

Maidenstone Heath Blundell Lane, Bursledon

Flood Risk Assessment

May 2015

Mead Mill

paulbasham ASSOCIATES

www.paulbashamassociates.com

DELIVERING SUSTAINABLE, TRANSPORT PLANNING AND ENGINEERING SOLUTIONS

Maidenstone Heath Blundell Lane, Bursledon

FLOOD RISK ASSESSMENT

CONTROLLED DOCUMENT

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FLOOD RISK ASSESSMENT

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Figure 7 – Environment Agency Surface Water Flood Map

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Appendix A – Greenfield Runoff Calculation

Appendix B – Landmark Site Flood Check

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1. INTRODUCTION

1.1 This Flood Risk Assessment has been prepared by Paul Basham Associates (PBA) on behalf of Mead Mill to support a planning application for the residential redevelopment on land at Maidenstone Heath Blundell Lane in Bursledon. The proposed development would comprise of 8 dwellings. The application site is demonstrated in **Figure 1**.

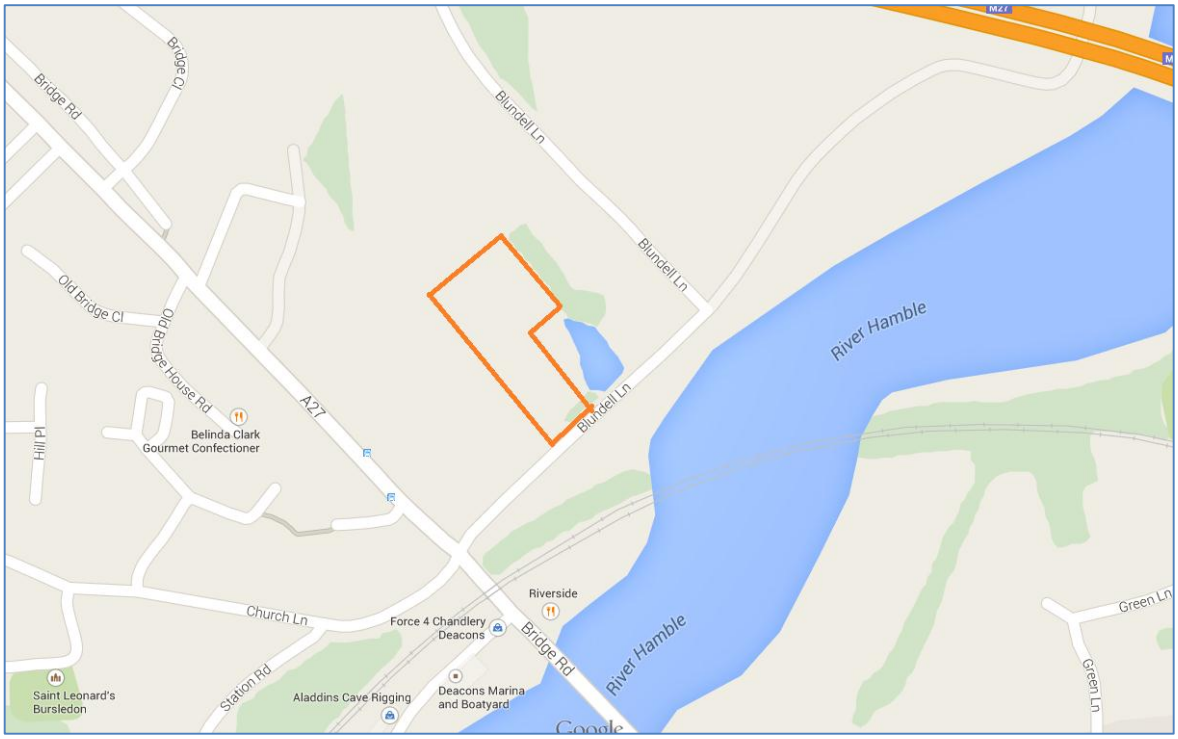

Figure 1 - Location Plan

1.2 The site is presently occupied by green field approximately 0.6Ha in area, and is bordered by Blundell Line to the east and south, and further green land to the north.

1.3 There are two small tributaries running through the site, but these are not designated as main rivers by the Environment Agency therefore, Flood Defence Consents will not be required however, permission to construct within 9m of the water courses may need to be sought from the Internal Drainage board.

1.4 The Environment Agency flood mapping shows that, although the site is adjacent to two small tributaries, the vast majority of the site is within Flood Zone 1, meaning the majority of the site has minimal chance of flooding due to seas and rivers. There is a small sliver of Flood Zone 2 (an

area with between a 1 in 100 and 1 in 1000 chance of flooding within an calendar year) adjacent to the stream. **Figure 2** below shows the EA's indicative Flood Map (IMF) for the site:-

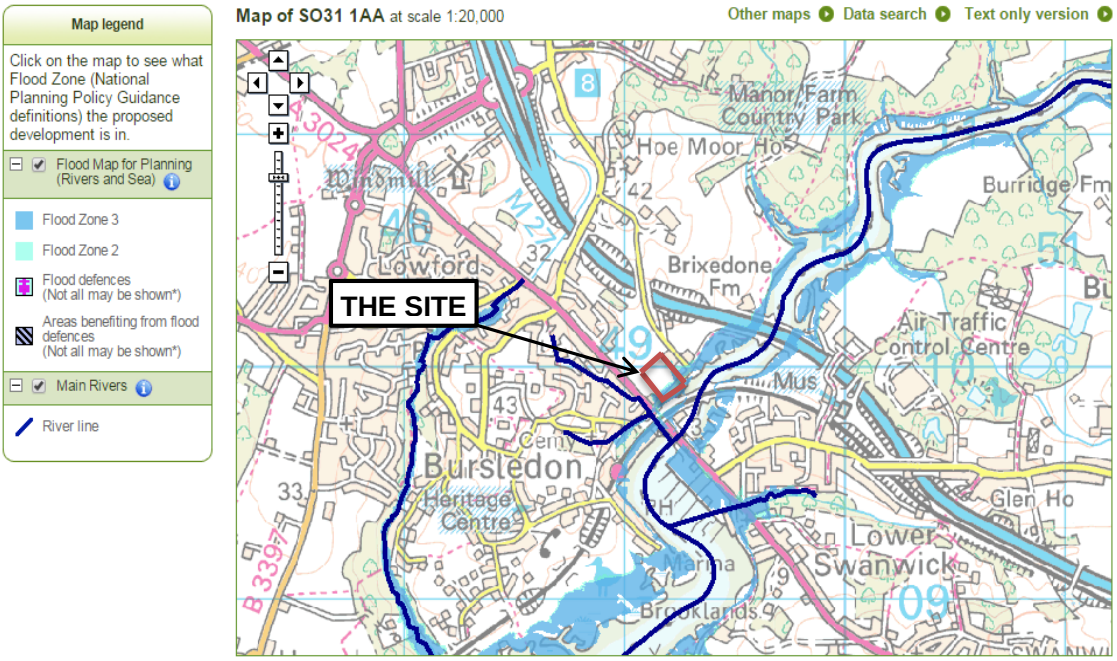

Figure 2 - Indicative Flood Map

1.5 Table 3 from the National Planning Policy Framework can be seen in **Figure 3** below, which demonstrates the types of development permitted within the various flood zones.

Table 3: Flood risk vulnerability and flood zone 'compatibility'

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	×	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	×	×	×

Key: ✓ Development is appropriate.
× Development should not be permitted.

Figure 3 - NPPF Technical Guidance Table 3

1.6 Residential developments such as that proposed are classed as "More Vulnerable", and are acceptable for the Flood Zone the site lies within (Flood Zone 1).

1.7 The site is less than one hectare, and harbours a very small portion of Flood Zone 2, a Flood Risk Assessment is required to accompany planning application.

1.8 Consequently, this report sets out the risks of flooding from all sources and possible mitigations, and also assesses the impacts of the development on surrounding areas, and makes recommendations to ensure the flood risk is not increased off site.

2. THE SITE

2.1 The site is presently occupied by a green field approximately 0.6 Ha in area, and is bordered by Blundell Line to the east and south, and further green land to the north. Two small tributaries run through the site. In the south - east of the site is an existing pond.

2.2 The site and surroundings are demonstrated in **Figure 4** below.



Figure 4 - Aerial View of Site

2.3 The existing field is served by one access via Blundell Line. Blundell Line is a rural road serving a small number of residential properties. The road is between 3.5m and 4.0m in width and connects onto the A27 to the south.

2.4 There are no parking restrictions present in the immediate vicinity of the site and this results in on street parking on the residential area of Blundell Line, where adjacent properties do not have the benefit of off-street parking

2.5 It is assumed that the existing site discharges into the existing pond in south-east of the site.

2.6 The existing run-off for the site has been calculated assuming 100% infiltration exists on site, and that the proposals comprise of 40% hardstanding areas and 60% soft landscaping. Therefore, using the HR Wallingford Method, and a proposed area of hardstanding of 0.23Ha, the existing greenfield run-off rates for the site have been calculated and can be seen in **Appendix A**. As can be seen, due to the small size of the site, the greenfield discharge rate has been calculated as being 5 l/s for all rainfall events. The actual greenfield run–off rate will be lower, but 5 l/s is accepted as the minimum allowable run-off from developments due to the risk of blockages within flow control devices.

2.7 Therefore, it is proposed that should a positive discharge be required for this site that it would be restricted to the rates set out above. A SuDS feature tank will be proposed on site to attenuate rainfall in excess of the greenfield run-off.

3. THE PROPOSALS

This planning application is for outline permission for up to 8 units. The site will be served by one point of access from the consented development on land that borders the site to the south and east. The indicative site layout is shown in **Figure 6** below. The proposed hardstanding area is approximately 40% of the existing 0.23Ha site.



Figure 6 - Indicative Site Layout

3.1 As can be seen from the above plan, the area of the site within Flood Zone 2 along the western edge of the site will be either designated as Public Open Space, or set aside for SUDS measures such as a balancing pond, detention basin or storage tank.

3.2 The drainage strategy for the site will be based on the worst case scenario that infiltration into the soil is not suitable and that all surface water drainage will be attenuated on the site and discharged into the pond at greenfield run-off rates.

4. SOURCES OF FLOODING

4.1 Fluvial/Tidal Flooding

The EA's Indicative Flood Map shows the vast majority of the site being within Flood Zone 1, meaning a minimal chance of flooding (less than 1 in 1000) due to rivers and seas in any given year. However, there is a small portion of the site adjacent to the brook that's designated as Flood Zone 2, which is an area with between 1 in 100 and 1 in 1000 chance of flooding in any given year. This area will be taken up by the public open space and an access road for the Development, with all residential units sited within Flood Zone 1.

4.2 River and Coastal Flooding

River flooding mainly happens when the river catchment (that is the area of land that feeds water into the river and the streams that flow into the main river) receives greater than usual amounts of water (for example through rainfall or melting of snow). The amount of run-off depends on the soil type, catchment steepness, drainage characteristics, agriculture and urbanisation as well as the saturation of the catchment. The extra water causes the level of the water in the river to rise above its banks or retaining structures.

Coastal flooding is the inundation of land areas along the coast caused by sea water rising above normal tidal conditions. Coastal flooding can arise from a combination of high tides, wind induced tidal surge, storm surge created by low pressure and wave action.

The data in the Risk of Flooding from Rivers and Sea Property Flood Likelihood Database is sourced from The Environment Agency's National Receptor Dataset. The information provided includes the flood likelihood category low, moderate, or significant according to the flood likelihood analysis. Some areas may be classified as having no result. This occurs where there is no output data from the analysis, but the area falls within the extreme flood outline (with a 0.1% or 1 in 1000 chance of flooding in any year).

The site (or part of it) has been defined as being at Significant Flood Risk within the regulatory body's risk assessment. This classification relates to the locality as a whole, rather than the individual site and relates only to the risk of coastal or river flooding. Consequently, all development will be in areas outside the part of the site with significant risk of flooding.

4.3 **Groundwater flooding**

Groundwater flooding occurs when groundwater levels increase sufficiently for the water table to intersect the ground surface. Groundwater flooding can occur in a variety of geological settings including valleys and in areas underlain by chalk, and in river valleys with thick deposits of alluvium and river gravels. Susceptibility merely has to be identified, whereas risk must be quantified. The resulting map is a 50x50m classification of groundwater flooding risk into four categories (Negligible, Low, Moderate and High). ESI's classifications are based on the level of risk, combining severity and uncertainty that a site will suffer groundwater flooding within a return period of about 200 years.

Information from ESI indicates that there is a negligible risk of groundwater flooding in this area and any groundwater flooding incidence will be less frequent than 1 in 200 years return period.

No further investigation of risk is deemed necessary unless the proposed site use is unusually sensitive. However, data may be lacking in some areas, so assessment as 'negligible risk' on the basis of the map does not rule out local flooding due to features not currently represented in the national datasets used to generate this version of the map.

The Landmark Site Flood Check in **Appendix B** shows that there is "limited" potential for groundwater flooding, and that there are no geological indicators of flooding.

4.4 **Artificial Sources of Flooding**

There are no artificial water sources (canals, reservoirs, etc) within vicinity of the site that may be the source of flooding to the site.

4.5 **Surface Water Flooding**

Surface water or 'pluvial' flooding results from rainfall running over ground before entering a watercourse or sewer. It is usually associated with high intensity rainfall events (typically greater than 3cm per hour) but can also occur with lower intensity rainfall or melting snow where the ground is already saturated, frozen, developed (for example in an urban setting) or otherwise has low permeability.

Return periods are a measure of how likely flooding is to occur. They are commonly expressed as a ratio (for example 1 in 75 or 1:75). This means that this level of flooding is expected once in every 75 years.

Information from JBA Risk Management indicates that there is not a significant risk of surface water (pluvial) flooding at the site. Any surface water flooding incidence is modelled as being less frequent than anticipated during a 1 in 200 year return period. No further investigation of risk is

deemed necessary unless the proposed site use is unusually sensitive, or where development is proposed that may increase the risk of flooding to neighbouring areas. In areas where there are smaller local water courses or drains a risk may still exist due to blockages or poor maintenance which could cause reduced flow.

An extract of the surface water flooding map can be seen in **Figure 7** below:-

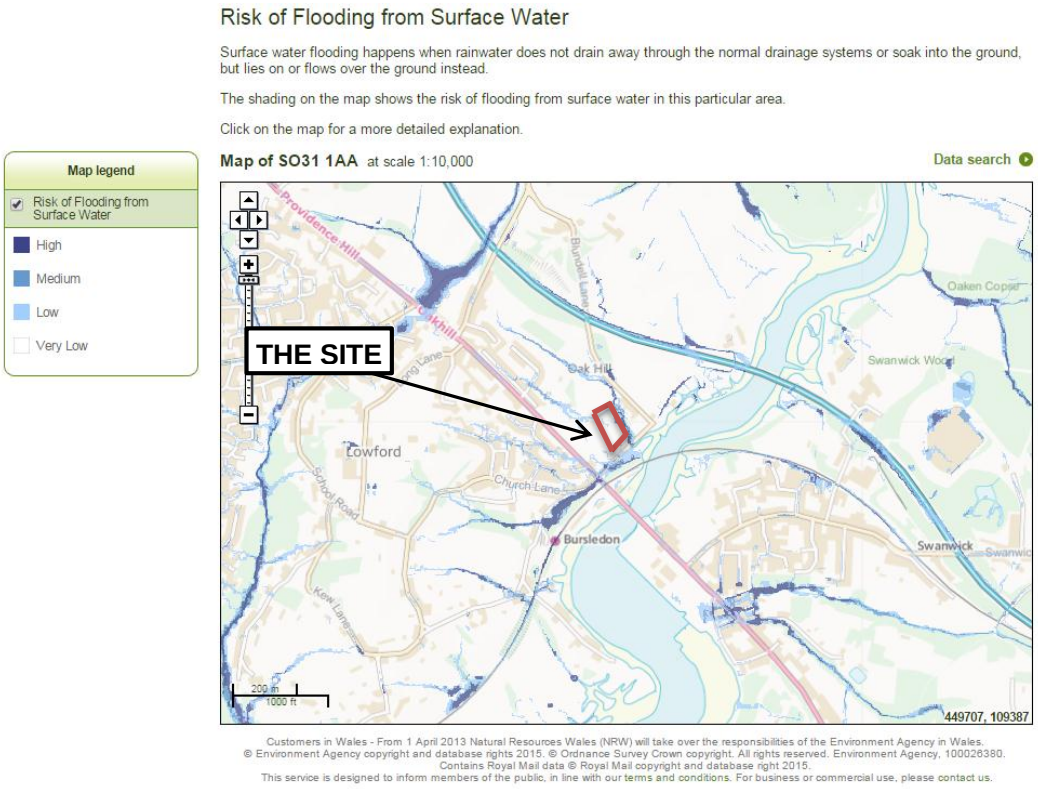

Figure 7 - Environment Agency Surface Water Flood Map

4.6 Historical Flooding

4.6.1 Historical Flood Events

The Environment Agency has collated extensive records (including outlines) of flooding from rivers, the sea or groundwater which have occurred in England and Wales since c.1950. This information comes from various sources including maps, aerial photographs and private records. It is not necessarily comprehensive. The regulatory body's records have no indication of past flooding within 500m of the site.

4.6.2 Geological Indicators of Flooding

The Geological Indicators of Flooding data set is based on the British Geological Survey's Digital Geological Map of Great Britain at the 1:50,000 scale (DiGMapGB-50). It was produced by characterising superficial 'drift' deposits on DiGMapGB-50 in terms of their likely vulnerability to flooding, either from coastal or inland water flow and reflects areas which may have flooded in the recent geological past.

Data from the British Geological Survey indicates that the types of deposits in the locality of the site are of the type normally associated with floodplains. However, this data should only be considered as complementary to the regulatory body's Flood Map. This BGS data does not indicate the likelihood of flooding. Refer to the other assessments in this report for an overall assessment of flood risk.

4.7 Sewer Flooding

There has been no history of any sewer flooding events within the surrounding area, therefore it can be assumed that the existing foul sewer system is running below capacity. However, a capacity check on the surrounding sewer systems will need to be undertaken at the detailed design stage.

5. DRAINAGE STRATEGY

5.1 As described above, a greenfield run-off calculation was undertaken for the site using the HR Wallingford tool, which ascertained that the greenfield run-off for a 1 in 1 year storm for the site is less than the minimum restricted discharge of 5l/s. Therefore, any outflow for storm of lesser intensity will be restricted to 5l/s maximum discharge. Attenuation tank will be proposed on the site to collect the water from the porous asphalt and it will connect with the existing pond in south-east of the site.

5.2 Based on the worst case scenario this infiltration is unfeasible, a quick calculation of the storage required has been undertaken based on 40 % of the site being hardstanding under the proposals.

5.3 Based on a maximum allowable discharge of 5l/s, an allowance for climate change of 30%, and a total area of roofs and hard paving of 0.23Ha, micro-drainage has calculated that the development would require between 87 and 130m³ of attenuation in order for there to be no flooding on-site during a 1 in 100 year storm. The micro-drainage output can be found in **Appendix C.**

5.4 Given that a proportion of the surface water drainage from the existing site discharges directly into the existing pond, then retaining all water for the future development on-site, and either draining through infiltration or attenuating and discharging at the existing pond will ensure that the flood risk off-site is reduced as a result of the proposals.

5.5 The chosen drainage strategy will depend on the site layout, the topography of the site and on the infiltration characteristics of the sub-grade.

5.6 In order to provide 130m^3 of attenuation, it has been decided to provide an Attenuation tank at the lowest part of the site to collect the water from the porous asphalt and it will connect with the existing pond in south-east of the site.

This strategy will ensure the flood risk both to the site and to adjacent areas is not increased as a result of development.

6. FLOOD PROTECTION, MANAGEMENT AND MEANS OF ESCAPE

6.1 Even though all residential properties are located within Flood Zone 1, the access road goes through a small area of Flood Zone 2 (an area with between 1 in 100, and 1 in 1000 chance of flooding in any given calendar year. Although the maximum flood level is unlikely to pose any threat to life, it would be prudent to sign up to EA weather warnings so residents are aware of any upcoming flooding events.

6.2 As development is more than 8m far from the river, it is not deemed necessary to provide further flood protection on site. Using the SUDS techniques described in the above chapters to manage surface water on site will reduce the risk of flooding both to the site and to adjacent areas.

7. OFFSITE IMPACTS AND SUDS

7.1 Given that the existing site discharges directly into the existing pond in the south of the site, then attenuating all water for the future development on-site and discharging at the existing pond will ensure that the flood risk off-site is reduced as a result of the proposals. This is in line with the NPPF Technical Guidance, and current sustainable drainage methodologies.

7.2 As can be seen from the Micro-drainage estimate shown in **Appendix C**, provision of between 87m³ and 130m³ required storage, and restricting the outfall to the existing pond will ensure both that the site is safe from flooding from storm events up to a 1 in 100 year storm, and that the risk of flooding to adjacent areas is on increased as a result of the development.

7.3 The attenuation storage will collect the water from the porous asphalt and will be situated at the low point of the site. This will flow into the existing pond, thus ensuring flood waters are routed away from the development, and adjacent residential properties.

8. SUMMARY AND RECOMMENDATIONS

8.1 The existing site is occupied by green field approximately 0.6 Ha.

8.2 There is an existing pond to the western boundary of the site. This pond has been modelled by the EA and included in their current Flood Mapping, with the model showing that the majority of the site lies within Flood Zone 1 (an area with less than 0.1 percent chance of flooding within any calendar year). However, a small portion of the site lies within Flood Zone 2 (an area of between 0.1% and .01% chance of flooding due to rivers and seas within any calendar year).

8.3 The planning application is for outline permission for up to 8 units. The site will be served by one point of access from the consented development on land to the east of the site. The proposed hardstanding area is approximately 40% of the existing 0.6Ha site, giving a total of 0.23 Ha.

8.4 The greenfield run-off rate has been calculated as being 5.0 l/s, for all storm events.

8.5 A drainage strategy has been devised that attenuates surface water drainage within a SUDS feature and discharges at the existing pond. A quick estimate of the storage required to attenuate a 1 in 100 year storm shows that between 87m³ and 130m³ of storage will be required.

8.6 At the detailed design stage, the drainage will be designed to cope with a 1 in 30 year storm (plus 30% allowance for climate change) with no flooding and a 1 in 100 year storm (plus 30% allowance for climate change) without any flood waters affecting buildings or leaving the site. During storms of greater intensity, the layout of the site will be such that floodwaters are routed away from residential properties.

8.7 Therefore, this report adequately demonstrates that through attenuation and discharge in to the existing pond, the site can be drained such as not to increase the flood risk downstream on Blundell Lane.

8.8 In addition, the report adequately demonstrated that the site is not at risk of flooding from other sources such as surface water flooding, artificial sources, sewer flooding or groundwater flooding apart from the access that is at low risk from fluvial flooding, however the houses are not affected and the flooding at the access is not deep.

8.9 It is therefore concluded that the site is suitable for the type of residential development proposed and that the above mentioned mitigations be agreed upon during the detailed design stage.

Appendix A

HR Wallingford
Working with water

Greenfield runoff estimation for sites

Site name:	Maidstone Heath
Site location:	Blundell Lane

This is an estimation of the greenfield runoff rate limits that are needed to meet normal best practice criteria in line with Environment Agency guidance "Preliminary rainfall runoff management for developments", W5-074/A/TR1/1 rev. E (2012) and the CIRIA SUDS Manual (2007). It is not to be used for detailed design of drainage systems. It is recommended that every drainage scheme uses hydraulic modelling software to finalise volume requirements and design details before drawings are produced.

Site coordinates

Latitude:	50.88733° N
Longitude:	1.30212° W
Reference:	gcp16rgb4mug / 0.56
Date:	8 Jul 2015

Site characteristics

Total site area	0.56	ha
Significant public open space	0.33	ha
Area positively drained	0.23	ha

Methodology

Greenfield runoff method	IH124

Qbar estimation method	Calculate from SPR and SAAR
SPR estimation method	Calculate from SOIL type
SOIL type	4
HOST class	N/A
SPR	0.47

Hydrological characteristics

	Default	Edited	
SAAR	784	784	mm
M5-60 Rainfall Depth	20	20	mm
'r' Ratio M5-60/M5-2 day	0.4	0.4	
FEH/FSR conversion factor	0.89	0.89	
Hydrological region	7	7	
Growth curve factor: 1 year	0.85	0.85	
Growth curve factor: 10 year	1.62	1.62	
Growth curve factor: 30 year	2.3	2.3	
Growth curve factor: 100 year	3.19	3.19	

Greenfield runoff rates

	Default	Edited	
Qbar	1.27	1.27	l/s
1 in 1 year	5.00	5.00	l/s
1 in 30 years	5.00	5.00	l/s
1 in 100 years	5.00	5.00	l/s

Please note that a minimum flow of 5 l/s applies to any site

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Site characteristics

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Significant public open space	0.33	ha
Area positively drained	0.23	ha

Methodology

Greenfield runoff method	FEH

Qmed estimation method	Calculate from BFI and SAAR	
BFI and SPR estimation method	Calculate from dominant HOST	
HOST class	N/A	
BFI / BFIHOST	0.00	
Qmed	N/A	l/s
Qbar / Qmed Conversion Factor	N/A	

Hydrological characteristics

	Default	Edited	
SAAR	784	784	mm
M5-60 Rainfall Depth	20	20	mm
'r' Ratio M5-60/M5-2 day	0.4	0.4	
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Growth curve factor: 10 year	1.62	1.62	
Growth curve factor: 30 year	2.3	2.3	
Growth curve factor: 100 year	3.19	3.19	

Greenfield runoff rates

	Default	Edited	
Qbar	---	---	l/s
1 in 1 year	---	---	l/s
1 in 30 years	---	---	l/s
1 in 100 years	---	---	l/s

Please note that a minimum flow of 5 l/s applies to any site

Appendix B

Landmark Information Group

Sitecheck Flood

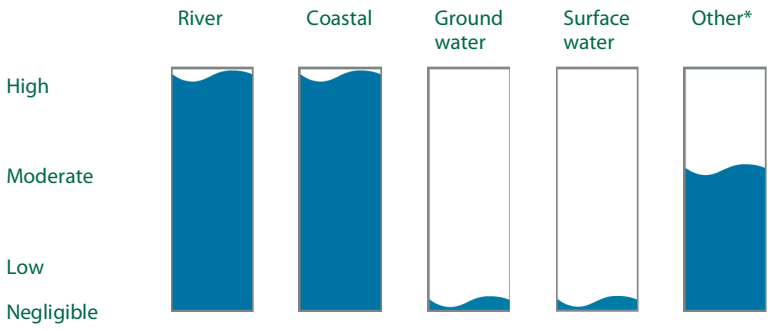
Overall Opinion — Further Action

This report reveals significant flood risk issues which should be addressed. Further assessment is recommended in order to clarify the risk of flooding at the site and to determine appropriate flood protection measures. Please see the Recommendations section.

Flood Risks

Undefended Flood Risk What is the overall risk of flooding, assuming defences fail or are absent or over-topped?	High
Flood Defences Are there existing flood defences that might benefit the site?	Yes
Effect What is the risk of flooding when these defences are operational?	High
Insurance Availability Is the site likely to be insurable at standard terms?	No
Development Risk If development is proposed would a detailed Flood Risk Assessment be required?	Yes (Full)

Flood Risk Gauges



*includes historic flood events, geological indicators of flooding, proximity to surface water features and elevation above sea level

The Responsible Authority for the site is:
Eastleigh Borough Council

This report is issued for the site described as:
Maidenstone Heath, Blundell Lane Bursledon, SOUTHAMPTON, SO31 1AA

Report Reference
66721964_1

Customer Reference
020.5177 Maidenstone Heath, Bursledon_SCF

Report produced on
23 April 2015

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argyll environmental

COPSO ASSOCIATE MEMBER searchcode

Sitecheck Flood Report

Understanding this report

This is a flood risk screening report. It is designed to help property professionals assess the risk of flooding at commercial sites. It examines three areas: How flood risk affects the availability of insurance for a site; how flood risk affects the potential to redevelop a site; and the overall risk of flooding at a site.

A summary of flood risks is provided on the front page. It is split into:

Overall Opinion

The overall flood risk rating is an assessment of all the data within this report. This opinion is followed by a number of flood risk considerations

Undefended Flood Risk and Flood Defences

The first answer is a worst case scenario and assumes that no defences are present or that they have failed or been over-topped.

The next question informs if there are any flood defences present that could protect the site (data provided by The Environment Agency to a distance of 500m). If defences are present a third question indicates what the flood risk is when they work.

A residual risk of flooding may be present if such defences failed. Flood defences do not generally protect the site against groundwater and surface water flooding.

Insurance Availability

The assessment is based on Risk of Flooding from Rivers and Sea data supplied by The Environment Agency and surface water flooding data from JBA Consulting. This data is used by a large proportion of the insurance industry to help determine the suitability of a site for insurance.

The assessment assumes the site is an existing domestic property or business. It makes no allowance for previous claims for any type of flooding nor for non-flood related risks such as subsidence. The question has two possible answers:

Yes - The site is likely to considered acceptable by insurance companies at standard terms and flood insurance should not be difficult to get. No further action required.

No - The site is not likely to be considered acceptable by insurance companies at standard terms, based on current information. Further work may be required to get acceptable insurance terms for the flood risk. This could include a more detailed risk assessment or the use of accredited products, flood resilient materials and temporary defences to defend the property.

Development Risk

The report comments on whether a detailed Flood Risk Assessment (FRA) would be required if redevelopment was proposed in accordance with National Planning Policy Framework (NPPF). The answer to this question is indicative only and is based on the size of the site and the flood data in this report.

A Drainage Impact Assessment may be required to demonstrate that development of the site will not adversely affect flood risk elsewhere.

Flood Risk Gauges

The flood risk gauges provide a more detailed analysis of the risk from each of the four main types of flooding – river, coastal, groundwater, and surface water. A fifth gauge provides an analysis of other factors (i.e. historical flood events, geological deposits, proximity to surface water features and elevation above sea level).

For surface water flooding, only the risk rating generated from the 1:200 year rainfall event data is included in the overall risk assessment. The data on 1:75 year and 1:1000 year rainfall events is provided for information only.

The gauges take into account any existing flood defences and assumes they work as designed. The analysis also takes into account the other information contained in those data sections of the report which are relevant to that particular type of flooding. The assessment of the risk as shown in the flood gauge should therefore take priority over the information in the individual data sections of the report.

Sitecheck Flood Report

Aerial Photograph

This photograph enables you to check the location used for this report



Overall Opinion

Recommendations

We recommend these next steps

1. Option 1: Flood protection measures should assist in reducing the effects of flooding on the site and could help to obtain property insurance if not already available. A flood survey should be completed for the property to provide a cost appraisal for installing flood protection measures. For commercial properties, these are priced upon application. Costs are determined on the complexity of the site, number of buildings and its location

Option 2: Should you wish to better understand the risk of flooding at your site, we recommend carrying out a more detailed assessment (a FLOODSOLUTIONS Consult Report). With additional topographical data, the report will specify the expected flood depths associated with the site. This will then provide more accurate flood risk data to better inform the above survey, as the flood depths and risk may vary across the site. Where possible, it may be able to reduce the original identified risks.

An upgrade to a FLOODSOLUTIONS Consult Report is available priced upon application, however costs start from £650.00 + VAT. This report can usually be prepared within 15-20 working days, although may take up to 25 depending upon regulatory response times.

2. The vendor should confirm details of any historical flooding that has affected the site, or immediate surrounding areas.

Overall Opinion

Additional Considerations

You may wish to consider the following potential liabilities that fall outside the scope of our flood risk screening methodology.

Riparian Ownership

Riparian ownership applies when someone owns a site with a watercourse inside or next to it.

A riparian owner has rights and responsibilities under common law relating to the stretch of watercourse. Their primary responsibility is to keep it free of obstructions that could hinder normal water flow. Failure to carry out these responsibilities could result in civil action.

A riparian owner should check before carrying out any works near to the edge of a river, as such works may be subject to byelaws. If infringed, this could lead to enforcement action by The Environment Agency.

There is a presumption that the boundary between properties abutting a watercourse is the centre line of that watercourse. A solicitor should check the deeds or the Index Map to confirm whether this is the case.

The Environment Agency published a useful guide called “Living on the Edge” for owners of land or property alongside a watercourse.

Sometimes, The Environment Agency or other organisations managing flood risk have statutory rights of access to properties. This is for maintaining, repairing, or rebuilding parts of a watercourse. Or for accessing, or repairing monitoring equipment.

Development Control

A redevelopment site which is close to, but not adjoining, a watercourse may be subject to planning controls. The Environment Agency are normally consulted regarding any development within 20m of a main river and internal drainage boards should be contacted about developments close to drainage channels. Navigation authorities are normally consulted regarding any development within 250m of a canal, although this varies on a site by site basis.

The Environment Agency should be contacted with regards to development (other than minor development) in Flood Zones 2 and 3.

Sewer Flooding

In times of extreme rainfall events sewers can overflow and cause local flooding. Ofwat’s ‘DG5 - At Risk Registers’ record properties that have flooded from sewers and are at risk of flooding again, with separate registers for internal and external flooding. The At Risk Registers are maintained by each of the ten water and sewerage companies in England and Wales and details of properties subject to sewer flooding are normally kept for between two and five years. These registers are not necessarily complete as not all episodes of past flooding may be recorded. The relevant water and sewerage provider can answer specific enquiries. The response provided is based on the information held. Sometimes, the water and sewerage provider is unable to confirm whether the site has flooded, but provides a response based on all properties connected to a local sewer network (normally up to ten houses). This is due to the way in which the data is collected.

Risk Management Options

Simple, practical steps to prepare for the event of flooding

Flooding can often be managed by the installation of flood protection measures either on/within the building(s) or across the site. Flood protection measures can be divided into two categories; flood resistance and flood resilience.

Both flood resistance and flood resilience solutions can be integrated with design proposals for new build properties or retro-fitted to existing properties. Specific flood protection packages can often include both resistance and resilience measures. What is suitable will depend on a number of factors including flood source, likely flood depths, property design and age.

Research conducted by CLG Sustainable Buildings Division and The Environment Agency revealed that installing flood resistance measures may be inappropriate where likely flooding will be deep. Certain types of building construction are unable to resist the pressure load placed on the exterior skin of the building by retained flood waters. Generally a flood depth between 0.6m and 1.0m above ground level is used as a benchmark to decide whether to consider flood resilience measures rather than rely on flood resistance measures. This is dependent on the age and construction of the property.

The costs below are for indicative budget purposes only. They are based on installing components of a standard design and colour. If the site requires bespoke products, these are likely to cost more (for example, if the site is in a conservation area, different colours may be required).

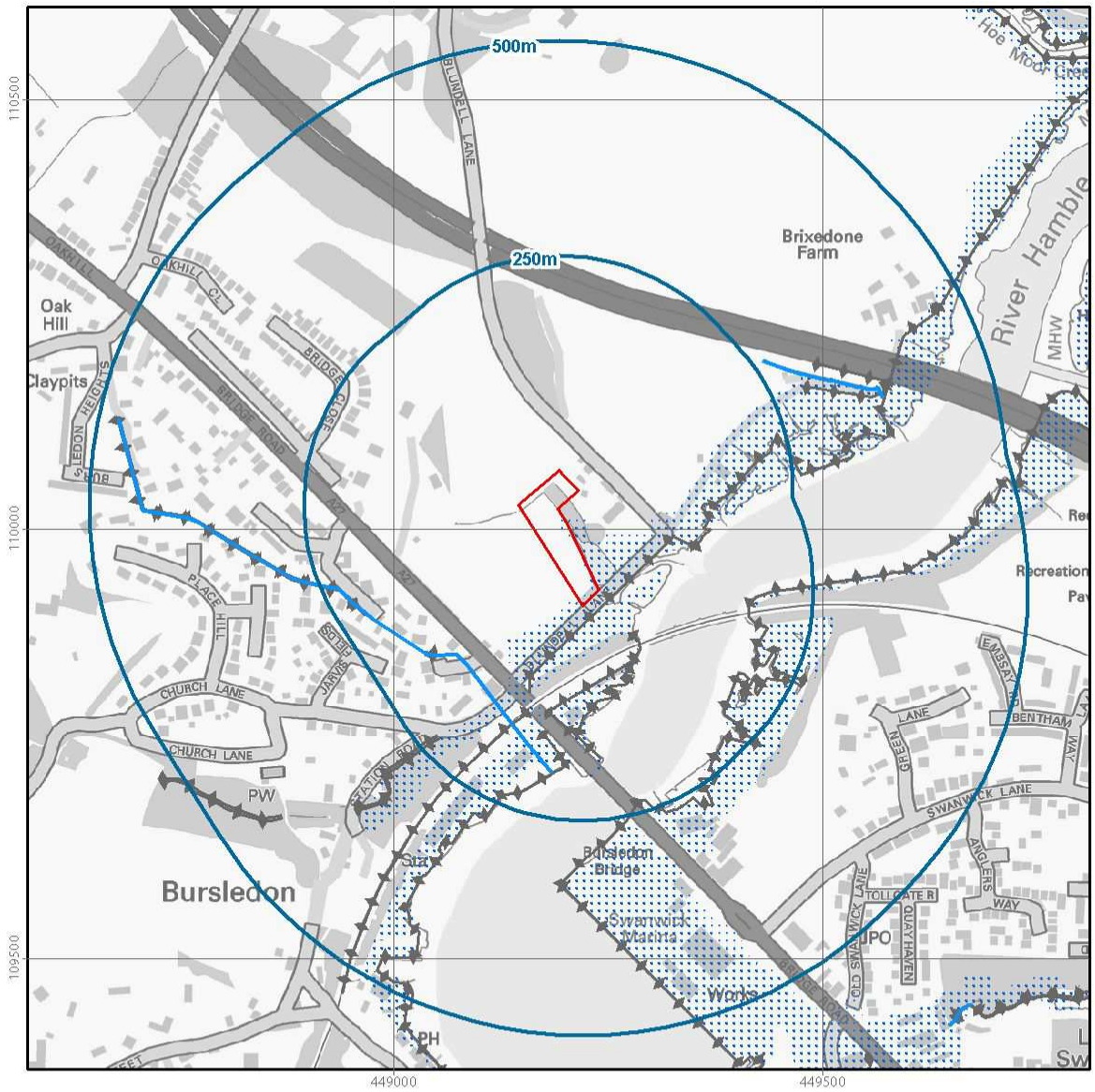
Guideline Costs for Resistance Measures

Building feature	Cost estimate
Standard 900mm single door	£750 + vat
Standard 1800mm double entrance door	£950 + vat
Large roller shutter door up to 2745mm span	£1420 + vat including channel
Standard garage door	£1400 - £1575
Standard window up to 1240mm span	£750
Large window 1240mm to 2150mm span	£550 - £700
Single air brick	£60 - £90
Double air brick	£80 - £230
Tanking of basement, walls, or floors	£25 - £50 per metre^2
Simple non-return valve	£35 - £170
Sophisticated non-return valve	£670 - £900

River and Coastal Flooding

Flood Zones and Defences

This map shows The Environment Agency's model of flood zones and physical defences



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Client Site
Main/Minor River
Flood Storage
Flood Defences
Flood Zone 3
Defended Areas
Flood Zone 2

metres
0 50 100 200

Not all features in legend may be present in above map

River and Coastal Flooding

Flood Zones

Question / Details	Response
Are there any flood plains (Flood Zone 2) within 500m?	Yes
Type: Tidal Models, Source: The Environment Agency, Boundary Accuracy: As Supplied.	On Site
Are there any flood plains in the event of an extreme flood (Flood Zone 3) within 500m?	Yes
Type: Tidal Models, Source: The Environment Agency, Boundary Accuracy: As Supplied.	On Site

What is it?

The Environment Agency model for river or sea flooding. This model does not take flood defences into account and is therefore an indicator of the worst case scenario where flood defences fail.

River flooding mainly happens when the river catchment (that is the area of land that feeds water into the river and the streams that flow into the main river) receives greater than usual amounts of water (for example through rainfall or melting of snow). The amount of run-off depends on the soil type, catchment steepness, drainage characteristics, agriculture and urbanisation as well as the saturation of the catchment. The extra water causes the level of the water in the river to rise above its banks or retaining structures.

Coastal flooding is the inundation of land areas along the coast caused by sea water rising above normal tidal conditions. Coastal flooding can arise from a combination of high tides, wind induced tidal surge, storm surge created by low pressure and wave action.

The Environment Agency split the country into 'flood zones':

Flood Zone 1 - The area where flooding from rivers or sea is very unlikely. There is less than 0.1% (1 in 1000) chance of flooding occurring each year.

Flood Zone 2 - The area of medium probability of flooding – a flood with an annual chance of occurring of between 1% (1 in 100) to 0.1% (1 in 1000) for river flooding and 0.5% (1 in 200) to 1% (1 in 1000) for coastal flooding.

Flood Zone 3a - The area of high probability of flooding – a flood with an annual chance of occurring of 1% (1 in 100) or greater for river flooding and 0.5% (1 in 200) or greater for coastal flooding.

Flood Zone 3b - The boundary between 3a and 3b is a planning decision made by the Local Authority. This information is usually in the strategic flood risk assessment. This area is a functional floodplain. It is an area which is designed to flood – a flood return period of 1 in 20 or less.

A full Flood Risk Assessment (FRA) is a bespoke report required under the National Planning Policy Framework for any development site within Flood Zones 2 or 3 and/or any development site larger than 1 hectare. These reports are generally prepared following liaison with the Local Planning Authority and the application of the sequential test.

What could be the impact on the site?

The site (or part of it) is at a high risk of flooding from rivers and the sea, as defined by the regulatory body's Flood Map. The risk of annual flooding is greater than 1% (from rivers) or greater than 0.5% (from the sea). Properties in Flood Zone 3 may have difficulty in obtaining flood insurance (most insurers will only cover risks of less than 1.33% annual probability). All development proposals would need to be accompanied by a Flood Risk Assessment, in accordance with NPPF. Developments such as emergency services stations, basement dwellings and caravans, mobile homes and park homes for permanent residential use, etc. are not compatible with this level of risk. Significant planning constraints would apply to such developments as residential, care homes, hotels, short-let caravan parks, camping, etc. Parts of the site may be within an area of land where water has to flow or be stored in times of flood (>5% annual risk of flooding) within which severe planning constraints apply. It is recommended that a more detailed report (a Flood Solutions Consult Report) is undertaken to further define the flood risk issues and potential

development constraints. Please contact us so we can discuss your requirements and, if necessary, provide a quotation.

Flood defences

Question	Response
Are there any flood defences within 500m?	Yes

What is it?

The Environment Agency provides data to show flood defences built in the last five years. The defences shown protect against river floods with a 1 percent (1 in 100) chance of happening each year, or floods from the sea with a 0.5 percent (1 in 200) chance of happening each year. These are shown together with some, but not all, older defences and defences which protect against smaller floods. Flood defences that are not yet shown and the areas that benefit from them will gradually be added.

For information on flood defences which are not yet shown on the map contact your local The Environment Agency Office.

What could be the impact on the site?

There are flood defences within 250m of the site. There may therefore be a residual risk of flooding should the protection standard of those defences be exceeded (and the defences overtopped) or should the defences fail. Further investigations could be undertaken into the standard of these defences. Please contact us for further information.

Areas Protected by Flood Defences

Question	Response
Does the site or any area within 500m benefit from flood defences?	No

What is it?

The Environment Agency provides data to show the areas of land that benefit from the flood defences shown, in the event of a river flood with a 1 per cent (1 in 100) chance of happening each year, or a flood from the sea with a 0.5 per cent (1 in 200) chance of happening each year. If the defences were not there, these areas would be flooded.

Flood defences do not completely remove the chance of flooding, however, and can be overtopped or fail in extreme weather conditions.

What could be the impact on the site?

The site is over 500m from an Area Benefiting from a Flood Defence, as defined by the regulatory body. The residual risk that the site may flood if the protection standard of any flood defences is exceeded, or if the defences fail, is insignificant.

Flood Storage Areas

Question	Response
Are there any flood storage areas within 500m?	No

What is it?

A flood storage area is a reservoir or field intended to fill with water in the event of a flood. It is designed as a flood resistance measure but their presence indicates that flooding could occur.

River and Coastal Flooding

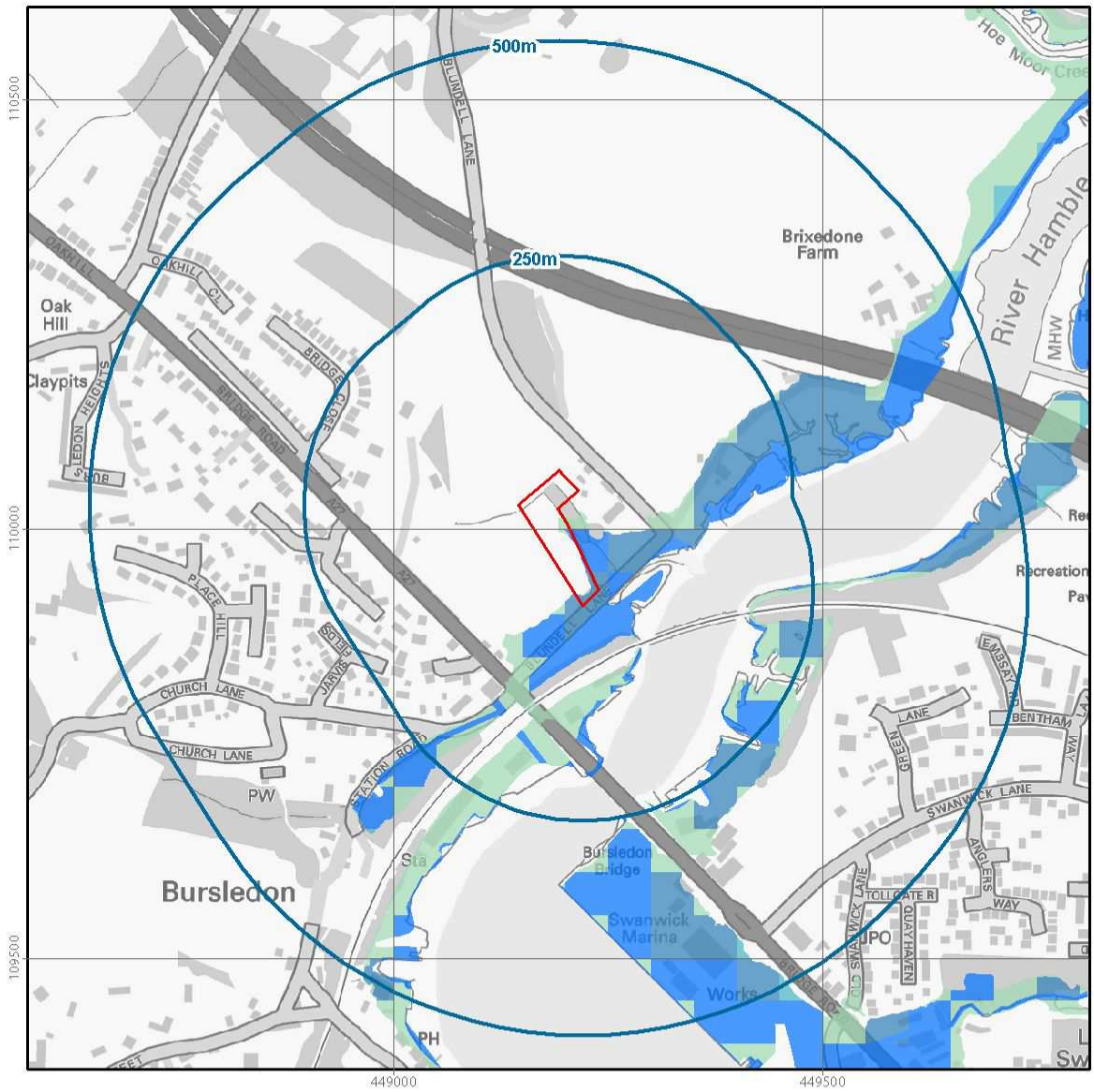
What could be the impact on the site?

The site is over 500m from a Flood Storage Area as defined by the regulatory body. These areas store flood water during flood events. It is unlikely that any FSA presents any associated flood risk to the site.

River and Coastal Flooding

Risk of Flooding From Rivers and Sea

This map shows The Environment Agency's model of flooding taking defences into account



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- Client Site
- High Risk
- Medium High Risk
- Medium Risk
- Low Risk
- Very Low Risk

metres
0 50 100 200

Not all features in legend may be present in above map

River and Coastal Flooding

Risk of River and Coastal Flooding

Question	Response
What is the flood likelihood category for the site?	High

What is it?

The data in the Risk of Flooding from Rivers and Sea Property Flood Likelihood Database is sourced from The Environment Agency's National Receptor Dataset. The information provided includes the flood likelihood category low, moderate, or significant according to the flood likelihood analysis. Some areas may be classified as having no result. This occurs where there is no output data from the analysis, but the area falls within the extreme flood outline (with a 0.1% or 1 in 1000 chance of flooding in any year).

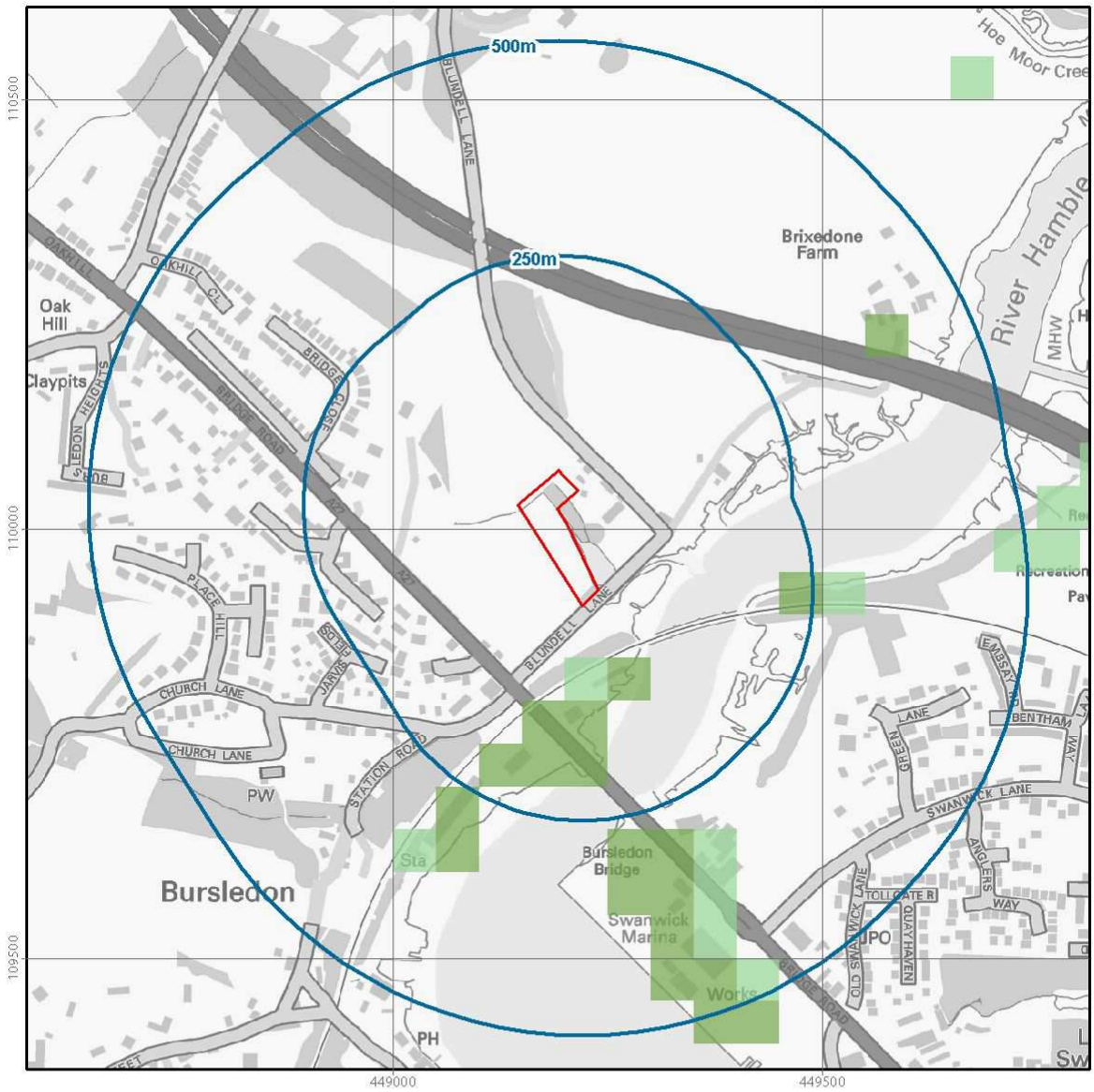
What could be the impact on the site?

The site (or part of it) has been defined as being at Significant Flood Risk within the regulatory body's risk assessment. This classification relates to the locality as a whole, rather than the individual site and relates only to the risk of coastal or river flooding. Flood insurance may be difficult to obtain for properties on the site. Nevertheless, it is recommended that a more detailed report such as a Flood Solutions Consult Report is undertaken to further define the flood risk to the site. Please contact us so we can discuss your requirements and, if necessary, provide a quotation.

Groundwater Flooding

Groundwater Flood Risk

This map shows a model of the risk of flooding from groundwater from data provided by ESI



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Client Site

High Risk

Moderate Risk

Low Risk

metres
0 50 100 200

Not all features in legend may be present in above map

Groundwater Flooding

Groundwater Flood Risk

Question	Response
What is the risk of groundwater flooding at the site?	Negligible

What is it?

Groundwater flooding occurs when groundwater levels increase sufficiently for the water table to intersect the ground surface. Groundwater flooding can occur in a variety of geological settings including valleys and in areas underlain by chalk, and in river valleys with thick deposits of alluvium and river gravels.

ESI provides data to Landmark in relation to groundwater flooding. Through research and development, building on their expertise in addressing groundwater flooding issues for The Environment Agency and other clients in the UK, ESI has developed algorithms and calibrated predictions of the risk of groundwater flooding occurring in England and Wales. This differs from other suppliers of data regarding groundwater flooding which only report on the susceptibility of groundwater flooding. Susceptibility merely has to be identified, whereas risk must be quantified. The resulting map is a 50x50m classification of groundwater flooding risk into four categories (Negligible, Low, Moderate and High). ESI's classifications are based on the level of risk, combining severity and uncertainty that a site will suffer groundwater flooding within a return period of about 200 years.

The map is a general purpose indicative screening tool, and is intended to provide a useful initial view for a wide variety of applications. However, it does not provide an alternative to a site specific assessment, and a detailed risk assessment should be used for any site where the impact of groundwater flooding would have significant adverse consequences.

What could be the impact on the site?

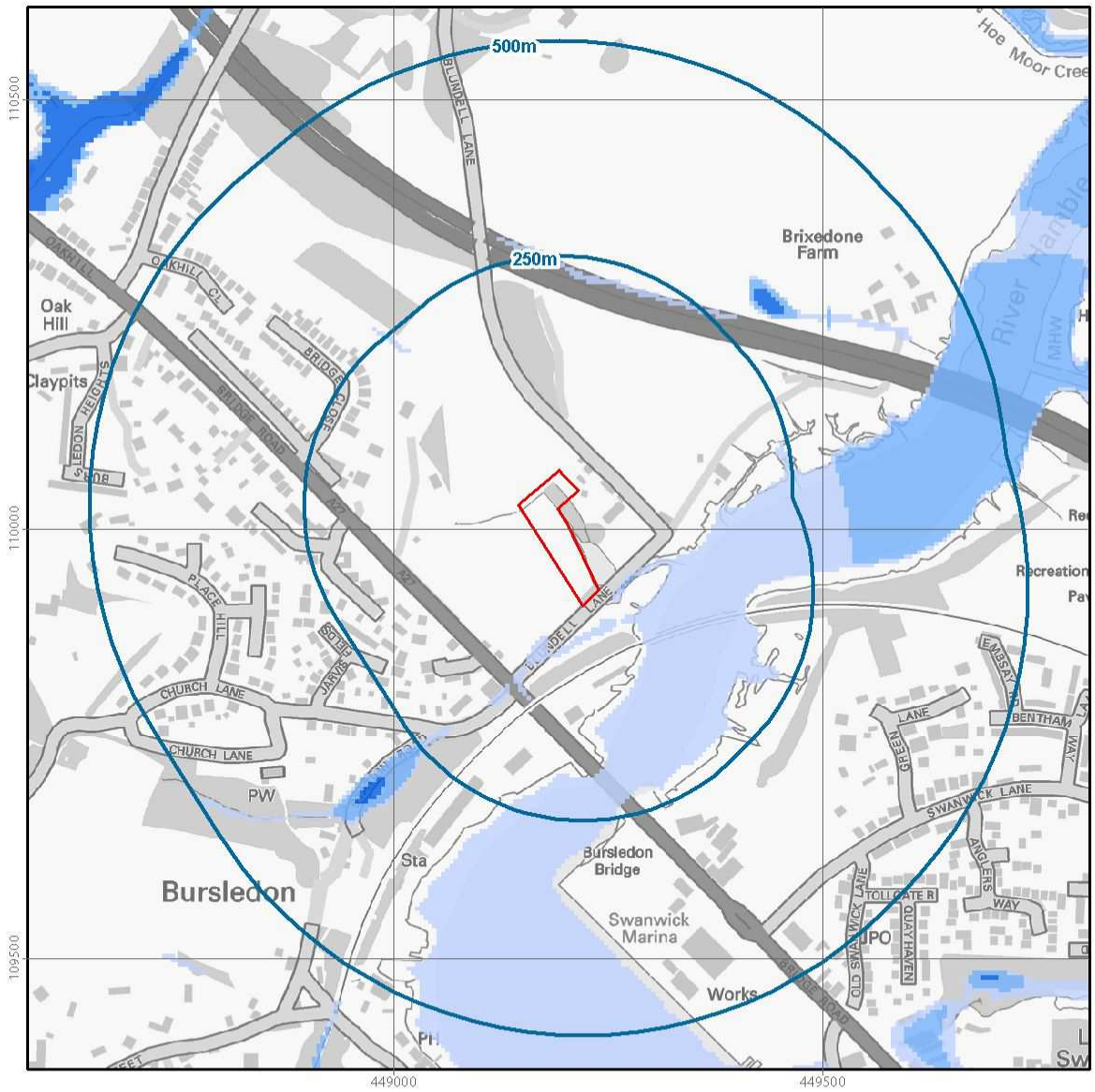
Information from ESI indicates that there is a negligible risk of groundwater flooding in this area and any groundwater flooding incidence will be less frequent than 1 in 200 years return period.

No further investigation of risk is deemed necessary unless the proposed site use is unusually sensitive. However, data may be lacking in some areas, so assessment as 'negligible risk' on the basis of the map does not rule out local flooding due to features not currently represented in the national datasets used to generate this version of the map.

Surface Water Flooding

Surface Water Flood Risk

This map shows the JBA model of potential surface water flood depths of a 1 in 200 year flood event



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Client Site

1m + depth

30cm - 1m depth

10cm - 30cm depth

metres

0 50 100 200

Not all features in legend may be present in above map

Surface Water Flooding

Surface Water Flood Risk from JBA

Question	Response
What is the risk of surface water flooding at the site following a 1 in 75 year rainfall event?	Negligible
What is the risk of surface water flooding at the site following a 1 in 200 year rainfall event?	Negligible
What is the risk of surface water flooding at the site following a 1 in 1000 year rainfall event?	Low

What is it?

Surface water or 'pluvial' flooding results from rainfall running over ground before entering a watercourse or sewer. It is usually associated with high intensity rainfall events (typically greater than 3cm per hour) but can also occur with lower intensity rainfall or melting snow where the ground is already saturated, frozen, developed (for example in an urban setting) or otherwise has low permeability.

Information regarding the risk of natural surface water or pluvial flooding is provided by JBA Consulting Ltd. The risk is classified by JBA into four categories, negligible, low (more than 10cm), medium (more than 30cm) and high (more than 1m) which reflect varying depths of potential surface water flooding during a range of rainfall events including 1:75 year, 1:200 year, and 1:1000 year.

Return periods are a measure of how likely flooding is to occur. They are commonly expressed as a ratio (for example 1 in 75 or 1:75). This means that this level of flooding is expected once in every 75 years.

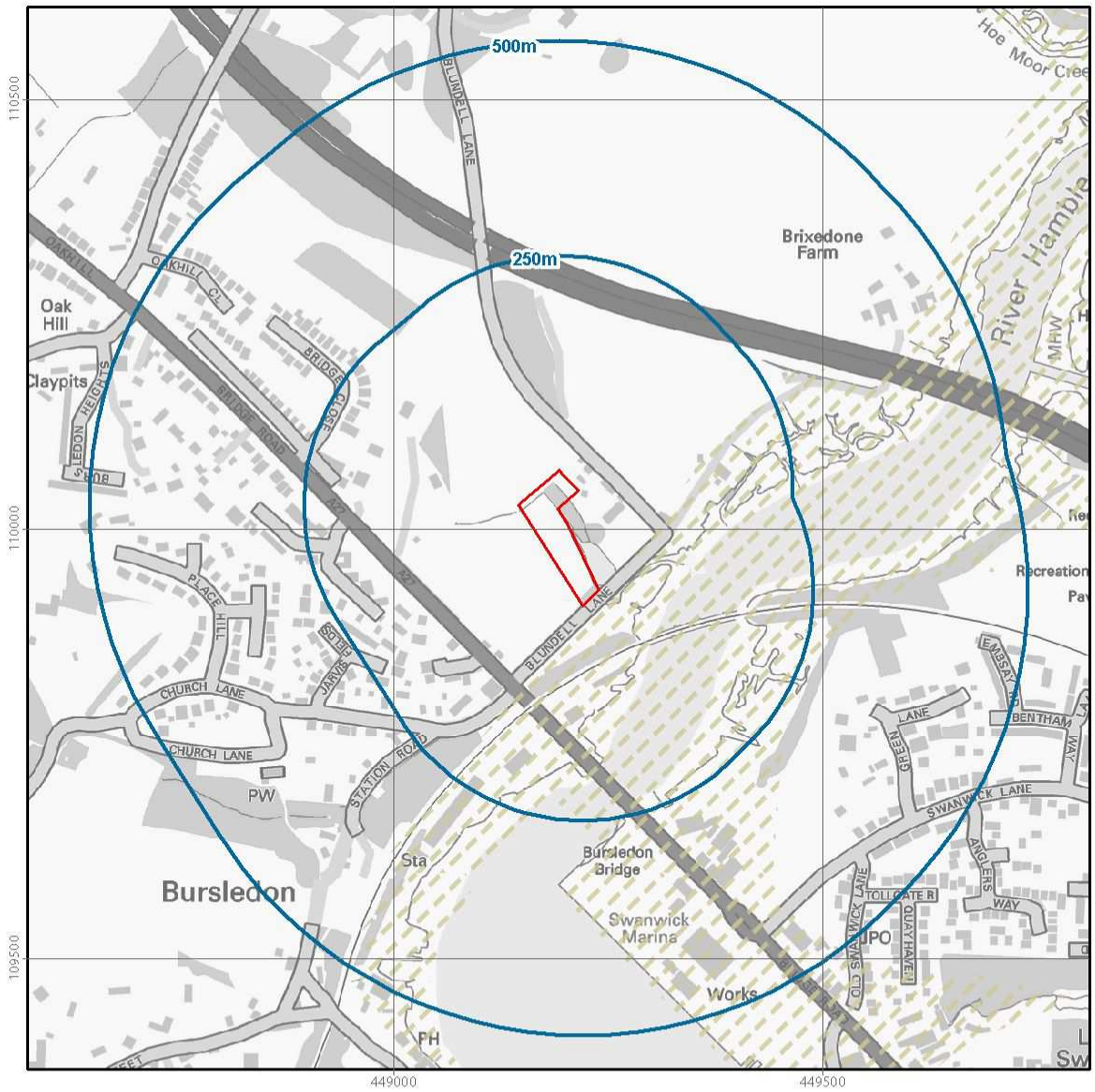
What could be the impact on the site?

Information from JBA Risk Management indicates that there is not a significant risk of surface water (pluvial) flooding at the site. Any surface water flooding incidence is modelled as being less frequent than anticipated during a 1 in 200 year return period. No further investigation of risk is deemed necessary unless the proposed site use is unusually sensitive, or where development is proposed that may increase the risk of flooding to neighbouring areas. In areas where there are smaller local water courses or drains a risk may still exist due to blockages or poor maintenance which could cause reduced flow.

Historical Flooding

Historical Flooding

This map shows flood events and geological indications of floods from the past



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Client Site

Historical Floods

Geo Indicators

metres
0 50 100 200

Not all features in legend may be present in above map

Historical Flooding

Historical Flood Events

Question	Response
Has a flood event occurred in the past at or within 500m of the site?	No

What is it?

The Environment Agency has collated extensive records (including outlines) of flooding from rivers, the sea or groundwater which have occurred in England and Wales since c.1950. This information comes from various sources including maps, aerial photographs and private records. It is not necessarily comprehensive.

What could be the impact on the site?

The regulatory body's records have no indication of past flooding within 500m of the site. As these records are not comprehensive, it may still be prudent to ask the relevant authorities and the site owner whether they are aware of any previous flooding at the site or in the surrounding area.

Geological Indicators of Flooding

Question	Response
Are there any geological deposits on or near to the site that show that it may have flooded in the past?	Yes

What is it?

The Geological Indicators of Flooding data set is based on the British Geological Survey's Digital Geological Map of Great Britain at the 1:50,000 scale (DiGMapGB-50). It was produced by characterising superficial 'drift' deposits on DiGMapGB-50 in terms of their likely vulnerability to flooding, either from coastal or inland water flow and reflects areas which may have flooded in the recent geological past.

What could be the impact on the site?

Data from the British Geological Survey indicates that the type of deposits in the locality of the site are of the type normally associated with floodplains. However, this data should only be considered as complementary to the regulatory body's Flood Map. This BGS data does not indicate the likelihood of flooding. Refer to the other assessments in this report for an overall assessment of flood risk.

Contacts

Landmark Customer Services
For help with this report or to purchase a follow-on report

Landmark Information Group
Imperium
Imperial Way
Reading
RG2 0TD

0844 844 9966

helpdesk@landmark.co.uk

Envirep Flood Risk Helpline
For advice on groundwater flooding

0845 606 6650

envirep.co.uk

Environment Agency
For advice on regulatory information

National Customer Contact Centre
PO Box 544
Rotherham
S60 1BY

03708 506 506

enquiries@environment-agency.gov.uk

www.gov.uk/government/organisations/environment-agency

British Geological Survey
For advice on geological causes of groundwater flooding

Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG

0115 936 3143

www.bgs.ac.uk

British Insurance Brokers' Association
For advice on flood insurance

8th Floor
John Stow House
8 Bevis Marks
London
EC3A 7JB

0870 950 1790

JBA Risk Management
For advice on JBA flood risk data

South Barn
Broughton Hall
Skipton
North Yorkshire
BD23 3AE

01756 799 919

info@jbarisk.com

Eastleigh Borough Council
For local planning information

Civic Offices

Leigh Road

Eastleigh

SO50 9YN

02380 688000

Useful Information

Data Sources

Data Source	Dataset
The Environment Agency	• Flooding from Rivers or Sea • Flooding from Rivers or Sea in an Extreme Flood • Areas Benefiting from Flood Defences • Flood Storage Areas • Flood Defences • Risk of Flooding from Rivers and Sea • Historical Flood Events • Detailed River Network © Environment Agency and database right 2015
JBA	• Surface Water Flooding 1:75 year rainfall event • Surface Water Flooding 1:200 year rainfall event • Surface Water Flooding 1:1000 year rainfall event © Copyright JBA Risk Management Limited 2008-2015
ESI	• Groundwater Food Risk © ESI Groundwater Flood Risk Map of England and Wales
British Geological Survey	• Geological Indicators of Flooding Disclaimer: "Some of the responses contained in this section are based on data and information provided by the Natural Environment Research Council (NERC) or its component bodies the British Geological Survey (BGS). Your use of any information contained in this report which is derived from or based upon such data and information is at your own risk. Neither NERC, BGS nor Public Health England where applicable, gives any warranty, condition or representation as to the quality, accuracy or completeness of such information and all liability (including liability for negligence) arising from its use is excluded to the fullest extent permitted by law."
Ordnance Survey	• Height of Site Above Sea Level • Vector Map District

Overall Opinion

In this section on the front page, we provide an opinion based on the flood risks that have been identified. The following table describes the possible outcomes of the report:

Useful Information

Assessment	Risk Rating and Meaning
PASSED	Low and Low to Moderate - the site is not considered to be at a significant risk of flooding. Insurance is likely to be available at standard terms.
PASSED	Moderate - the site is located within an area which is at risk of flooding. In most cases insurance should be available at standard terms. However, this will be dependent on site specific factors and we recommend contacting your insurance broker before proceeding with any transaction.
FURTHER ACTION	Moderate to High and High - the site is located within an area which is at risk of flooding and as a result insurance may not be available at standard terms. However, this will be dependent on site specific factors and we recommend contacting your insurance broker before proceeding with any transaction.

Flood Risk Ratings

We provide an overall flood risk rating based on an assessment of the data provided within this report. It does so by asking the following questions:

1. What is the overall risk of flooding, assuming flood defences fail or are absent or overtopped?

The answer to this question provides a worst case scenario assuming there are either no defences in the area, that any defences in the area could fail, primarily as a result of river or coastal flooding, or are overtopped by excessive flood volumes.

2. Are there existing flood defences which might benefit the site?

This is based on the presence of any flood defences in the dataset provided by The Environment Agency within 500m of the site. It should be noted that a residual risk of flooding may be present if such defences failed. Flood defences do not generally protect the site against groundwater and surface water flooding.

If defences are present within 500m, a further question is asked:

3. What is the risk of flooding when these defences are operational?

This assesses the risk from flooding, assuming these defences work as intended and neither fail nor are overtopped.

Questions 1 and 3 are answered by one of six standard responses:

Response	Meaning
Negligible	The overall flood risk rating for the site is assessed to be 'Negligible'. Existing datasets do not indicate any risk at the site itself, or any feature within the locality of the site, which would be expected to pose a threat of flooding. It is not considered that any further investigations are necessary in regard to flood risk.
Low	The overall flood risk rating for the site is assessed to be 'Low'. It is not considered necessary to undertake any other further investigations into the flood risk to the site. Sites over 1 hectare would require a Drainage Impact Assessment to accompany any planning application.
Low to Moderate	The overall flood risk rating for the site is assessed to be 'Low to Moderate'. The presence of such features as flood defences, flood storage areas and watercourses within the locality of the site suggests that there may be a risk of flooding to the site itself. Further investigations could be undertaken to further assess this risk.
Moderate	The overall flood risk rating for the site is assessed to be 'Moderate'. Information from existing datasets suggests that there are certain features which may present a risk to the site and its occupants. Further assessment would normally be suggested as a prudent measure to clarify the risk of flooding at the site.
Moderate to High	The overall flood risk rating for the site is assessed to be 'Moderate to High'. Information from existing datasets suggests that there are certain features which may present a significant risk to the site and its occupants. Further assessment is usually recommended in order to clarify the risk of flooding at the site.

High	The overall flood risk rating for the site is assessed to be 'High', with a consequent risk to life and property. This means that existing datasets reveal significant flood risk issues which need to be addressed. Further assessment is usually recommended in order to clarify the risk of flooding at the site.

Insurance Availability

Landmark provides an indication of whether the site is likely to be insurable for flood risk at standard terms. This is based on consideration of Risk of Flooding from Rivers and Sea data supplied by The Environment Agency and surface water flooding data supplied by JBA Consulting. This data is used by a significant proportion of the insurance industry to help determine the suitability of a site for insurance, although they may access additional information which could affect their assessment.

Under the Association of British Insurers' Revised Statement of Principles on the Provision of Flooding Insurance (July 2008), the general policy of member companies is that flood insurance for domestic properties and small businesses should continue to be available for as many customers as possible until 1st July 2013, by which time a longer term solution should be implemented. The premiums charged and other terms will reflect the risk of flooding but insurance will be available:

1) for properties where the flood risk is not significant (generally defined as 1–in-75 years annual probability of flooding); and

2) to existing domestic property and small business customers at significant risk, providing The Environment Agency has announced plans to reduce that risk within five years, such as improving flood defences. (The commitment to offer cover will extend to the new owner of any applicable property subject to satisfactory information about the new owner).

However, for significant risk areas where no improvements in flood defences are planned, and in all cases other than domestic properties and small businesses, insurers cannot guarantee to provide cover, but will examine the risks on a case-by-case basis. The implementation of the revised Statement of Principles depends on action from the Government and is continually reviewed by insurers. In addition, the revised Statement of Principles does not apply to properties built after 1st January 2009. Different guidance applies to these (see Climate Change – Guidance on Insurance Issues for New Developments from www.abi.org.uk).

The responses to the question 'Is the site likely to be insurable at standard terms?' assume the site is an existing domestic property or small business and makes no allowance for previous claims arising from any type of flooding, nor for non-flood related risks such as subsidence.

Response	Meaning
Yes	The site is likely to be considered acceptable by insurance companies at standard terms and flood insurance should not be difficult to obtain. No further action required.
No	The site is unlikely to be considered acceptable by insurance companies at standard terms, on the basis of current information. Further work may be required in order to obtain acceptable insurance terms for the flood risk. This could include a more detailed risk assessment or the use of accredited products, flood resilient materials and temporary defences to defend the property

Development Risk

We comment on whether a full or partial Flood Risk Assessment (FRA) would be required in accordance with National Planning Policy Framework (NPPF). This is indicative only and is based on the size of the site (as supplied by the client) and the information in the data section of this report.

The NPPF sets out Government policy on development and flood risk. Its aims 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 of highest risk. Where new development is exceptionally necessary, NPPF aims to make it safe, without increasing flood risk elsewhere, and, where possible, reducing flood risk overall.

A separate Drainage Impact Assessment may be required in addition to an FRA to demonstrate that development of the site will not adversely affect flood risk elsewhere.

Response	Meaning

Useful Information

Yes (full)	If the site is to be redeveloped, a full Flood Risk Assessment is likely to be required which should include a Drainage Impact Assessment.
Yes (Drainage)	If the site is to be redeveloped, a full Flood Risk Assessment may not be required. However, given the size of the site, a Drainage Impact Assessment may be necessary.
No	If the site is to be redeveloped, no further flood assessment is likely to be required.

Flood Risk Gauges

The flood risk gauges provide a more detailed analysis of the risk from each of the four main types of flooding – river, coastal, groundwater and surface water. In addition, a fifth gauge provides an analysis of other factors (i.e. historical flood events, geological deposits which are indicative of past flooding, proximity to surface water features and elevation above sea level) that may affect the overall flood risk. For surface water flooding, only the risk rating generated from the 1:200 year rainfall event data is included in the overall risk assessment. The data on 1:75 year and 1:1000 year rainfall events is provided for information only.

This analysis takes into account any existing flood defences that are intended to protect the site and assumes that these work as designed. The analysis also takes into account the other information contained in those data sections of the report which are relevant to that particular type of flooding. The assessment of the risk as shown in the flood gauge should therefore take priority over the information in the individual data sections of the report.

Limitations of the Report

The Sitecheck Flood report has been designed to satisfy basic flood-related environmental due-diligence enquiries for commercial properties. It is a desktop review of information provided by the client and from selected private and public databases. It does not include a site investigation, nor are specific information requests made of the regulatory authorities for any relevant information. Therefore, Landmark cannot guarantee that all issues of concern will be identified by this report, or that the data and information supplied to it by third parties is accurate and complete.

This report includes an assessment of surface water flooding which examines the risk of the general drainage network overflowing during periods of extreme rainfall. This report does not make a detailed site-specific assessment of the suitability of the existing drainage on the site. If this is required, then a site survey should be considered. The assessment of pluvial flooding does not take into account particular local or temporary factors that may cause surface water flooding. These could include blockage or failure of structures on or within watercourses, drains, foul sewers, water mains, canals and other water infrastructure; and any history of drains flooding at the site or in the locality. Surface water flooding can occur before surface water reaches the general drainage network, for example on hills and inclines.

The Risk of Flooding from Rivers and Sea dataset provided by The Environment Agency does take account of failure of flood defences but does not take into account particular local or temporary factors such as blockage. Data from The Environment Agency does not include flood risk from very small catchments as models of such small scale catchments are not considered to be reliable for UK-wide flood risk assessments. The potential impact of climate change on flood risk to the site would require further study.

When answering any questions within this report, current applicable legislation is taken into account.

The data used in this report may have inherent limitations and qualifications.

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www.landmarkinfo.co.uk/Terms/Show/515

Important Consumer Protection Information

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- sets out minimum standards which firms compiling and selling search reports have to meet
- promotes the best practice and quality standards within the industry for the benefit of consumers and property professionals
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services.

By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports
- act with integrity and carry out work with due skill, care and diligence
- at all times maintain adequate and appropriate insurance to protect consumers
- conduct business in an honest, fair and professional manner
- handle complaints speedily and fairly
- ensure that products and services comply with industry registration rules and standards and relevant laws
- monitor their compliance with the Code

Complaints

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award compensation of up to £5,000 to you if he finds that you have suffered actual loss as a result of your search provider failing to keep to the Code.

Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs or to the PCCB.

TPOs Contact Details:

The Property Ombudsman scheme
Milford House
43-55 Milford Street
Salisbury
Wiltshire SP1 2BP
Tel: 01722 333306
Fax: 01722 332296
Email: admin@tpos.co.uk

You can get more information about the PCCB from www.propertycodes.org.uk

PLEASE ASK YOUR SEARCH PROVIDER IF YOU WOULD LIKE A COPY OF THE SEARCH CODE

Complaints procedure

If you want to make a complaint, we will:

- Acknowledge it within 5 working days of receipt
- Normally deal with it fully and provide a final response, in writing, within 20 working days of receipt
- Keep you informed by letter, telephone or e-mail, as you prefer, if we need more time
- Provide a final response, in writing, at the latest within 40 working days of receipt
- Liaise, at your request, with anyone acting formally on your behalf

Complaints should be sent to:

Head of Customer Relations
Landmark Information Group Ltd
Landmark UK Property
Imperium
Imperial Way
Reading
RG2 0TD

Telephone: 0844 844 9966
Email: helpdesk@landmark.co.uk
Fax: 0844 844 9980

If you are not satisfied with our final response, or if we exceed the response timescales, you may refer the complaint to The Property Ombudsman scheme (TPOs):

Tel: 01722 333306,

Email: admin@tpos.co.uk

We will co-operate fully with the Ombudsman during an investigation and comply with his final decision.

Appendix C

QUICK STORAGE ESTIMATE 1 IN 100 YEARS

