane	1	1	Low	Low	Low
Bov/h6	Land at Grange Farm	1	1	Low	Low	Low
O/h9	Ackwell Simmons, Chapel Croft, Chipperfield	1	1	Low	Low	Low
M/h3	Foxdall Farm, Luton Road	1	1	Low	Low	High
M/h4	Dammersley Close	3b	3b	Low	Low	High
T/h12	South of Park Street, Tring	1	1	Low	Low	Low
M/h6	Land at Buckwood Road	1	1	Low	Low	High
M/h7	Land at Buckwood Road/Cavendish Road	1	1	Low	Low	High
M/h8	Land rear of Pickford Rd, Cleveland Rd, Sursham Cr	1	1	Low	Low	High
KL/h2	Ex-Kings Langley Building Supplies	1	1	Low	Low	Low
KL/h1	Sunderlands Yard, Church Lane	3b	3b	Low	Low	Low
H/L1	Caravan site, Buncefield Lane, Bedmond Road	1	1	Low	Low	Low
KL/hh1	Rucklers Lane flint bungalows	1	1	Low	Low	Low
H/h67 a	West Hemel Hempstead	1	1	Low	Low	Low
H/h67 b	West Hemel Hempstead	1	1	Low	Low	Low
T/h14	Land at Miswell Lane, Tring	1	1	Low	Low	Low
H/h44	Nash Hills, Hemel Hemstead	3b	3b	Low	Low	Low
H/h42, H/h25	Shendish MaLowr, Hemel Hemstead	1	1	Low	Low	Low
H/h45	Felden, Hemel Hemstead	1	1	Low	Low	Low
H/h44	Boxmoor, Hemel Hemstead	3b	3b	Low	High	Low
H/h62	Pouch End, Hemel Hemstead	1	1	Low	Low	Low
H/h48	Gadebridge Lowrth, Hemel Hemstead	1	1	Low	Low	Low
H/h49	Old Town, Hemel Hemstead	1	1	Low	Low	Low
H/h41	Marchmont Farm, Hemel Hemstead	1	1	Low	Low	Low
H/h46	Grovehill & Woodhall Farm, Hemel Hemstead	1	1	Low	High	Low
H/h54	Bunkers Park	1	1	Low	Low	Low
O/h2	The Twist, Wigginton	1	1	Low	Low	Low
Bov/e1	Land between Ley Hill Road and Bakers Wood	1	1	Low	Low	Low
Bov/L1	Drive-Thru Cinema, Bovingdon Airfield	1	1	Low	Low	Low
KL/h5	Hill Farm, Love Lane, Kings Langley	1	1	Low	Low	Low
KL/h3	Rectory Farm	3b	3b	Low	Low	Low
H/L6	Shendish MaLowr, south side fields	1	1	Low	Low	Low
T/e1	Land adjacent to Ickneild Way GEA	1	1	Low	Low	Low
T/e2	Land between Marshcroft Land and Station Road	1	1	Low	Low	Low
O/t1	Water End A4146	3b	3b	Low	Low	Low
Be/t1	Tunnel Field, Lowrthchurch	1	1	Low	Low	Low
H/r3	Hemel Hemstead Lowrth Bypass	3b	3b	Low	High	Low
<b>Watford Borough Council</b>						
HOL 01	Whippendell Road	2	3a	Low	Low	High
HOL 03c	Hatters Lane, Greenhill Crescent, Caxton Way	3b	3b	Low	Low	High
HOL 04	Whippendell Road	1	1	Low	Low	High
HOL 05	Whippendell Road	1	1	Low	Low	High
HOL 06	Sydney Road	1	1	Low	Low	High
HOL 07	Sydney Road	1	1	Low	Low	High
HOL 08	Whippendell Road	1	1	Low	Low	High
PAR 38	Rickmansworth Road	1	1	Low	Low	High
HOL 15	Vicarage Road	1	1	Low	Low	High
HOL 16	Moor View	1	1	Low	Low	High
HOL 27	Croxley View	1	1	Low	Low	High
HOL 30	Off Croxley View	1	1	Low	Low	High
HOL 31	Off Croxley View	1	1	Low	Low	High
HOL 32	Off Croxley View	1	1	Low	Low	High
HOL 34	Off Croxley View	1	1	Low	Low	High
HOL 35	Off Croxley View	1	1	Low	Low	High
HOL 36	Croxley View	1	1	Low	Low	High
HOL 41	Off Croxley View	1	1	Low	Low	High
HOL 52	Off Croxley View	1	1	Low	Low	High
HOL 53	Off Croxley View	1	1	Low	Low	High
HOL 54	Off Croxley View	1	1	Low	Low	High

Reference	Location	Flood Zone (2007)	Flood Zone (2115)	Groundwater	Surface water	Sewer
HOL 56	Whippendell Road/ Rickmansworth Road	3a	3a	Low	Low	High
HOL 57	King Georges Avenue	1	1	Low	Low	High
HOL 58	Scammel Way	1	1	Low	Low	High
TUD 05	Greycaine Road.	1	1	Low	Low	Low
TUD 16a	Land at rear of Imperial Way	1	1	Low	Low	Low
OXH 01	At rear of Riverside Road	1	1	Low	Low	Low
OXH 03	Longcroft	1	1	Low	Low	Low
OXH 07	The Pastures	3a	3a	Low	Low	Low
OXH 11	Deacons Hill	3b	3b	Low	Low	Low
OXH 13	Land at rear of Green Lane	1	1	Low	Low	Low
OXH 14	Land at rear of Green Lane	1	1	Low	Low	Low
OXH 15	Green Lane	1	1	Low	Low	Low
OXH 18	To rear of Eastbury Road	1	1	Low	Low	Low
OXH 24/45	Chalk Hill	1	1	Low	Low	Low
OXH 28	Land off Pinner Road/Adjacent to railway line	1	1	Low	Low	Low
OXH 29	Aldenham Road	1	1	Low	Low	Low
OXH 30	Pinner Road	1	1	Low	Low	Low
OXH 31	Capel Road	1	1	Low	Low	Low
OXH 32	Pinner Road	1	1	Low	Low	Low
OXH 35	Paddock Close	1	1	Low	Low	Low
OXH 37	Firbank Drive	1	1	Low	Low	Low
OXH 40	Wilcot Close	1	1	Low	Low	Low
WOD 17	Sheepcote Lane	1	1	Low	Low	Low
WOD 21	Sheepcot Lane	1	1	Low	Low	Low
WOD 24	High Road	1	1	Low	Low	Low
WOD 26	Haines Way, High Road	1	1	Low	Low	Low
WOD 34	Redheath Close	1	1	Low	Low	Low
WOD 35	Leveret Close	1	1	Low	Low	Low
WOD 40	Hope Green	1	1	Low	Low	Low
WOD 41	Louvain Way	1	1	Low	Low	Low
MER 08	St Albans Road	1	1	Low	Low	Low
MER 10	St Albans Road	1	1	Low	Low	Low
MER 18	First Avenue	1	1	Low	Low	Low
MER 29b	Lowrth Western Avenue	1	1	Low	Low	Low
MER 36	York Way, off	1	1	Low	Low	Low
MER 37	The Turnstones	1	1	Low	Low	Low
MER 45	York Way	1	1	Low	Low	Low
CEN 04	Halsey Masonic Lodge, Rickmansworth Road	1	1	Low	Low	High
CEN 07	Corner of Exchange Road/Market Street	1	1	Low	Low	High
CEN 09	Green Open Space, Church Street	1	1	Low	Low	High
CEN 10	Sedgwick Solicitors, Cambridge Road	1	1	Low	Low	High
CEN 11	Mecca Bingo Hall, King Street	1	1	Low	Low	High
CEN 14	Warehouse, The Crescent/Smith Street	1	1	Low	Low	High
CEN 15	The Crescent	1	1	Low	Low	High
CEN 16	Large block (mix of uses), High Street	1	1	Low	Low	Low
CEN 17	TJ Hughes Department Store	1	1	Low	Low	Low
CEN 18	Charter Place shopping centre	1	1	Low	Low	Low
CEN 19	Clarendon Road Employment Allocation Site	1	1	Low	Low	Low
CEN 20	St Albans Road	1	1	Low	Low	Low
CEN 21/22	St Albans Road	1	1	Low	Low	Low
CEN 26	Sotheron Road	1	1	Low	Low	Low
CEN 28	Orphanage Road	1	1	Low	Low	Low
CEN 38	Queen's Road	1	1	Low	Low	Low
CEN 44	Beechen Grove	1	1	Low	Low	Low
CEN 46	Beechen Grove	1	1	Low	Low	Low
CEN 47	GrosveLowr Road	1	1	Low	Low	Low
CEN 50	Derby Road	1	1	Low	Low	Low
CEN 52	Lower Derby Road	1	1	Low	Low	Low
CEN 53	Water Lane	1	1	Low	Low	Low
CEN 57	Lower High Street	3b	3b	Low	Low	Low
CEN 59	Lower High Street	3b	3b	Low	High	Low
CEN 60	Lower High Street	3b	3b	Low	Low	Low
CEN 68	Hamilton Street	1	1	Low	Low	Low
CEN 70	Local Board Road	3b	3b	Low	High	High
CEN 73/74	Watford Springs, Land south of Watford High Street	1	1	Low	Low	High
CEN 75	Elfrida Road	1	1	Low	Low	High
CEN 80	Lady's Close	1	1	Low	Low	High
CEN 84	Upton Road	1	1	Low	Low	Low
CEN 88	AGF House, Rickmansworth Road	1	1	Low	Low	High
CEN 89	Watford Town & Country Club	1	1	Low	Low	High
CEN 91	Retail units, King Street	1	1	Low	Low	High
CEN 93	Warehouse unit, Smith Street	1	1	Low	Low	High
CEN 94	Queen's Road	1	1	Low	Low	Low
CEN 95	Sutton Road	1	1	Low	Low	Low
CEN 96	Queen's Road	1	1	Low	Low	Low
CEN 97	Loates Lane	1	1	Low	Low	Low
CEN 98	Queen's Road	1	1	Low	Low	Low
CEN 99	GrosveLowr Road	1	1	Low	Low	Low
CEN 100	Lower High Street	1	1	Low	Low	High
LEG 01	Hudson Close	1	1	Low	Low	Low
LEG 02	Hudson Close	1	1	Low	Low	Low
LEG 09	Off Gammon Lane	1	1	Low	Low	Low
LEG 16	Leggatts Way	1	1	Low	Low	Low
LEG 20	Cherry Tree Road	1	1	Low	Low	Low
LEG 24	Beech Road	1	1	Low	Low	Low
LEG 27	The Harebreaks	1	1	Low	Low	Low
LEG 31	Leaford Crescent	1	1	Low	Low	Low
LEG 32b	Leaford Crescent	1	1	Low	Low	Low
LEG 34	Leggatts Campus	1	1	Low	Low	Low
LEG 35	Callowland Allotments	1	1	Low	Low	Low
STA 18	Lowrth Western Avenue	1	1	Low	Low	Low
STA 21	East Drive	1	1	Low	Low	Low

Reference	Location	Flood Zone (2007)	Flood Zone (2115)	Groundwater	Surface water	Sewer
STA 22	Purbrock Avenue	1	1	Low	Low	Low
STA 23	Purbrock Avenue	1	1	Low	Low	Low
STA 26	Sheepcote Lane	1	1	Low	Low	Low
STA 28	Rother Close	1	1	Low	Low	Low
STA 29	Avon Close	1	1	Low	Low	Low
STA 36	Sheepcote Lane	1	1	Low	Low	Low
STA 42	Wheatley Drive	1	1	Low	Low	Low
STA 43	Sheepcot Lane	1	1	Low	Low	Low
CAL 01	St Albans Road	1	1	Low	Low	Low
CAL 03	Neston Road	1	1	Low	Low	Low
CAL 10	Sandown Road Industrial Estate, Sandown Road	1	1	Low	Low	Low
CAL 14	Balmoral Road	1	1	Low	Low	Low
CAL 17	Ridge Street	1	1	Low	Low	Low
CAL 19	Shakespeare Industrial Estate, Shakespeare Street	1	1	Low	Low	Low
CAL 20	Cecil Street	1	1	Low	Low	Low
CAL 21	Cecil Street	1	1	Low	Low	Low
CAL 22	Land to rear of Copsewood Road	1	1	Low	Low	Low
CAL 23	Bedford Street	1	1	Low	Low	Low
CAL 24	Leavesden Road	1	1	Low	Low	Low
CAL 30	St Alban's Road/adjacent to Watford Junction Stati	1	1	Low	Low	Low
CAL 31	Land adjacent to Watford Junction Station	1	1	Low	Low	Low
VIC 05	Southsea Avenue	1	1	Low	Low	High
VIC 06	Burton Avenue	1	1	Low	Low	High
VIC 08	King's Avenue	1	1	Low	Low	High
VIC 09	Princes Avenue	1	1	Low	Low	High
VIC 17/18	Vicarage Road, Occupation Road	1	1	Low	Low	High
VIC 21	Harwoods Road	1	1	Low	Low	High
VIC 22	Land at rear of Queens Avenue	1	1	Low	Low	High
VIC 23	Brightwell Road	1	1	Low	Low	High
VIC 24	Holywell Road	1	1	Low	Low	High
VIC 30	Cardiff Road	3b	3b	Low	Low	High
VIC 31	Harwoods Road	1	1	Low	Low	High
NAS 08	Hemingford Road	1	1	Low	Low	Low
NAS 14	Hempstead Road	1	1	Low	Low	Low
NAS 16	Hempstead Road	1	1	Low	Low	Low
NAS 17	Bromet Close	1	1	Low	Low	Low
NAS 18	Nascot Wood Road	1	1	Low	Low	Low
NAS 25	Langley Road	1	1	Low	Low	Low
NAS 26	Nascot Wood Road	1	1	Low	Low	Low
NAS 29	West Herts College - Cassio Campus	1	1	Low	Low	Low
NAS 31	Bellamy Close	1	1	Low	Low	Low
NAS 32	Grandfield Avenue	1	1	Low	Low	Low
NAS 33	Bellamy Close	1	1	Low	Low	Low
NAS 35	Willow Grange	1	1	Low	Low	Low
NAS 41	Langley Road	1	1	Low	Low	Low
NAS 42	Wood Gardens	1	1	Low	Low	Low
NAS 50	Elton Place	1	1	Low	Low	Low
NAS 52	Stratford Court	1	1	Low	Low	Low
NAS 57	Watford School of Music	1	1	Low	Low	Low
PAR 03	Roughwood Drive	1	1	Low	Low	Medium
PAR 05	Devereux Drive	1	1	Low	Low	Low
PAR 06	Bellmount Wood Drive	1	1	Low	Low	Low
PAR 07	Trefusis Walk	1	1	Low	Low	Low
PAR 08	Trefusis Walk	1	1	Low	Low	Low
PAR 10	Harford Drive	1	1	Low	Low	Low
PAR 12	Orchard Drive	1	1	Low	Low	Low
PAR 13	Woodland Drive	1	1	Low	Low	Low
PAR 14	Cottage Close	1	1	Low	Low	Low
PAR 15	Cottage Close	1	1	Low	Low	Low
PAR 16	Cottage Close	1	1	Low	Low	Low
PAR 18	The Gardens	1	1	Low	Low	Low
PAR 24	Rickmansworth Road	1	1	Low	Low	Low
PAR 29	Rickmansworth Road	1	1	Low	Low	High
PAR 32	Rickmansworth Road	1	1	Low	Low	High
PAR 34	Cassiobury Park Avenue	1	1	Low	Low	High
PAR 35	Adjacent to Watford Tube Station	1	1	Low	Low	High
PAR 37a	Metropolitan St. Approach	1	1	Low	Low	High
PAR 41/2/3	Rickmansworth Road	3a	3a	Low	Low	High
PAR 46	Knutsford House	1	1	Low	Low	Low
PAR 47	Gade Avenue	1	1	Low	Low	High
PAR 48	Rickmansworth Road	1	1	Low	Low	High
PAR 49	Rickmansworth Road	1	1	Low	Low	High
PAR 50	Land to rear of Shepherds Road	1	1	Low	Low	High
WOD 42	Adjacent to Woodside Playing Fields	1	1	Low	Low	Low
VIC 32	Chester Road	1	1	Low	Low	High
TUD 16b	Land adjacent to Watford Junction Station	1	1	Low	Low	Low
STA 44	St Albans Road	1	1	Low	Low	Low
STA 45	Lowrth Western Avenue	1	1	Low	Low	Low
PAR 51	Rickmansworth Road	1	1	Low	Low	High
PAR 52	Watford Grammar School for boys	1	1	Low	Low	Low
PAR 37b	Metropolitan St. Approach	1	1	Low	Low	High
PAR 37c	Metropolitan St. Approach	1	1	Low	Low	High
OXH 46	Pinner Road	1	1	Low	Low	Low
MER 29a	Lowrth Western Avenue	1	1	Low	Low	Low
MER 47	St Albans Road	1	1	Low	Low	Low
MER 46	St Albans Road	1	1	Low	Low	Low
LEG 32a	Leaford Crescent	1	1	Low	Low	Low
HOL 3b	Polstar off Ascot Road	3a	3a	Low	Low	High
HOL 3a	Whippendell Road	3a	3a	Low	Low	High
<b>St Albans District Council</b>						
Site 2	East of Redbourne	3b	3b	Low	Low	High
Site 1	Wheathampstead	3a	3a	Low	Low	High

Reference	Location	Flood Zone (2007)	Flood Zone (2115)	Groundwater	Surface water	Sewer
Site 3	Harpden Allied Business Centre	3b	3b	Low	Low	Medium
<b>Three Rivers District Council</b>						
KL 06	Primrose Hill	3a	3a	Low	Low	Low
KL 09	Water Lane	3a	3a	Low	Low	Low
KL 17	Astra Zeneca Site	3b	3b	Low	Low	Low
LB 05	Gallows Hill	1	1	Low	Low	Low
CG 20	Parrots Close	1	1	Low	Low	Medium
CG 30	Back of 7 - 17 New Road	1	1	Low	Low	Medium
CG 39	50 - 52 New Road	1	1	Low	Low	Medium
CGS 06	Behind 263 - 270 Watford Road	1	1	Low	Low	Medium
CG 08	Back land to New Parade	1	1	Low	Low	Medium
CG 10	16 Cophorne Road	1	1	Low	Low	Medium
CG 14	22 Cophorne Road	1	1	Low	Low	Medium
R 55	High Street	3b	3b	Low	High	Medium
R 09	Langwood House	3b	3b	Low	High	Medium
R 52	Senior House	3b	3b	Low	High	Medium
R 01	Bury Lane	3b	3b	Low	High	Medium
R 51	Ebury Road, Royal Legion	1	1	Low	High	Medium
R 17a	Marks and Spencer	1	1	Low	High	Medium
R 18	Western Road car park	1	1	Low	High	Medium
R 20b	Rectory Lane	1	1	Low	Low	Medium
R 33	Nightingale Road	1	1	Low	Low	Medium
R 05	RO 36 Church Street	3b	3b	Low	Low	Medium
R 13b	Church Street	3b	3b	Low	Low	Medium
R 39	Next to 5 The Byeway	1	1	Low	Low	Medium
P 13	Rear of 231 Uxbridge Road	3b	3b	Low	High	Medium
P 23	Church Lane	1	1	Low	Low	Medium
P 22	The Happy Man, Berry Lane	1	1	Low	Low	Medium
RW 1	Arnett Close	1	1	Low	Low	Medium
CW 15	Heronsgate Road	1	1	Low	Low	Medium
CW 06	Ferry Lane	1	1	Low	Low	Medium
CW 08	Shire Lane	1	1	Low	Low	Medium
MC 20a/b	Oakhill Close	1	1	Low	Low	Medium
MC 25	81a & b Hornhill Road	1	1	Low	Low	Medium
MC 01	Buttlehide	1	1	Low	Low	Medium
E 15	Main Avenue	1	1	Low	Low	Low
NW 09	Oxhey Drive	1	1	Low	Low	Low
NW 19	Gosforth Lane	1	1	Low	Low	Low
NW 02	Prestwick Road	1	1	Low	Low	Low
AS 34	Caldwell Road	1	1	Low	Low	Low
AS 10	Prestwick Road	1	1	Low	Low	Low
CP 04	By the Wood	1	1	Low	Low	Low
CG 31	Back of New Road	1	1	Low	Low	Medium
KL 05	Primrose Hill	3b	3b	Low	Low	Low
P 35	The Queens Drive	1	1	Low	Low	Medium
LB08	Hunton Bridge Hill	1	1	Low	Low	Low
Rural Exception	Royal British Legion	1	1	Low	Low	Medium
	NE Maple Cross	3b	3b	Low	Low	Medium
	N Croxley Cross	1	1	Low	Low	Medium
	SE Abbots Langley	1	1	Low	Low	Low
	E Abbots Langley	1	1	Low	Low	Low
	E Kings Langley	3b	3b	Low	High	Low
	E Carpenders Park	3a	3a	Low	Low	Low
	W South Oxhey	1	1	Low	Low	Low
	SE Croxley Green	3b	3b	Low	Low	High

**KEY:**

Source	Probability	Definition
Groundwater:	Low	No historical evidence of groundwater flooding within or proximal to the site
	High	Observed or historical evidence of groundwater flooding within or proximal to the site
Surface Water:	Low	No historical evidence of surface water flooding within or proximal to the site
	High	Observed or historical evidence of surface water flooding within or proximal to the site
Sewer (total no. of properties flooded from sewers over the last 10 years -at	Low	0 to 5
	Med	6 to 15
	High	16 +