



DOWLMAN
Neil Dowlman Architecture

Planning | Design | Project Management

FLOOD RISK ASSESSMENT

IN RESPECT OF

PLANNING APPLICATION

FOR

PROPOSED MIXED-USE DEVELOPMENT

AT

10 BROAD STREET

SPALDING

PE11 1TB

FOR

Activ Property Management Ltd.

Job No B2931

December 2016

Architectural Consultants



ALFORD 4-5 Church Street, Alford LN13 9EF **t:** (01507) 463 863 **e:** alford@neildowlman-architecture.co.uk
BOSTON 14 Main Ridge West, Boston PE21 6QQ **t:** (01205) 357 272 **e:** boston@neildowlman-architecture.co.uk
STAMFORD 14 Barn Hill, Stamford PE9 2AE **t:** (01780) 758 522 **e:** stamford@neildowlman-architecture.co.uk
HORNCASTLE* 28 St Lawrence Street, Horncastle LN9 5DN **t:** (01507) 522 899 **e:** horncastle@neildowlman-architecture.co.uk
LOUTH* 62 Northgate, Louth LN11 0LY **t:** (01507) 601 155 **e:** louth@neildowlman-architecture.co.uk
SKEGNESS (Satellite Office) **t:** (01754) 880 080 **e:** skegness@neildowlman-architecture.co.uk
**By appointment only*

Neil Dowlman MCIAT, MCABE - Managing Director, Neil Hutson ACIAT - Director, Mark Dennis ACIAT - Associate.
Company registered in England No. 4458808. Registered office 4-5 Church St, Alford, Lincs, LN13 9EF. VAT No. 728 6784 83.
Dowlman and Neil Dowlman Architecture is a trading style of Neil Dowlman Architecture Ltd.

www.neildowlman-architecture.co.uk



DOWLMAN
Neil Dowlman Architecture

Planning | Design | Project Management

PROPOSED MIXED-USE DEVELOPMENT

AT

**10 BROAD STREET
SPALDING
PE11 1TB**

Date:	December 2016
Project Number:	B2931
Prepared By:	John Dowding BA (Hons) March Designer/Architectural Assistant
Checked and Approved By:	Neil Dowlman MCIAT, MCABE Managing Director Chartered Architectural Technologist Chartered Building Engineer
REVISIONS	A – September 2017 JD



DOWLMAN
Neil Dowlman Architecture

Planning | Design | Project Management

CONTENTS

INTRODUCTION	Page No. 1
1.0 DEVELOPMENT SITE AND LOCATION	Page No. 1
2.0 DEVELOPMENT PROPOSALS	Page No. 3
3.0 CLIMATE CHANGE	Page No. 3
4.0 SITE SPECIFIC FLOOD RISK	Page No. 3
5.0 SURFACE WATER MANAGEMENT	Page No. 4
6.0 OCCUPANTS AND USES OF THE DEVELOPMENT	Page No. 4
7.0 RESIDUAL RISKS	Page No. 5
8.0 CONCLUSIONS	Page No. 5
APPENDIX A – Maps	

Introduction

Neil Dowlman Architecture Ltd. has been engaged by Activ Property Management Ltd. to prepare a Flood Risk Assessment for the planning application for the proposed erection of residential development comprising 26no. one and two bedroom residential units. The site at 10 Broad Street, Spalding, Lincolnshire is currently occupied by the Broad Street Business Centre.

1.0 Development Site and Location

The site is located off Broad Street to the north-west (524842mE, 322787mN). The narrow frontage provide access on to a deep site that backs on to Spalding Youth Centre and the access track that feeds back onto Westlode Street. The buildings take up the full site area. To the north and immediately adjacent sits the Museum of Spalding Gentlemen's Society building, to the south lies the Constitutional Club civic building and bowling green. Further along the northern site boundary lie the backyards of properties facing onto Westlode Street. Properties 77 and 78 Westlode Street extend to the boundary with 10 Broad Street. Due to the extent of construction, no boundary treatments exist, the boundaries are defined by the external walls of the structure. The site is approximately 0.115 hectares in area.



Figure 1 - Site Location Plan

The site is currently occupied by a number of conjoined single storey portal framed structures that provide part A1 (Shops and retail) use and part B1 (Business) use.

As indicated in the Environment Agency Flood Map for Planning (below), the site and surrounding area is defined as being within Flood Zone 3. Flood Zone 3 is defined as having up to a 0.1 percent (1 in 1000) chance of a major flooding event happening each year and is based on flooding from fluvial sources such as rivers and the sea. Whilst this suggests that the site is heavily vulnerable to a flooding incident in the future the South Holland District Council Strategic Flood Risk Assessment indicates otherwise. This has been confirmed by the advice received for the Environment Agency that due to higher land levels, the site is considered to be outside of the hazard area. This advice takes into consideration the new climate change allowances. Additionally, Environment Agency Flood Maps indicate that there is no risk of surface water flooding on the site and there is no historical evidence of this.

Ordnance Survey ODN levels along Broad Street and Westlode Street indicate heights of 5.5mODN to 5.8mODN. These concur with survey measurements that indicate site levels vary from 5.42mODN to 5.88mODN.

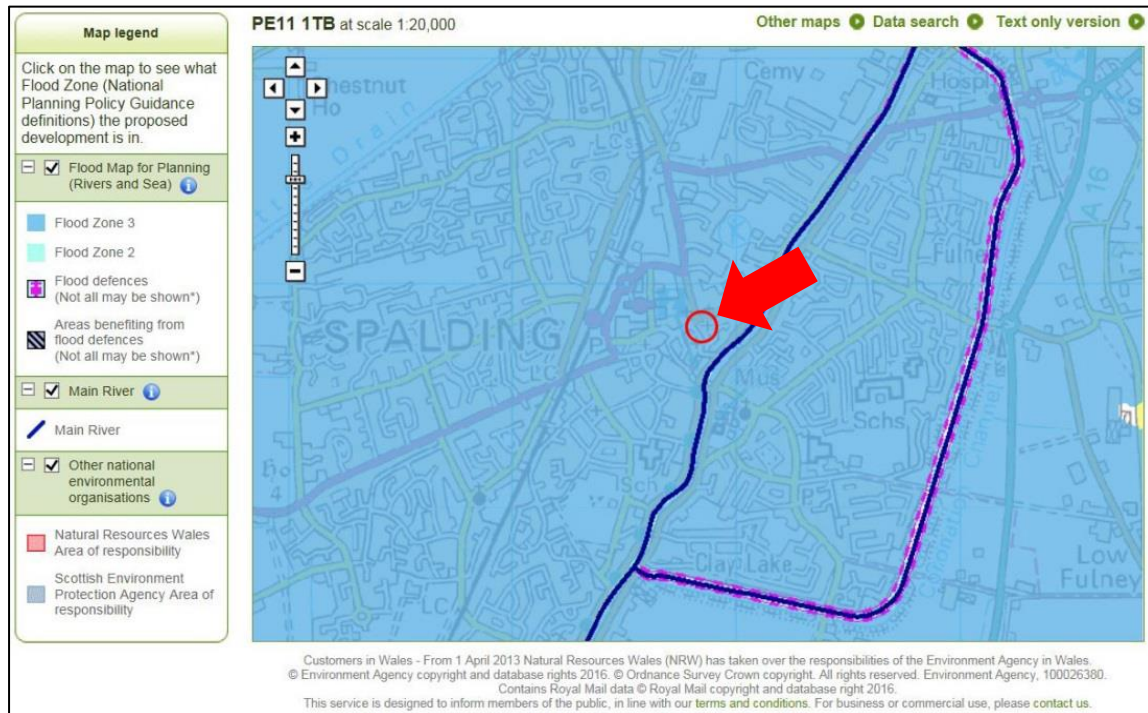


Figure 2 - Environment Agency Flood Map - Spalding

Flood hazard maps for the Spalding Area are shown below and indicate that for the worst case scenario of a 0.1% 2115 flood event the site is not at risk. The SFRA advises that:

'The extents along the tidal River Welland arise partly because of potential breaching that could occur anywhere along the defences. In addition there would be overtopping in Spalding near Fulney Lock. Reference to [hazard maps] shows that about half of Spalding, including the town centre area, would remain at Low probability of flooding.'

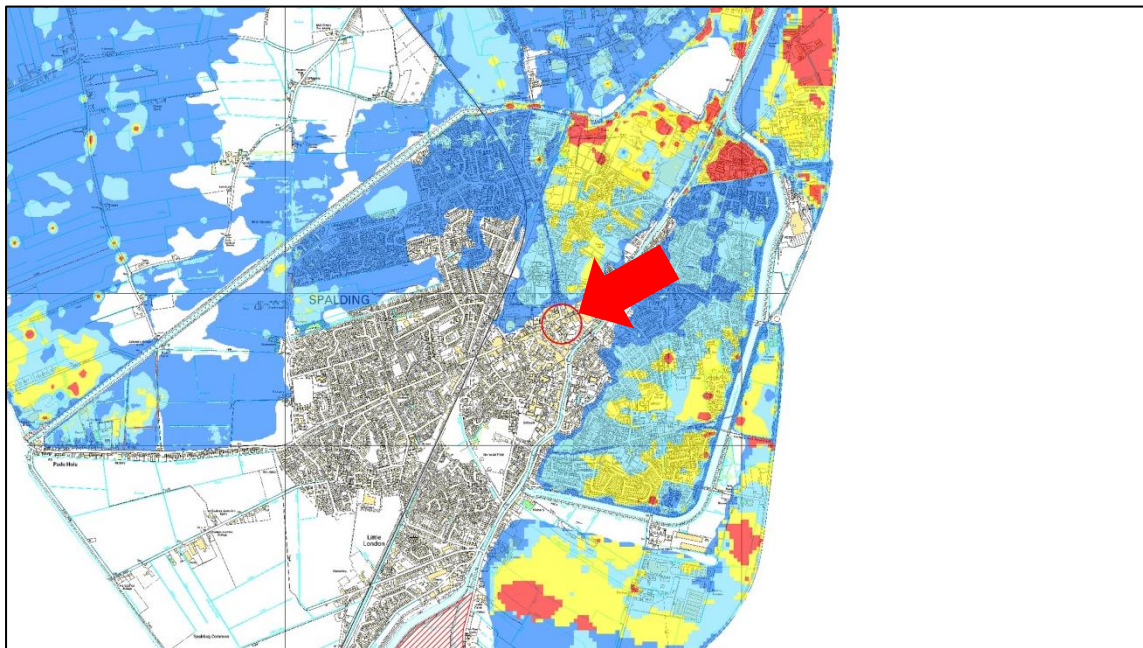


Figure 3 – South Holland District Council Strategic Flood Risk Assessment Map

Actual Peak Depth Year 2115 0.1% Probability

2.0 Development Proposals

This planning application relates to proposals for the erection of 26no. residential units along with associated infrastructure (including bin and bicycle storage), and landscaping. A new pedestrian access is proposed along Broad Street and the site will further benefit from improved access with the opening up of a new pedestrian entrance to the rear that leads on to Westlode Street. The redevelopment of the site will change to use of the site to class C3 (Dwellings) from the existing Class A1 (shops) and Class B1 (business) use.

The vulnerability classification of the proposed development can be considered to be 'More Vulnerable' (residential). The expected lifetime of the proposed development would be 50-100+ years.

Flooding probability at proposed development sites at the present-day		Possible flooding probability at proposed development sites in the future with contingency allowance for climate change		
Site reference and proposed use	Flooding Probability	Flooding Probability		
		2055	2115	
Spalding:				
A Urban	Low	Low	Low	
B Housing	Low	Medium or Low	High	
C Housing	Low	Medium or Low	High	
D Employment	Low	Medium or Low	High	
E Employment	Low	Medium or Low	High	
F Employment	Low, but the site is in the rapid inundation zone.	Medium or Low	High	
G Employment	Low	Medium or Low	High	
Donington:				
H Employment	Low	Low	Low	
Holbeach:				
I Urban	Low	Medium or Low	Medium or Low	
J Housing	Low	Medium or Low	Medium or Low	
Long Sutton:				
K Housing	Low	Medium or Low	Medium or Low	
L Employment	Low	Medium or Low	High	
Sutton Bridge:				
M Housing	Low	Medium or Low	High	
N Employment	High, due to potential breach along the Wash frontage to the north. The vulnerability arises because the freeboard at two points is less than the minimum desirable. The site is also in the rapid inundation zone.	High	High	
O Employment	Medium	High	High	
P Employment	Medium	High	High	
Crowland:				
Q Employment	Low	Low	Low	

Figure 4 - Flooding Probability to Site references and proposed uses.

For developments in Flood Zones 2 and 3 a Sequential Test is normally required to show why the site should be developed instead of similar sites in less vulnerable areas. Because the site has been confirmed as outside of the hazard mapping area by the SHDC SFRA for the worst case scenario of a 2115 0.1% flood event, and the proposals are for brownfield development, the Sequential Test approach is not deemed necessary.

3.0 Climate Change

Advice from the Environment Agency has taken into account Climate change allowances and this has resulted in the recommendation that finished floor levels are raised to a minimum of 300mm above existing ground levels for areas that could be used for sleeping accommodation.

4.0 Site Specific Flood Risk

The main sources of flooding in the area are from the sea (i.e a breach of the sea defences or overtopping event) these have been shown to have zero probability of causing flooding on site. Additionally, the maintained watercourses of the River Welland and surrounding drains are a potential source of flooding, however these are unlikely to impact the site, as shown by the hazard maps, as the development site is significantly higher than the surrounding area. Surface water is also unlikely to cause flooding in the area. The probability of the site flooding is at present and taking into account climate change allowances, very low.

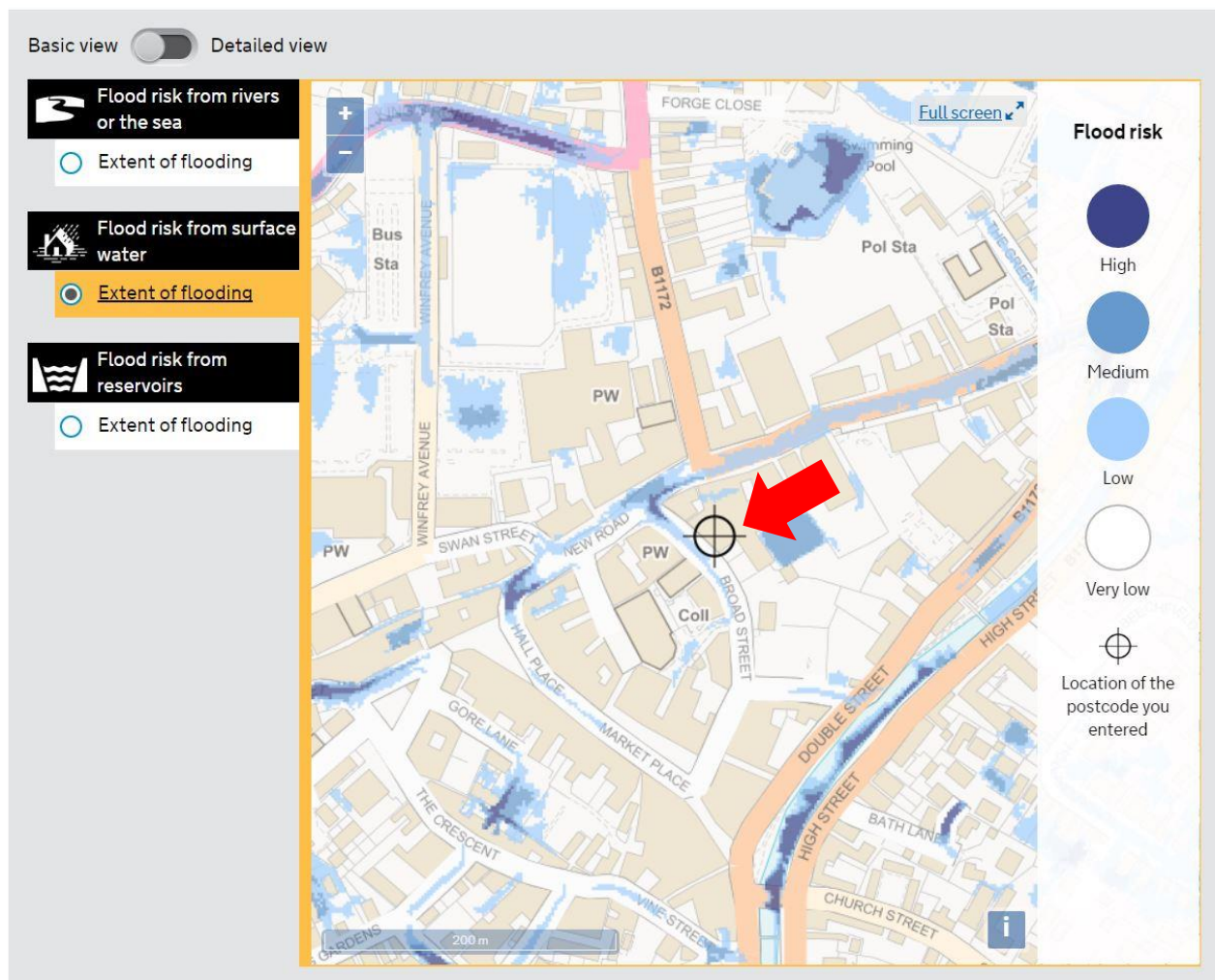


Figure 5 – Environment Agency Map, Flood Risk from Surface Water

5.0 Surface Water Management

At present there are no strategic surface water drainage problems in the District. Nearly all drainage is managed by the IDBs, whose levels of service are satisfactory for both urban and agricultural areas. In the future, if rainfall amounts and sea levels increase, the IDB levels of service will decline unless the drainage systems are enhanced. Such enhancement may take the form of increased drain capacity to provide more flood storage and may involve the installation of greater outfall pumping capacity. All the IDBs are known to be mindful of possible future conditions and their consequences. The IDBs have a good record of effective flood management, keeping pace with changing circumstances as they arise. One may expect this active approach to continue. In this case, although the operation and management of surface water drainage is vital to flood protection within the District, problems of a strategic nature should not develop.

Existing surface water is disposed of via mains sewer. The whole site is currently built on, and therefore the proposed development will not increase discharge of surface water. Surface water will continue to be disposed of via mains sewer.

6.0 Occupants and Users of the Development

The change of use and higher density redevelopment of the site is likely to increase the number of occupants using the building. It is expected that at least 54 persons could occupy the residential units. The change of use will also

affect the nature and time of occupation as residents will be living on site 24-hours-per-day. The proposed raising of finished floor levels has taken into consideration the vulnerability of residents to the potential future flood risk.

7.0 Residual Risk

Residual Risk Maps show the consequences from a flood event when assuming that any part of the raised defences may fail, regardless of apparent standard, together with the consequences of overtopping that would occur. This shows a wider potential flood risk area than arises when considering Actual Risk. The findings confirm how South Holland District is reliant on man-made measures, such as embankments and the internal drainage systems, for protection against flooding. This reliance extends not just to the existence of the measures but on their continued maintenance and operation. The residual risk maps indicate that the site will not be affected.

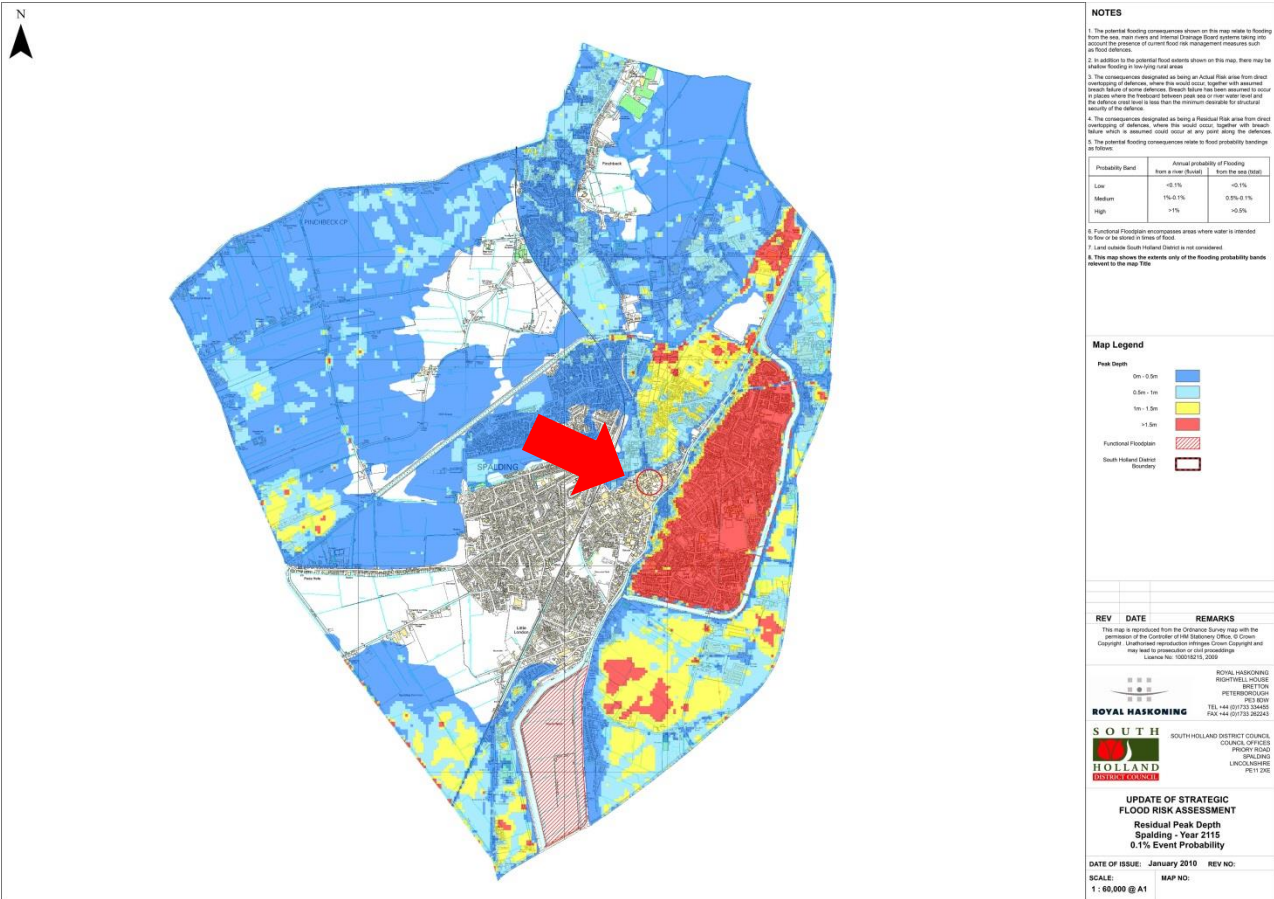


Figure 6 – South Holland District Council Strategic Flood Risk Assessment Map

Residual Risk Depth Year 2115 0.1% Probability

8.0 Conclusions

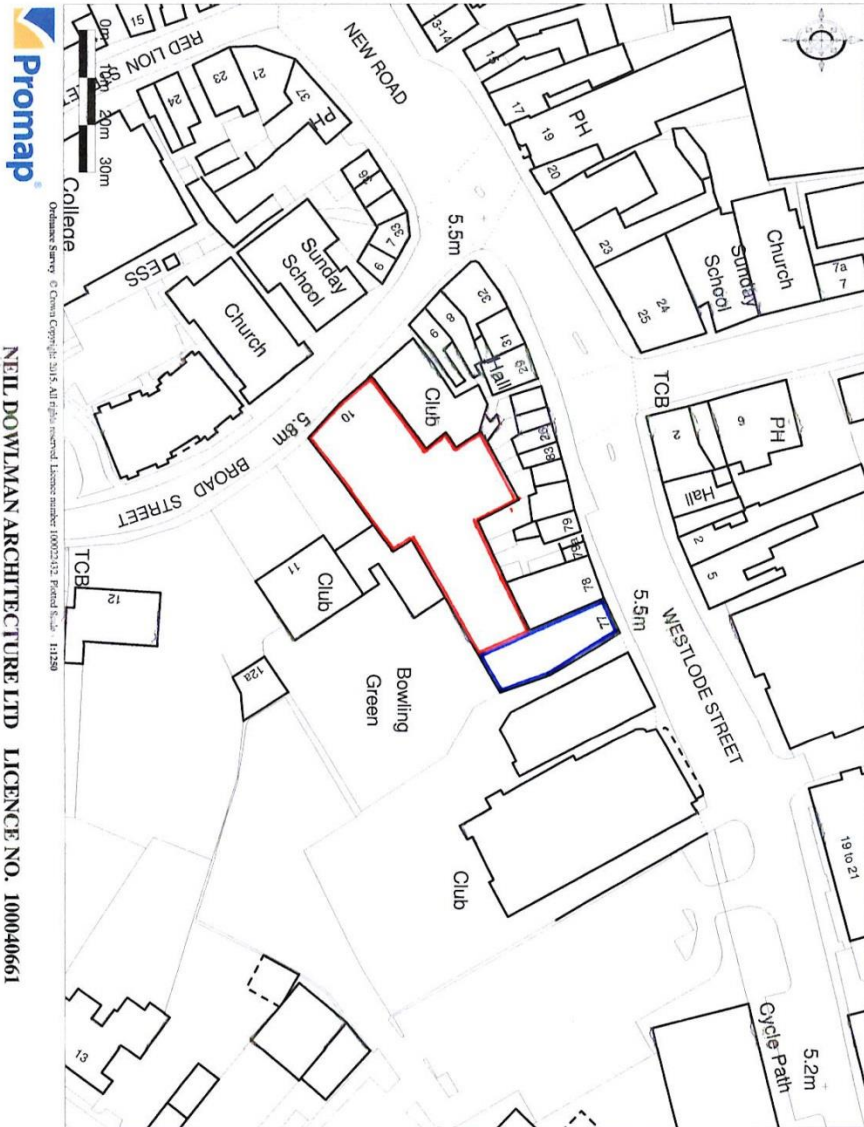
The proposal, described within this assessment, is a residential development to comprise of 26no. residential unit.

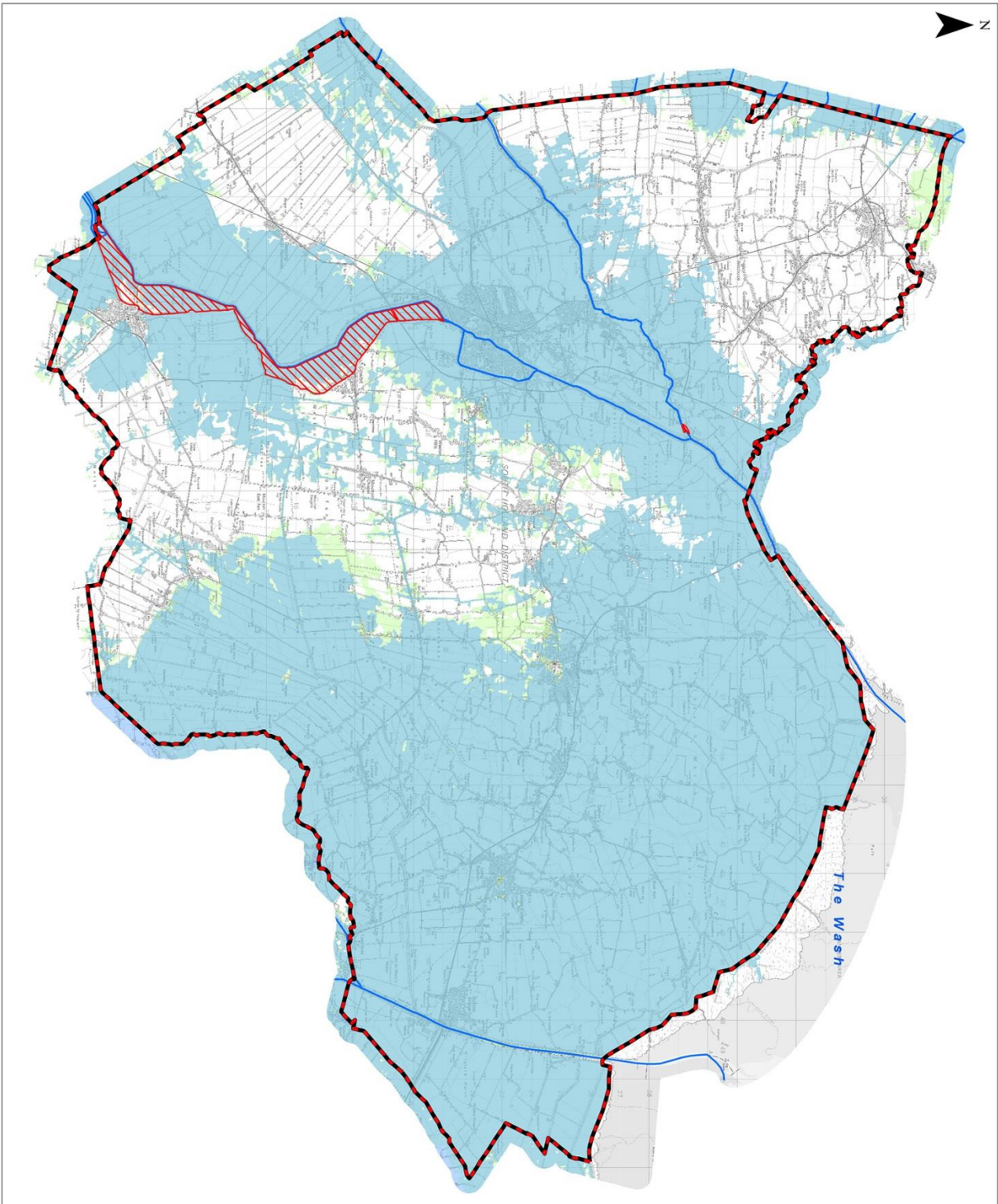
The Environment Agency and South Holland District Council SFRA confirmed that the site lies within the “NO DANGER” category and would suffer from NO flooding, from breaching, as demonstrated by the Environmental Agencies 2115 year 0.1% (1 in 1000 year) modelling map.

To take account of climate change allowances the finished floors levels will be set a minimum of 300m above existing ground level. The proposed ground floor level will therefore be 6.18mODN.

APPENDIX A

Maps





NOTES

1. The Flood Zones are as designated by the Environment Agency. They ignore the presence of flood defences.
 2. The Flood Defences can be defined as follows:
 - Zone 1 - Land that could be flooded from the sea by a flood of 0.5% annual probability (once in 200 years on average) or greater, or from the river by a flood at 1% annual probability (Once in 100 years on average) or greater.
 - Zone 2 - The additional extent likely to be affected by a flood from the sea or from a river, having a 0.1% annual probability (once in 1,000 years on average).
 - Zone 3 - Land other than Functional Floodplain, outside Zone 2 and 3.
- Functional Floodplain - Areas where water is expected to flow or be stored in times of flood.

Map Legend

- Main Rivers
- Zone 1
- Zone 2
- Zone 3
- Functional Floodplain
- South Holland District Boundary

0 1 2 Kilometres

REV DATE REMARKS

This map is reproduced from the Ordnance Survey map with the permission of the Controller of the Stationery Office. © Crown Copyright. Unauthorised reproduction infringes Crown Copyright and may be liable to prosecution under the Copyright, Designs and Patents Act 1988.

ROYAL HESKING
NORTHWICH
PETERBOROUGH
TEL: 44 (0)1733 352043
FAX: 44 (0)1733 352043

SOUTH HOLLAND
SOUTH HOLLAND DISTRICT COUNCIL
COUNCIL HOUSE
PRIORY ROAD
LINCOLN
PE1 1RE

UPDATE OF STRATEGIC FLOOD RISK ASSESSMENT

Flood Zones

DATE OF ISSUE: Jan 2010 REV.NO:

SCALE: 1:120,000 FIGURE NO: 7