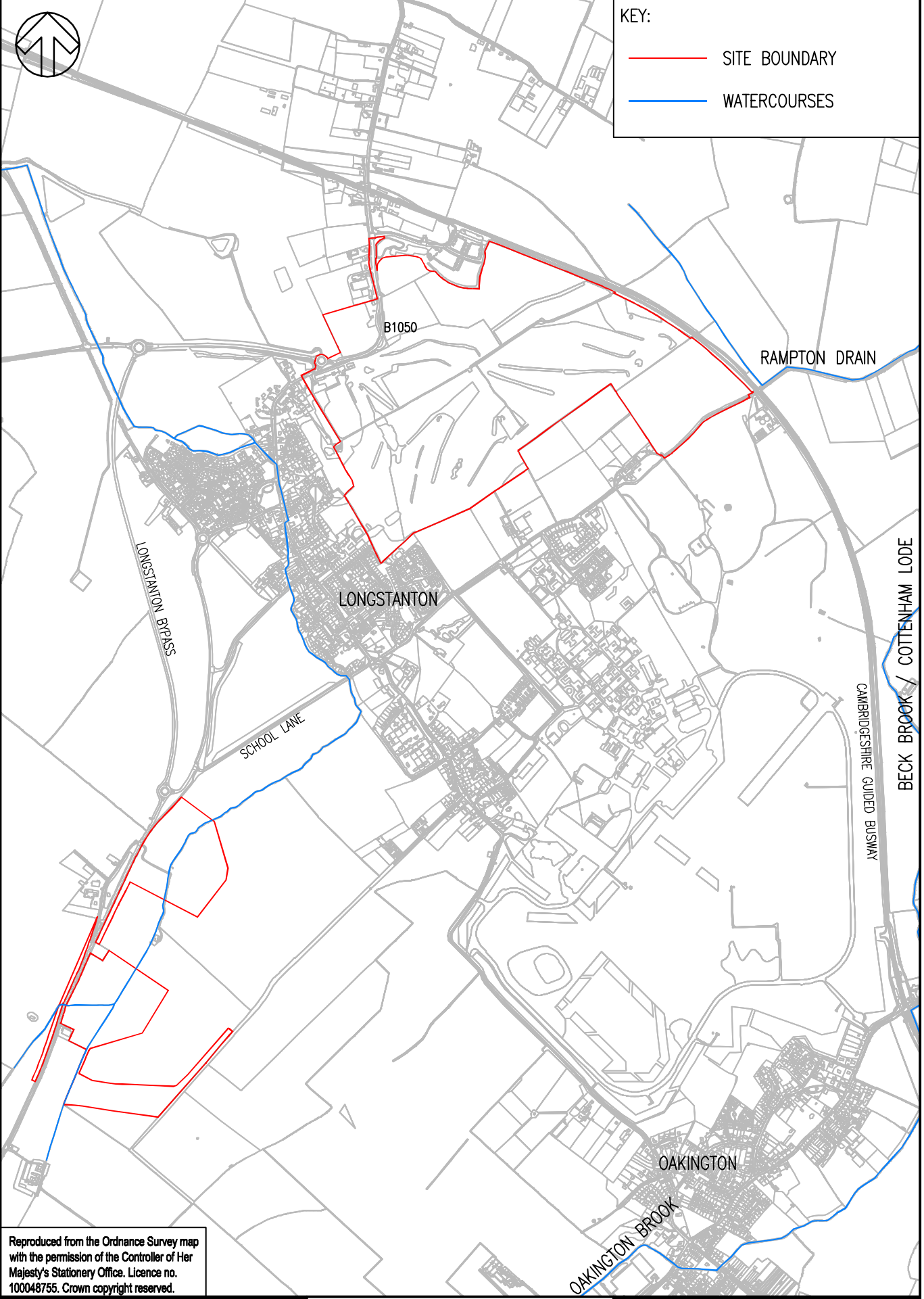

Appendix A Site Location Plan

N:\NORTHSTOWE, PHASE 1, PLANNING APPLICATION\DRAWINGS\AUTOCAD\FIGURES\SITE LOCATION PLAN (FRA).DWG 20/02/2012 11:55:52 Ward, John



KEY:

- SITE BOUNDARY
- WATERCOURSES



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TITLE:
**NORTHSTOWE PHASE 1
SITE LOCATION PLAN**

FIGURE No:
PHASE 1, FIGURE 1

Appendix B EA Guidance Note 3 & PPS25
Annex E

Flood Risk Assessment (FRA) Guidance Note 3

All development in Flood Zones 2 and 3 where standing advice does not apply

Environment Agency guidance on requirements for undertaking a Flood Risk Assessment (FRA) for planning applications.

Flood risk assessments at all levels should be undertaken under the supervision of an experienced flood risk management specialist (who would normally be expected to have achieved chartered status with a relevant professional body such as the Institution of Civil Engineers (ICE) or the Chartered Institution of Water and Environmental Management (CIWEM)).

This guidance note relates specifically to the undertaking of flood risk assessments for development in Flood Zones 2 and 3 (see footnote 1).

Exceptions to this guidance note

Minor extensions - Householder extensions, and non-domestic extensions with a footprint of less than 250 square meters are covered separately as part of Flood Risk Standing Advice. Flood Risk Standing Advice is available to view on the Environment Agency's web site on the Flood Risk Standing Advice pages - www.environment-agency.gov.uk

Before you start work

Prior to investing resources in completing a FRA, applicants are advised to contact the Local Planning Authority (LPA) and discuss how the flood risk Sequential Test² as set out in Planning Policy Statement 25 (PPS25) will affect the proposed development. It is possible that the development will be inappropriate and be refused planning permission irrespective of any FRA.

Advice on the evidence required to show that the Sequential Test and Exception Test³ have been properly applied is set out in the Sequential Test

¹ Flood Zone 2 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. Flood Zone 3 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 sea flooding (>0.5%) in any year.

² PPS25 requires the Local Planning Authority (LPA) to demonstrate that they have applied a Sequential Test and ruled out alternative sites, that have less flood risk, on which the development could take place instead. The LPA must provide evidence for public record that they have considered alternative sites prior to allowing development on a site at risk of flooding.

³ LPAs must apply the Exception Test in addition to and once it has applied the Sequential Test, and in the circumstances set out in table D3 of PPS25. Where applicable, the Exception Test ensures that development is

process within the Environment Agency's standing advice on development and flood risk (details above) and in the Practice Guide⁴ to PPS25. The Environment Agency will require evidence that the Sequential Test has been demonstrated before commenting in detail on FRAs for development in this category.

Why is a FRA required?

In Flood Zone 3, the flood risk from rivers and the sea is classified as 'high', while in Flood Zone 2 it is said to be 'medium'. This classification is simply based on the probability of flood events occurring from rivers or the sea. It does not address the possible consequences of flooding, including those resulting from the effects of flood defences, or from non-river or sea sources.

A FRA is required to ensure flood risk to the proposed development is considered, as well as the impact the development will have elsewhere on people and property. The scale, nature and location of the proposed development will inform the scope of the FRA required.

What should be in the FRA?

The detail and technical complexity of a FRA will reflect the scale and potential significance of the development. FRAs can be quite simple where a development is relatively minor in nature, for example where they are evaluating a small development on a site at the margins of the flood plain. Conversely they can comprise major basin-wide studies for significant infrastructure developments. On occasions, preliminary or scoping studies may be undertaken prior to a fuller assessment.

The following list sets out the information that should be submitted as a FRA for developments in Flood Zones 2 and 3 where standing advice has not been provided. Where available, reference should first be made to the Strategic Flood Risk Assessment (SFRA) for locally specific guidance and information.

Plans

- A location plan that includes geographical features, street names and identifies the catchment, watercourses or other bodies of water in the vicinity.
- A plan of the site showing:
 - i. existing site;

permitted in flood risk areas only in exceptional circumstances and when strict qualifying conditions have been met. Details of how to apply the Exception test are available in section D of [PPS25](#) and the [PPS25 practice guide](#).
⁴PPS25 Practice guide: <http://www.communities.gov.uk/publications/planningandbuilding/developmentflood>

- ii. development proposals;
- iii. identification of any structures, which may influence local hydraulics.
This will include bridges, pipes/ducts crossing the watercourse, culverts, screens, embankments, walls, outfalls and condition of channel.

Surveys

- Site levels related to Ordnance Datum⁵, both existing and proposed.
- Appropriate cross-section(s) of the site showing finished floor levels or road levels, or other relevant levels relative to the source of flooding, and anticipated water levels and associated probabilities of flooding.

Assessments

- Consideration of whether the site falls within the functional flood plain⁶ and if so, demonstration that development meets the vulnerability criteria set out in table D1 PPS25.
- Flood alleviation measures already in place, their state of maintenance, and their performance - the primary source for this information is the Environment Agency.
- Information about all potential sources of flooding that may affect the site – from rivers and the sea, streams, surface water run-off, sewers, groundwater, reservoirs, canals and other artificial sources or any combination of these⁷.
- The impact of flooding on a site including:
 - i. the likely rate or speed of surface water run-off with which flooding might occur;
 - ii. the order in which various parts of the location or site might flood;
 - iii. the likely duration of flood events;
 - iv. the economic, social and environmental consequences of flooding on occupancy of the site;
 - v. information on extent and depth of previous flood events or on flood predictions.

⁵ Ordnance Datum or the abbreviation 'OD' is the mean level of the sea at Newlyn in Cornwall from which heights above sea level are taken. The contour lines on Ordnance Survey maps measure heights above OD for example, though these are not accurate enough for a flood risk assessment.

⁶ Functional flood plain is defined as 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). Site specific modelling within a FRA is required where a SFRA is not yet available.

⁷ Primary information sources: Flooding from Land – Local authority drainage department or as part of the SFRA; Flooding from groundwater – Local authority drainage department or as part of the SFRA; Flooding from sewers – water (sewerage) company; Flooding from reservoirs, canals and other artificial sources - Owner of the structure e.g. Water Company or British Waterways.

- An assessment of how safe access and exit can be provided for routine and emergency access under both frequent and extreme flood conditions.
- An assessment of how the layout and form of development can be used to reduce or minimise flood risk.
- An assessment of the capacity of any drains or sewers, existing or proposed, on the site during various flood events.
- An assessment of the volume of surface water run-off likely to be generated from the proposed development.
- Proposals for surface water management according to sustainable drainage⁸ principles, with the aim of not increasing, and where practicable, reducing the rate of runoff from the site as a result of the development.
- The likely impact of any displaced water on third parties caused by alterations to ground levels or raising flood embankments.
- The potential impact on form and structure of rivers or coastal areas, and the likely longer-term stability and sustainability of existing defences.
- Estimates should be made of how climate change could affect the probability and intensity of flood events. The assessment should include details of how the development remains safe without increasing flood risk elsewhere for its design life. The hydrological analysis of flood flows and definition of defence standards needs to include the allowances for increased rainfall, flows and sea level rise contained Appendix B of PPS 25 or the latest information from UK Climate Impacts Programme (UKCIP)⁹.
- The remaining (known as residual) risks to the site after the construction of any necessary defences and the means of managing those.
- Consideration of the proposal relative to any existing Strategic Flood Risk Assessment carried out by the local authority.

Exception Test requirements

In addition to the requirements listed above, when completing a FRA as part of meeting the requirements of the Exception Test (see footnote 3), an assessment will be required of on and off site opportunities for reducing flood risk overall. This will include an appraisal of the strategic flood risk management measures to which the development can contribute.

For further information on the Exception Test contact the Local Planning Authority.

⁸ Sustainable Drainage Systems (SUDS) seek to mimic natural drainage systems and retain water on, or near to the site in contrast to traditional drainage approaches which tend to pipe water off site as quickly as possible.

⁹ <http://www.ukcip.org.uk/>

What is the Environment Agency's Role?

We recommend that pre-application discussions take place for developments covered by this guidance note. We will usually provide comments at the planning application stage on Flood Risk Assessments covered by this guidance note (unless indicated otherwise by Environment Agency Planning Liaison team in the area where the development is proposed). We have three main interests:

- Promoting flood risk reduction by ensuring that the location of development, and the design of site drainage and flood risk management measures, meets Environment Agency policies and the policies contained in PPS25.
- If the proposal is within the Byelaw Distance¹⁰ of a Main River¹¹, sea defence or flood defence structure; or includes the diversion, culverting or erection of a control structure in an Ordinary Watercourse¹² then formal consent for the proposal may also be required from us.
- Prior to carrying out a FRA, developers should contact the Environment Agency and other operating authorities (such as the engineering department of the local authority or Internal Drainage Board as appropriate) to establish whether any information is available relating to flood risk at the site they propose to develop. Account should also be taken of local knowledge of flooding held in the community. Our records of flooding are not exhaustive and the absence of information does not mean that a site will not flood. Whilst we can provide information on flooding from rivers and the sea, we only record **known** (historic) problems relating to other sources.

Production of a flood risk assessment will not necessarily make the proposals acceptable to the Environment Agency.

¹⁰ Byelaw distance varies across the country. To find out what distance applies in your area call 08708 506 506 and ask to speak to a member of the Development Control team in the area where the development is proposed.

¹¹ Main Rivers are watercourses designated as such on Main River maps and are generally the larger arterial watercourses. Main Rivers are indicated with a red line as part of the Flood Zones held by the Local Planning Authority and on maps held by the Environment Agency.

¹² An Ordinary Watercourse is any watercourse that doesn't form part of a Main River

Sources of information:

1. www.environment-agency.gov.uk - For information on SUDS best practice, flood proofing and flood resilient construction methods, flood warning, Flood Map and contact details for local Environment Agency offices.
2. www.ciria.org.uk - Check 'publications' for details of relevant information
3. www.ciwem.org/directory - For information on consulting engineers who may be able to carry out FRAs. This is by no means a definitive list.
4. www.hrwallingford.co.uk - For information on an R&D project on flood risk assessment guidance for new development.
5. The Local Planning Authority's Development Plan and Strategic Flood Risk Assessment.



Planning shapes the places where people live and work and the country we live in. It plays a key role in supporting the Government's wider economic, social and environmental objectives and for sustainable communities.



PLANNING

Planning Policy Statement 25:
Development and Flood Risk

Revised March 2010

Planning Policy Statement 25: Development and Flood Risk

Planning Policy Statements (PPS) set out the Government's national policies on different aspects of land use planning in England. This PPS replaces Planning Policy Guidance Note 25: *Development and Flood Risk*, published in 2001, which is hereby cancelled.

The policies in this PPS should be taken into account by regional planning bodies in the preparation of Regional Spatial Strategies; by the Mayor of Greater London in relation to the Spatial Development Strategy in London; and, in general, by local planning authorities in the preparation of local development documents. They may also be material to decisions on individual planning applications. These policies complement other national planning policies and should be read in conjunction with Government policies for flood risk and water management, including those set out in *Making Space for Water* and forthcoming Water Framework Directive guidance.

A supporting Practice Guide provides guidance on the implementation of the policies set out in this PPS.

A revised edition of this PPS was published in March 2010. It includes amendments to the 'definition' of Flood Zone 3b, The Functional Floodplain, in Table D.1 in Annex D, and to some of the Flood Risk Vulnerability Classifications in Table D.2, Annex D.

In addition, on 9 March 2010 a Supplement on Development and Coastal Change was added to this PPS. This supplement sets out planning policies for managing development in coastal areas affected by coastal change. It is available on the Communities and Local Government website at:

www.communities.gov.uk/publications/planningandbuilding/coastalchange

Annex E: The Assessment of Flood Risk

General Principles

- E1. Properly prepared assessments of flood risk will inform the decision-making process at all stages of development planning. There should be iteration between the different levels of flood risk assessment.
- E2. Any organisation or person proposing a development must consider whether that development will not add to and should where practicable reduce flood risk. The future users of the development must not be placed in danger from flood hazards and should remain safe throughout the lifetime of the plan or proposed development and land use.
- E3. At all stages of the planning process, the minimum requirements for flood risk assessments are that they should:
 - be proportionate to the risk and appropriate to the scale, nature and location of the development;
 - consider the risk of flooding arising from the development in addition to the risk of flooding to the development;
 - take the impacts of climate change into account (see Annex B);
 - be undertaken by competent people, as early as possible in the particular planning process, to avoid misplaced effort and raising landowner expectations where land is unsuitable for development;
 - consider both the potential adverse and beneficial effects of flood risk management infrastructure including raised defences, flow channels, flood storage areas and other artificial features together with the consequences of their failure;
 - consider the vulnerability of those that could occupy and use the development, taking account of the Sequential and Exception Tests and the vulnerability classification (see Annex D), including arrangements for safe access;
 - consider and quantify the different types of flooding (whether from natural and human sources and including joint and cumulative effects) and identify flood risk reduction measures, so that assessments are fit for the purpose of the decisions being made;
 - consider the effects of a range of flooding events including extreme events on people, property, the natural and historic environment and river and coastal processes;
 - include the assessment of the remaining (known as ‘residual’) risk (see Annex G) after risk reduction measures have been taken into account and demonstrate that this is acceptable for the particular development or land use;
 - consider how the ability of water to soak into the ground may change with development, along with how the proposed layout of development may affect drainage systems; and
 - be supported by appropriate data and information, including historical information on previous events.

Regional Flood Risk Appraisals (RFRAs)

- E4. Regional Planning Bodies should prepare RFRAs in consultation with the Environment Agency to inform their Regional Spatial Strategies (RSSs) on flood risk issues. By undertaking a strategic analysis of flood risk, RFRAs should inform RSS consideration of regionally significant uses, including the identification of broad locations and establishing locational criteria to highlight flooding issues that local planning authorities should address through their SFRAs. RFRAs should be informed by the Flood Map and appropriate plans prepared by the Environment Agency and other operating authorities (such as River Basin Management Plans, Catchment Flood Management Plans and Shoreline Management Plans). A RFRA should be used to inform the Sustainability Appraisal (incorporating the SEA Directive) of the RSS.

Strategic Flood Risk Assessments (SFRAs)

- E5. Local planning authorities (LPAs) and other decision-makers should prepare SFRAs in consultation with the Environment Agency, LPAs own functions of emergency response and drainage authority under the Land Drainage Act 1991, and where appropriate Internal Drainage Boards. Initially the SFRA will be used to refine information on the areas that may flood, taking into account other sources of flooding (see Annex C) and the impacts of climate change, in addition to the information on the Flood Map. Decision-makers should use the SFRA to inform their knowledge of flooding, refine the information on the Flood Map and determine the variations in flood risk from all sources of flooding across and from their area. These should form the basis for preparing appropriate policies for flood risk management for these areas. The SFRA should be used to inform the Sustainability Appraisal (incorporating the SEA Directive) of the Local Development Documents (LDDs), and will provide the basis from which to apply the Sequential Test and Exception Test in the development allocation and development control process (see Annex D).
- E6. Where decision-makers have been unable to allocate all proposed development and infrastructure in accordance with the Sequential Test, taking account of the flood vulnerability category of the intended use, it will be necessary to increase the scope of the SFRA to provide the information necessary for application of the Exception Test. This should additionally, consider the beneficial effects of flood risk management infrastructure in generally reducing the extent and severity of flooding when compared to the Flood Zones on the Flood Map. The increased scope of the SFRA will enable the production of mapping showing flood outlines for different probabilities, impact, speed of onset, depth and velocity variance of flooding taking account of the presence and likely performance of flood risk management infrastructure.

- E7. There may be considerable benefits in several LPAs, within a catchment area of high development pressure or a designated development area, joining together to undertake a sub-regional Strategic Flood Risk Assessment. This will help LPAs to consider the issues raised by flooding on the wider scale (of the river catchment and/or coastal cell). This will enable them to contribute to, and take account of, the River Basin Management Plans required to be published by 2009 by the Environment Agency as part of the implementation of the EC Water Framework Directive.

Site-specific Flood Risk Assessments (FRAs)

- E8. At the planning application stage, an appropriate FRA will be required to demonstrate how flood risk from all sources of flooding to the development itself and flood risk to others will be managed now and taking climate change into account. Policies in LDDs should require FRAs to be submitted with planning applications in areas of flood risk identified in the plan.
- E9. Planning applications for development proposals of 1 hectare or greater in Flood Zone 1 and all proposals for new development located in Flood Zones 2 and 3 (see Table D.1, Annex D) should be accompanied by a FRA. This should identify and assess the risks of all forms of flooding to and from the development and demonstrate how these flood risks will be managed, taking climate change into account. For major developments in Flood Zone 1, the FRA should identify opportunities to reduce the probability and consequences of flooding. A FRA will also be required where the proposed development or change of use to a more vulnerable class may be subject to other sources of flooding (see Annex C) or where the Environment Agency, Internal Drainage Board and/or other bodies have indicated that there may be drainage problems.
- E10. The FRA should be prepared by the developer in consultation with the LPA. The FRA should form part of an Environmental Statement when one is required by the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 as amended.

Appendix C Environment Agency Flood Map

