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Mill Green Road, Pinchbeck
Flood Risk Assessment

10th October 2016
Version 2.0
RAB: 1452L

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Revision History

Version	Date	Amendments	Issued to
V1.0	14.09.2016		AMJ Construction Ltd.
V2.0	10.10.2016	Changed Masterplan and re-calculated runoff rate	AMJ Construction Ltd.

Quality Control

Action	Signature	Date
Prepared	T. Haskey	14.09.2016
Checked	P. Batty	14.09.2016
Approved	G. Wilson	14.09.2016

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1.0 Introduction

RAB Consultants has prepared this Flood Risk Assessment (FRA) in support of a proposal for an outline residential planning application at land of Mill Green Road, Pinchbeck.

The development site is located in Flood Zone 3 in accordance with the Environment Agency's Flood Map for Planning (Rivers and Sea). The Planning Practice Guidance for the National Planning Policy Framework (NPPF) requires a site specific Flood Risk Assessment to be carried out for developments located in Flood Zones 2 & 3 and for those which are 1 hectare (ha) or greater in size. A site specific FRA is required to ensure that the development is safe from flooding and will not increase the risk of flooding elsewhere.

2.0 Site details

2.1 Site location

Table 1 – Site location	
Site address	Mill Green Road, Pinchbeck, PE11 3PU
Site area	8.0 ha
Existing land use	Garden nursery and agricultural land
OS NGR	TF 23582 25034
Local Planning Authority	South Holland District Council

2.2 Site description

Keston Nurseries currently operates from the site, which is accessed from Mill Green Road to the west. A house and bungalow are situated in the north of the site. The northern area of the site is covered with glasshouses while the southern part of the site contains undeveloped, agricultural land. The site also contains a bunded pond which currently stores surface water from the glasshouses and is reused for irrigation.

Table 2 – Site photographs

FIGURE 1 – VEIW OF GLASSHOUSES AND ROWS OF PLANTS CURRENTLY AT THE SITE

FIGURE 2 –SITE ENTRANCE LOOKING TOWARDS THE MAIN OFFICE FROM MILL GREEN ROAD

FIGURE 3 – IDB REEDY GRAFT DRAIN LOCATED TO THE NORTH OF THE SITE

FIGURE 4 – BUNDED POND USED OF IRRIGATION ON SIITE

2.3 Development proposal

Outline planning permission is being sought for a residential development of up to 250 dwellings with an access road from Mill Green Road, driveways, garages, gardens, and paths (Appendix A). This would include the demolition of all existing structures currently on site.

3.0 Flood Risk

3.1 Sequential test

According to the Environment Agency's online flood map the site lies in Flood Zone 3 (land having a 1 in 100 (1%) or greater annual probability (a.p.) of river flooding.

The NPPF follows a sequential risk-based approach in determining the suitability of land for development in flood risk areas, with the intention of steering all new development to the lowest flood risk areas.

NPPF Planning Practice Guidance Table 2 confirms the 'Flood risk vulnerability classification' of a site, depending upon the proposed usage. This classification is subsequently applied to Table 3 'Flood risk vulnerability and flood zone compatibility' to determine whether:

- The proposed development is suitable for the flood zone in which it is located; and
- Whether an Exception Test is required for the proposed development

The proposed development is classed as a 'More Vulnerable' development in accordance with Table 2. The development is therefore appropriate for the Flood Zone. Both a sequential test and exception test are required in accordance with Table 3 (Appendix F)

3.2 Flooding history

The site owner has no knowledge of the site flooding during their extended ownership.

The Environment Agency stated that they had no historic records of flooding in the area.

South Holland District Council's updated Strategic Flood Risk Assessment reports no flood events since the construction of the Coronation Chanel though Spalding in 1953, which diverts excess water around Spalding. Prior to construction, parts of the town were prone to flooding. Post-construction and with the coastal flood defence scheme in place, it is understood that the town and development site have not been flooded. The system was severely tested by a tidal event in January 1978, where the flood level was near the 1 in 200 a.p. level and was accompanied by strong winds and wave action.

3.3 Fluvial (Rivers)

The proposed development site lies approximately 2.5km west of the River Welland, which flows to the north-east though Spalding. The River Glen is situated approximately 1km north west of the development site and Vernatt's drain is located approximately 1km south of the development site. The River Welland, River Glen, Pinchbeck and a large area of Lincolnshire around the wash are strongly influenced by coastal flooding. Pinchbeck however benefits from a flood defence scheme.

A data request was made to the Environment Agency. In response, the Environment Agency report that modelled data is for in-channel levels, which will be high due to the flood defences containing the water level in times of flood. (Appendix C). The Environment Agency advise that the FRA should assess the flood risk mitigation required from the South Holland Strategic Flood Risk Assessment (SFRA); including, from the residual depth maps including climate change (2115 maps). This includes the sea, main rivers, Internal Drainage Board systems and flood defences.

The 1 in 100 a.p. fluvial/1 in 200 a.p. coastal with climate change residual flood map (Figure 6) shows no flooding at the proposed development site. This reflects the consequences arising from direct overtopping of defences, where this would occur, together with breach failure which is assumed could occur at any point along the defences. The residual flood map for the 1 in 1000 a.p. (Figure 7) indicates that even in this

extreme event there would be no flooding at the site. New climate change allowances were introduced in February 2016, which are generally more onerous than previous. It is unlikely that the SFRA modelling included the new allowances, however given no flooding is predicted for the 1 in 1000 a.p. 2115 event then the inclusion of the new allowances is not expected to change the 1 in 100 a.p. 2115 outcome.

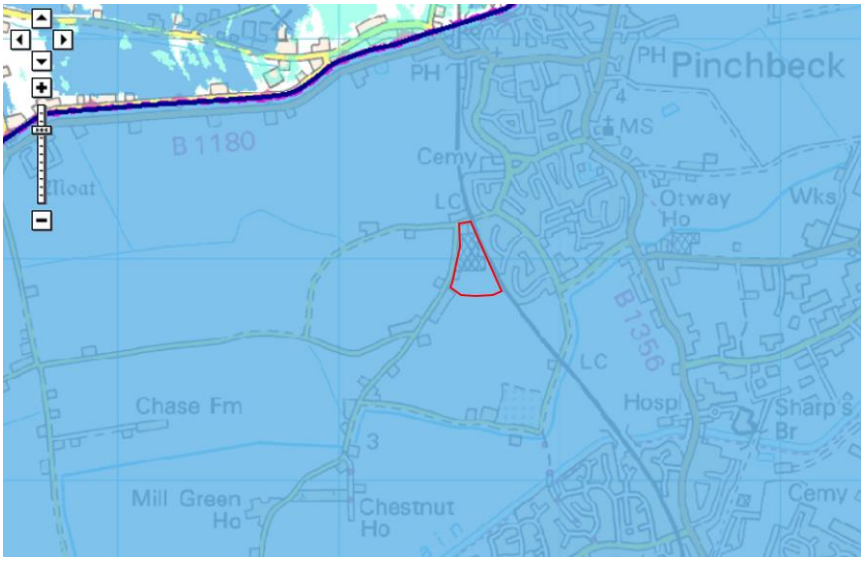

FIGURE 5 - SCREEN SHOT TAKEN FROM THE ENVIRONMENT AGENCY'S ONLINE FLOOD MAPPING FOR PLANNING (RIVER AND SEA) ON 26.08.16

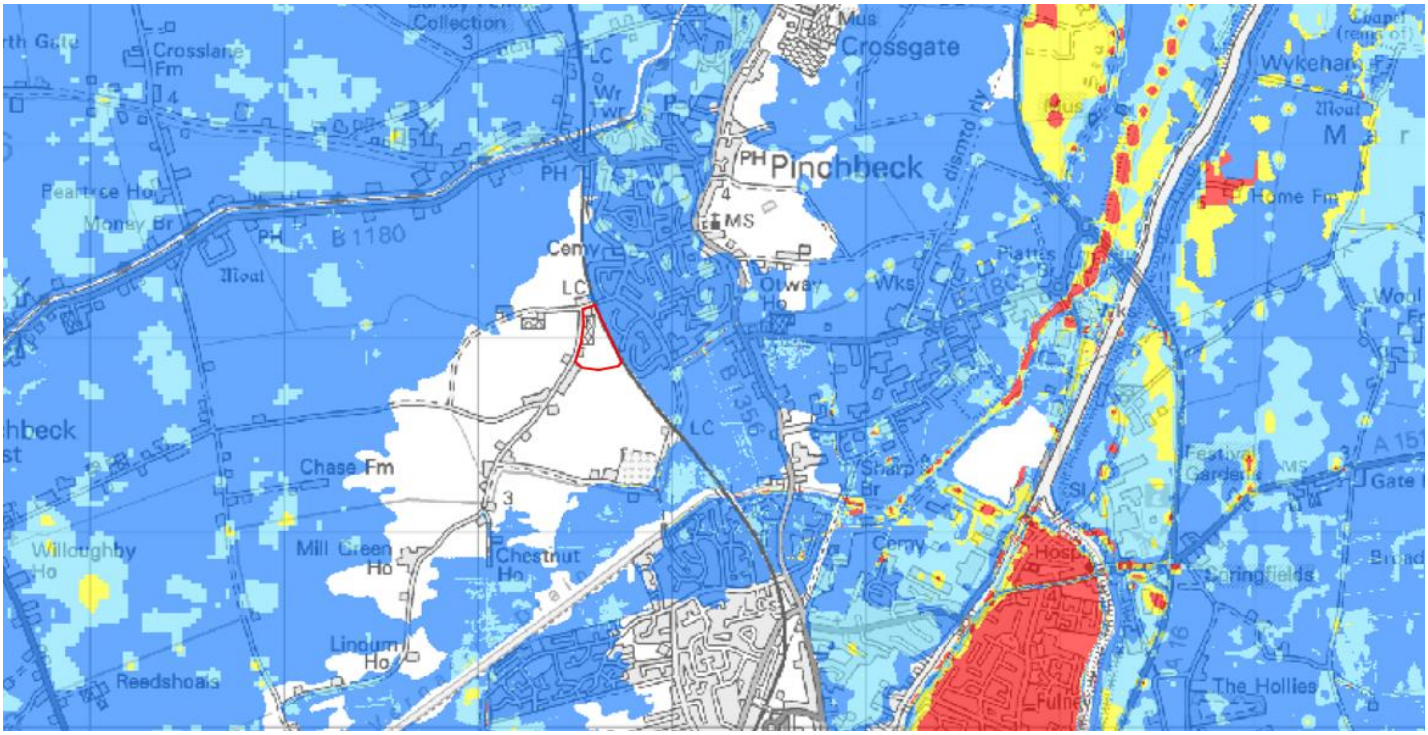

FIGURE 6 - SCREEN SHOT TAKEN FROM THE SFRA RESIDUAL FLOOD MAP (1 IN 100 A.P. FLUVIAL / 1 IN 200 A.P. YEAR 2115)

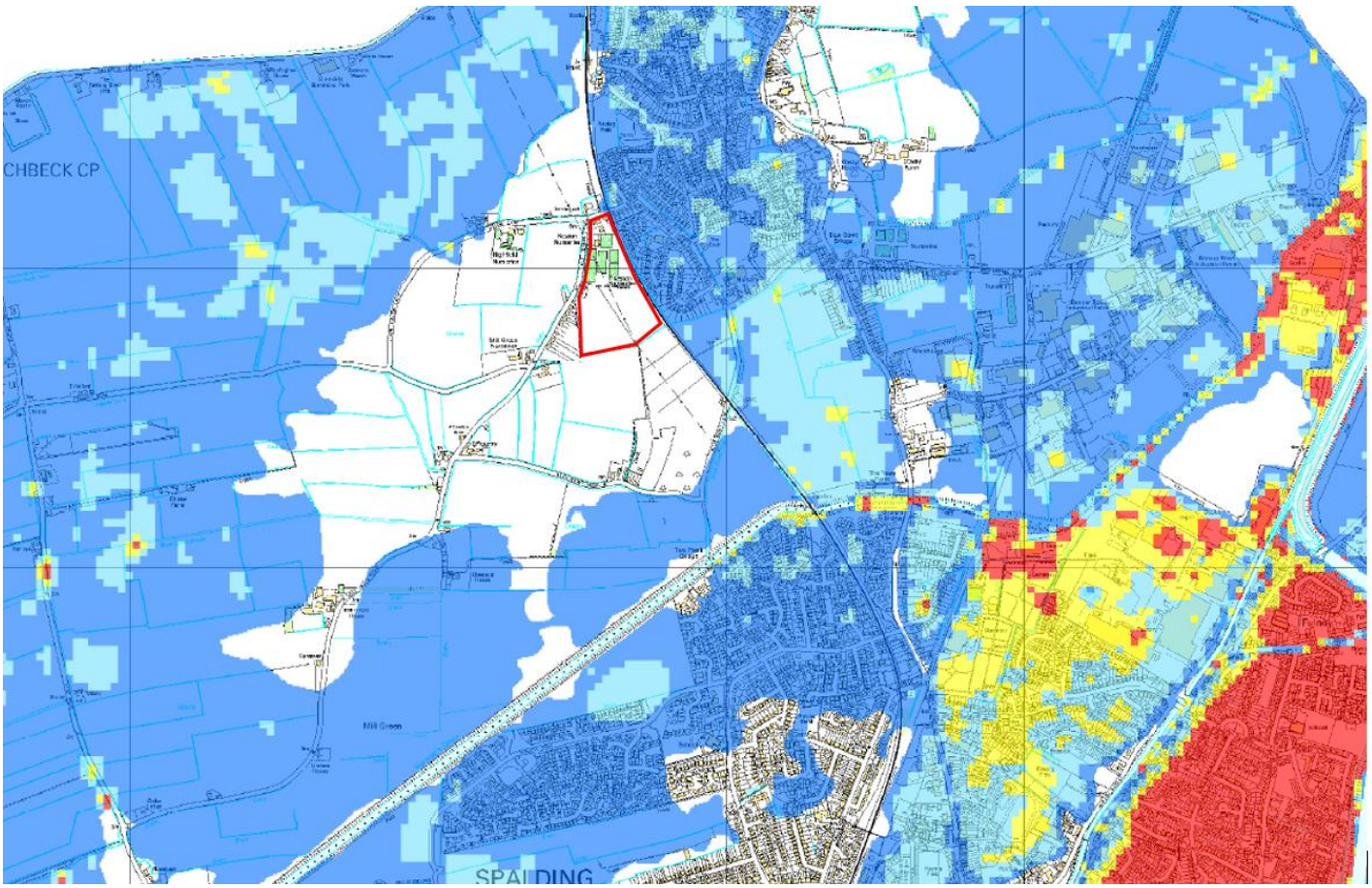

FIGURE 7 - SCREEN SHOT TAKEN FROM THE SFRA RESIDUAL FLOOD MAP 1 IN 1000 A.P. YEAR 2115

3.4 Flood defence breach or overtopping

3.4.1. Breach risk

The 1 in 100 a.p. fluvial / 1 in 200 a.p. coastal plus climate change and 1 in 1000 a.p. residual flood maps, which includes overtopping and breach, show no flooding at the proposed development site.

3.4.2. Overtopping risk

The 1 in 100 a.p. fluvial / 1 in 200 a.p. coastal plus climate change and 1 in 1000 a.p. residual flood maps, which includes overtopping and breach, show no flooding at the proposed development site.

3.5 Coastal/tidal

This risk has been assessed in conjunction with section 3.3.

3.6 Pluvial (Surface water)

The Environment Agency surface water flood mapping indicates that the site is at a ‘very low’ and ‘low’ chance of flooding from this source (a chance of flooding of less than 1 in 1000 and between 1 in 100 and 1 in 100). The topographic survey does not reveal any obvious valleys passing though the site or low spots where surface water could pond.

FIGURE 8 - SCREEN SHOT TAKEN FORM THE ENVIRONMENT AGENCY SURFACE WATER FLOOD MAP ON 26.08.2016

3.7 Artificial water bodies

The Environmental Agency's reservoir flood maps show no evidence for this type of flooding on the site and there are no canals in the vicinity to pose a flood risk.

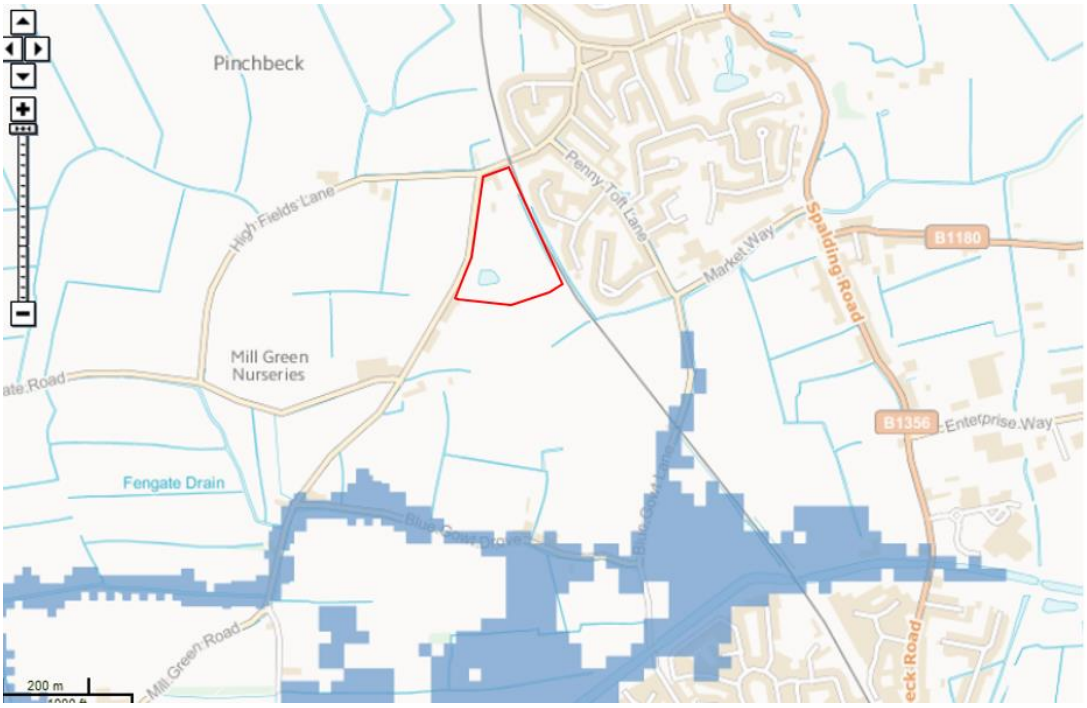

FIGURE 9 – SCREEN SHOT TAKEN FROM THE ENVIRONMENT AGENCY RESERVOIR FLOOD MAP ON 26.08.2016

3.8 Groundwater

South Holland District Council published an updated SFRA January 2010. The report states:

'There *are no reports of groundwater flooding occurring in the District. This issue is therefore taken as having no significance in relation to flood risk'.*

The site investigation report from August 2016 carried out by Ground Engineering Ltd states that 'groundwater was locally met as seepages between 1.20m and 1.90m depth'.

During the site visit the site owner confirmed he had experienced no problem with groundwater flooding.

3.9 Sewers

South Holland District Council's updated SFRA reports:

'Through *the consultation with Anglian Water, as well as drawing on the Council's own local experience, it is found that flooding from sewers is limited to minor isolated cases. It is not of strategic significance as regards to flood risk'.*

The site owner reports no problems from sewer flooding.

On this basis a more detailed analysis of pluvial risk is not considered necessary.

4.0 Mitigation measures

4.1 Risk to buildings

4.1.1. Finished floor levels

It is recommended that finished floor levels are set 150mm above local ground level (2 brick courses), in line with normal building best practise.

4.1.2. Flood resistance

The site benefits from a high level of protection from the flood defences. The use of flood resistance measures to protect the building for residual risk is not considered appropriate, given the expected rarity of flooding.

4.1.3. Flood resilience

The site benefits from a high level of protection from the flood defences. The incorporation of resilience in construction is not considered appropriate, given the expected rarity of flooding.

4.2 Risk to occupiers

4.2.1. Safe access/egress

The development site and access receive a high level of flood protection. A safe dry access route therefore be available in all but the most extreme of events.

The residual flood maps in the SFRA indicated that the area in which the site is located may be surrounded by flood water. The residual flood hazard map for the 1 in 100 a.p. fluvial / 1 in 200 a.p. coastal year 2115 show that the hazard for surrounding flood water is 'Low'.

The residual risk will be managed by the implementation of a flood warning and evacuation plan (Appendix E).

4.2.2. Flood warning and evacuation plan

The site is included in a flood warning area and it is recommended that residents sign up to the Environment Agency Flood Warning for the River Withham, the Haven, the wash frontage and the far extent of Tidal Flooding from the Wash and Tidal Estuaries.

A flood warning and evacuation plan in included in Appendix E.

4.3 Risk to others

4.3.1. Floodplain compensation

The 1 in 100 a.p. fluvial / 1 in 200 a.p. coastal plus climate change and 1 in 1000 a.p. residual flood maps, which includes overtopping and breach, show no flooding at the proposed development site. As such no floodplain storage will be lost, therefore floodplain compensations is not considered necessary.

4.3.2. Surface water run-off

The total site area is approximately 8.00ha of which approximately 25% is currently impermeable. Under the new proposal the development area will increase to approximately 60%, therefore there is a potential for increased run off leaving the site.

Box 1.2 from the SuDS manual (C753) discusses the SuDS management train which is intended to mimic the natural catchment process as closely as is possible. Table 3 below gives examples of the hierarchy of techniques that can be used to achieve the management train.

Table 3: Hierarchy of SuDS techniques and their descriptions

Technique	Description
Prevention	The use of good house design and housekeeping measures to prevent run-off and pollution; rainwater re-use/ harvesting
Source control	Soakaways, porous and pervious surfaces, water butts, green roofs
Site control	Routing water to large soakaways, infiltration or detention basins
Regional control	Balancing pond, wetlands, swales, retention ponds

The feasibility of the above techniques to be incorporated into this development are described in Table 4 below.

Table 4: Feasibility of SuDS techniques at the development site

Technique	Issues	Feasibility Y / N / M (Maybe)
Prevention		
Good building design and rainwater harvesting	Ensuring that drains and guttering are properly located and laid could enable water to be collected for re-use via water harvesting systems and water butts.	Y
Source control		

Porous and pervious materials	Permeable surfaces could be applied to the driveways and hardstanding areas to enable water to infiltrate as existing.	Y
Soakaways / Infiltration components	The ground investigation company, Ground Engineering Ltd, report that relevant borehole data shows groundwater between 1.2m and 1.9m below ground. Concentrated infiltration units, such as soakaways, are not expected to be appropriate given the high ground water. Shallow infiltration components such as rain gardens, basins, swales and bioretention may be feasible.	N Y
Green roof	The use of green roofs would provide both attenuation and natural water losses. However green roofs may not be in keeping with the surrounding area.	M
Site/regional control		
Infiltration/detention basins; balancing ponds;	Shallow infiltration techniques may be appropriate. Shallow infiltration units and/or underground systems would provide attenuation storage space.	Y

Existing drainage

- 8.00ha total site area
- 2.00ha of impermeable ground
- 6.00ha of permeable ground

The existing buildings and glasshouses are formally drained. Rainwater is collected and drained into a bunded pond for re-use on the nursery. The pond, when full, can be discharged into a drainage ditch along the western boundary of the site. This drainage ditch is culverted underneath High Fields Lane and discharges into the Reedy Graft IDB land drain.

Rainwater that falls onto the ground is not formally drained. Runoff currently follows along the natural gradient of the land in a north easterly direction towards High Fields Lane. It is assumed the road drainage would then discharge into the Reedy Graft drainage ditch.

Proposed drainage

The total proposed area of buildings and road/parking will be approximately 4.80ha (approximately 60% of the site area).

The recommended hierarchy for discharging surface water (ref. The SuDS Manual, CIRIA C753) is:

1. Infiltration to the maximum extent that is practical.
2. Discharge to surface waters.
3. Discharge to surface water sewer.

4. Discharge to combined sewer.

In this case, ground testing shows that the ground is unsuitable for managing the majority of surface water through infiltration (refer to report by Ground Engineering Ltd, August 2016).

It is proposed that a nearby IDB drain will be used as the final discharge point for the development, although a formal agreement would be needed to connect. During informal discussion with the IDB it was suggested that a restriction must be applied, such that discharge from the site should be restricted to greenfield runoff rate of 1.4l/s/ha. (Appendix G). This equates to a controlled runoff rate of 11.2l/s for the site. For comparison, the IH124 method (using Interim Code of Practise guidance for areas, <50ha) gives a QBAR peak runoff rate of 11.6 l/s.[1] By controlling runoff, attenuation storage volume will need to be provided within the proposed development.

The proposed roads and buildings will be distributed throughout the whole site with permeable areas, such as gardens and shared amenity, integrated within the development and hence within the formally drained area. It is therefore assumed that the whole site will contribute to the drainage system, although the permeable areas will contribute less as there will be infiltration and evapotranspiration losses. This is normally captured by the use of a PIMP (percentage impervious area) value, which in this case is estimated to be 60%.

The quick storage estimate module of Micro-drainage has been used to estimate the total required attenuation storage volume and demonstrate feasibility of the concept[2]. It is assumed that the PIMP value of 60% directly translates to a percentage runoff of 60%, giving a nett contributing area of 4.8ha (60% of 8ha). The required attenuation storage volume for 1 in 100 year a.p. plus climate change (30%) has been estimate to be in the range off 3215m^3 – 4289m^3.

The masterplan shows a multifunctional pond within the development, set within a green space of approximately 5800m^2. Assuming a contained water storage depth of 0.5m, this area could provide 2900m^3 of temporary attenuation storage volume. Further areas of green space in the centre of the site and near the north, east and south boundaries could provide an additional 15,000m^2 of temporary water storage space. Assuming a flood storage depth of 0.25m, this area could provide a further 3,750m^3. Utilizing these green spaces provides more storage than the estimated requirement discussed above.

It is recommended that a SuDS treatment train is created utilizing best practice methods incorporating components, where feasible, such a rainwater harvesting, rain gardens, permeable surfaces, swales and bio-retention areas. Refer to CIRIA SuDS manual (753) for best practice guidance. The manual should also be referred to for finding water quality, amenity and biodiversity benefits as part of the scheme.

Attention must be paid to exceedance or failure of design. Shaping the ground to convey flows safely towards the IDB drain to the north of the site and away from houses is recommended.

5.0 Conclusion

An assessment of flood risk has been made for an outline planning proposal to construct up to 250 dwellings on land at Mill Green Road, Pinchbeck.

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[1] Area = 8ha; SAAR = 481; SOIL = 0.300; Region = 5.
[2] FSR Rainfall; Return period=100yr; M5-60mm=19,000; Ratio R=0.400: Cv(Summer)=0.750; Cv(Winter)=0.840; Impermeable area=4.8ha, Allowable discharge=11.2 l/s, Infiltration coefficient=0.0m/hr; Safety Factor=2.0; Climate change=30%,

The site is within Flood Zone 3 on the Environment Agency flood map due to a combination of fluvial and coastal flood risk, however the site is protected by flood defences.

Flood risk arising from both breach and overtopping is not expected to affect the site.

Residual risk will be managed by setting an appropriate floor level.

In the unlikely event of an extreme flood the residual risk to people will be managed through the implementation of a flood warning and evacuation plan.

The development will manage runoff through a combination of shallow infiltration and attenuation storage with a restricted outflow to ensure no increase of rates leaving the site.

It is concluded that the proposed development is appropriate for the flood risk and is not expected to increase the risk of flooding elsewhere.

6.0 Recommendations

- Set finish floor levels 150mm above local ground level.
- Residents should sign up for the Environment Agency flood warning service and implement the flood warning and evacuation plan given in Appendix D.
- Prepare a detailed SuDS drainage design in line with the strategy given in section 4.3.2.

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Appendix A – Proposed Plan

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THIS DRAWING IS FOR THE PURPOSE OF OBTAINING PLANNING PERMISSION ONLY

CDM NOTE:

The design has been undertaken as far as possible to avoid risks to health and safety or to reduce and control the effects of any unavoidable risks.

Any relevant information identifying risks which are not able to be eliminated will be included within the project Health and Safety file.

AMJ CONSTRUCTION

0 10 20 30 40 50m

Rev.	By	Notes	Date

rdc Robert Doughty Consultancy

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Sleaford, Lincolnshire NG34 ORA

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Web: www.rdc-landplan.co.uk

Client: A M J Construction Ltd

Project: Residential Development at Keston Nursery

Drawing title: Masterplan

Drawing No.	Rev.	Drawn
1211-2-MP01		WW
Scale	**Date**	**Checked**
NTS	19/08/16	LMS

All measurements should be checked against on site conditions and any discrepancies should be brought to the attention of the Robert Doughty Consultancy.

Appendix B – Topographic Survey

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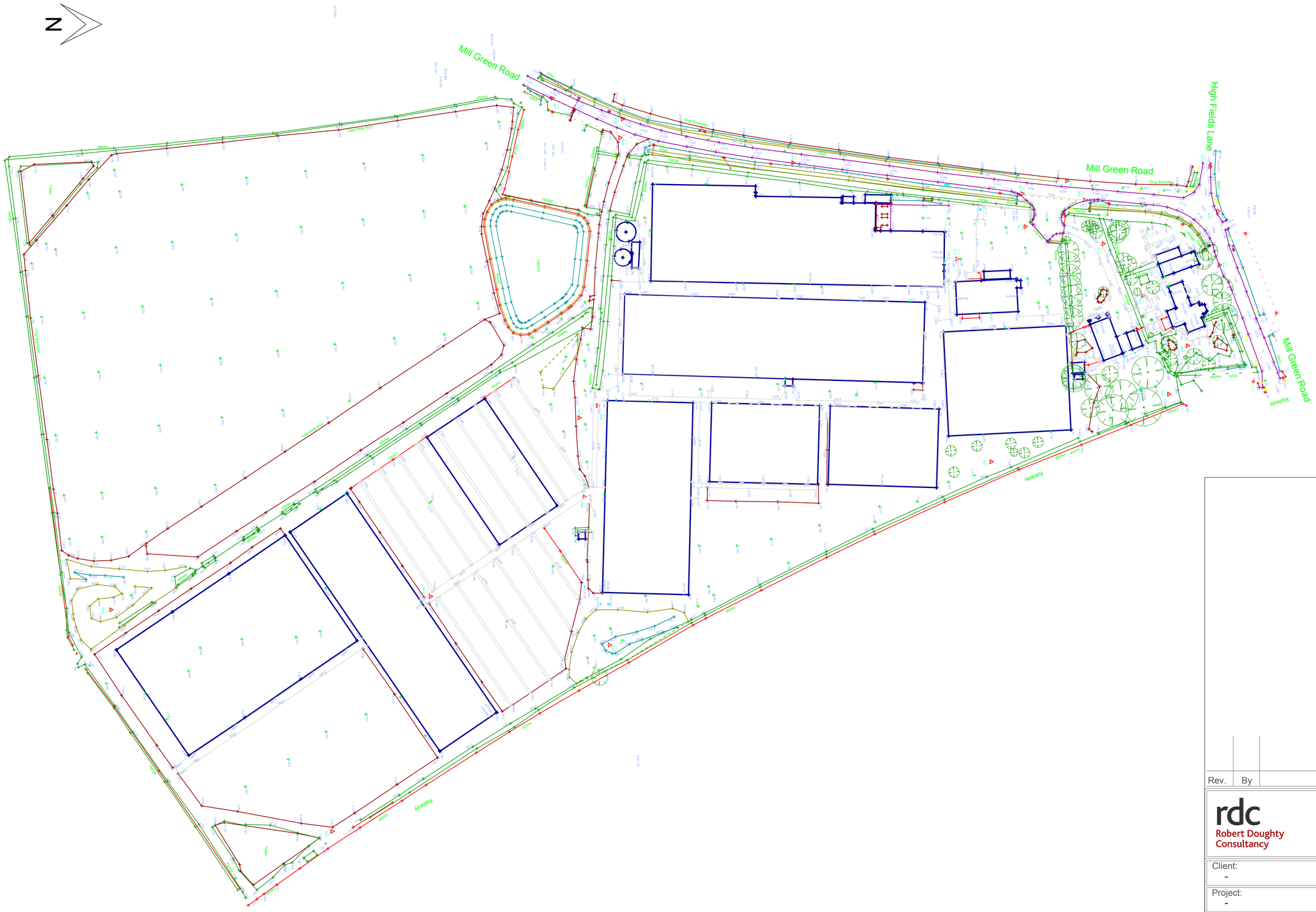
N
Mill Green Road
Mill Green Road
High Fields Lane
Mill Green Road
Railway
Railway
Railway
Railway
Crop Boundary
Hedge
Trees
Pond
Lake
Crop Boundary
Crop Boundary
Crop Boundary

Appendix C – Environment Agency Data

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Thomas Haskey
thomas.haskey@rabconsultants.co.uk

Our ref: CCN/2016/17338

Date: 3 August 2016

Dear Thomas Haskey

Basic Flood Risk Assessment Data Request for Mill Green Road, Pinchbeck. [NGR-TF2359024986].

Thank you for your request of 5th July 2016 to use Environment Agency data, Product 3, in the development of the Flood Risk Assessment (FRA) for the above site. The information is attached.

If you have requested this information to help inform a development proposal, then you should note the detail in the attached advisory text on the use of Environment Agency Information for Flood Risk Assessments.

Flood Map
The attached map includes the current Flood Map for your area. The Flood Map indicates the area at risk of flooding, **assuming no flood defences exist**, for a flood event with a 0.5% chance of occurring in any year for flooding from the sea, or a 1% chance of occurring for fluvial (river) flooding. It also shows the extent of the Extreme Flood Outline which represents the extent of a flood event with a 0.1% chance of occurring in any year, or the highest recorded historic extent if greater.

The Flood Map only indicates the extent and likelihood of flooding from rivers or the sea. It should also be remembered that flooding may occur from other sources such as surface water sewers, road drainage, etc.

Fluvial Flood Levels
The fluvial flood levels and flows for the model nodes shown on the attached map are set out in the attached datasheet. They are measured in metres above Ordnance Datum Newlyn (mODN).

These levels are taken from the Welland catchment Model (2007) and are the most up-to-date currently available. We aim to review our models on a regular basis, so if you are using these levels more than twelve months from the date of this letter, please contact us again to check that they are still valid.

Please note that these levels are “in-channel” levels and therefore may not represent the flood level on the floodplain, particularly where the channel is embanked or has raised defences.

Climate Change
Flood risk data requests including an allowance for climate change will be based on the 1% annual probability flood including an additional 20% increase on peak flows to account for climate change impacts, unless otherwise stated. You should refer to 'Flood risk assessments: climate change allowances' to check if this allowance is still appropriate for the type of development you are proposing and its location. You may need to undertake further assessment of future flood risk using different allowances to ensure your assessment of future flood risk is based on best available evidence.

Fluvial Defence Information
The fluvial defences protecting this site consist of earth embankments They are in good condition and provide protection against a flood event with a 1% chance of occurring in any year (1 in 100). We inspect these defences regularly to ensure that any potential defects are identified early.

History of Flooding
With regards to the history of flooding I can advise that we do not have any records of flooding in this area. It is possible that other flooding may have occurred that we do not have records for, and other organisations, such as the Local Authority or Internal Drainage Boards, may have records.

Land Drainage
The information provided is limited to flood risk from the sea and rivers with catchment areas greater than 3km^2. The property is in an area of extensive land drainage which may pose an additional risk of flooding. Further information should be sought from the Welland and Deepings Internal Drainage Board.

Surface Water
Attached is a map showing surface for your area. For more in depth information regarding surface water please contact your lead local flood authority (LLFA) Lincolnshire County council and Local Authority South Holland.

Other Information
Hazard mapping has been carried out by South Holland District Council and is contained within their Strategic Flood Risk Assessment (SFRA). Please refer to this document for further information.

The SFRA includes an additional 20% increase on peak flows to account for climate change impacts. You should refer to 'Flood risk assessments: climate change allowances' to check if this allowance is still appropriate for the type of development you are proposing and its location. If not, further assessment of future flood risk using different allowances may be required.

Further details about the Environment Agency information supplied can be found on the GOV.UK website:

https://www.gov.uk/browse/environment-countryside/flooding-extreme-weather

If you have requested this information to help inform a development proposal, then you should note the information on GOV.UK on the use of Environment Agency Information for Flood Risk Assessments

https://www.gov.uk/planning-applications-assessing-flood-risk
https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

Supporting Information

This information is provided subject to the enclosed notice which you should read.

I hope that we have correctly interpreted your request. Please see the Standard Notice or licence for details of permitted use. The Standard Notice can be found at the link below.

http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

We respond to requests for recorded information that we hold under the Freedom of Information Act 2000 (FOIA) and the associated Environmental Information Regulations 2004 (EIR).

If you are not satisfied with our response to your request for information you can contact us within 2 calendar months to ask for our decision to be reviewed.

If you have any queries or would like to discuss the content of this letter further please contact Partnership & strategic Overview team (Welland & Nene) at the Environment Agency.
Yours sincerely

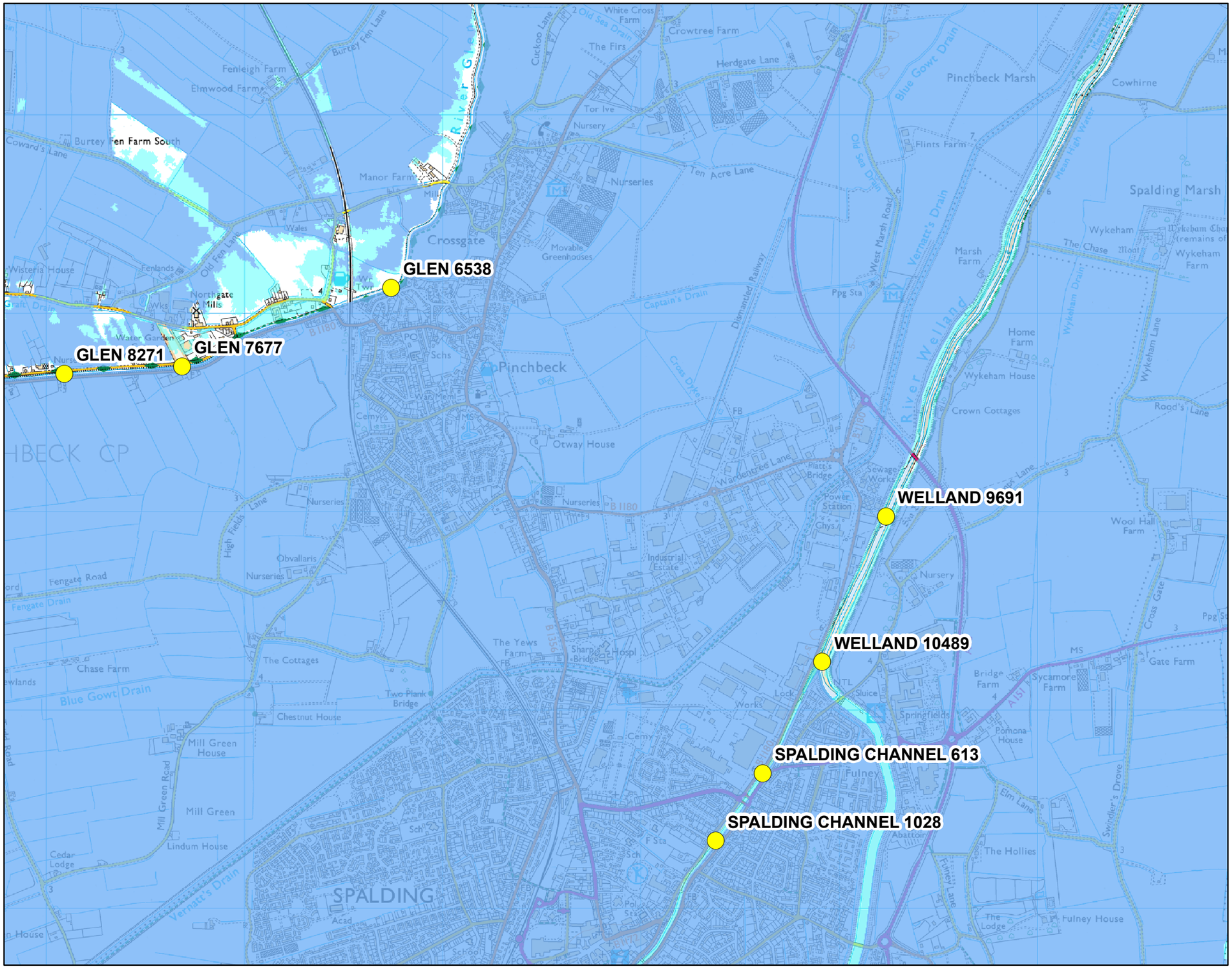
Stacey Moore
FOR Alistair Windler
Partnership and Strategic Overview Team Leader
Lincolnshire & Northamptonshire Area

e-mail psown@environment-agency.gov.uk

Awarded to Lincolnshire & Northamptonshire Area

Enc.
FRA Advisory Text
Basic FRA Map
Levels and flows data tables

Basic FRA Map
Map centred on TF2359024986 - created June 2016 [Ref: CCN-2016-17338]


GLEN 6538
GLEN 8271
GLEN 7677
WELLAND 9691
WELLAND 10489
SPALDING CHANNEL 613
SPALDING CHANNEL 1028
Crossgate
Pinchbeck
SPALDING
Pinchbeck Marsh
Spalding Marsh
River Glen
River Welland
Blue Gowt Drain
Vernatt's Drain
Old Sea Drain
Fulney
Industrial Estate
Power Station
Sewage Works
Wykeham
Wykeham Farm
Home Farm
Wykeham House
Crown Cottages
Wool Hall Farm
Gate Farm
Sycamore Farm
Bridge Farm
Springfields
Pomona House
Fulney House
The Hollies
Abattoir
Lock
Sluice
Works
Sharp's Bridge
Platt's Bridge
Two Plank Bridge
Chestnut House
Mill Green House
Mill Green
Lindum House
Cedar Lodge
Chase Farm
The Cottages
The Yews Farm
Obvallaris Nurseries
Fenleigh Farm
Elmwood Farm
Burtey Fen Farm South
Manor Farm
Northgate Mills
Wisteria House
Water Garden
Otway House
Movable Greenhouses
Nurseries
Tor Ive
The Firs
White Cross Farm
Crowtree Farm
Herdgate Lane
Ten Acre Lane
Flints Farm
Marsh Farm
Cowhirne
Dismantled Railway
West Marsh Road
Wykeham Drain
Wykeham Lane
Rood's Lane
Swindler's Drove
Cross Gate
Elm Lane
Fulney Lane
Wardentree Lane
Cross Dyke
Captain's Drain
Fengate Road
Fengate Drain
High Fields Lane
Burtey Fen Lane
Old Fen Lane
Coward's Lane
Cuckoo Lane
Mill Green Road
Fenlands
Wales
Schs
War Mem
Cemy
Industrial Estate
Hospl
Acad
School
Sch
Nursery
Springfields
Pomona House
Bridge Farm
Sycamore Farm
Gate Farm
Wool Hall Farm
Home Farm
Wykeham House
Crown Cottages
Fulney House
The Hollies
The Lodge
Abattoir
Fulney
Springfields
Pomona House
Sluice
Lock
Works
Power Station
Sewage Works
Platt's Bridge
Sharp

Datasheet [Ref: CCN-2016-17338]

Fluvial Flood Levels (mODN)

The fluvial flood levels for the model nodes shown on the attached map are set out in the table below. They are measured in metres above Ordnance Datum Newlyn (mODN).

			Annual Exceedance Probability - Maximum Water Levels (mODN)											
Node Label	**Easting**	**Northing**	**50% (1 in 2)**	**20% (1 in 5)**	**10% (1 in 10)**	**5% (1 in 20)**	**4% (1 in 25)**	**2% (1 in 50)**	**1.33% (1 in 75)**	**1% (1 in 100)**	**1% (1 in 100) inc 20% Climate Change**	**0.5% (1 in 200)**	**0.1% (1 in 1000)**	**0.1% (1 in 1000) inc 20% Climate Change**
GLEN 6538	523742	326129	3.79	4.05	4.18		4.27	4.31	4.34	4.38	5.14	4.42	4.56	5.32
GLEN 7677	522687	325732	3.80	4.09	4.23		4.34	4.38	4.42	4.47	5.17	4.52	4.69	5.37
GLEN 8271	522093	325695	3.81	4.10	4.25		4.37	4.42	4.46	4.51	5.18	4.57	4.74	5.39
SPALDING CHANNEL 1028	525381	323340	4.04	4.23	4.29		4.34	4.40	4.42	4.43	4.68	4.44	4.45	4.69
SPALDING CHANNEL 613	525618	323680	4.04	4.23	4.29		4.34	4.40	4.42	4.43	4.68	4.44	4.45	4.69
WELLAND 10489	525918	324243	4.12	4.12	4.17		4.22	4.26	4.27	4.27	5.26	4.28	4.29	5.26
WELLAND 9691	526240	324975	4.11	4.10	4.14		4.19	4.22	4.23	4.23	5.25	4.24	4.25	5.25

Fluvial Flood Flows (m^3/s)

The fluvial flood flows for the model nodes shown on the attached map are set out in the table below. They are measured in metres cubed per second (m^3/s).

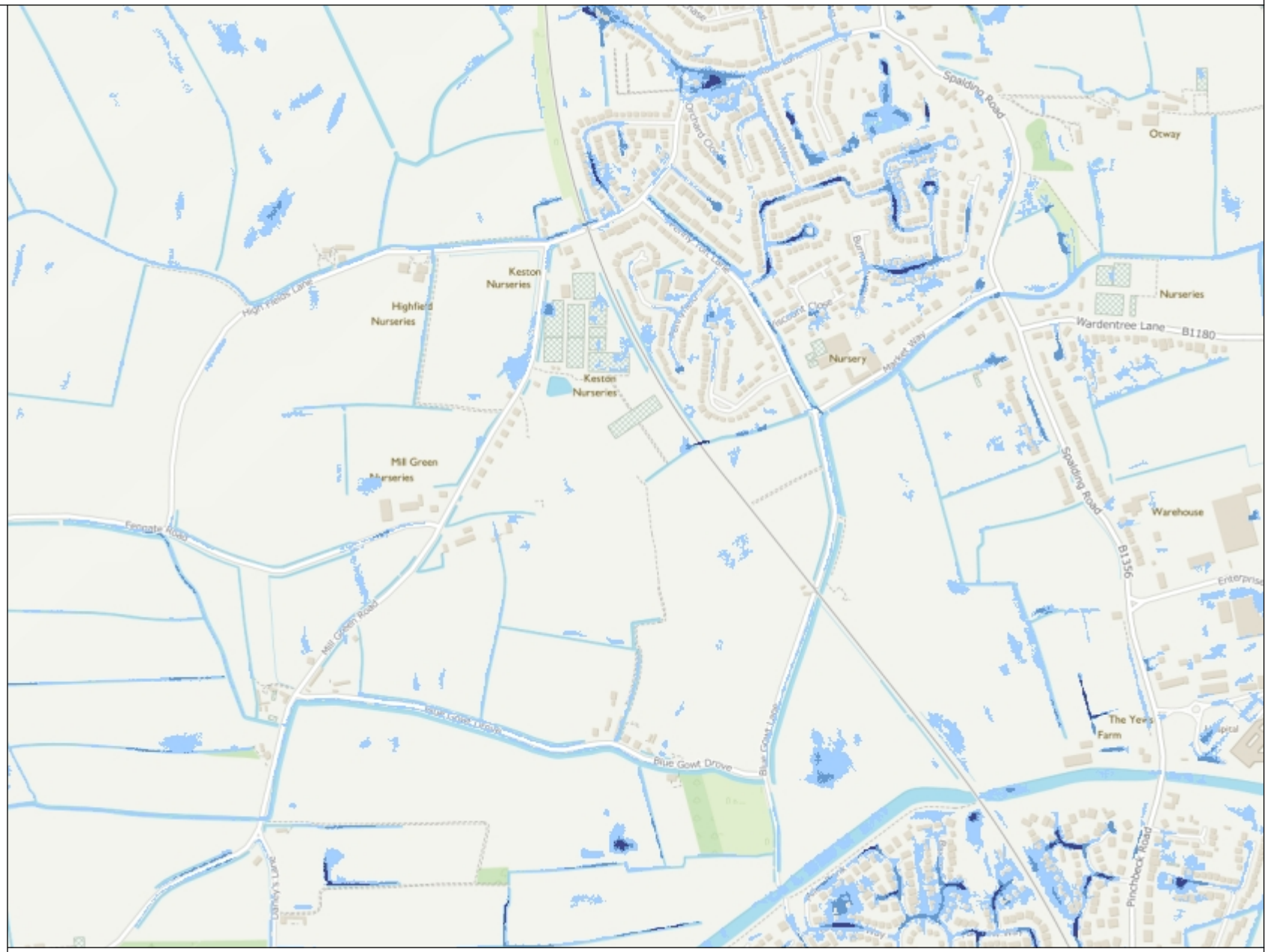
			Annual Exceedance Probability - Maximum Flows (m^3/s)											
Node Label	**Easting**	**Northing**	**50% (1 in 2)**	**20% (1 in 5)**	**10% (1 in 10)**	**5% (1 in 20)**	**4% (1 in 25)**	**2% (1 in 50)**	**1.33% (1 in 75)**	**1% (1 in 100)**	**1% (1 in 100) inc 20% Climate Change**	**0.5% (1 in 200)**	**0.1% (1 in 1000)**	**0.1% (1 in 1000) inc 20% Climate Change**
GLEN 6538	523742	326129	17.24	21.92	25.01		28.02	29.00	30.28	32.12	39.55	33.84	39.62	41.21
GLEN 7677	522687	325732	17.10	21.94	25.00		28.06	29.08	30.34	32.18	39.02	33.90	39.67	41.17
GLEN 8271	522093	325695	17.09	21.95	25.03		28.08	29.10	30.36	32.21	39.04	33.92	39.70	41.20
SPALDING CHANNEL 1028	525381	323340	2.18	1.65	1.41		1.56	1.78	1.95	2.08	3.15	2.21	2.21	3.21
SPALDING CHANNEL 613	525618	323680	0.69	0.51	0.44		0.49	0.56	0.62	0.65	0.94	0.69	0.69	0.96
WELLAND 10489	525918	324243	67.78	82.53	86.80		90.30	91.44	91.68	91.85	91.99	92.14	92.15	92.70
WELLAND 9691	526240	324975	68.87	83.39	87.52		90.95	92.05	92.30	92.47	92.87	92.74	92.73	93.52

Surface Water Map [CCN-2016-17338]

Environment Agency

Legend

- Sealed Main Rivers
- Flood Extent 1 in 30
- Flood Extent 1 in 100
- Flood Extent 1 in 1000



0 100 200 300
Metres

N
W E
S

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

Important
If you have requested this information to help inform a development proposal, then we recommend that you undertake a formal pre-application enquiry using the form available from our website:-

http://www.environment-agency.gov.uk/research/planning/33580.aspx

Depending on the enquiry, we may also provide advice on other issues related to our responsibilities including flooding, waste, land contamination, water quality, biodiversity, navigation, pollution, water resources, foul drainage or Environmental Impact Assessment.

In **England**, you should refer to the Environment Agency's Flood Risk Standing Advice, the technical guidance to the National Planning Policy Framework and the existing PPS25 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/nppftechnicalguidance

http://www.communities.gov.uk/publications/planningandbuilding/pps25guideupdate

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/splash;jsessionid=8yIGTfGZthmB0t2vhp6hS1GcB1LXvZzB3Ylczf20Xn7LK3zK0nMk!981825250?orig=/topics/planning/policy/tans/tan15/

You should also consult the Strategic Flood Consequence Assessment if one has been 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 / 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 your local planning authority.

Appendix D – Strategic Flood Risk Assessment Maps

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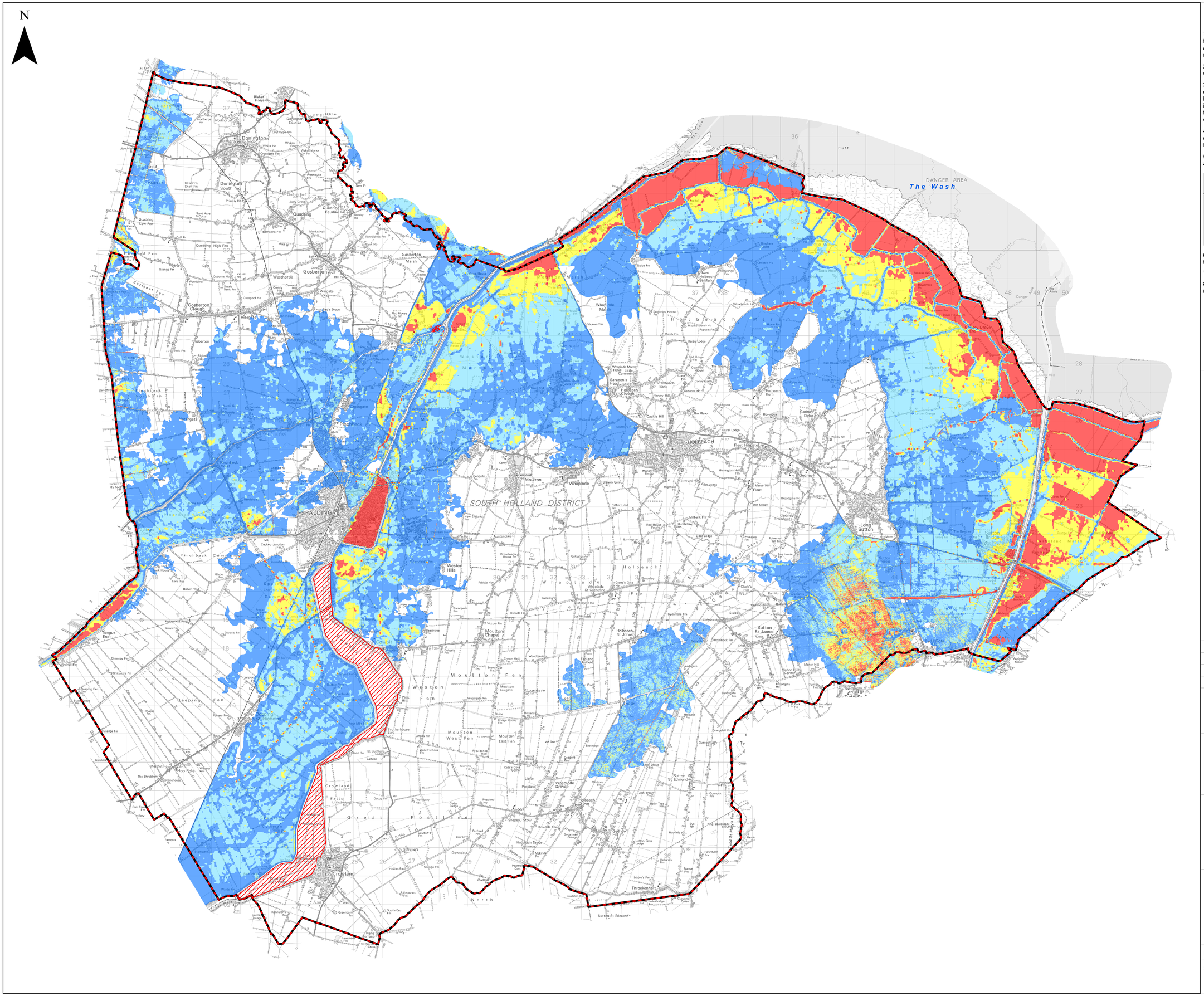
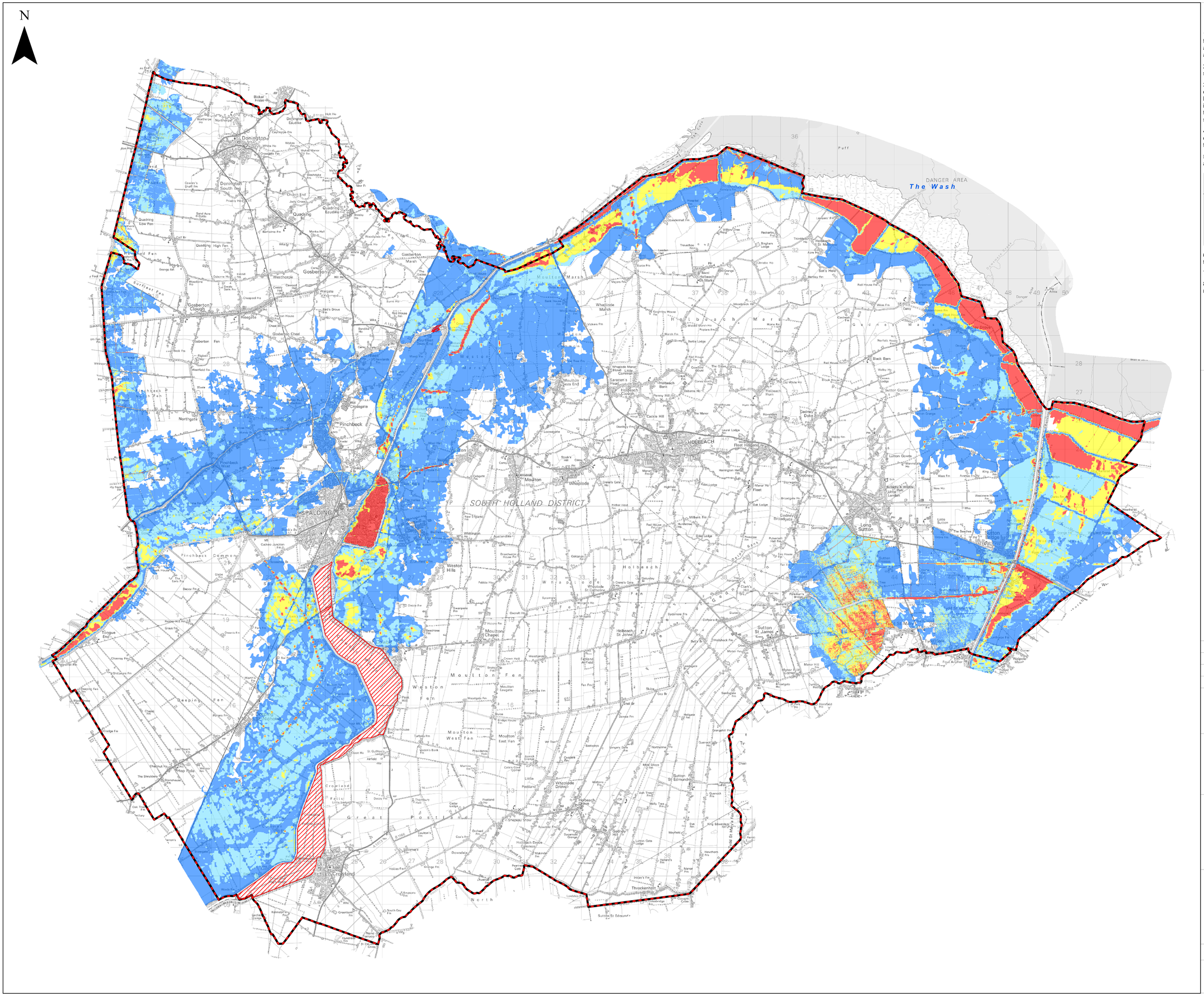

N
DANGER AREA
The Wash
SOUTH HOLLAND DISTRICT
SPALDING
HOLBEACH
Long Sutton
Sutton Bridge
Whaplode
Moulton
Weston Hills
Gosberton
Donington
Quadring
Croyland
Holbeach St Johns
Sutton St James
Sutton St Edmund
Throckenholt
Holbeach Marsh
Holbeach Fen
Weston Fen
Moulton Fen
Moulton Chapel
Moulton West Fen
Great Postland
Deeping Fen
Pinchbeck Common
Gosberton Marsh
Whaplode Marsh
Holland Marsh
Holbeach Drove
Whaplode Drove
Gedney Dyke
Gedney Broadgate
Fosdyke
Frogge End
Fleet Hargate
Holbeach Clough
Gosberton Clough
Pinchbeck
Surfleet Fen
Quadring Low Fen
Donington South Ing
Donington Eaudike
Quadring Eaudike
Westhorpe
Sutton St Edmund
Sutton St James
Long Sutton
Holbeach Bank
Holbeach Hurn
Holbeach Drove
Gedney Drove End
Gedney Hill
Fosdyke
Sutton Bridge
Holland Marsh
Holbeach Marsh
Holbeach Fen
Weston Fen
Moulton Fen
Moulton Chapel
Moulton West Fen
Great Postland
Deeping Fen
Pinchbeck Common
Gosberton Marsh
Whaplode



NOTES

1. The potential flooding consequences shown on this map relate to flooding from the sea, main rivers and Internal Drainage Board systems taking into account the presence of current flood risk management measures such as flood defences.

2. In addition to the potential flood extents shown on this map, there may be shallow flooding in low-lying rural areas

3. The consequences designated as being an Actual Risk arise from direct overtopping of defences, where this would occur, together with assumed breach failure of some defences. Breach failure has been assumed to occur in places where the freeboard between peak sea or river water level and the defence crest level is less than the minimum desirable for structural security of the defence.

4. The consequences designated as being a Residual Risk arise from direct overtopping of defences, where this would occur, together with breach failure which is assumed could occur at any point along the defences.

5. The potential flooding consequences relate to flood probability bandings as follows:

Probability Band	Annual probability of Flooding	
	from a river (fluvial)	from the sea (tidal)
Low	<0.1%	<0.1%
Medium	1%-0.1%	0.5%-0.1%
High	>1%	>0.5%

6. Functional Floodplain encompasses areas where water is intended to flow or be stored in times of flood.

7. Land outside South Holland District is not considered.

8. This map shows the extents only of the flooding probability bands relevent to the map Title

Map Legend

Peak Depth

- 0m - 0.5m
- 0.5m - 1m
- 1m - 1.5m
- >1.5m
- Functional Floodplain
- South Holland District Boundary

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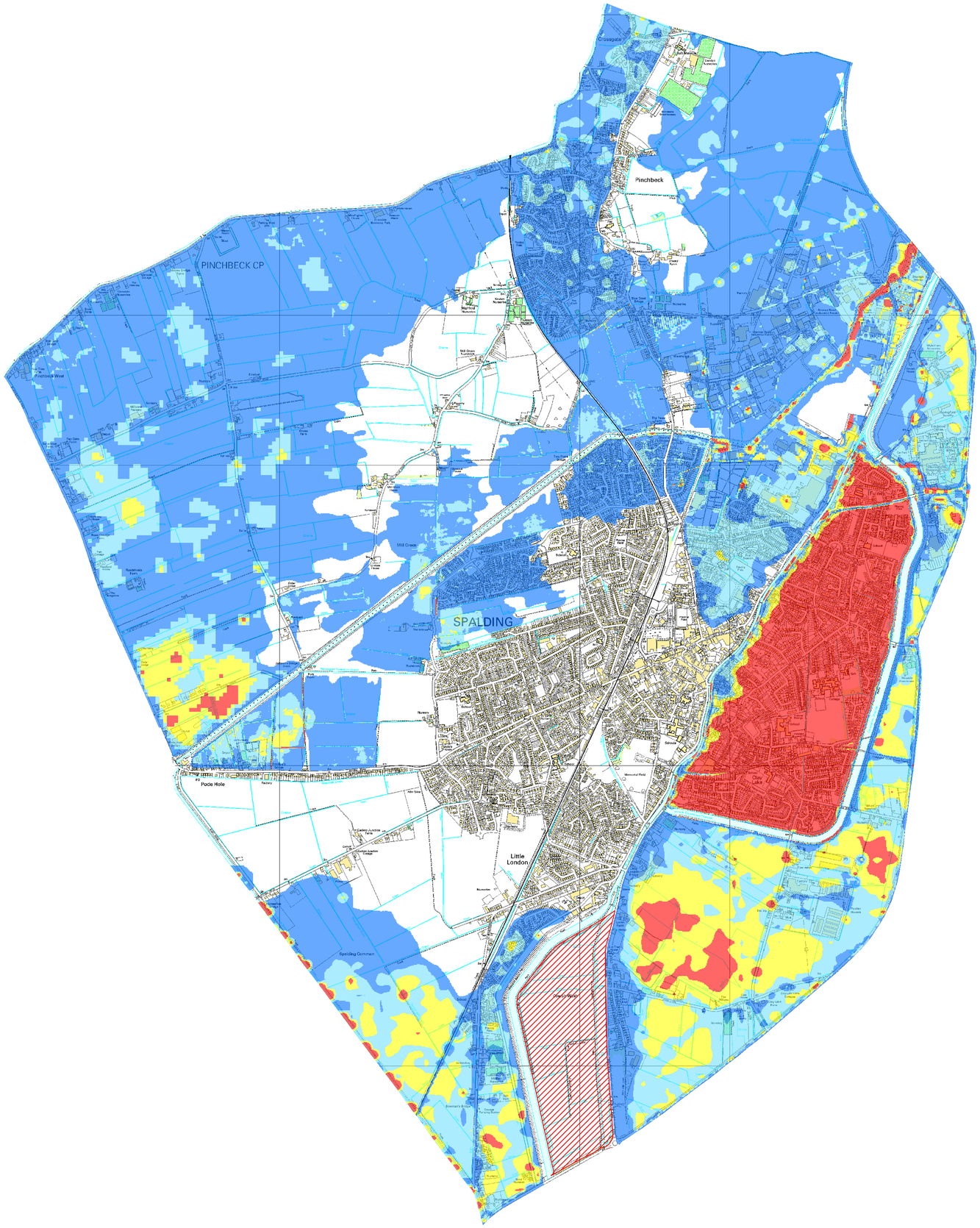
UPDATE OF STRATEGIC FLOOD RISK ASSESSMENT

Residual Peak Depth
District - Present Day
1% Fluvial / 0.5% Tidal Event Probability

DATE OF ISSUE: January 2010 REV NO:

SCALE: 1 : 60,000 @ A1

MAP NO:



NOTES

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Map Legend

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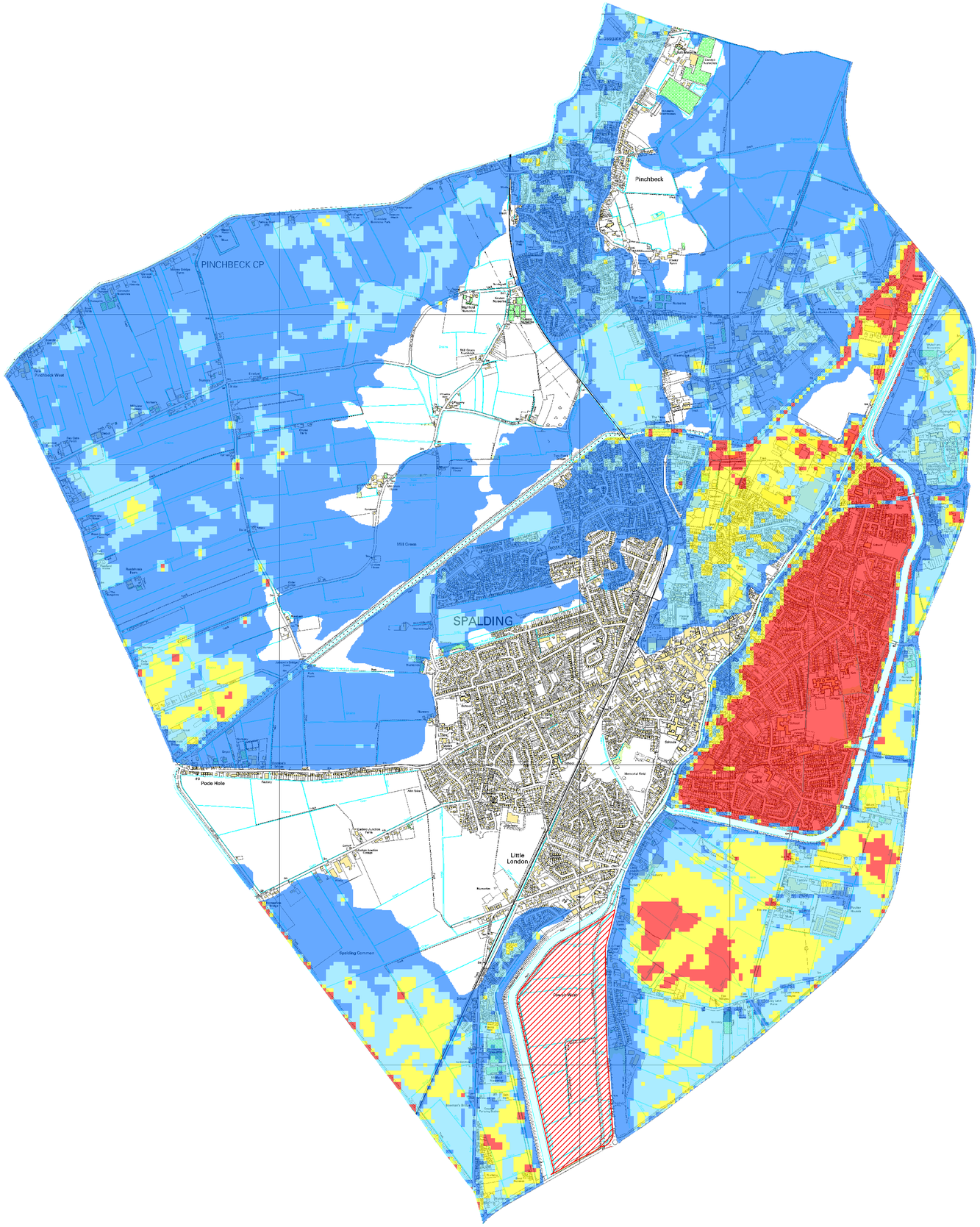
UPDATE OF STRATEGIC FLOOD RISK ASSESSMENT

Residual Peak Depth
Spalding - Year 2115
1% Fluvial / 0.5% Tidal Event Probability

DATE OF ISSUE: January 2010 **REV NO:**

SCALE: 1 : 60,000 @ A1

MAP NO:



NOTES

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Map Legend

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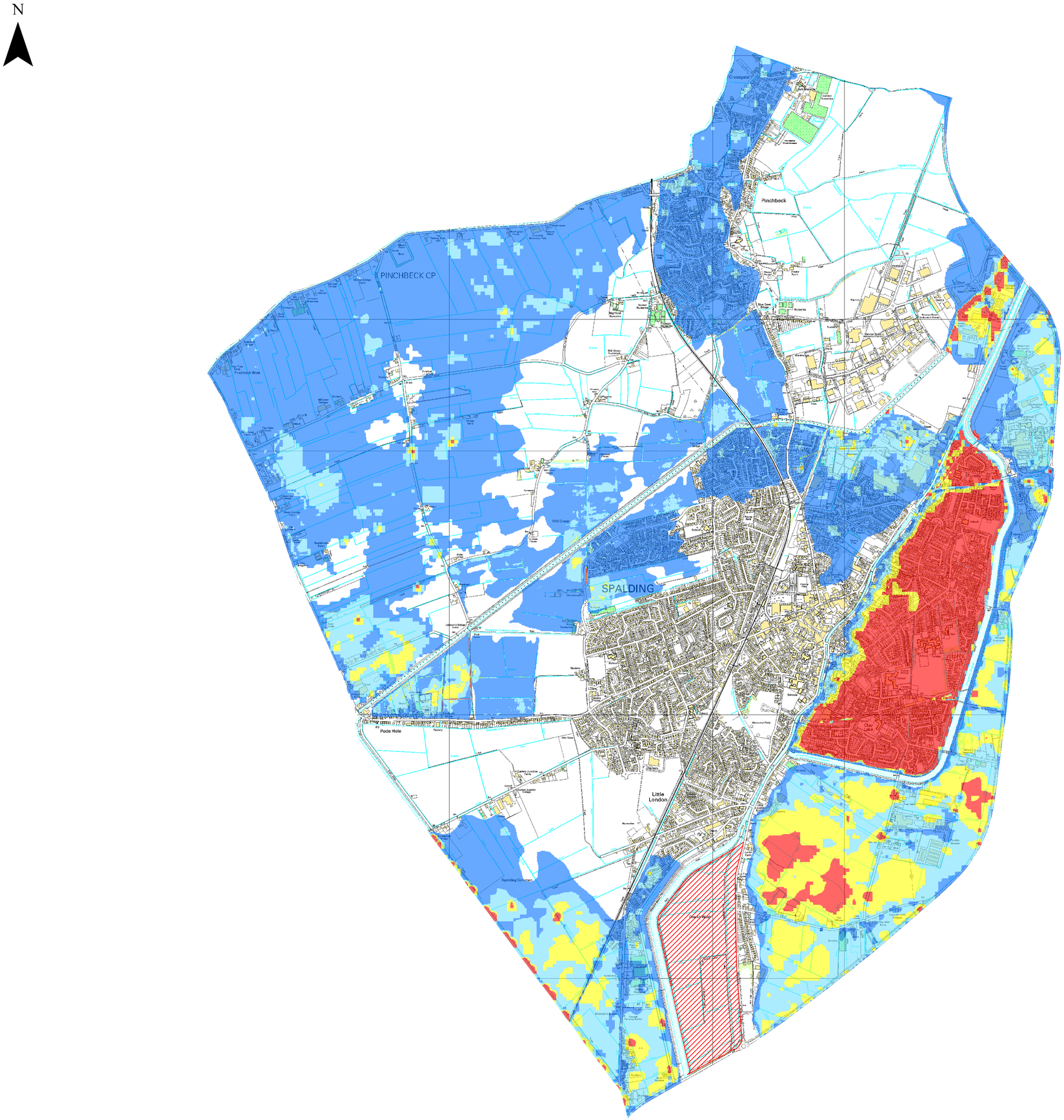
UPDATE OF STRATEGIC FLOOD RISK ASSESSMENT

Residual Peak Depth
Spalding - Year 2115
0.1% Event Probability

DATE OF ISSUE: January 2010 **REV NO:**

SCALE: 1 : 60,000 @ A1

MAP NO:



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- South Holland District Boundary

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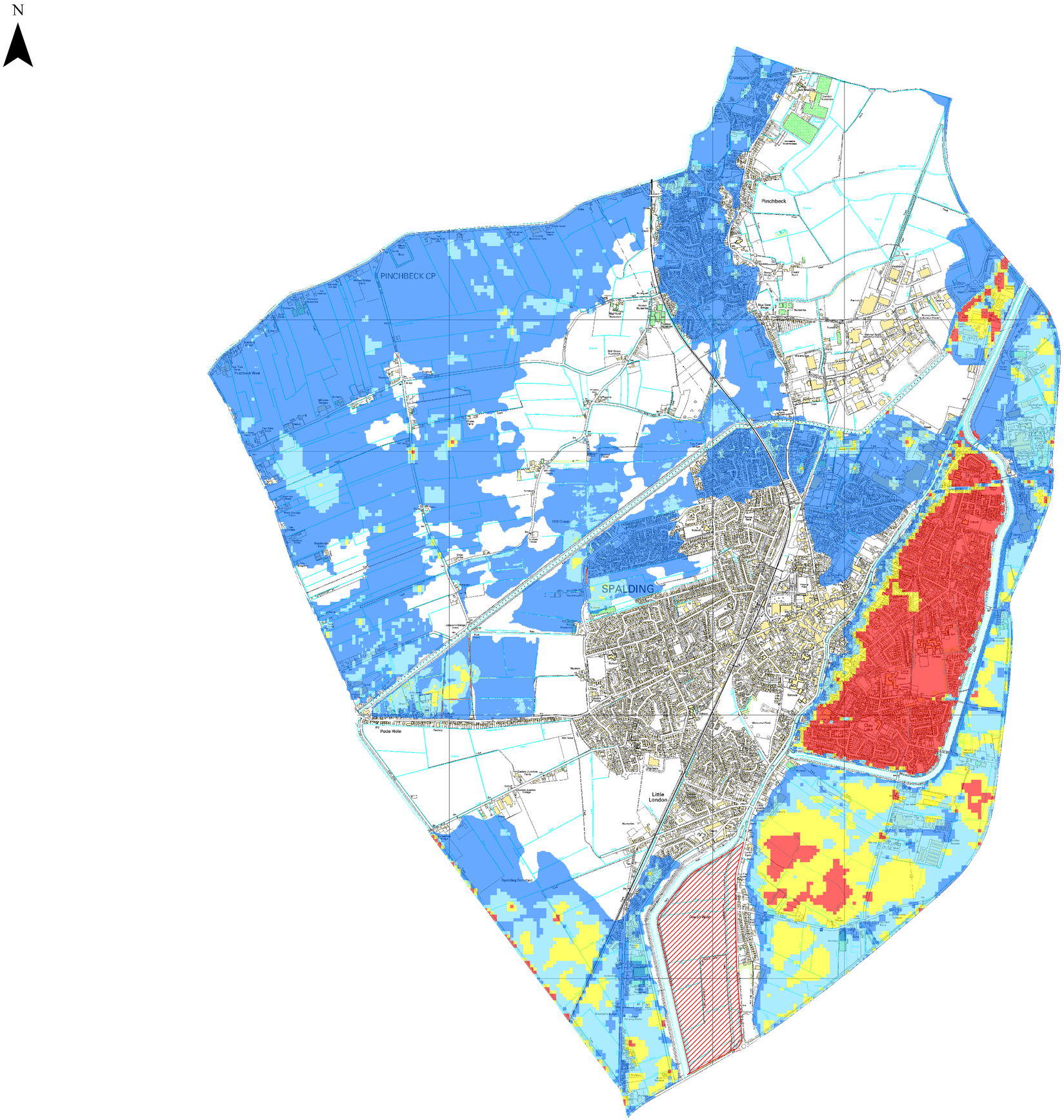
UPDATE OF STRATEGIC FLOOD RISK ASSESSMENT

Residual Peak Depth
Spalding - Present Day
1% Fluvial / 0.5% Tidal Event Probability

DATE OF ISSUE: January 2010 **REV NO:**

SCALE: 1 : 60,000 @ A1

MAP NO:



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- >1.5m
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UPDATE OF STRATEGIC FLOOD RISK ASSESSMENT

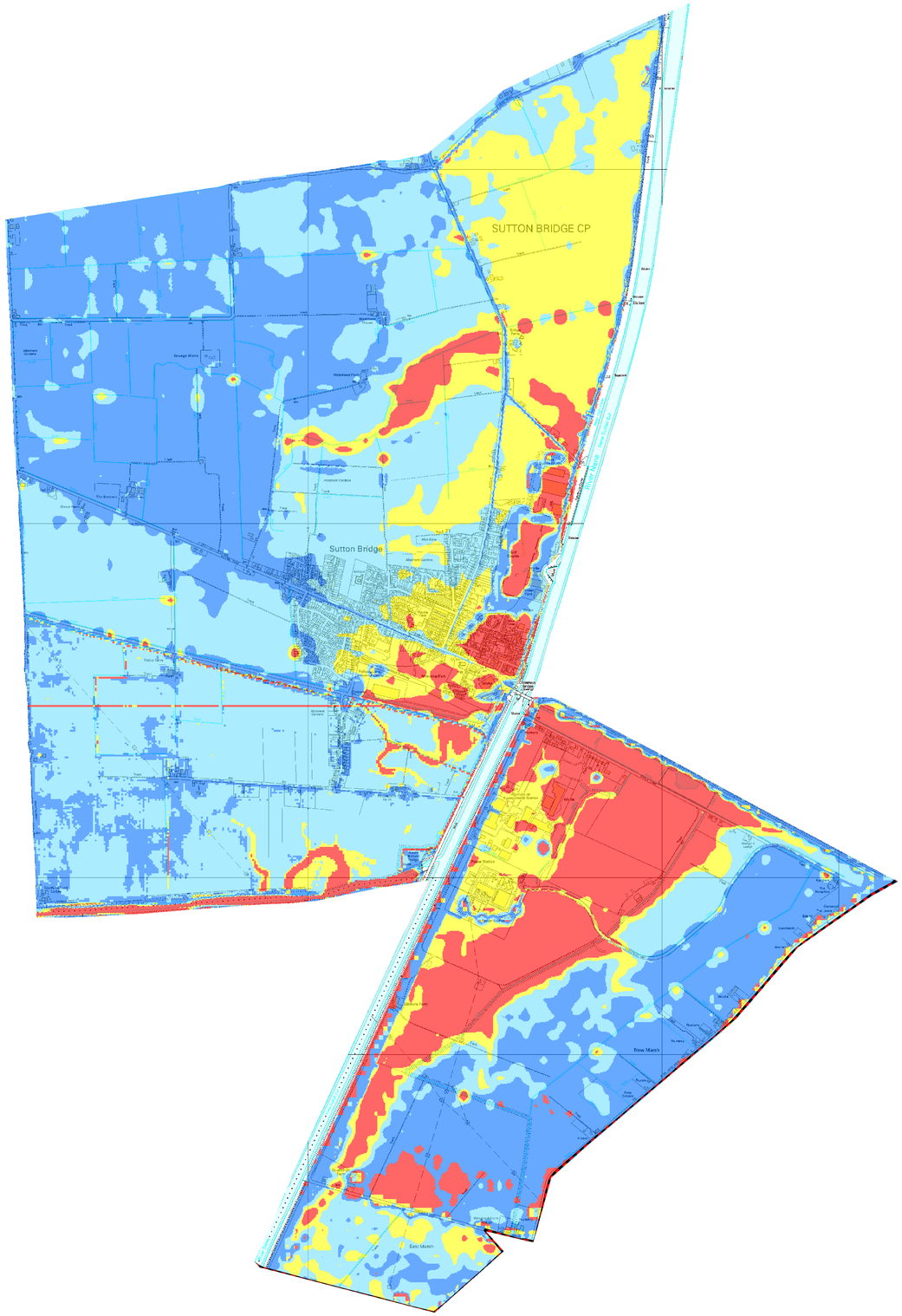
Residual Peak Depth
Spalding - Present Day
0.1% Event Probability

DATE OF ISSUE: January 2010 **REV NO:**

SCALE: 1 : 60,000 @ A1

MAP NO:

N



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UPDATE OF STRATEGIC FLOOD RISK ASSESSMENT

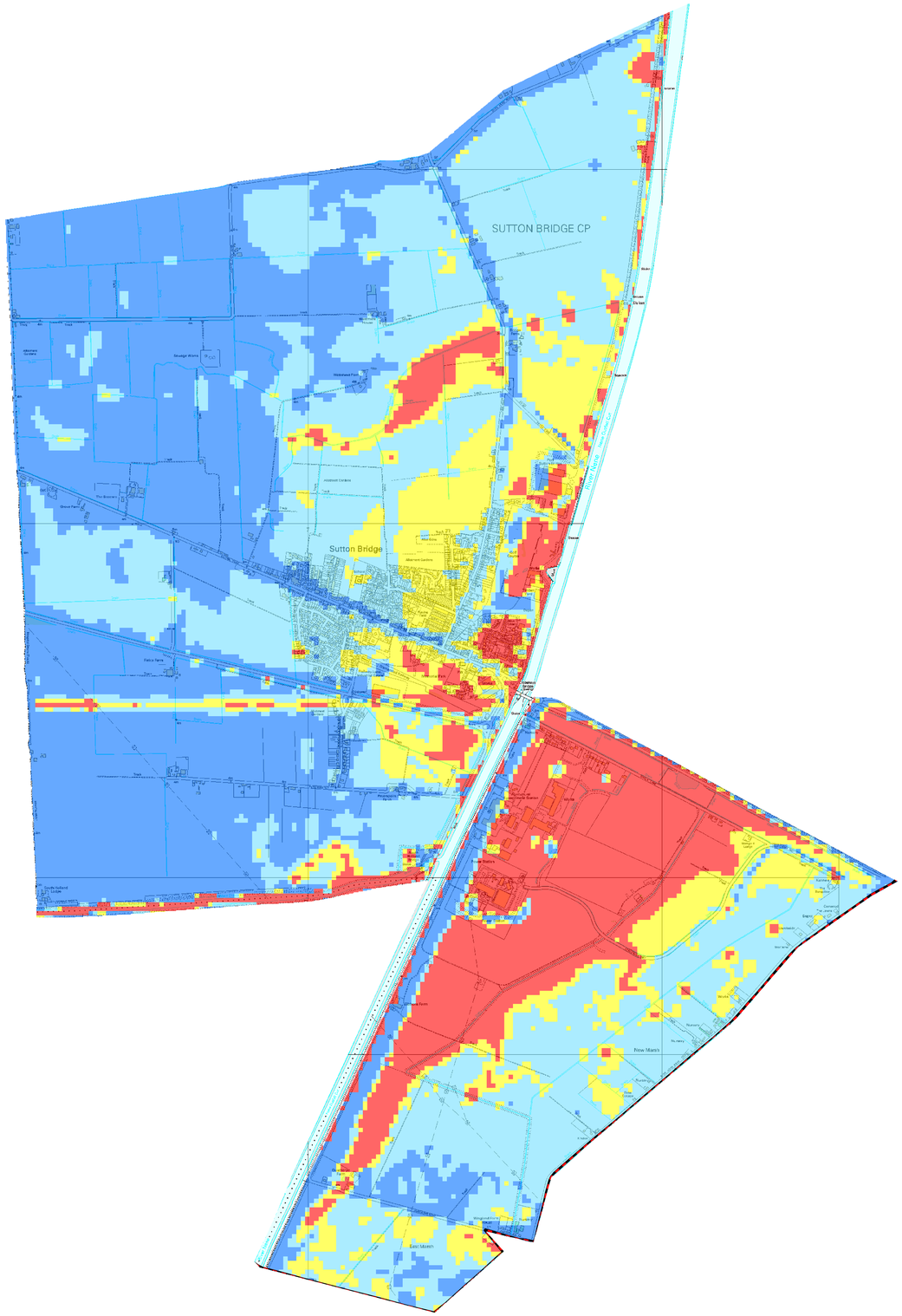
Residual Peak Depth
Sutton - Year 2115
1% Fluvial / 0.5% Tidal Event Probability

DATE OF ISSUE: January 2010 **REV NO:**

SCALE: 1 : 60,000 @ A1

MAP NO:

N



NOTES

1. The potential flooding consequences shown on this map relate to flooding from the sea, main rivers and Internal Drainage Board systems taking into account the presence of current flood risk management measures such as flood defences.

2. In addition to the potential flood extents shown on this map, there may be shallow flooding in low-lying rural areas

3. The consequences designated as being an Actual Risk arise from direct overtopping of defences, where this would occur, together with assumed breach failure of some defences. Breach failure has been assumed to occur in places where the freeboard between peak sea or river water level and the defence crest level is less than the minimum desirable for structural security of the defence.

4. The consequences designated as being a Residual Risk arise from direct overtopping of defences, where this would occur, together with breach failure which is assumed could occur at any point along the defences.

5. The potential flooding consequences relate to flood probability bandings as follows:

Probability Band	Annual probability of Flooding	
	from a river (fluvial)	from the sea (tidal)
Low	<0.1%	<0.1%
Medium	1%-0.1%	0.5%-0.1%
High	>1%	>0.5%

6. Functional Floodplain encompasses areas where water is intended to flow or be stored in times of flood.

7. Land outside South Holland District is not considered.

8. This map shows the extents only of the flooding probability bands relevent to the map Title

Map Legend

Peak Depth

- 0m - 0.5m
- 0.5m - 1m
- 1m - 1.5m
- >1.5m
- Functional Floodplain
- South Holland District Boundary

REV	DATE	REMARKS

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COUNCIL OFFICES
PRIORY ROAD
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UPDATE OF STRATEGIC FLOOD RISK ASSESSMENT

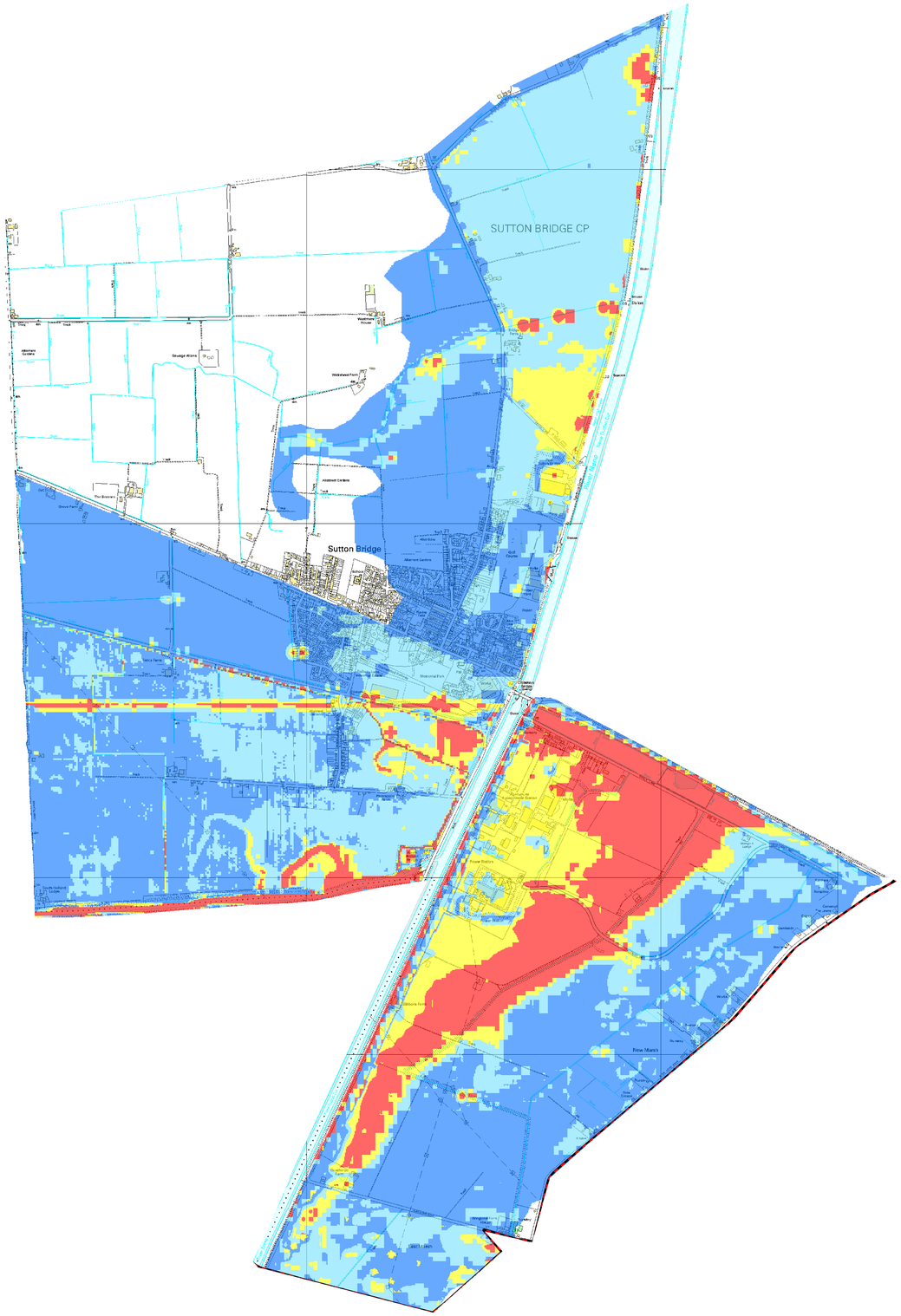
Residual Peak Depth
Sutton - Year 2115
0.1% Event Probability

DATE OF ISSUE: January 2010 **REV NO:**

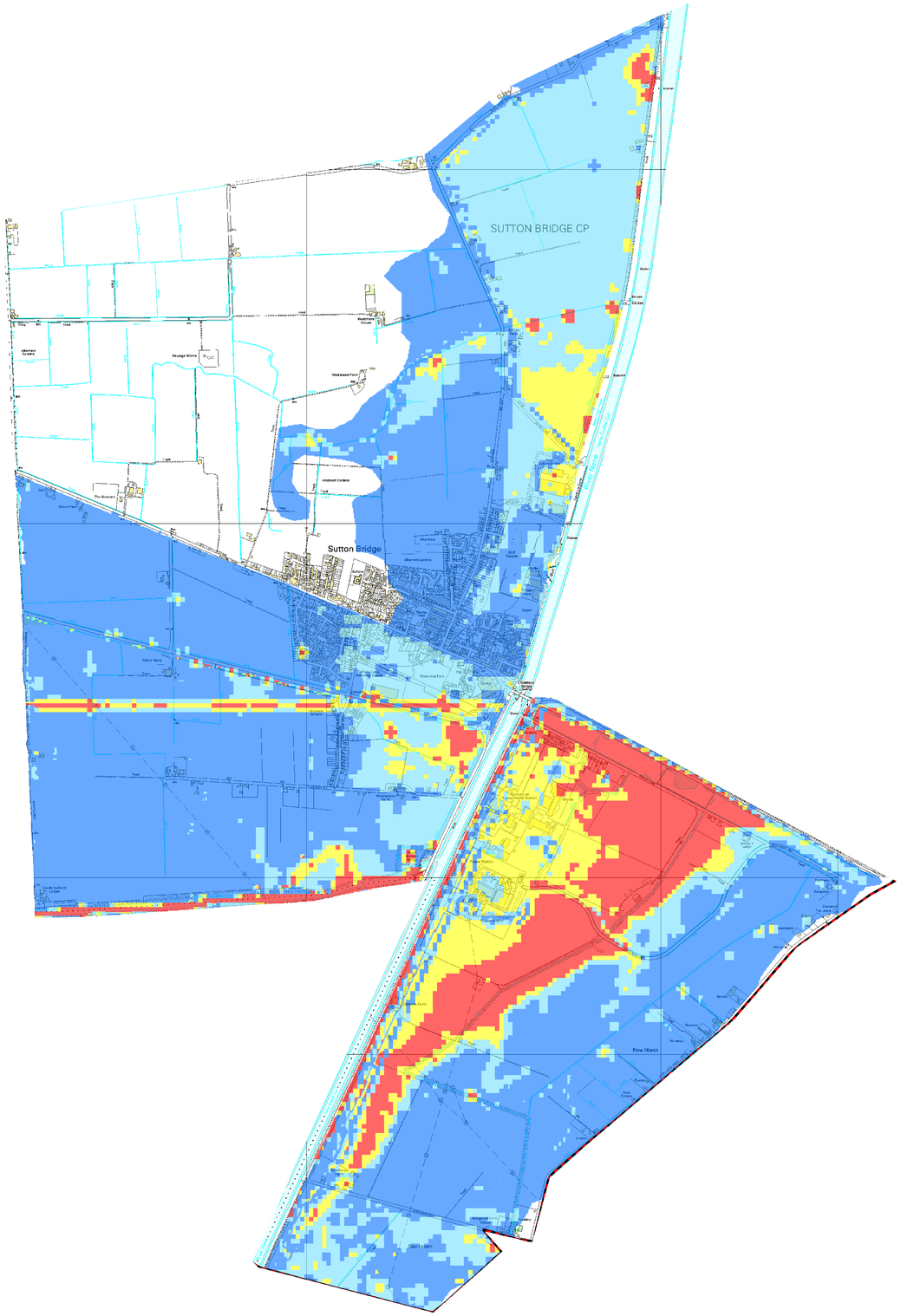
SCALE: 1 : 60,000 @ A1

MAP NO:

N


SUTTON BRIDGE CP
Sutton Bridge
Sluice Farm
Wildmere Farm
Allotment Gardens
Sewage Works
Pits Bowners
Grove Farm
Golf Course
Sutton Bridge Station
Frow Station
Frow Marsh
Nursery
Cemetery
Sewerage Works
Sewerage Pumping Station
Sewerage Pumping Station
Sewerage Pumping Station

N



NOTES

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6. Functional Floodplain encompasses areas where water is intended to flow or be stored in times of flood.

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8. This map shows the extents only of the flooding probability bands relevent to the map Title

Map Legend

Peak Depth

- 0m - 0.5m
- 0.5m - 1m
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- Functional Floodplain
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REV	DATE	REMARKS

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UPDATE OF STRATEGIC FLOOD RISK ASSESSMENT

Residual Peak Depth
Sutton - Present Day
0.1% Event Probability

DATE OF ISSUE: January 2010 **REV NO:**

SCALE: 1 : 60,000 @ A1

MAP NO:

Appendix E – Flood Warning and Evacuation Plan.

Flood Risk

Mill Green Road is within Flood Zone 3 (Land assessed as having a 1 in 100 or greater annual probability of river flooding) due to a combination of river and coastal flood risk, however the site is protected by flood defences.

In the unlikely event of flood defence failure flood modelling shows the site will still remain dry, however some areas of Pinchbeck, Spalding and large parts of Lincolnshire will flood, which could compromise access and egress from Pinchbeck.

There is still a residual risk of an extreme event affecting the site or access routes.

How Flood Warnings will be provided

The Environment Agency provides a free flood warning service 'Floodline Warnings Direct' for this area of Pinchbeck, which offers a minimum 2-hour flood warning lead time before the onset of flooding at the site. Residents will need to contact the Environment Agency to register to this service by calling Floodline on **0345 988 1188**.

After a receipt of a flood warning, you are recommended to call the Environment Agency Floodline 'dial and listen' service to hear further information. After dialling **0345 988 1188** you will be given the option of entering a quick dial code for the flood warning area that relates to you.

The quick dial code that relates to you is **0311414**. This will give you an automated response regarding any flood warnings that have been issued for this area. If you wish to speak to someone about flooding in relation to Mill Green Road you need to state that it is **Pinchbeck and the West of Spalding.**

Residents will be able to choose how they are contacted by the Environment Agency in the event of a flood, such as an automated telephone call, SMS text, email, fax or pager.

The Environment Agency use flood warning codes, each with specific public information / advice relating to it:

FLOOD ALERT

What it means: Flooding is possible. Be prepared.

When it's used: Two hours to two days in advance of flooding.

What to do for Mill Green Road.

The water level is rising but the risk of flooding on Mill Green Road is considered to be very low.

What you should do:

- Be prepared to act on your flood plan.
- Monitor local news and weather forecasts.
- Be aware of water levels. You can now see river levels on the Environment Agency's website. This information will show you

what's happening to water levels in your area - http://www.environment-agency.gov.uk/homeandleisure/floods/riverlevels/default.aspx

- Call Floodline on 0345 988 1188.
- Prepare a flood kit of essential items.

FLOOD WARNING

FLOODING IS EXPECTED. IMMEDIATE ACTION REQUIRED.

FLOOD WARNING

What it means: Flooding is expected. Immediate action required.

When it's used: Half an hour to one day in advance of flooding.

What to do for Mill Green Road.

You should take action when a flood warning is issued and not wait for a severe flood warning.

The water level is still rising, and flooding is expected. You should implement your flood warning and evacuation plan now.

What you should do:

- Evacuate the site if advised to do so by the emergency services and it is safe to do so.
- If the site is flooded and evacuation is not possible, people should stay in a high place with means of an escape.
- Call Floodline on 0345 988 1188 and monitor water levels.
- Turn off gas, electricity and water supplies if it is safe to do so. If you lose utility services, evacuate to the designated rest centre.
- Avoid walking or driving through floodwater, there could be hidden dangers, such as raised manhole covers (so have the potential to fall down a manhole).
- If in danger call 999 immediately. Listen to emergency services.

SEVERE FLOOD WARNING

SEVERE FLOODING. DANGER TO LIFE.

SEVERE FLOOD WARNING

What it means: Severe flooding. Danger to life.

When it's used: When flooding poses a significant risk to life.

What to do for Mill Green Road.

Flooding is now posing a significant risk to life or disruption to the local community. Flooding at the site is expected.

What you should do:

- Act as with a Flood Warning.

- Evacuate the site if advised to do so by the emergency services and it is safe to do so.
- If the site is flooded and evacuation is not possible, people should stay in a high place with means of an escape.
- Call Floodline on 0345 988 1188 and monitor water levels.
- Turn off gas, electricity and water supplies if it is safe to do so. If you lose utility services, evacuate to the designated rest centre.
- Avoid walking or driving through floodwater, there could be hidden dangers, such as raised manhole covers (so have the potential to fall down a manhole).
- If in danger call 999 immediately. Listen to emergency services.

Emergency Flood Plan – Mill Green Road

A list of useful telephone numbers:	**Environment Agency:**	
	Floodline	0345 988 1188
	Quick dial code	0311414
	Environment Agency – General Enquires	03708 506 506
	Emergency Services:	
	Lincolnshire Fire and Rescue	01522 582222
	Lincolnshire Police	101
	East Midlands Ambulance Service	0115 884 5000
	In an emergency, dial 999	
Useful numbers (for owners to include):	Lincolnshire County Council	01522 552222
	South Holland District Council	01775 761161
	Insurance Company	
	Neighbours	
A Flood Kit: (This should be collected and stored in a place where it can be easily accessed).	***This should include:*** Any key personal documents (Register, Insurance details, etc.); Torch (with spare batteries); Battery or wind-up radio; A mobile phone (with the useful telephone numbers already stored and a full battery); Rubber gloves; Wellington boots; Waterproof clothing; First aid kit; Blankets.	
Medication:	Do any residents need regular medication?	

Valuable belongings:	Get into the habit of storing these in a high place.
Flood boards / sandbags:	Have a few flood boards and sandbags prepared to block doorways and airbricks.
Gas, Electricity and Water:	Ensure that you know how to turn these off, be aware that you may need to do this in the dark.
Motor Vehicles:	Is there anywhere that vehicle(s) could be stored (garage?) so that they do not cause any damage if they are moved by floodwaters?
Evacuation:	If flooding is severe, you may be evacuated. Think about what you need to take with you.
DON'T WAIT FOR A FLOOD TO SEE IF YOUR FLOOD PLAN WORKS TEST IT NOW!	

Appendix F – Sequential and exception test

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Sequential Test & Exception Test – Mill Green Road, Pinchbeck

1.0 Proposed Development

The proposed development site is located at Mill Green Road, Pinchbeck, Lincolnshire PE11 3PU; NGR: TF 23582 25034.

The existing site comprises 8.0ha of mainly agricultural land with a garden centre to the north end of the site.

Outline planning permission is being sought to construct up to 250 dwellings. The development will also include an access road, driveways, parking spaces, paths, patios, gardens and green amenity spaces.

FIGURE 1 – GOOGLE MAPS IMAGE SHOWING THE EXISTING SITE

2.0 Flood Risk

The site lies within Flood Zone 3 (Land having a 1 in 100 or greater annual probability of river flooding) according to the Environment Agency's indicative flood map for planning.

The proposed development is classed as a 'more vulnerable' development in accordance with Table 2 Flood Risk Vulnerability Classification of the National Planning Policy Framework (NPPF) Planning Practice Guidance. A sequential test and exception test is therefore required in accordance with Table 3 Flood Risk Vulnerability and Flood Zone 'Compatibility' of the NPPF Planning Practice Guidance.

3.0 Sequential Test

The proposed development is an opportunity to provide up to 250 high quality dwellings located within Pinchbeck.

Possible alternative sites have been limited to Pinchbeck and Spalding. Alternatives have been screened from the South East Lincolnshire SHLAA annual review 2010 (the most up to date document available on the South East Lincolnshire Joint Strategic Planning Committee's website), online estate agencies and Google maps. Any sites with area less than 6.0ha or greater than 10 ha have been automatically rejected, as being too small / large for a 250 dwelling development.

Flood risk at the alternative sites has been assessed using the Environment Agency's flood map for planning.

1. SH/PIN/02 – Spalding Road, which is in Flood Zone 3. This alternative is not lower flood risk compared with the proposed site and is therefore not sequentially preferable.
2. SH/SPA/30 – Wygate Park (triangle), which is in Flood Zone 3. This alternative is not lower flood risk compared with the proposed site and is therefore not sequentially preferable.
3. SH/SPA/33a/P1 – Woolram Wygate, which is in Flood Zone 3. This alternative is not lower flood risk compared with the proposed site and is therefore not sequentially preferable.
4. SH/SPA/33a/P2 – Woolram Wygate, which is in Flood Zone 3. This alternative is not lower flood risk compared with the proposed site and is therefore not sequentially preferable.
5. Farm land for sale – Money Bridge Lane / Fengate Road which is in Flood Zone 3. This alternative is not lower flood risk compared to the proposed site. This site is a green field site where as the proposed site is partially brownfield. Therefore, this site is not sequentially preferable.
6. Farm land for sale – Old Fen Lane which is in Flood Zone 3. This alternative is not lower flood risk compared to the proposed site. This site is a green field site where as the proposed site is partially brownfield. Therefore, this site is not sequentially preferable.

The whole of the Pinchbeck and Spalding Parish are essentially within Flood Zone 3 and as such no sequentially preferable sites at lower flood risk are available.

4.0 Exception Test

The development must fulfil two conditions to pass the Exception Test:

- It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a Strategic Flood Risk Assessment where one has been prepared;
- A site-specific Flood Risk Assessment must demonstrate that the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere and where possible, will reduce flood risk overall.

South East Lincolnshire Joint Strategic Planning Committee published a Sustainability Appraisal Scoping Report in July 2012. The report does not develop specific Sustainability Objectives, but is structured around a series of topic areas. The report does however identify the relevance of the earlier Lincolnshire Coastal Study to South East Lincolnshire and this earlier report does identify 15 specific objectives.

Benefits arising from the proposed development at Mill Green Road have been identified against the Lincolnshire Coastal Study Sustainability Appraisal objectives in the table below:

Sustainability Objectives	Benefit in line with the objective
1. To ensure that the existing and future housing stock meets the housing needs of all communities.	The development will provide additional accommodation within Pinchbeck, where the need is high but new development options are constrained.
2. To improve health and reduce health inequalities by promoting healthy lifestyles, protecting health and providing health services.	The proposed houses will be located, within walking/cycling distance of employers, shops and services, encouraging residents' healthy lifestyle.
3. To improve accessibility to jobs and services by increasing the use of public transport, cycling and walking, and reducing traffic growth and congestion.	The proposed houses will be located, within walking/cycling distance of employers, shops and services, encouraging residents' healthy lifestyle.
4. To reduce social exclusion and improve equality of opportunity amongst social groups.	The proposed houses include affordable homes and have been designed to make it financially viable for a wide range of prospective tenants.
5. To improve educational achievement and skills levels.	The proposed houses will be located within easy distance of a range of educational services.
6. To protect, enhance and sustain biodiversity and to conserve geodiversity.	The development will protect biodiversity through careful garden design and landscaping.
7. To restore and manage the historic environment and built environment.	The proposal will introduce good quality housing designed to be in-keeping with the local street scene.
8. To manage landscape change and enhance landscape quality.	The proposal will introduce good quality housing designed to be in-keeping with the local street scene.
9. To encourage sustainable use of resources, specifically land and water.	The development will provide an opportunity to improve drained water quantity and quality from the site in line with the latest SuDS best practice. The development will make use of the latest building best practice, to improve energy and water usage. The development can utilise existing service infrastructure at the site.
10. To reduce risk of fluvial and coastal flooding by adapting to climate change and coastal erosion.	The planning proposal provides an opportunity for a Flood Risk Assessment to ensure that the development is safe from

	flooding now and for the future, taking account of climate change. The development will provide an opportunity to improve drained water quantity and quality from the site in line with the latest SuDS best practice. The development will make use of the latest building best practice, to improve energy and water usage.
11. To reduce levels of atmospheric greenhouse gases (GHG) by reducing emissions and increasing extent of carbon sinks.	The development will make use of the latest building best practice, to improve energy and water usage. The proposed houses will be located, within walking/cycling distance of employers, shops and services, reducing the number of car journeys.
12. To promote the utilisation of the local renewable energy potential.	The development gives an opportunity for the incorporation of solar cells.
13. To maximise the area's economic comparative advantages.	The type of residences proposed are expected to appeal to a wide range of tenants, helping to retain and encourage new skilled employees into the area.

A site-specific Flood Risk Assessment has been drafted, which demonstrates that the development is safe and will not increase the flood risk elsewhere.

5.0 Conclusion

There are no sequentially preferable sites available in lower flood risk areas that meet the aim of the project.

The proposed development provides wider sustainability benefits for the community that outweigh flood risk.

A Flood Risk Assessment has been drafted that demonstrates the development is safe and will not increase the flood risk elsewhere.

The proposal passes the requirement of the sequential test and fulfils the two conditions of the exception test and therefore is in accordance with the criteria for determining planning applications as detailed in paragraph 102 of the National Planning Policy Framework.

Appendix G – Correspondence with IDB

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Welland & Deepings
Internal Drainage Board

Welland & Deepings
Internal Drainage Board
Deeping House
Welland Terrace
Spalding
PE11 2TD

Chief Executive - Mrs Karen Daft

Operations Engineer – Nick Morris

Our Ref. NSM/JP/P/P/3

This matter is being handled by
Nick Morris

10th August 2016

Mr Thomas Haskey
RAB Consultants Ltd
Via email - Thomas.haskey@rabconsultants.co.uk

Dear Tom

Re: Flood Risk Assessment for Land off Mill Green Road, Pinchbeck

Further to our recent email exchanges, I write to supply information and advice on surface water drainage.

Please find attached a plan showing Board-maintained watercourses in the area of Mill Green Road, Pinchbeck. The nearest Board watercourse in your study area is the Reedy Graft Drain.

The Board's accepted Greenfield run-off rate is 1.4 litres/sec/hectare and flows should be restricted to this figure. Any surface water discharge to watercourses within the Board's area require the prior written consent of the Board. In line with current recommendations, SUDS should be considered as a first line approach to dealing with surface water. Lincolnshire County Council, as Lead Local Flood Authority, would have a key input into any surface water strategy and I would suggest their involvement at an early stage.

It would be useful to know where the existing glasshouses currently discharge their surface water to; are these to soakaways or do they positively discharge to an existing watercourse?

The Board's prior written consent and agreement of technical details, together with payment of any development contribution due, would be required for any surface water discharged into the drainage system. The Board charge £50 for a Consent to Discharge Surface Water application. A copy of the Board's Development Levies can be supplied if required.

Under the Land Drainage Act 1991, the Board's prior written consent is also required for alteration, e.g. piping, creation of new accesses, diversions, etc, of any non-Board maintained watercourses within its area.

Yours sincerely

Nick Morris
Operations Engineer

Enc Plan showing Board's drains in area