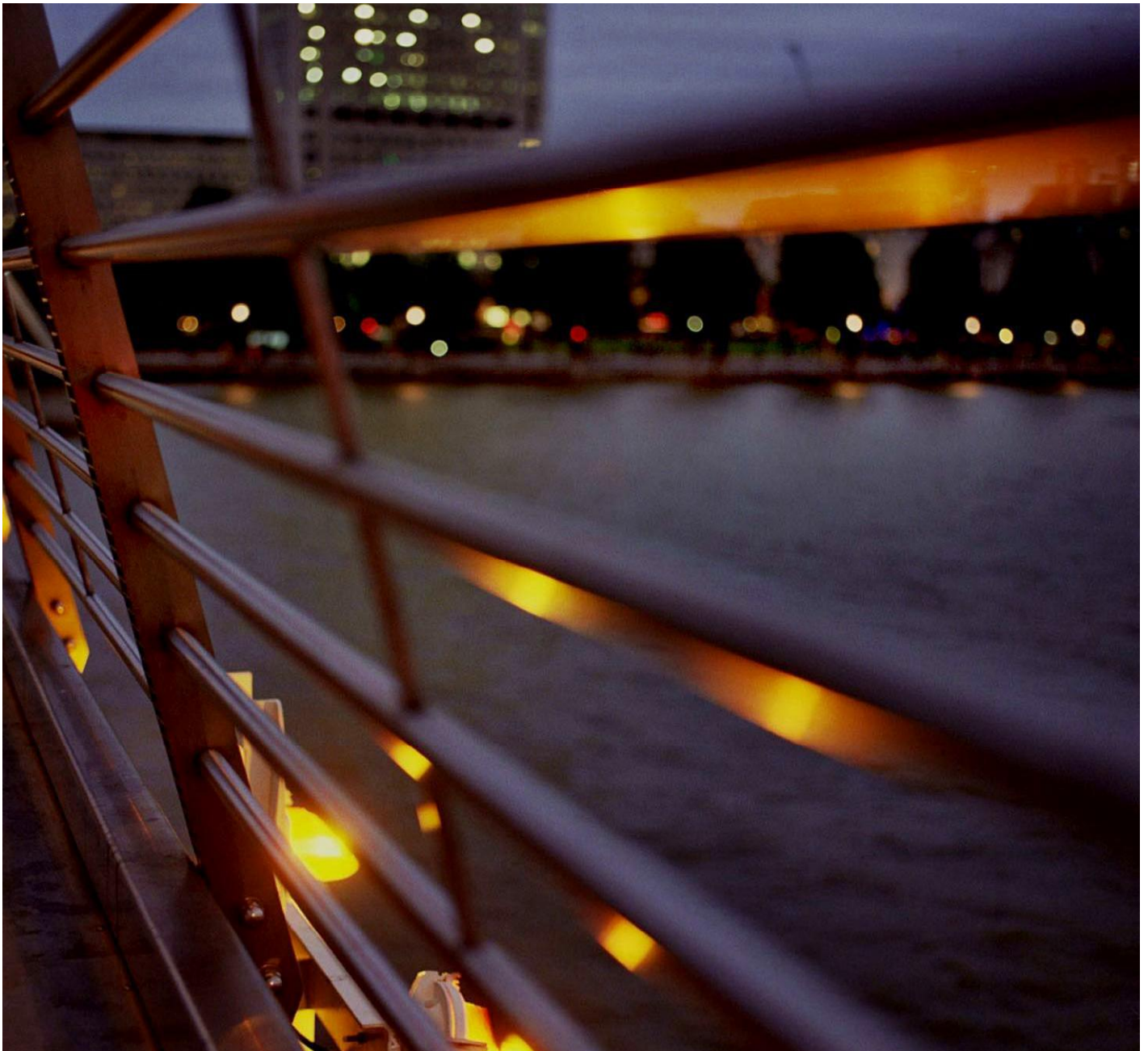




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Bulls Bridge, Hayes, London
National Planning Policy Framework
Flood Risk Assessment
F M Conway Ltd

August 2012

QM

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Remarks	Draft	Updated Policy	Updated in line with clients comments	
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1 Introduction

1.1 APPOINTMENT AND BRIEF

1.1.1 WSP UK Limited (WSP) was commissioned by F M Conway Limited in March 2010 to undertake a site specific Flood Risk Assessment (FRA) for a proposed Aggregate Recycling Plant, Asphalt Plant and Gully Waste Recycling Plant at Former Powergen Site, North Hyde Gardens, Bulls Bridge, Hayes, UB2 5LX.

1.1.2 Objective of the study

1.1.3 The objective of the study was to undertake a Flood Risk Assessment in accordance with the National Planning Policy Framework.

1.1.4 The study assesses flood risk for the following:

- the site and the proposed development; and
- impact on flood risk to other areas as a result of the development proposals.

1.1.5 The report has been prepared for use as support documentation for promotion of the site through the planning process and a full planning application.

1.1.6 A strategy for surface water drainage is being provided within a separate report.

1.2 STUDY METHODOLOGY

1.2.1 This report addresses the potential sources of flooding which include fluvial, tidal, overland flows, groundwater, sewers and man-made infrastructure. The assessment also identifies and examines the residual flood risk to the proposed development.

1.2.2 The appraisal process consisted of a desk study, data research, a site visit and consultation with regulatory bodies and third parties.

1.2.3 Whilst completing the assessment, consideration has been given to the National Planning Policy Framework (NPPF), March 2012. The assessment has also been undertaken in accordance with CIRIA C624, 'Development and Flood Risk – Guidance for the Construction Industry' (2004).

1.2.4 The following relevant stakeholders were consulted:

- Environment Agency;
- Thames Water and;
- Hillingdon Borough Council
- British Waterways

1.3 LIMITATIONS

1.3.1 An intrusive site investigation for the development has not been undertaken at this stage.

1.3.2 A detailed drainage survey of the site has also not been undertaken at this stage.

2 Existing Site

2.1 SITE LOCATION

2.1.1 The site is located within Hayes, London Borough of Hillingdon.

2.1.2 The proposed site is located west of the Grand Union Canal (Paddington Branch), east of Yeading Brook and north of North Hyde Garden. See Figures 1 & 2 in Appendix A for the site location plans.

2.1.3 The OS grid reference for the site is TQ106791 (NGR 510686, 179151).

2.2 SITE DESCRIPTION

2.2.1 Table 2.1 describes the general site characteristics.

Table 2.1 Characteristics of the site

Area	3.09 ha
General Topography	Land situated east of the unnamed road, generally falls towards the centre of the site to a low point of 29.47mAOD. Whereas land to the west of unnamed road, generally falls towards the south west towards the Yeading Brook.
Existing surfacing	Brownfield development
Current use	Former power station – derelict
Boundaries	North Existing Train Line South North Hyde Garden East Grand Union Canal (Paddington Branch) West West, Yeading Brook
Access	North Hyde Gardens Road, which runs north to the south through the site.

2.2.2 A topographical survey of the site was undertaken by C.H Surveys Ltd in July 2010. The topographical survey has not been independently verified by WSP. Please refer to Drawing No. BB30710 in Appendix B.

2.3 EXISTING DRAINAGE

2.3.1 The proposed development site is currently 100% Brownfield.

2.3.2 Thames Water (TW) records indicated that there is existing TW plant within the proposed development boundary. Plans requested in August 2010 show a 1200mm diameter surface water sewer runs through the northern section of the western parcel discharging to the Yeading Brook. It should be noted that this sewer drains the existing area to the east of the Grand Union Canal Paddington Branch.

2.3.3 TW plans also indicate a 2134mm diameter foul sewer (Crane Valley Sewer – Main Line) situated west of the Yeading Brook.

2.3.4 It is assumed that Thames Water has not updated their systems within the vicinity of the site since 2010.

2.3.5 Please refer to Appendix E for Thames Water sewer records.

2.4 EXISTING WATERCOURSES

2.4.1 The proposed development is situated within close proximity to the following watercourses:

- Yeading Brook to the west of the site, flowing south.
- The Grand Union Canal (Paddington Branch), to the east of the site.
- The Grand Union Canal, south of the site

2.5 EXISTING FLOOD DEFENCES

2.5.1 The Environment Agency Flood Map shows that there are no formal flood defences maintained by the Environment Agency or local authority within the vicinity of the Site.

2.6 GEOLOGY AND HYDROGEOLOGY

2.6.1 An intrusive site investigation has not been undertaken as part of this assessment.

2.6.2 A review of British Geological Maps (Sheet No. 270, South London, 1:50,000) indicate that the site is underlain by River Terrace Gravels.

2.6.3 The Environment Agency Groundwater Vulnerability Map divides the underlying strata in England and Wales into major, minor and non-aquifers dependent upon their potential for potable water supply.

2.6.4 Based on the groundwater vulnerability map for the area, the main strata underlying the site are classified as a major aquifer. These are highly permeable formations usually with a known or probably presence of significant fracturing. They may be highly productive and able to support large abstractions for public water supply and other purposes. The Environment Agency has however confirmed that there are no groundwater abstractions sites within 2km of the site. Refer to the Environment Agency correspondence in Appendix E.

2.6.5 WSP would anticipate that groundwater levels at the proposed site to be relatively shallow due to the proximity of the watercourse in relation to the proposed site.

2.7 HISTORIC LAND USES

2.7.1 The site previous uses included a creosote works and storage facility. The structures have since been demolished with some stockpiles and areas of hardstanding still remaining.

2.8 HISTORICAL FLOOD RECORDS

2.8.1 Table 2.3 summarises the historic flood records obtained through consultation and liaison with the various bodies contacted as part of the FRA for Bulls Bridge. Please refer to third party correspondence within Appendix E.

Table 2.3: Flood Records Summary

Information Source	Flood Records/Details
Environment Agency	No record of historic flooding in the vicinity of the site
Thames Water	No record of historic flooding in the vicinity of the site
London Borough of Hillingdon	At the time of writing no response has been received.
British Waterways	No record of historic flooding in the vicinity of the site

2.9 FLOOD MAPPING

2.9.1 The site is shown to be located within Flood Zone 1 on the Environment Agency online Flood Maps.

2.9.2 Flood Zone 1 (Low Probability) is land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding in any one year (<0.1%).

2.9.3 The Environment Agency has confirmed within their correspondence that the site is located within Flood Zone 1 and is therefore not located within an area of flood risk.

3 Proposed Development Description

3.1 PROPOSED DEVELOPMENT AND DESCRIPTION

3.1.1 The proposed industrious development at 'Bull's Bridge, Hayes' approximately 3.09 ha in size, comprises Aggregate Recycling Plant, Asphalt Plant and Gully Waste Recycling Plant at Former Powergen Site. The proposals involve raising the existing ground levels by 1.2m across the site. Refer to the site masterplan within Appendix E.

3.1.2 The entire proposed site has been confirmed by the Environment Agency as being Flood Zone 1.

3.1.3 Vehicle and pedestrian access to the proposed development will be via the unnamed road that bisects the site.

3.1.4 The proposals will lead to an increase in impermeable area. However, it is proposed that Sustainable Drainage Systems (SuDS) will be implemented to ensure there is no increase to existing surface water runoff rates.

3.2 POLICY BACKGROUND

3.2.1 The Government's sustainable development strategy makes it a requirement to assess appropriate forms of development for areas at risk of flooding. This is to avoid an unnecessary increase in the requirement for flood defences.

3.2.2 The Environment Agency's Flood Map shows that the site is located within Flood Zones 1 (Low) associated with the Yeading Brook.

3.2.3 Flood Zone 1 is assessed as having less than 1 in 1000 annual probability of river or sea flooding in any one year (<0.1%).

3.2.4 The development is classed as 'Highly Vulnerable' in accordance with Table 2 Flood Risk Vulnerability in the 'Technical Guidance to the National Planning Policy Framework' (TGNPPF).

3.2.5 It is envisaged that the proposals will not require a hazardous substance consent. In accordance with Table 2 Flood Risk Vulnerability in 'Technical guidance to the National Planning Policy Framework' (TGNPPF) the development is classified as 'more vulnerable'.

3.2.6 Proposals requiring hazardous substance consent are classified as 'highly vulnerable' within Table 2.

3.2.7 A copy of Table 2 Flood Risk Vulnerability Classification can be found in Appendix C.

3.2.8 Table 3 of NPPF classifies 'highly vulnerable' and 'more vulnerable' development as appropriate within Flood Zone 1.

3.3 SEQUENTIAL TEST

3.3.1 The Proposed Development is classified as 'more vulnerable' however the site is located in Flood Zone 1 which is suitable for this use. As such, the proposed development passes the Sequential Test.

4 Existing Sources of the Flooding

4.1 EXISTING SOURCES OF FLOODING

4.1.1 An overview of the existing sources of flooding is presented in Table 4.1. Section 5 of this report provides detail regarding flood risk mitigation measure.

Table 4.1 Existing Sources of Flooding

Source	Likelihood
	Very Likely, Possible, Insignificant
Fluvial / Tidal	The site is within Flood Zone 1, <0.1% Flood Risk – Possible.
Coastal - Sea	N/A
Costal – Estuarine	N/A
Pluvial / Sheet Runoff	Flood Risk – Possible.
Sewer – SWS, FWS, CS	Flood Risk – Possible.
Groundwater	Geological maps (Sheet No. 270) show that the site is underlain by River Terraces. The groundwater levels for the site are unknown. However, due to the proximity of Yeading Brook and the two branches of the Grand Union Canal, it is assumed the groundwater table is shallow. The Environment Agency holds no information with regards to ground water levels for the site or in close proximity. Flood Risk - Possible
Dam Breach	The site is not within the vicinity of any dams. Flood Risk - Negligible
Canal	Canals have controlled levels due to locks and limited flow, therefore the risk of flooding is minimal. Flood Risk - Possible
Major Water Main	There are no major water mains within the vicinity of the site Flood Risk - Negligible
Other Sources	

5 Flood Risk Mitigation Measures

5.1 FLUVIAL

5.1.1 The Environment agency has confirmed that the entire site is located within Flood Zone 1. The annual probability of flooding is 1 in 1,000 years or less. Therefore increased flood flows due to climate change will not have a significant effect on the proposed development.

5.2 FINISHED FLOOR LEVELS

5.2.1 Although the site is located within Flood Zone 1 it is proposed that finished floor levels will be set at a minimum of 150-300mm above the proposed ground levels, thereby reducing the risk of localised onsite flooding to the development over its lifetime.

5.3 SAFE DRY ACCESS AND EGRESS

5.3.1 As the site does not flood in the 1 in 1,000 year event, there will be no problems with safe dry access and egress. In extreme events in excess of 1 in 1,000 years safe dry access and egress is available from the site via the proposed site access on North Hyde Gardens Road away from the floodplain to the highway network in the vicinity of the site.

5.4 GROUNDWATER

5.4.1 The BGS Map extracts indicate that the site is underlain by geology which is classified as a 'major aquifer'. These are highly permeable formations usually with a known or probable presence of significant fracturing. They may be highly productive and able to support large abstractions for public water supply and other purposes. However the Environment Agency has confirmed that there are no groundwater sites within 2km of the site.

5.4.2 There are no records of groundwater flooding in the vicinity of the site.

5.5 PLUVIAL

5.5.1 There are no records of overland flows from the site flooding areas downstream. The proposed surface water drainage system will attenuate these flows in future and control discharge rates which will not exacerbate flooding in areas downstream of the site.

5.6 GEOLOGY

5.6.1 Due to the vicinity of the watercourses it is anticipated that the site may have a shallow ground water table at the proposed site. The Environment Agency holds no information with regards to ground water levels for the site or in close proximity.

5.6.2 It is advised that an intrusive site investigation is undertaken before works commence on site. So appropriate risk mitigation measures can be put in place for the proposed development.

5.7 RESERVOIRS, CANALS, AND OTHER INFRASTRUCTURE

5.7.1 There are no records of flooding from manmade infrastructure. It should be noted as the canal is a managed water course, this is considered as a residual risk.

5.7.2 British Waterways has confirmed that they have no records of breaching or overtopping within this section of the canal.

5.8 SEWER FLOODING

There are no records of the existing surface water sewer's flooding the proposed development site.

6 Drainage Strategy for the Proposed Development

6.1 EXISTING SURFACE WATER DRAINAGE REGIME

6.1.1 A detailed drainage survey of the existing site has not been undertaken at the time of writing this report.

6.1.2 Aerial photography indicates that large stockpiles of material and present across the site together with areas of hard-standing associated with its previous use.

6.1.3 It is assumed that the existing flows from surface water infiltrate directly into the local ground.

6.2 PROPOSED SURFACE WATER DRAINAGE STRATEGY

6.2.1 The proposal for disposing surface water from the site is subject of a separate report which will accompany the planning application.

7 Residual Risk

7.1 REMAINING FLOOD RISKS

7.1.1 The Grand Union Canal and the Grand Union Canal Paddington Branch are situated within close proximity of the proposed development. There is a small risk that the canal could overtop during an extreme event or breach.

7.2 MANAGEMENT OF REMAINING FLOOD RISKS – OVER DEVELOPMENT LIFESPAN

7.2.1 Flood defences are not required for the proposed development site.

7.2.2 It is proposed to raise the floor levels within the development above the level of the canal.

8 Conclusions

8.1 CONCLUSIONS

8.1.1 FM Conway is seeking permission to redevelop land at Bulls Bridge Road, Hayes for use as an Aggregate Recycling Plant, Asphalt Plant and Gully Waste Recycling Plant at Former Powergen Site, North Hyde Gardens.

8.1.2 The site previous uses included a creosote works and storage facility. The structures have since been demolished with some stockpiles and areas of hardstanding still remaining.

8.1.3 The Environment Agency's flood map shows the site as lying within Flood Zone 1 where annual probability of flooding is less than 1 in 1000 years (<0.1%).

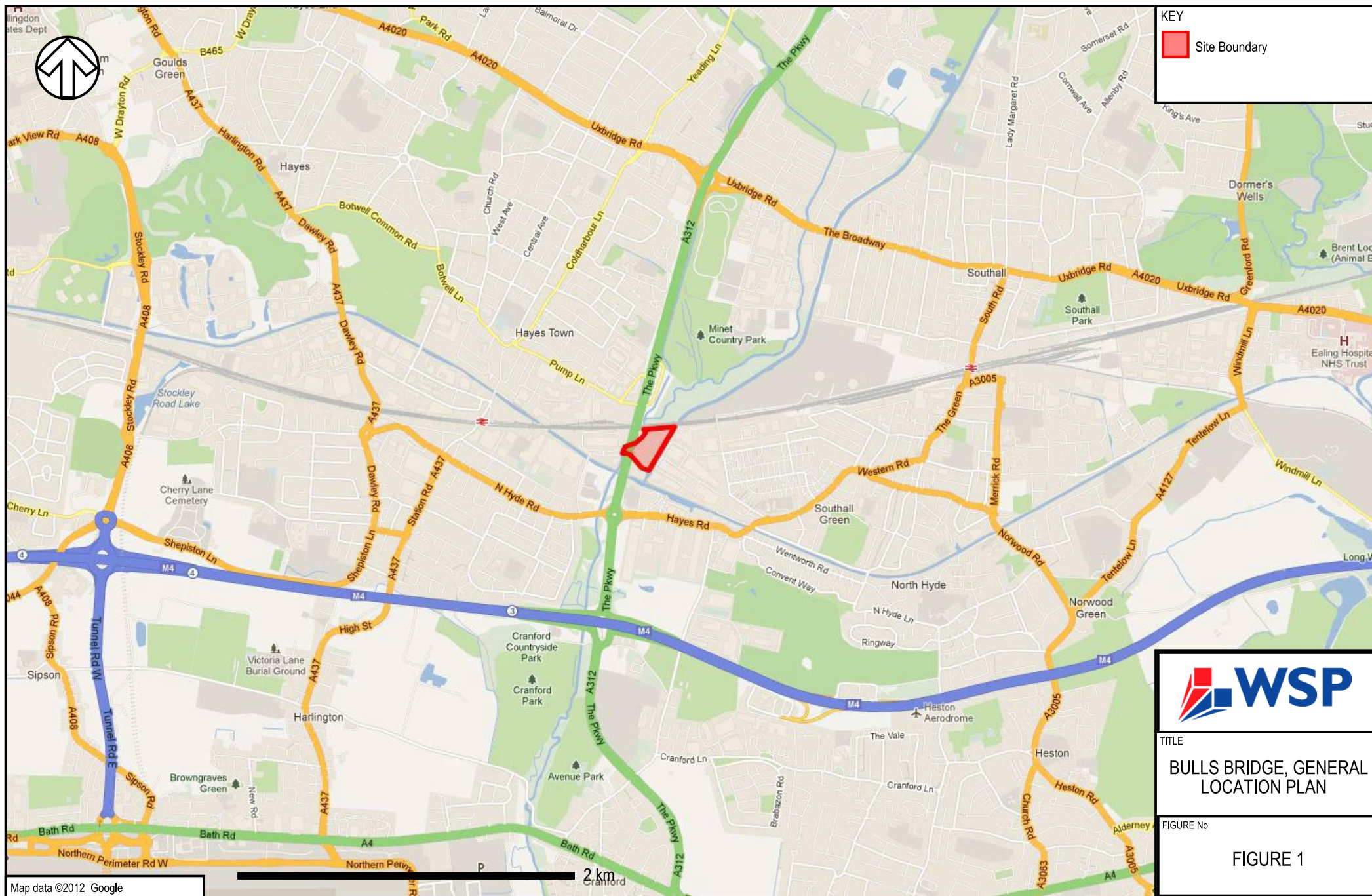
8.1.4 Table 2 of the NPPF classifies buildings used for waste treatment as 'highly vulnerable'. The NPPF identifies 'highly vulnerable' as suitable for development in Flood Zone 1. Therefore the sequential test is passed by the proposed development.

8.1.5 Response from the consulted authorities and Thames Water indicated that the site has no history of flooding. The risk of flooding is negligible and no mitigation measures are necessary.

8.1.6 For events more extreme than the 1 in 1000 year the site can be evacuated and no residential development is proposed as part of the development.

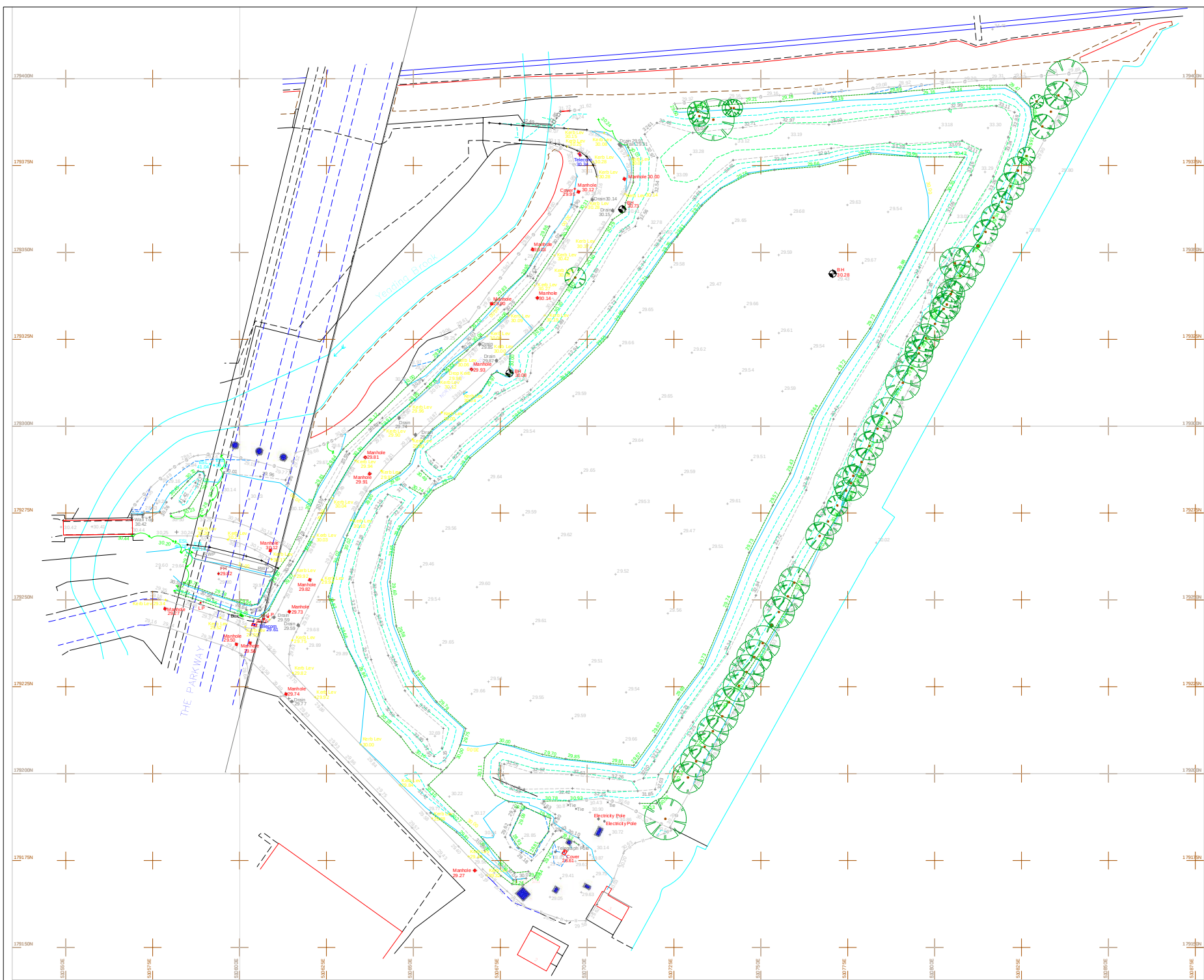
Appendices, Figures & Tables

Appendix A Location Plans Figure 1 &
Figure 2





Appendix B Topographical Survey



- Key
- Wall or Building Line
 - Door or Window Line
 - Roof or Canopy Line
 - Barrier
 - Chainlink Fence
 - Post & Wire Fence
 - Barbed Wire Fence
 - Post & Rail Fence
 - Iron Railing Fence
 - Clayd Board Fence
 - Gateway
 - Edge of Roadway
 - Edge of Footpath
 - Step
 - Top of Embankment
 - Bottom of Embankment
 - Invert of Ditch
 - Line of Gully
 - Pipeline
 - Edge of Vegetation
 - Hedge
 - Overhead Wires
- KL = Kirt's Level
 DKL = Drop Kirt's Level
 MP = Marker Post
 SV = Stop Valve
 DPC = Damp Proof Course
 DL = Door Level
 FL = Floor Level
 WL = Water Level
 RWP = Rain Water Pipe
 SWP = Soil & Vent Pipe
 WNT = Top of Window
 WNB = Bottom of Window
 WTOP = Top of Wall
 FTOP = Top of Fence
 HTOP = Top of Hedge
 BTOP = Top of Bushes
 TTOP = Top of Tree
- Note:
 Surveyed by COSTED GPS derived Grid & Datum
 Contours at 1m Interval
 Wall thicknesses are indicative only.

LOCATION

Bulls Bridge
North Hyde Gardens

TITLE

Site Survey Plan.
Surveyed: July 10 & May 12

SCALE

1:500 (A1)

DRAWING No

BBTop512

DATE

04.05.12

DRAWN

CH

REVISED

*

SURVEYED

GR/CH

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Appendix C NPPF Extracts

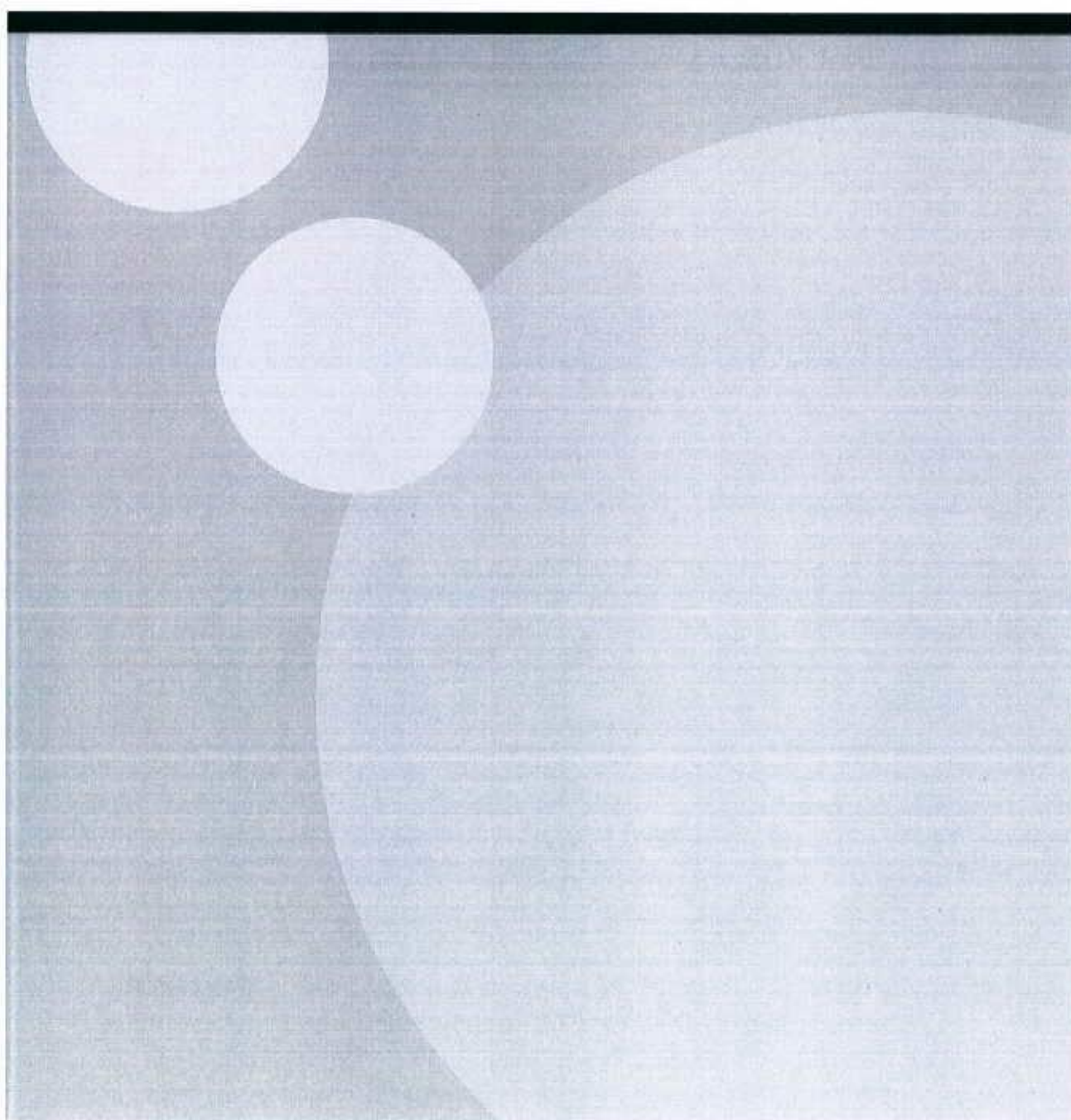


Technical Guidance to the National Planning Policy Framework

March 2012
Department for Communities and Local Government



Technical Guidance to the National Planning Policy Framework



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Introduction

1. This document provides additional guidance to local planning authorities to ensure the effective implementation of the planning policy set out in the National Planning Policy Framework on development in areas at risk of flooding and in relation to mineral extraction. This guidance retains key elements of Planning Policy Statement 25 and of the existing minerals policy statements and minerals planning guidance notes which are considered necessary and helpful in relation to these policy areas. The retention of this guidance is an interim measure pending a wider review of guidance to support planning policy.

Flood risk

2. As set out in the National Planning Policy Framework, inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere. For these purposes:
 - “areas at risk of flooding” means land within Flood Zones 2 and 3; or land within Flood Zone 1 which has critical drainage problems and which has been notified to the local planning authority by the Environment Agency;
 - “flood risk” means risk from all sources of flooding - including from rivers and the sea, directly from rainfall on the ground surface and rising groundwater, overwhelmed sewers and drainage systems, and from reservoirs, canals and lakes and other artificial sources.

The Sequential and Exception Tests

3. As set out in the National Planning Policy Framework, the aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. The flood zones (see table 1) are the starting point for this sequential approach. Zones 2 and 3 are shown on the flood map¹ with Flood Zone 1 being all the land falling outside Zones 2 and 3. These flood zones refer to the probability of sea and river flooding only, ignoring the presence of existing defences.
4. Strategic Flood Risk Assessments (see paragraphs 7-8) refine information on the probability of flooding, taking other sources of flooding and the impacts of climate change (see paragraphs 11-15) into account. They provide the basis for applying the Sequential Test, on the basis of the flood zones in table 1. Where table 1

¹ To access the flood map, see the Environment Agency's website at:
<http://www.environment-agency.gov.uk/homeandleisure/floods/default.aspx>

indicates the need to apply the Exception Test (as set out in the National Planning Policy Framework), the scope of a Strategic Flood Risk Assessment will be widened to consider the impact of the flood risk management infrastructure on the frequency, impact, speed of onset, depth and velocity of flooding within the flood zones considering a range of flood risk management maintenance scenarios. Where a Strategic Flood Risk Assessment is not available, the Sequential Test will be based on the Environment Agency flood zones.

5. The overall aim should be to steer new development to Flood Zone 1. Where there are no reasonably available sites in Flood Zone 1, local planning authorities allocating land in local plans or determining planning applications for development at any particular location should take into account the flood risk vulnerability of land uses (see table 2) and consider reasonably available sites in Flood Zone 2, applying the Exception Test if required (see table 3). Only where there are no reasonably available sites in Flood Zones 1 or 2 should the suitability of sites in Flood Zone 3 be considered, taking into account the flood risk vulnerability of land uses and applying the Exception Test if required.

Table 1: Flood zones

(Note: These flood zones refer to the probability of river and sea flooding, ignoring the presence of defences)

Zone 1 - low probability

Definition

This zone comprises land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%).

Appropriate uses

All uses of land are appropriate in this zone.

Flood risk assessment requirements

For development proposals on sites comprising one hectare or above the vulnerability to flooding from other sources as well as from river and sea flooding, and the potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off, should be incorporated in a flood risk assessment. This need only be brief unless the factors above or other local considerations require particular attention.

Policy aims

In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond through the layout and form of the development, and the appropriate application of sustainable drainage systems².

² Sustainable drainage systems cover the whole range of sustainable approaches to surface drainage management. They are designed to control surface water run off close to where it falls and mimic natural drainage as closely as possible.

Zone 2 - medium probability

Definition

This zone comprises land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year.

Appropriate uses

Essential infrastructure and the water-compatible, less vulnerable and more vulnerable uses, as set out in table 2, are appropriate in this zone. The highly vulnerable uses are *only* appropriate in this zone if the Exception Test is passed.

Flood risk assessment requirements

All development proposals in this zone should be accompanied by a flood risk assessment.

Policy aims

In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area through the layout and form of the development, and the appropriate application of sustainable drainage systems.

Zone 3a - high probability

Definition

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

Appropriate uses

The water-compatible and less vulnerable uses of land (table 2) are appropriate in this zone. The highly vulnerable uses should not be permitted in this zone.

The more vulnerable uses and essential infrastructure should only be permitted in this zone if the Exception Test is passed. Essential infrastructure permitted in this zone should be designed and constructed to remain operational and safe for users in times of flood.

Flood risk assessment requirements

All development proposals in this zone should be accompanied by a flood risk assessment.

Policy aims

In this zone, developers and local authorities should seek opportunities to:

- reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage systems;

- relocate existing development to land in zones with a lower probability of flooding; and
- create space for flooding to occur by restoring functional floodplain and flood flow pathways and by identifying, allocating and safeguarding open space for flood storage.

Zone 3b - the functional floodplain

Definition

This zone comprises land where water *has* to flow or be stored in times of flood.

Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. But 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, should provide a starting point for consideration and discussions to identify the functional floodplain.

Appropriate uses

Only the water-compatible uses and the essential infrastructure listed in table 2 that has to be there should be permitted in this zone. It should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows; and
- not increase flood risk elsewhere.

Essential infrastructure in this zone should pass the Exception Test.

Flood risk assessment requirements

All development proposals in this zone should be accompanied by a flood risk assessment.

Policy aims

In this zone, developers and local authorities should seek opportunities to:

- reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage systems;
- relocate existing development to land with a lower probability of flooding.

Table 2: Flood risk vulnerability classification

Essential infrastructure • Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. • Wind turbines.
Highly vulnerable • Police stations, ambulance stations and fire stations and command centres and telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use³. • Installations requiring hazardous substances consent⁴. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as "essential infrastructure")⁵.
More vulnerable • Hospitals. • Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. • Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. • Non-residential uses for health services, nurseries and educational establishments. • Landfill and sites used for waste management facilities for hazardous waste⁶. • Sites used for holiday or short-let caravans and camping, <i>subject to a specific warning and evacuation plan</i>.⁷
Less vulnerable • Police, ambulance and fire stations which are <i>not</i> required to be operational during flooding. • Buildings used for shops, financial, professional and other services,

³ For any proposal involving a change of use of land to a caravan, camping or chalet site, or to a mobile home site or park home site, the Sequential and Exception Tests should be applied.

⁴ See Circular 04/00: *Planning controls for hazardous substances* (paragraph 18) at: www.communities.gov.uk/publications/planningandbuilding/circularplanningcontrols

⁵ In considering any development proposal for such an installation, local planning authorities should have regard to planning policy on pollution in the National Planning Policy Framework.

⁶ For definition, see *Planning for Sustainable Waste Management: Companion Guide to Planning Policy Statement 10* at

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

⁷ See footnote 3.

restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non-residential institutions not included in "more vulnerable", and assembly and leisure.

- Land and buildings used for agriculture and forestry.
- Waste treatment (except landfill and hazardous waste facilities).
- Minerals working and processing (except for sand and gravel working).
- Water treatment works which do *not* need to remain operational during times of flood.
- Sewage treatment works (if adequate measures to control pollution and manage sewage during flooding events are in place).

Water-compatible development

- Flood control infrastructure.
- Water transmission infrastructure and pumping stations.
- Sewage transmission infrastructure and pumping stations.
- Sand and gravel working.
- Docks, marinas and wharves.
- Navigation facilities.
- Ministry of Defence defence installations.
- Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.
- Water-based recreation (excluding sleeping accommodation).
- Lifeguard and coastguard stations.
- Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.
- Essential ancillary sleeping or residential accommodation for staff required by uses in this category, *subject to a specific warning and evacuation plan.*

Notes to table 2:

- a. This classification is based partly on Department for Environment, Food and Rural Affairs and Environment Agency research on *Flood Risks to People (FD2321/TR2)*⁸ and also on the need of some uses to keep functioning during flooding.
- b. Buildings that combine a mixture of uses should be placed into the higher of the relevant classes of flood risk sensitivity. Developments that allow uses to be distributed over the site may fall within several classes of flood risk sensitivity.
- c. The impact of a flood on the particular uses identified within this flood risk vulnerability classification will vary within each vulnerability class. Therefore, the flood risk management infrastructure and other risk mitigation measures needed to ensure the development is safe may differ between uses within a particular vulnerability classification.

⁸ See website for further details.

www.defra.gov.uk/science/Project_Data/DocumentLibrary/FD2320-3364_TRP.pdf

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.

Notes to table 3:

This table does not show:

- the application of the Sequential Test which guides development to Flood Zone 1 first, then Zone 2, and then Zone 3;
- flood risk assessment requirements; or
- the policy aims for each flood zone.

Flood risk assessment

- Properly prepared assessments of flood risk will inform the decision-making process at all stages of development planning. A Strategic Flood Risk Assessment is a study carried out by one or more local planning authorities to assess the risk to an area from flooding from all sources, now and in the future, taking account of the impacts of climate change, and to assess the impact that changes or development in the area will have on flood risk. It may also identify, particularly at more local levels, how to manage those changes to ensure that flood risk is not increased. A site-specific flood risk assessment is carried out by, or on behalf of, a developer to assess the risk to a development site and 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. There should be iteration between the different levels of flood risk assessment.

Strategic Flood Risk Assessment

- As set out in the National Planning Policy Framework, Local Plans should be supported by Strategic Flood Risk Assessment. The Strategic Flood Risk Assessment should be prepared in consultation with the Environment Agency,

local planning authorities' own functions of emergency response and drainage authority under the Land Drainage Act 1991, and where appropriate, internal drainage boards. Initially the Strategic Flood Risk Assessment will be used to refine information on the areas that may flood, taking into account other sources of flooding and the impacts of climate change, in addition to the information on the flood map. Local planning authorities should use the Strategic Flood Risk Assessment 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 Strategic Flood Risk Assessment should be used to inform the sustainability appraisal (incorporating the Strategic Environmental Assessment Directive) of local development documents, and will provide the basis from which to apply the Sequential Test and Exception Test in the development allocation and development control process.

8. Where local planning authorities 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 Strategic Flood Risk Assessment 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 Strategic Flood Risk Assessment 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.

Site-specific flood risk assessment

9. As set out in the National Planning Policy Framework, local planning authorities should only consider development in flood risk areas appropriate where informed by a site-specific flood risk assessment⁹. 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 so that the development remains safe throughout its lifetime, taking climate change into account. Those proposing developments should take advice from the emergency services when producing an evacuation plan for the development as part of the flood risk assessment.

⁹ The Environment Agency provides 'standing advice' on flood risk – see the Agency's website at: <http://www.environment-agency.gov.uk/research/planning/82584.aspx>. Applicants for planning permission will find this advice helpful when preparing a site-specific flood risk assessment for, and before designing, a lower risk development (and for ensuring extensions or alterations are designed and constructed to conform to any flood protection already incorporated in the property and include flood resilience measures in the design). The Agency also provides standing advice to enable local planning authorities to clearly identify the type of planning applications on which they should consult the Agency, and to make decisions on low risk applications where flood risk is an issue, without directly consulting the Agency for an individual response.

10. Minor developments¹⁰ are unlikely to raise significant flood risk issues unless they would:

- have an adverse effect on a watercourse, floodplain or its flood defences;
- would impede access to flood defence and management facilities; or
- where the cumulative impact of such developments would have a significant effect on local flood storage capacity or flood flows.

Taking climate change into account

11. Global sea level will continue to rise, depending on greenhouse gas emissions and the sensitivity of the climate system. The relative sea level rise in England also depends on the local vertical movement of the land, which is generally falling in the south-east and rising in the north and west. In preparing a Strategic Flood Risk Assessment or a site-specific flood risk assessment, the allowances for the rates of relative sea level rise shown in table 4 should be used as a starting point for considering flooding from the sea, along with the sensitivity ranges for wave height and wind speed in table 5.

Table 4: Recommended contingency allowances for net sea level rises

	Net sea level rise (mm per year) relative to 1990			
	1990 to 2025	2025 to 2055	2055 to 2085	2086 to 2115
East of England, east midlands, London, south-east England (south of Flamborough Head)	4.0	8.5	12.0	15.0
South-west England	3.5	8.0	11.5	14.5
North-west England, north-east England (north of Flamborough Head)	2.5	7.0	10.0	13.0

Notes to table 4:

- a. For deriving sea levels up to 2025, the 4mm per year, 3mm per year and 2.5mm per year rates (covering the three geographical groups respectively), should be applied back to the 1990 base sea level year. From 2026 to 2055, the increase in sea level in this period is derived by adding the number of years on from 2025 (to 2055), multiplied by the respective rate shown in the table. Subsequent time periods 2056 to 2085 and 2086 to 2115 are treated similarly.

¹⁰ Minor development means:

- Minor non-residential extensions: industrial/commercial/leisure etc. extensions with a footprint less than 250sqm.
- Alterations: development that does not increase the size of buildings e.g. alterations to external appearance.
- Householder development: e.g. sheds, garages, games rooms etc. within the curtilage of the existing dwelling in addition to physical extensions to the existing dwelling itself. This definition excludes any proposed development that would create a separate dwelling within the curtilage of the existing dwelling e.g. subdivision of houses into flats.

- b. Refer to Department for Environment, Food and Rural Affairs *FCDPAG3 Economic Appraisal Supplementary Note to Operating Authorities – Climate Change Impacts*, October 2006, for details of the derivation of this table. In particular, Annex A1 of this Note shows examples of how to calculate sea level rise.
 - c. Vertical movement of the land is incorporated in the table and does not need to be calculated separately.
12. The rise in sea level will change the frequency of occurrence of high water levels relative to today's sea levels, assuming no change in storminess. There may also be secondary impacts such as changes in wave heights due to increased water depths, as well as possible changes in the frequency, duration and severity of storm events. A 10 per cent sensitivity allowance should be added to offshore wind speeds and wave heights by the 2080s.
13. In making an assessment of the impacts of climate change on flooding from the land, rivers and sea as part of a flood risk assessment, the sensitivity ranges in table 5 may provide an appropriate precautionary response to the uncertainty about climate change impacts on rainfall intensities, river flow, wave height and wind speed.

Table 5: Recommended national precautionary sensitivity ranges for peak rainfall intensities, peak river flows, offshore wind speeds and wave heights

Parameter	1990 to 2025	2025 to 2055	2055 to 2085	2085 to 2115
Peak rainfall intensity	+5%	+10%	+20%	+30%
Peak river flow	+10%	+20%		
Offshore wind speed	+5%		+10%	
Extreme wave height	+5%		+10%	

Notes to table 5:

- a. Refer to Department for Environment, Food and Rural Affairs *FCDPAG3 Economic Appraisal Supplementary Note to Operating Authorities – Climate Change Impacts*, October 2006, for details of the derivation of this table.
 - b. For deriving peak rainfall, for example, between 2025 and 2055 multiply the rainfall measurement (in mm per hour) by 10 per cent and between 2055 and 2085 multiply the rainfall measurement by 20 per cent. So, if there is a 10mm per hour event, for the 2025 to 2055 period this would equate to 11mm per hour; and for the 2055 to 2085 period, this would equate to 12mm per hour. Other parameters in table 5 are treated similarly.
14. Sensitivity testing of the flood map produced by the Environment Agency, using the 20 per cent from 2025 to 2115 allowance for peak flows, suggests that changes in the extent of inundation are negligible in well-defined floodplains, but can be dramatic in very flat areas. However, changes in the depth of flooding under the same allowance will reduce the return period of a given flood. This

means that a site currently located within a lower risk zone (e.g. Zone 2 in table 1) could in future be re-classified as lying within a higher risk zone (e.g. Zone 3a in table 1). This in turn could have implications for the type of development that is appropriate according to its vulnerability to flooding (see table 2). It will therefore be important that developers, their advisors and local authorities refer to the current flood map and the Strategic Flood Risk Assessment when preparing and considering proposals.

15. Flooding in estuaries may result from the combined effects of high river flows and high sea surges. When taking account of impacts of climate change in flood risk assessments covering tidal estuaries, it will be necessary for the allowances for sea level rise in table 4 and the allowances for peak flow, wave height and wind speed in table 5 to be combined.¹¹

Managing residual flood risk

16. Residual risks are those remaining after applying the sequential approach and taking mitigating actions. It is the responsibility of those planning development to fully assess flood risk, propose measures to mitigate it and demonstrate that any residual risks can be safely managed. Flood resistance and resilience measures should not be used to justify development in inappropriate locations.

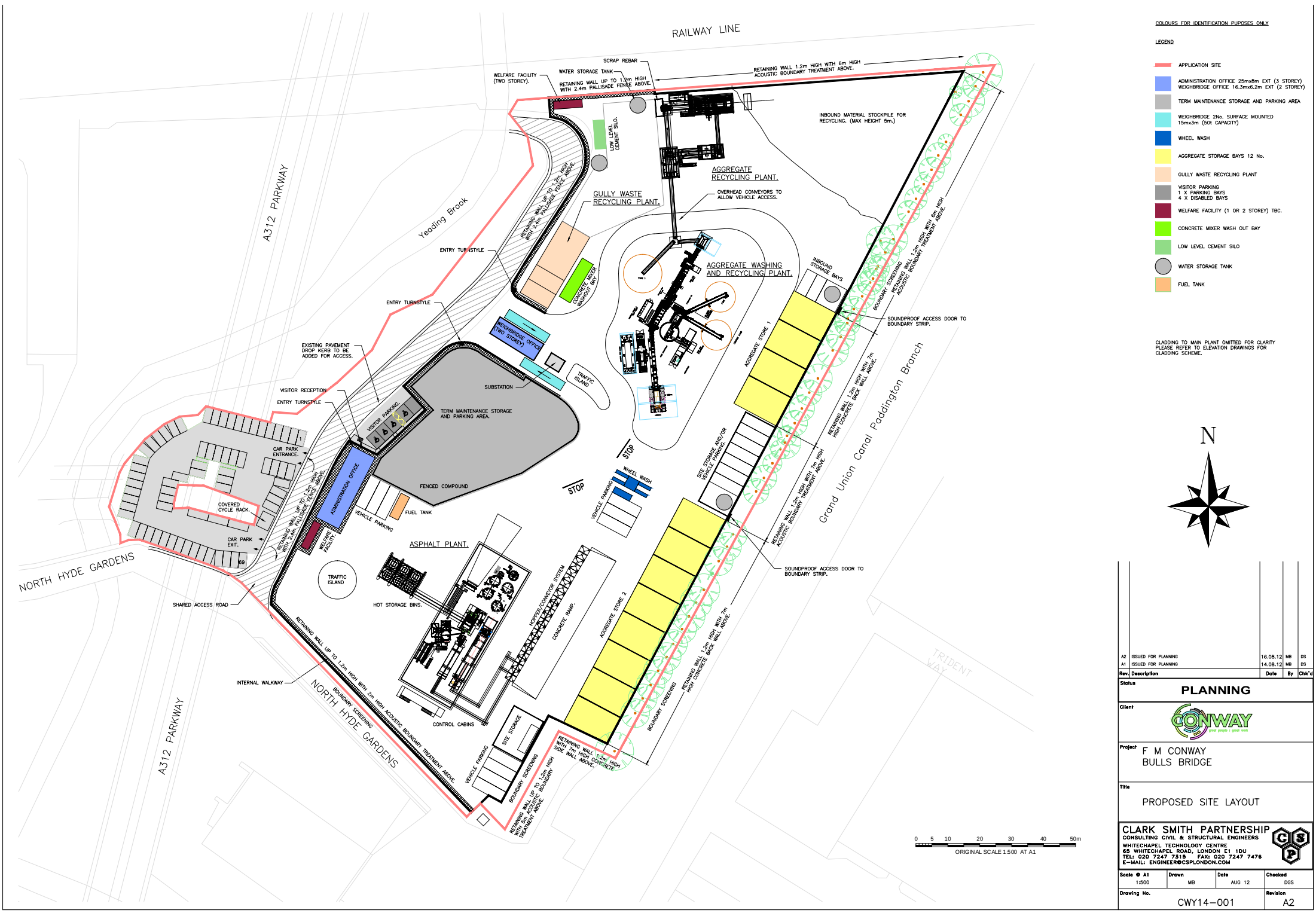
Flood resilience and resistance

17. The relative benefits of resilient and resistant construction have been assessed both through risk assessment and the real time testing of model forms of construction. Resilient construction is favoured because it can be achieved more consistently and is less likely to encourage occupiers to remain in buildings that could be inundated by rapidly rising water levels.
18. Flood-resilient buildings are designed to reduce the consequences of flooding and facilitate recovery from the effects of flooding sooner than conventional buildings. This may be achieved through the use of water-resistant materials for floors, walls and fixtures and the siting of electrical controls, cables and appliances at a higher than normal level. The lower floors of buildings in areas at medium and high probability of flooding should be reserved for uses consistent with table 1. If the lowest floor level is raised above the predicted flood level, consideration must be given to providing access for those with restricted mobility. In considering appropriate resilience measures, it will be necessary to plan for specific circumstances and have a clear understanding of the mechanisms that lead to flooding and the nature of the flood risk by undertaking a flood risk assessment.
19. Flood-resistant construction can prevent entry of water or minimise the amount of water that may enter a building where there is flooding outside. This form of construction should be used with caution and accompanied by resilience

¹¹ Refer to Defra FCDPAG3 *Economic Appraisal Supplementary Note to Operating Authorities – Climate Change Impacts*, October 2006. Annex A2 gives details of joint probability analysis.
www.defra.gov.uk/environ/fcd/pubs/pagn/climatechangeupdate.pdf

measures, as effective flood exclusion may depend on occupiers ensuring some elements, such as barriers to doorways, are put in place and maintained in a good state. Buildings may also be damaged by water pressure or debris being transported by flood water. This may breach flood-excluding elements of the building and permit rapid inundation. Temporary and demountable defences are not normally appropriate for new developments.

Appendix D Proposed Masterplan



COLOURS FOR IDENTIFICATION PURPOSES ONLY

LEGEND

- APPLICATION SITE
- ADMINISTRATION OFFICE 25mx8m EXT (3 STOREY)
- WEIGHBRIDGE OFFICE 16.3mx6.2m EXT (2 STOREY)
- TERM MAINTENANCE STORAGE AND PARKING AREA
- WEIGHBRIDGE 2No. SURFACE MOUNTED 15mx3m (50t CAPACITY)
- WHEEL WASH
- AGGREGATE STORAGE BAYS 12 No.
- GULLY WASTE RECYCLING PLANT
- VISITOR PARKING 1 X PARKING BAYS 4 X DISABLED BAYS
- WELFARE FACILITY (1 OR 2 STOREY) TBC
- CONCRETE MIXER WASH OUT BAY
- LOW LEVEL CEMENT SILO
- WATER STORAGE TANK
- FUEL TANK

CLADDING TO MAIN PLANT OMITTED FOR CLARITY PLEASE REFER TO ELEVATION DRAWINGS FOR CLADDING SCHEME.



A2	ISSUED FOR PLANNING	16.08.12	MB	DS	
A1	ISSUED FOR PLANNING	14.08.12	MB	DS	
Rev:	Description	Date	By	Chk'd	
Status					
PLANNING					
Client					
					
Project					
F M CONWAY BULLS BRIDGE					
Title					
PROPOSED SITE LAYOUT					
CLARK SMITH PARTNERSHIP CONSULTING CIVIL & STRUCTURAL ENGINEERS WHITECHAPEL TECHNOLOGY CENTRE 65 WHITECHAPEL ROAD, LONDON E1 1DU TEL: 020 7247 7315 FAX: 020 7247 7476 E-MAIL: ENGINEERS@CSLONDON.COM					
					
Scale	© A1 1:500	Drawn MB	Date AUG 12	Checked DGS	
Drawing No.					Revision
CWY14-001					A2

Appendix E Third Party Correspondence

John Ward
WSP
By email
John.ward@wspgroup.com

Our ref: NE24872/AS
Date: 28 September 2010

Dear Mr Ward

FRA data for site at Bulls Bridge, Middlesex, London, UB2 5LX

Thank you for your enquiry.

1. The site in question is outside any known main river flood plain. This means that the chance of river flooding is less than 0.1% in any given year.

We advise you to contact the local water company regarding previous or potential flooding from sewers. You may also wish to contact the local authority regarding flooding from any non-main rivers or surface water runoff.

2. We have no information relating to how the canal connects to any other watercourse, or its effects on the base flows/flood levels of the Yeading Brook.
3. I have no record of river flooding at this site.
4. We have no relevant flood level data for this site.
5. Please contact British Waterways for information on structures that might control flow.
6. There are no groundwater flooding incidents recorded within a two kilometre radius of the site.

There is drift material at the site, so there could be a risk of intercepting groundwater and having flooding as a result, but we have no direct record of this happening.

7. We have no details regarding standard and level of flood protection currently afforded to this site.
8. Please see the attached aquifer classification maps for bedrock and drift.

9. There are no drift groundwater levels available, but within confined Chalk below the London Clay, levels are about 20 metres below ground level.
10. There are no source protection zones within 8 kilometres of the site.
11. We have no relevant hydraulic modeling to supply for this site.

In answer to your remaining questions, the Development and Flood Risk engineer for this site is Sarah Jasper. Sarah's can be reached on 01707 632461.

I have forwarded the pre-planning part(s) of your request to our Planning team. They will contact you within 21 days.

Our Planning team offer a free Pre-Planning Service, and can give you advice on any major environmental issues relating to your development site.

Using this service could help you design a more environmentally sustainable site, and help to ensure you have included all of the relevant information in your application - saving you time and money.

You can contact the Planning team directly by emailing them at colneplanning@environment-agency.gov.uk

If I can be of any further help, please contact me.

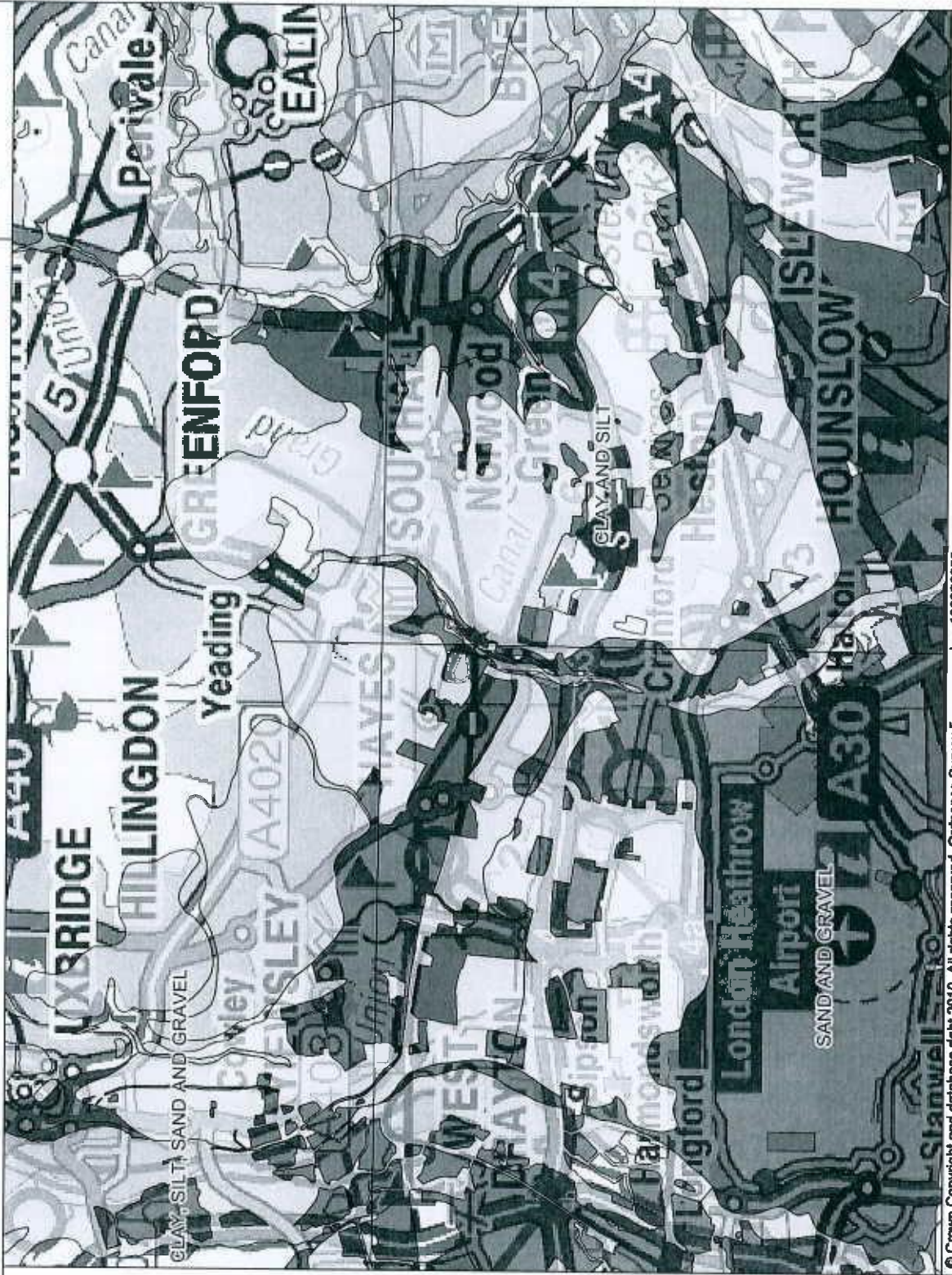
Yours sincerely

Annette Smith
External Relations Officer
Direct dial 01707 632301
Direct fax 01707 632 610
Direct email thnortheast@environment-agency.gov.uk

GW Characterisation drift

Legend Aquifer Designation (Superficial)

- Principal
- Secondary A
- Secondary B
- Secondary (unclassified)
- Unknown (Litho and Landuse)
- Unproductive

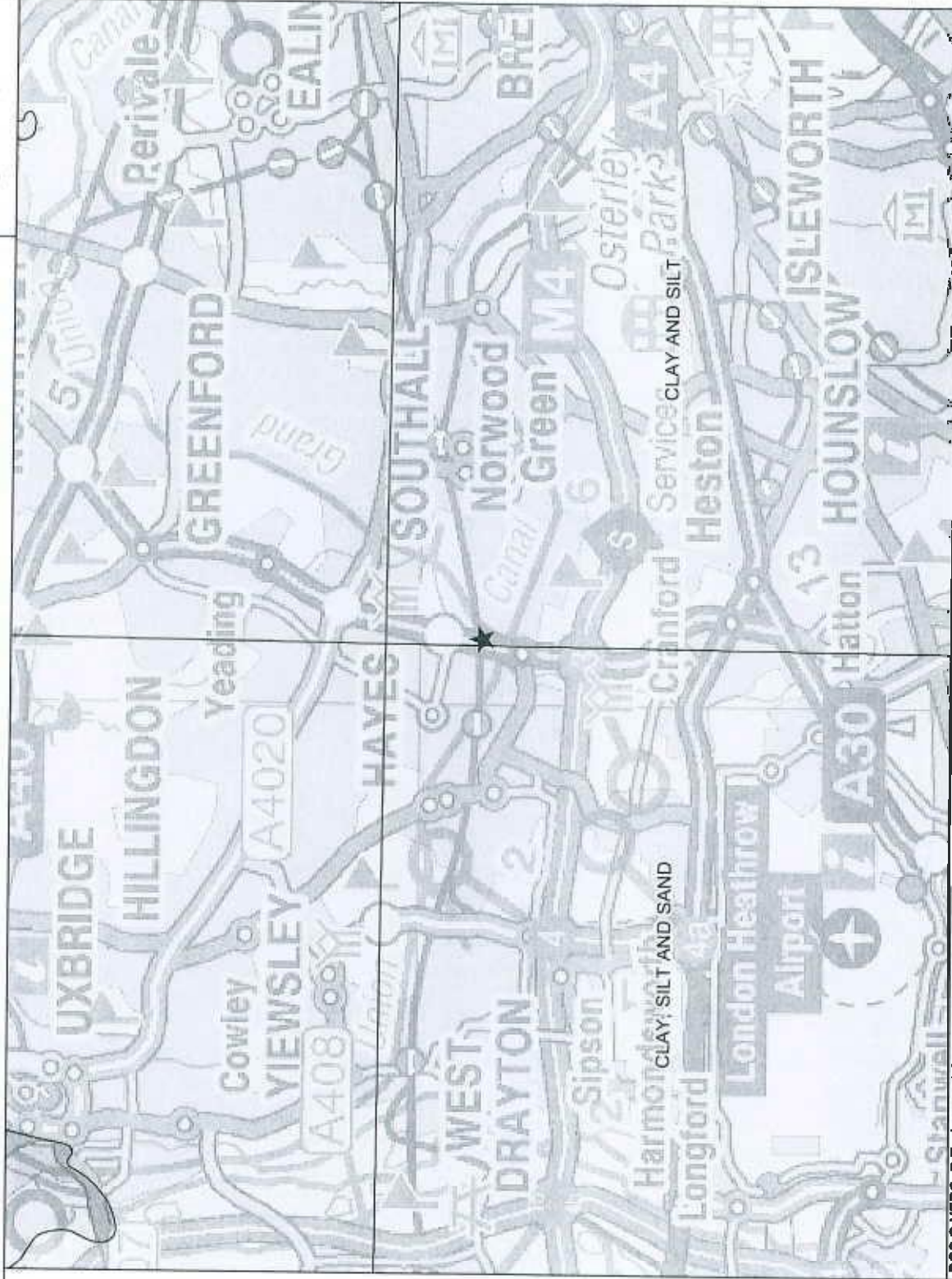


GW Characterisation bedrock



Legend Aquifer Designation (Bedrock)

- Principal
- Secondary A
- Secondary B
- Secondary (undifferentiated)
- Unproductive



Use of Environment Agency Information for Flood Risk Assessments / Flood Consequence Assessments

Important

If you have requested this information to help inform a development proposal, then you should note the following:

In **England**, you should refer to the Environment Agency's Flood Risk Standing Advice and PPS25 and its associated Practice Guide for information about what flood risk assessment is needed for new development in the different flood zones. These documents can be accessed via:

<http://www.environment-agency.gov.uk/research/planning/82587.aspx>

<http://www.communities.gov.uk/publications/planningandbuilding/pps25floodrisk>

<http://www.communities.gov.uk/publications/planningandbuilding/pps25practiceguide>

You should also consult the Strategic Flood Risk Assessment produced by your local planning authority.

In **Wales**, you should refer to TAN15 for information about what flood consequence assessment is needed for new development in the different flood zones

<http://new.wales.gov.uk/topics/planning/policy/tans/tan15?lang=en>

You should also refer to any Strategic Flood Consequence Assessment produced by your local planning authority.

In **both England and Wales** you should note that:

1. Information supplied by the Environment Agency may be used to assist in producing a flood risk or flood consequence assessment (FRA/FCA) where one is required, but does not constitute such an assessment on its own.
2. This information covers flood risk from main rivers and the sea, and you will need to consider other potential sources of flooding, such as groundwater or overland runoff. The information produced by the local planning authority referred to above may assist here.
3. Where a planning application requires a FRA/FCA and this is not submitted or deficient, the Environment Agency may well raise an objection.
4. For more significant proposals in higher flood risk areas, we would be pleased to discuss details with you ahead of making any planning application, and you should also discuss the matter with the local planning authority.

Standard Notice – Commercial



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We, the Environment Agency, do not promise that the information supplied to you will always be accurate, complete or up to date or that the information will provide any particular facilities or functions or be suitable for any particular purpose. You, the recipient of the information must ensure that the information meet your needs and are entirely responsible for the consequences of using the information.

If an electronic format has been used, we do not promise that the media on which the information is provided will always be free from defects, computer viruses, worms, Trojan horses, software locks or other similar code of a destructive or unwelcome nature. You should carry out all necessary checks prior to loading the information on to your computer system. Please also note any specific information warning supplied to you.

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- the Contractor does not pass the information to any person other than the person contracting with them or a subcontractor who complies with these conditions

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"Regulatory Use" means inclusion of a Fixed Format unaltered extract of information in any documentation that you are required to supply to a court, tribunal or regulatory body (but not including a trade association) where the inclusion of such extract is reasonably necessary in connection with a hearing, application or other judicial or regulatory process

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In consideration of the payment of our standard supply charges including the optional internal as-is use licence fee (currently £10) we hereby grant to you a non-transferable, non-exclusive, perpetual licence subject to the terms of this agreement to make internal as-is use of the information, including Contractor Use, Professional Use and Regulatory Use which are deemed to be internal. This licence is given to you personally and not to anyone else

3. Your Obligations

3.1 You must not make any use of information that is not permitted

3.2 All copies you make must be attributed to us

3.3 Any intended use of information must not represent a risk of:

- being misleading to anyone you are allowed to pass the information to,
- detriment to the Agency's ability to achieve its objectives, or
- detriment to the environment, including the risk of reduced future enhancement, or
- being prejudicial to the effective management of information held by the Agency, or
- damage to the Agency's reputation

4. Limitation of Liability

We will under no circumstance be liable for indirect, special, or consequential damages including any loss of business, revenue, profits, goodwill, reputation, anticipated savings or data in relation to your use of the information supplied to you. Nothing within this Agreement will operate to exclude any liability for death or personal injury arising as result of the negligence of the Environment Agency, or any of their employees or agents. Any implied promise or warranty is excluded as far as the law allows. Our maximum aggregate liability in connection with this agreement shall not exceed the total sum of one thousand pounds

5. Intellectual Property Rights

No Intellectual Property Rights are transferred or licensed to you save those which are expressly provided in this agreement

6. Assignment

You may not transfer or in any other way make over to any third party the benefit of this agreement either in whole or in part

7. Waiver

Failure by either of us to exercise or enforce any rights available to it, or any forbearance, delay or grant of indulgence, will not be construed as a waiver of rights under this agreement or otherwise

8. Entire agreement

This agreement constitutes the entire agreement between us and supersedes all oral or written agreements, representations, understandings or arrangements (whether previous, contemporaneous or future) relating to its subject matter. You agree to waive any right to rescind this agreement by virtue of any misrepresentation and not to claim damages for any misrepresentation that is not fraudulent

9. Severance

If any part of the agreement is found by a court of competent jurisdiction or other competent authority to be unenforceable, then that part will be severed from the remainder of the agreement which will continue to be valid and enforceable to the fullest extent permitted by law

10. Variation and Termination

This agreement may not be amended, modified, varied or supplemented but it may if both of us agree be terminated or replaced by a new agreement

11. Relationship of Parties

We are not in a partnership or joint venture, nor is either of us the agent of the other or authorised to act on behalf of the other

12. Rights Of Third Parties

No third parties shall have rights to enforce any part of this agreement under the Contracts (Rights of Third Parties) Act 1999

13. Governing Law

This agreement shall be governed and construed in accordance with English law

Asset Location Search



John Ward
WSP Development and Transportation
Mountbatten House
Basing View
BASINGSTOKE
RG21 4HJ

Search address supplied Bulls Bridge
London
Middlesex
UB2 5LX

Your reference JW/paw/2480

Our reference ALS/ALS Standard/2010_1863980

Search date 10 September 2010

You are now able to order your Asset Location Search requests online by visiting
www.twpropertyinsight.co.uk

Thames Water Utilities Ltd

Property Insight
PO Box 3189
Slough SL1 4WWW

DX 151280 Slough 13

T 0118 925 1504
F 0118 923 6655/57
E searches@thameswater.co.uk
I www.twpropertyinsight.co.uk

Registered in England and Wales
No. 2366361, Registered office
Greenwater Court, Vastern Road
Reading RG1 9DB

Asset Location Search



Search address supplied: Bulls Bridge, London, Middlesex, UB2 5LX

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

This search provides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and Invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0118 925 1504, or use the address below:

Thames Water Utilities Ltd
Property Insight
PO Box 3189
Slough
SL1 4WW

Tel: 0118 925 1504
Fax: 0118 923 6657

Email: searches@thameswater.co.uk
Web: www.twpropertyinsight.co.uk

Thames Water Utilities Ltd

Property Insight
PO Box 3189
Slough SL1 4WW

DX 151260 Slough 13

T 0118 925 1504
F 0118 923 6655/57
E searches@thameswater.co.uk
I www.twpropertyinsight.co.uk

Registered in England and Wales
No. 2388881, Registered office
Clearwater Court, Watlington Road
Reading RG3 8D8

Asset Location Search



Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority.

Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners.

This report relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus.

The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Sewers indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended that these details are checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

With regard to the fresh water supply, this site falls within the boundary of another water company. For more information, please redirect your enquiry to the following address:

**Veolia Water
Tamblyn Way
Hatfield**

Thames Water Utilities Ltd

Property Inflight
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

T 0118 925 1504
F 0118 923 6855/57
E searches@thameswater.co.uk
I www.twpropertyinsight.co.uk

Registered in England and Wales
No. 2306661. Registered office
Clearwater Court, Vostern Road
Reading RG1 8DS

Asset Location Search



AL10 9EZ
Tel: 0845 7823333
Fax: 01707 277104

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

An invoice is enclosed. Please send remittance to Thames Water Utilities Ltd., PO Box 223, Swindon, SN38 2TW.

Thames Water Utilities Ltd

Property Insight
PO Box 3189
Slough SL1 4WWW

DX 151280 Slough 13

T 0118 925 1504
F 0118 923 6655/57
E searches@thameswater.co.uk
I www.twpropertyinsight.co.uk

Registered in England and Wales
No. 2388881, Registered office
Clearwater Court, Vauxhall Road
Reading RG1 8DB

Asset Location Search



Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clear Water Court
Vastern Road
Reading
RG1 8DB

Tel: 0845 850 2777

Fax: 0118 923 6613

Email: developer.services@thameswater.co.uk

Should you require any further information regarding budget estimates, diversions or stopping up notices then please contact:

DevCon Team
Asset Investment
Thames Water
Maple Lodge STW
Denham Way
Rickmansworth
Hertfordshire
WD3 9SQ

Tel: 01923 898 072

Fax: 01923 898 106

Email: devcon.team@thameswater.co.uk

Clean Water queries

Thames Water Utilities Ltd

Property Insight
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

T 0118 925 1504

F 0118 923 6855/57

E searches@thameswater.co.uk

I www.twpropertyinsight.co.uk

Registered in England and Wales
No. 2388851, Registered office
Clearwater Court, Vastern Road
Reading RG1 8DB

Asset Location Search



Should you require any advice concerning clean water operational issues or clean water connections, please contact our Kew Service Desk by writing to:

Clean Water Design
Thames Water Utilities
1 Kew Bridge Road
Brentford
Middlesex
TW8 0EF

Tel: 0845 850 2777
Fax: 0208 213 8833
Email: developer.services@thameswater.co.uk

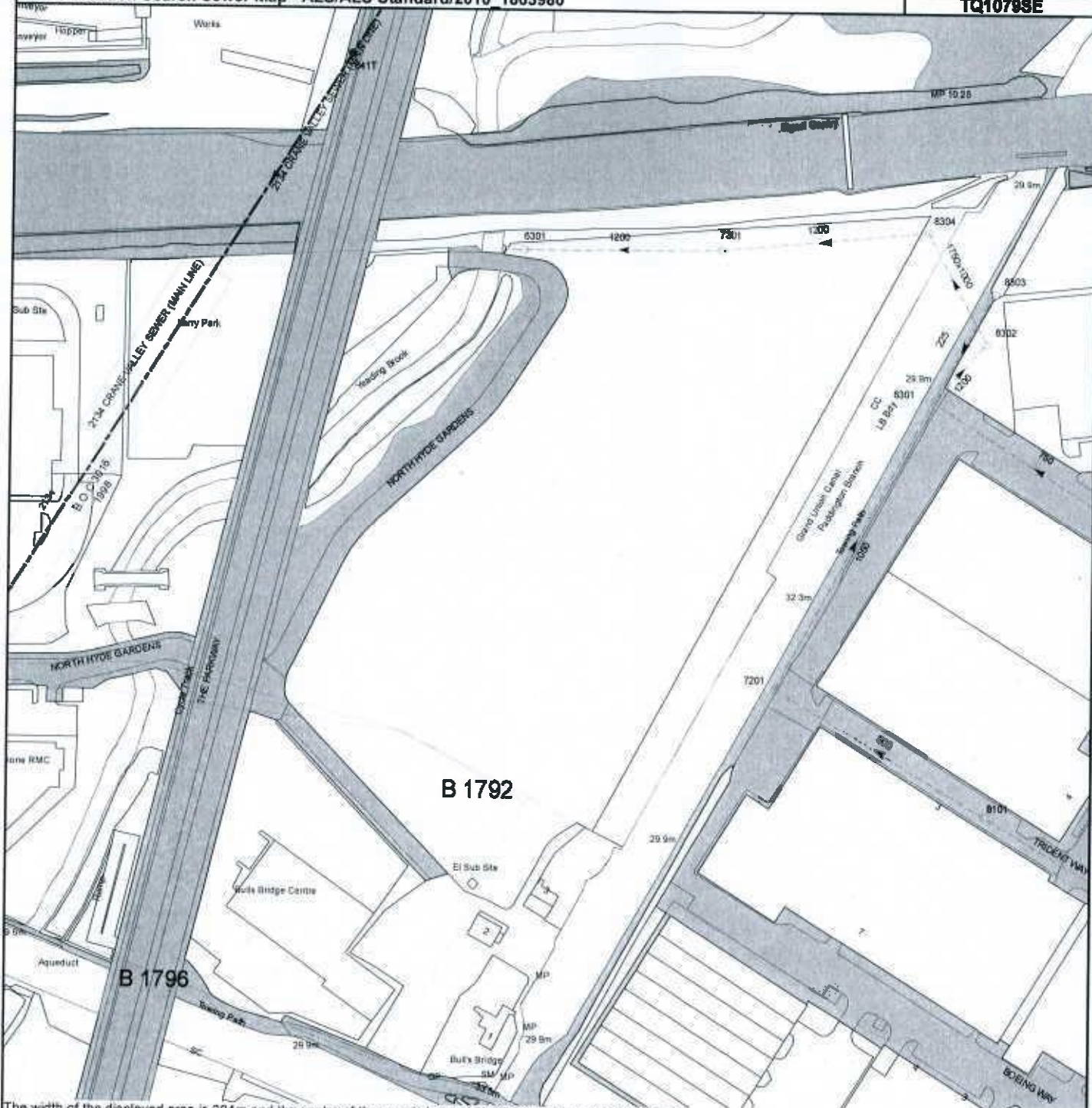
Thames Water Utilities Ltd

Property Insight
PO Box 3189
Slough SL1 4WW

DX 151280 Slough 13

T 0118 925 1504
F 0118 923 6655/57
E searches@thameswater.co.uk
I www.twpropertyinsight.co.uk

Registered in England and Wales
No. 2306661, Registered office
Clearwater Court, Vauxhall Road
Reading RG1 8DB



The width of the displayed area is 384m and the centre of the map is located at OS coordinates 510708,179280

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. WU29557 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
7201	29.86	26.66
7301	29.13	26.64
8301	n/a	26.45
641T	28.67	16.75
8304	29.68	26.78
8101	29.73	26.61
8301	29.94	26.6
8302	30.08	26.98
8303	30.36	26.46

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.



ALS Sewer Map Key

Public Sewer Types (Operated & Maintained by Thames Water)

Foul: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

Surface Water: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

Combined: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

Trunk Surface Water

Trunk Foul

Storm Relief

Trunk Combined

Vent Pipe

Bio-solids (Sludge)

Proposed Thames Surface Water Sewer

Proposed Thames Water Foul Sewer

Gallery

Foul Rising Main

Surface Water Rising Main

Combined Rising Main

Sludge Rising Main

Proposed Thames Water Rising Main

Vacuum

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plans are metric.
- 3) Arrows (on gravity fed sewers) or fleets (on rising mains) indicate direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
- 5) 'nd' or 'U' on a manhole level indicates that data is unavailable.

- 6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimetres. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology present on the plan, please contact a member of Property Inflight on 0118 925 1504.

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

Air Valve

Dam Chase

Filling

Meiler

Vent Column

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream

Control Valve

Drop Pipe

Ancillary

Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

Outfall

Undefined End

Inlet

Other Symbols

Symbols used on maps which do not fall under other general categories

Public/Private Pumping Station

Change of characteristic indicator (C.O.C.I.)

Invert Level

Summit

Areas

Lines denoting areas of underground surveys, etc.

Agreement

Operational Site

Chamber

Tunnel

Candall Bridge

Other Sewer Types (Not Operated or Maintained by Thames Water)

Foul Sewer

Surface Water Sewer

Combined Sewer

Gully

Culverted Watercourse

Proposed

Abandoned Sewer

Terms and Conditions

All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment 14 days from due date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service, or will be held to be invalid.
4. Thames Water does not accept post-dated cheques-any cheques received will be processed for payment on date of receipt.
5. In case of dispute TWUL's terms and conditions shall apply.
6. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
7. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
8. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (TW.cashoperations@npower.com).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0845 9200 800.

If you are unhappy with our service you can speak to your original goods or customer service provider. If you are not satisfied with the response, your complaint will be reviewed by the Customer Services Director. You can write to him at: Thames Water Utilities Ltd. PO Box 492, Swindon, SN38 8TU.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to WaterVoice Thames on 0845 758 1658 (it will cost you the same as a local call) or write to them at 4th Floor (South), High Holborn House, 52-54 High Holborn, London WC1V 6RL.

Ways to pay your bill

By Post – Cheque only , made payable to 'Thames Water Utilities Ltd' writing your Thames Water account number on the back. Please fill in the payment slip below and send it with your cheque to Thames Water Utilities Ltd., PO Box 223, Swindon SN38 2TW	By BACS Payment direct to our bank on account number 90478703, sort code 60-00-01 may be made. A remittance advice must be sent to Thames Water Utilities Ltd., PO Box 223, Swindon SN38 2TW. Or fax to 01793 424599 or email: cashoperations@thameswater.co.uk	Telephone Banking By calling your bank and quoting your invoice number and the Thames Water's bank account number 90478703 and sort code 60-00-01	By Swift Transfer You may make your payment via SWIFT by quoting NWBKGB2L together with our bank account number 90478703, sort code 60-00-01 and invoice number
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Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Cleanwater Court, Vastern Rd, Reading, Berks, RG1 8DB.

Sewer Flooding

History Enquiry



Thames Water Property Searches
12
Vestern Road
Reading
RG1 8DB

Search address supplied Bulls Bridge Road
&
North Hyde Gardens Road
Middlesex
London
UB2 8LX

Your reference

N/A

Our reference

SFH_SFH_Standard_2011_2117501

Search date

7 November 2011

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough SL1 4WW
OX 181280 Slough 18
T 0118 925 1504
F 0118 923 6655/67
A search@thameswater.co.uk
S www.thameswater.co.uk
Registered in England and Wales
No. 1296881 - Registered office
Thames Water Utilities Ltd, Victoria House
Reading RG1 8DB

Sewer Flooding

History Enquiry



Search address supplied: Bulls Bridge Road and North Hyde Gardens
Road, Middlesex, London UB2 5LX

This search is recommended to check for any sewer flooding in a specific address or area

TWUL, trading as Property Searches, are responsible in respect of the following:

- (i) any negligent or incorrect entry in the records searched;
- (ii) any negligent or incorrect interpretation of the records searched;
- (iii) and any negligent or incorrect recording of that interpretation in the search report
- (iv) compensation payments

Thames Water Utilities Ltd
Property Searches
PO Box 4187
Slough SL1 4WW
DX 15190 Slough 13
T 0118 523 1504
F 0118 523 6655/57
E enquiries@thameswater.co.uk
I www.thameswater.co.uk
Registered in England and Wales
No. 2208811, Registered office
Thames Water Utilities Limited, 100 Victoria Road,
Reading, RG2 1AD

Sewer Flooding

History Enquiry



History of Sewer Flooding

Is the requested address or area at risk of flooding due to overloaded public sewers?

The flooding records held by Thames Water indicate that there have been no incidents of flooding in the requested area as a result of surcharging public sewers.

Although Thames Water does not have records of public sewer flooding within the vicinity, please be aware that property owners are not legally obliged to report this flooding to Thames Water. In addition flooding from private sewers, watercourses and highways drains are not the responsibility of Thames Water, and such incidents may not be noted in our records. We therefore strongly advise you to contact the current owners and occupiers of the premises and inquire about sewer flooding.

For your guidance:

- A sewer is "overloaded" when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding as a result of temporary problems such as blockages, vibration, collapses and equipment or operational failures are excluded.
- "Internal flooding" from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business or industrial purposes.
- "At Risk" properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company's reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water on Tel: 0945 9200 800 or website www.thameswater.co.uk

Thames Water Utilities Ltd

Property Services
PO Box 100
Slough SL1 6WH

DX 161200 Slough 13

T 0118 924 1504

F 0118 923 6655/57

www.thameswater.co.uk

Registered in England and Wales

no. 2348661. Registered office

Thames Water Utilities Limited

Reading RG1 3QJ



Case Reference: OSS/11/193930

Ward John

WSP UK Ltd
Mountbatten House
Basing View
Basingstoke
Hampshire
RG21 4HJ

Thames Water Property Insight

Your ref: N/A
Our ref: OSS/11/193930
Phone: 0118 825 1804
Fax: 0118 823 865557
E-Mail: OnlineCustomer@thameswater.co.uk
Web: www.thameswater.co.uk

07-11-2011

Dear Customer

Site Address Supplied: 510655 179151, Bulls Bridge Road, North Hyde Gardens Road, Bulls Bridge, London, Middlesex, UB2 6LX.

Thank you for placing your order with Thames Water Property Insight. Please find enclosed all products relating to your Case reference OSS/11/193930.

If you have any queries regarding these products please do not hesitate to contact us.

Yours faithfully

Customer Support Team
Thames Water Property Insight





Case Reference: OSS/11/193930

Product Name	Date Ordered	Product Status
Sewer Flooding History Enquiry	03-11-2011	Complete

Thames Water Property Insight, PO Box 9160, Bough SL1 4HW

DX 101280 Bough 19

(T) 018 825 1904 (F) 018 825 065537 (E) OnlineCustomer@thameswater.co.uk (W) www.thameswater.co.uk

Registered in England and Wales No. 2349811. Registered Office Chancery Court, Watlington Road, Reading, RG1 8BN



Ward, John

From: Atkinson, Alastair
Sent: 04 October 2010 15:47
To: Wheeler, Martin; Ward, John
Subject: FW: GP-00015 to GP-00040 Bulls Bridge, UB2 5LX - enquiry hydrology of the canal system
Attachments: 100818 British Waterways.pdf; FRA request Bulls Bridge, GU.pdf
Follow Up Flag: Follow up
Flag Status: Completed

FYI

Regards,

Alastair

From: Hilton Guerra [<mailto:Hilton.Guerra@britishwaterways.co.uk>]
Sent: 04 October 2010 15:43
To: Atkinson, Alastair
Subject: GP-00015 to GP-00040 Bulls Bridge, UB2 5LX - enquiry hydrology of the canal system

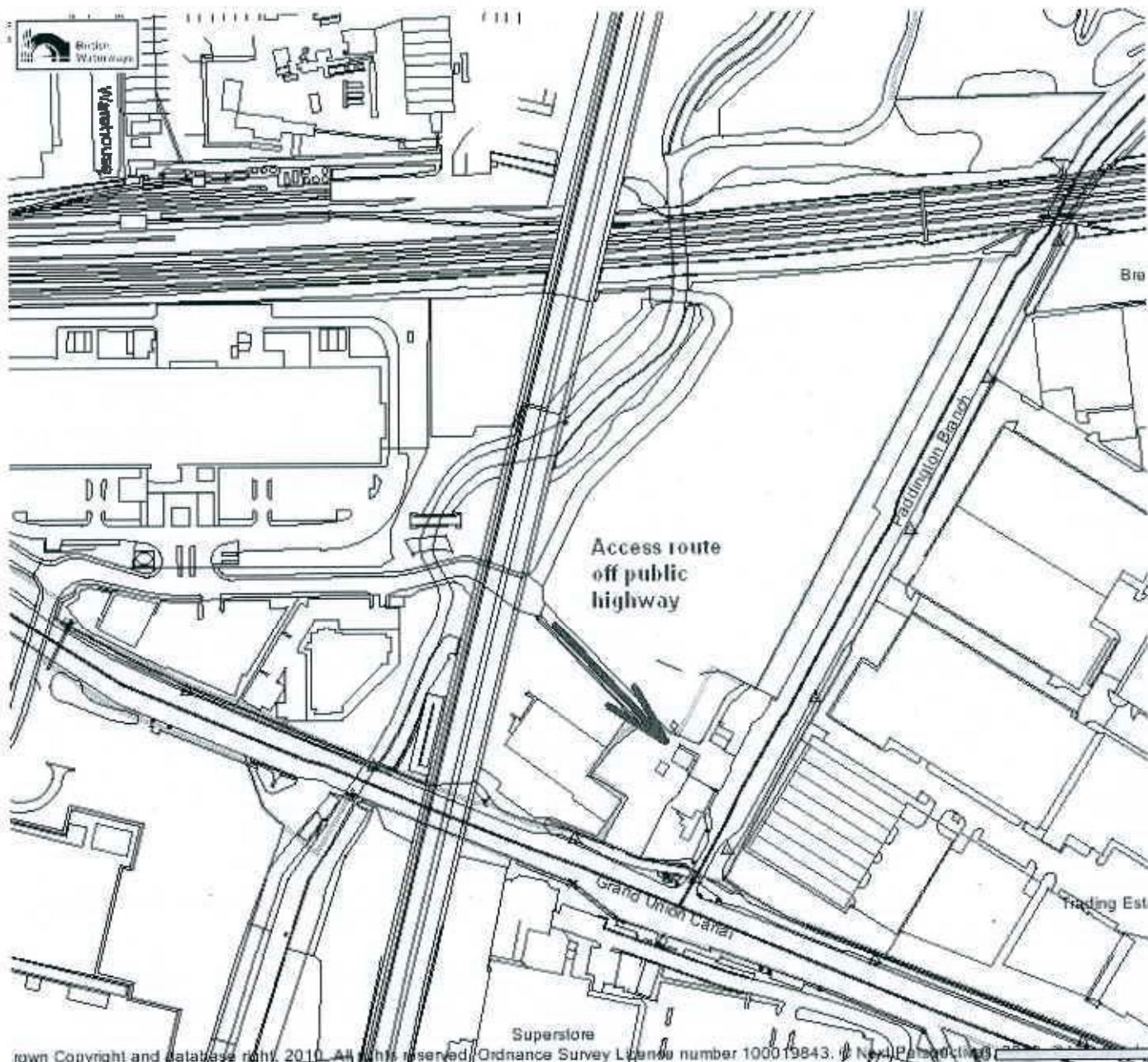
Alastair

My colleague Mike Wheeler has addressed your questions 1 and 2.

Reply to question 3: Whether British Waterways (BW) knows of any easement or access requirement with regards to the developing near the Grand Union Canal?

There is no easement across third party land for access to the canal. BW obtains access via the public highway as indicated on the map extract below and then non-vehicular access along the towpath. There is no future access requirement.

The dark green line indicates the BW land boundary and the light green hatch indicate the extent of BW land.



Reply to question 4: Does BW have any plans to improve/maintain the waterway in relation to the site?

BW undertakes regular maintenance (vegetation management, trash removal, of the waterway (canal and towpath) as well as scheduled maintenance according to the annual strategy with a 3 year plan.

Discussions on the future of this line of canal along the development are underway. Our planner Andrew Chandler, T: 020 7985 7225, E: Andrew.Chandler@britishwaterways.co.uk; and the promoter's representative Ron Woodland, Director of FM Conway, M: 07748 632918, E: ron.woodland@fmconway.co.uk will meet in the next few weeks.

Existing utilities

Easynet (British Sky Broadcasting) has fiber optic cables in the towpath. The towpath may be occupied by power cables as well.

Regards

Hilton Guerra

Third Party Works Engineer

British Waterways London, 1 Sheldon Square, Paddington Central, London, W2 6TT

T: 020 7985 7200

F: 020 7985 7201

M: 07717 225 772

E: hilton.guerra@britishwaterways.co.uk

F 020 7985 7201

M 07917 616832

E claire.mcalister@britishwaterways.co.uk

From: Atkinson, Alastair [<mailto:Alastair.Atkinson@WSPGroup.com>]

Sent: 18 August 2010 11:35

To: Claire McAlister

Subject: FW: Bulls Bridge

Claire,

Further to our telephone conversation the other week please find attached a copy of the information request for the Bull's Bridge site.

Regards,

Alastair

From: Ward, John

Sent: 18 August 2010 11:23

To: Atkinson, Alastair

Subject: Bulls Bridge

As requested

John Ward

Graduate Engineer

WSP UK

Development and Transportation

Mountbatten House, Basing View, Basingstoke, Hampshire RG21 4HJ

Tel: +44(0)1256 318748

Fax: +44(0)1256 318700

Website: www.wspgroup.co.uk

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Number 1 Transport Consultancy 2010 (NCE Consultants File)

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WSP UK Limited Registered Office: WSP House, 70 Chancery Lane, London, WC2A 1AF Registered Number 01383511 England

From: Claire McAlister
Sent: 18 August 2010 13:36
To: 'Atkinson, Alastair'
Subject: RE: Bulls Bridge

Thanks Alastair, I know which site it is now. I'm just surprised you would need to provide a full FRA as the site is outside a flood risk area (although near one).

I will pass your email to Hilton Guerra, our Third Party Works Engineer, who should be able to help.

Kind regards,

Claire McAlister

Planner - British Waterways London

1 Sheldon Square, Paddington Central, London, W2 6TT

D 020 7985 7229

F 020 7985 7201

M 07917 616832

E claire.mcalister@britishwaterways.co.uk

From: Atkinson, Alastair [<mailto:Alastair.Atkinson@WSPGroup.com>]
Sent: 18 August 2010 12:44
To: Claire McAlister
Subject: Re: Bulls Bridge

Claire

The overall project is for FC Conway

Is that the answer you need

Regards

Alastair

From: Claire McAlister
To: Atkinson, Alastair
Sent: Wed Aug 18 11:47:20 2010
Subject: RE: Bulls Bridge
Hi Alastair,

Could you tell me who has requested the FRA?

Thanks,

Claire McAlister

Planner - British Waterways London

1 Sheldon Square, Paddington Central, London, W2 6TT

D 020 7985 7229



19th August

John Ward
Graduate Engineer
WSP UK
Development and Transportation
Mountbatten House
Basing View
Basingstoke
Hampshire
RG21 4HJ

File reference GU-212
Your reference: JW/mc/2480

Dear Mr Ward

RE: FLOOD RISK ASSESSMENTS BULLS BRIDGE GRAND UNION CANAL

Further to your letter dated 18th August I have checked our records and I have spoken to the supervisor responsible for this stretch of waterway and can confirm the following

- British Waterways are not aware of any records of overtopping from or breaches of this section of the waterway.
- The pound here is a 27 mile pound that includes the Slough Arm, the Grand Union to Norwood Top Lock, the Paddington Arm and the Regents Canal to Hampstead Road Lock. The water level in this pound is controlled by the Minet Tip Weir near Bulls Bridge on the Paddington Arm (Easting 511532 Northing 179856). Water is run from the above pounds into this pound via the by-pass weir at Cowley Lock. This forms the feeder for the Grand Union to the bottom of the Norwood flight and the Regents Canal to Limehouse
- The canal does not effect the base flows of Yeading Brook
- The Environment Agency hold records of flood levels for 1 in 100 year events.

For further advice on flood risk assessments we have included some generic guidance (see appendix A).

If you require any further specific information or wish to view any relevant inspection reports you will be charged for our reasonable costs incurred in providing this information. Details of our hourly rates can be found in appendix 4 of British Waterways published "Code of Practice for Works Affecting British Waterways" available on the internet at:

http://www.britishwaterways.co.uk/Images/Code_of_Practice_for_Works_Affecting_BW.pdf



The minimum charge for these additional works will be £60 plus VAT.

Please note that we are unable to comment on the flood risk to individual properties or developments and interpretation of the information provided in this letter is your responsibility.

We trust this is satisfactory, however if you do require any further information please do not hesitate to contact the undersigned.

Yours sincerely

Mike Wheeler
Water Engineer (South)

The Office of the Information Commissioner is the organisation that ensures compliance with the Freedom of Information Act 2000 and deals with formal complaints. If we have not been able to resolve your request you are entitled under Section 50 of the Freedom of Information Act 2000 to apply to the Information Commissioner for a decision. His contact details are:-

Information Commissioner
Wycliffe House
Water Lane
Wilmslow
Cheshire
SK9 5AF

Or

Enquiry/Information line: 01625 545745

Email: data@dataprotection.gov.uk

Appendix A - Guidance Note for Flood Risk Assessments

The main incidents of uncontrolled loss of water from our waterways are overtopping and breaching as a result of inundation from adjacent water courses, vandalism or structural failure.

British Waterways maintains water levels using reservoirs, feeders and boreholes, and thereafter manages the water by transferring it within the canal system. The level of the water in canals is normally determined predominantly by the level and size of weirs. Water levels in river navigations are affected by the flow in the river and will fluctuate more widely than canals.

When surface water enters our waterways, the level of the water rises. Eventually the water level will reach a point where it discharges from our waterways through control structures. Where the capacity of these control structures is exceeded, overtopping may result.

Breaches which may lead to flooding can occur on our waterways. There can be a number of causes for these including: culvert collapse, animal burrowing and overtopping. British Waterways operates a comprehensive asset management system which enables us to manage the risks of such events occurring.

Breaches occur on average at a rate of three per year over the whole of the British Waterways owned canal network (that's over 2,000 mile of canal).
