FLOOD RISK ASSESSMENT

FOR

PROPOSED DEVELOPMENT AT HOLBEACH ROAD, SPALDING

ON BEHALF OF

COMMERCIAL DEVELOPMENT PROJECTS LIMITED

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Flood Risk Assessment for Proposed Development at Holbeach Road, Spalding 1506-54r1b			
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1.0 INTRODUCTION

1.1 Commercial Development Projects Ltd. ('the Clients') are proposing a commercial development on a greenfield site to the south-east of the A16/A151 junction in Spalding, Lincolnshire. The site is within Flood Zone 3, therefore a Flood Risk Assessment is required to support the planning application.

1.2 The National Planning Policy Framework (NPPF) (Communities and Local Government, February 2025), and the associated Guidance for flood risk and coastal change (Communities and Local Government, August 2022), aim to steer development towards the lowest areas of flood risk, whilst ensuring proposals also do not increase flood risk elsewhere. Planning policy requires new development of over 1 hectare in size, or those in areas at risk of flooding or in areas that may be affected in the future, to be subject to a Flood Risk Assessment at the planning application stage. The assessment should consider the risk of flooding from all potential sources and make recommendations for any necessary flood mitigation measures for the lifetime of the development.

1.3 ARP Associates has therefore been appointed to implement appropriate consultations, carry out an assessment of the site, and prepare a Flood Risk Assessment report, in accordance with the requirements of NPPF, to support a planning application for the proposed development.

1.4 The consultations and site appraisal for this assessment were predominantly carried out between March and May 2024, with updates undertaken in July 2025, and further updates in October 2025. The findings of this report are based on data available at the time of the study and may require review if new data becomes available or relevant policy/guidance is updated prior to development proposals being approved.

1.5 It should be noted that the undertaking of a Flood Risk Assessment, or the granting of planning permission, does not guarantee the availability of flood insurance for new development. The insurance industry may use different tests and flood risk data in determining insurability and insurance premiums. The Client is advised to contact their insurers to seek advice prior to considering development in any area which may be at risk of flooding.

1.6 The report has been initially prepared for the use and reliance of the Client only. The report shall not be relied upon or transferred to any other parties without the written agreement of ARP Associates. For the avoidance of any doubt, where ARP Associates enters into a letter of reliance for the benefit of a third party, that third party will be permitted to rely on the report. No responsibility will be accepted where this report is used, either in its entirety or in part, by any other party without ARP Associates consent.

1.7 Attention is drawn to the requirements of the Construction Design and Management Regulations 2015, and in particular, the duties and obligations of the Client.

2.0 SITE DESCRIPTION

General

2.1 The site, which is centred on Ordnance Survey Grid Reference 526675, 323822, is located to the south-east of the A16/A151 junction in Spalding, Lincolnshire. The nearest postcode is PE12 6JP. A site location plan is presented in Appendix A.

2.2 The site is a broadly triangular shaped piece of land extending to an area of approximately 1.31 hectares (ha), with approximate major dimensions of 150m (north - south) by 170m (east - west).

Current Status

2.3 The site is undeveloped 'greenfield' land, with varying vegetation across its extent. The majority of the site comprises densely vegetated land with numerous trees and shrubs. A small area which extends east from the southern end of the site is less densely vegetated, with rough grass cover. A more formal grassed area surrounds the gravel driveway in the northern tip of the site.

Access

2.4 Access to the site is currently from the A151 Holbeach Road to the north, via a small access track. The northern tip of the site is also accessed by a gravel driveway from the A151 Holbeach Road, which also serves the adjacent Woodhouse Farm Lodge and a residential dwelling.

Site Boundaries and Surrounding Land Use

2.5 The site is bound on the west by the A16 Low Road, and on the north by the A151 Holbeach Road. The two roads intersect via a large roundabout located adjacent to the north-west of the site. The site is separated from the A16 and the roundabout by a highway drainage swale which was constructed in the last couple of years.

2.6 To the north-east of the site is a single residential dwelling and the Woodhouse Farm Lodge hotel. To the east of the site are open agricultural fields. To the south of the site there is a drainage channel with a public footpath beyond.

Topography

2.7 A topographical survey of the site was undertaken in April 2024, and a copy of the survey drawing is included in Appendix B for reference. It can be seen that the site is relatively flat, with a very gradual fall towards the south-east. Levels in the north of the site are of the order of 3.3-3.4m Above Ordnance Datum (AOD), and fall to around 3.0mAOD in the south-west and 2.8mAOD in the south-east.

2.8 Beyond the site boundary, levels generally fall towards the south-east. The A16 to the west of the site is elevated slightly above the general level of the site by around 0.7-1.3m. Levels on the A151 to the north are approximately coincident with the adjacent site levels.

Local Hydrology

2.9 The River Welland, an Environment Agency designated Main River is located approximately 825m west of the site. The river flow in a north-easterly direction through the area, flowing towards the coast approximately 22km away, and discharging into The Wash at a point approximately 8km south-east of Boston.

2.10 Fulney lock, located on the River Welland to the west of the site, is the limit of tidal influence on the river, and provides a moveable barrier between the tidal and fluvial sections of the watercourse.

2.11 The Coronation Channel is a bypass channel of the main River Welland, which flows around the east of Spalding. This channel, which is also a designated Main River, lies just 350m west of the site at its nearest point. A moveable gate acts as a tidal barrier and defines the tidal limit of the Coronation Channel.

2.12 In closer proximity to the site are a number of drains (classified as Ordinary Watercourses) which form part of the local land drainage catchments. A drain is located outside of the southern boundary of the site and flows from west to east before turning to flows south, away from the site. These drains may flow into the wider land drainage catchment to the south. Although these ditches are well-defined, they are more akin to field boundary drains rather than watercourses, with no flow present on the day of the walkover.

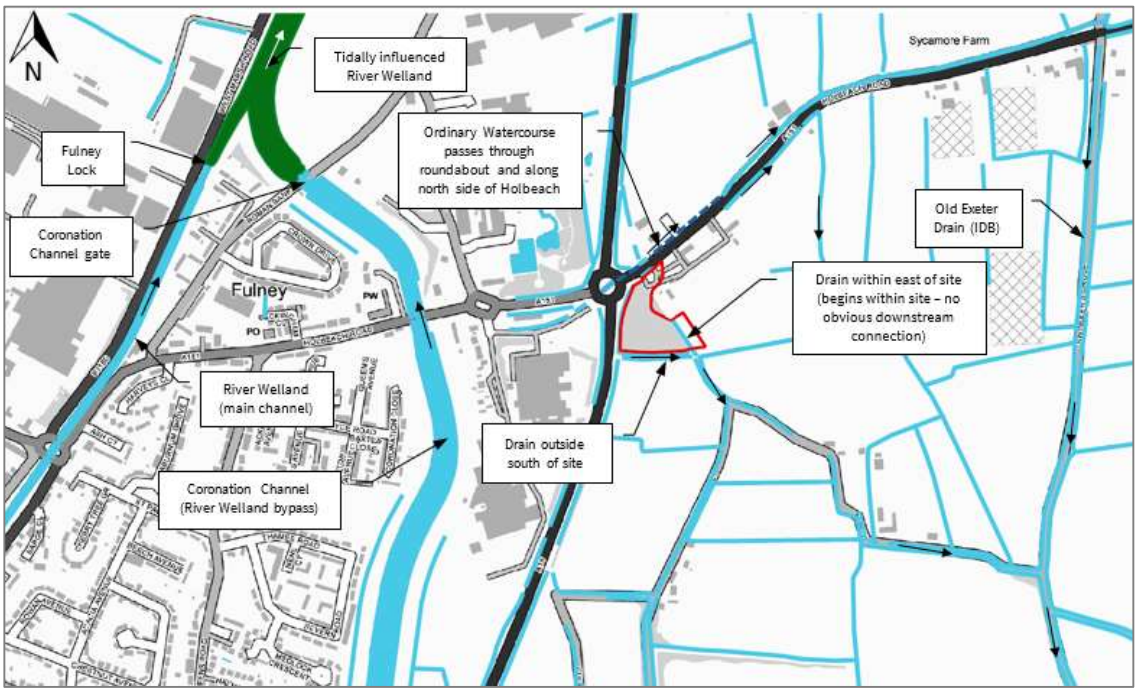
2.13 Within the east of the site there is a well-defined drainage ditch which is understood to flow from north to south. Although it is possible the on-site ditch did once have connectivity to the downstream channels, no outfall pipe is visible on site, and no incoming pipe is visible in the downstream channels. Although Ordnance Survey mapping indicates the ditch to begin within the adjacent landholding, the topographical survey and inspection on site have confirmed that the upstream end of the ditch is within the development site.

2.14 The site itself, including the above drains, are within the Wisemans catchment of the South Holland Internal Drainage Board (IDB) area, which generally flows towards South Holland Drain approximately 7.8km south of the site, and has an eventual pumped discharge. Land to the north of the A151 is within the separate Lords catchment, which generally flows north towards the Lords Sluice and into the River Welland.

2.15 To the north of the site there is an Ordinary watercourse which flows through the centre of the roundabout then alongside the northern side of the A151 Holbeach Road. Parts of the watercourse are understood to run in culvert beneath highways and the service area access road, but a short open section exists opposite the site entrance.

2.16 The above hydrological features and connectivity are illustrated by the plan in Figure 1. Plans showing the full extent of the above IBD catchments are included in Appendix E for reference.

Figure 1. Plan Showing Key Local Hydrological Features



Existing Drainage

2.17 Anglian Water public sewer records (included in Appendix C for reference) confirm that there are no public sewers within the site or the immediate surrounding area.

2.18 The presence of gullies and kerb drains on the A16 and A151 to the west and north of the site confirms that the roads and roundabout are served by an existing highway drainage system. It is understood that the highway drainage discharges to the swale located between the highway and the west / north-west of the site. From here it is most likely to enter a piped drainage system before being discharged into the IDB Lords catchment to the north of the site.

2.19 It is understood that the site is not served by an existing positive drainage system (although the presence of some piped land drainage within the site cannot be ruled out). Some overland flows from the site may reach the existing ditch in the east, although this does not appear to have a positive outfall. The majority of overland flow is likely to infiltrate into the ground or be lost via evapotranspiration.

3.0 CONSULTATION AND DATA REVIEW

Environment Agency

3.1 Consultation was undertaken with the Environment Agency and a copy of its response, reference CCN-2024-356227 dated 24th April 2023 (received 9th May 2023), is presented in Appendix D for reference. Additional publicly available Environment Agency Open Data has also been reviewed, from which extracts are also included in Appendix D.

3.2 The Environment Agency Flood Map for Planning shows areas of land considered to be at risk of flooding from rivers or the sea. These areas do not take into account defences, as water can overtop them or the defences can fail in extreme conditions. They also do not account for the projected impacts of climate change. The Flood Zone classifications are:

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

Flood Zone 2 - ''Medium Probability'' is assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding in any year (1% - 0.1%) and between a 1 in 200 and 1 in 1,000 annual probability of flooding from the sea (0.5% - 0.1%).

Flood Zone 3 - ''High Probability'' is assessed as having a 1 in 100 or greater annual probability of river flooding in any year (greater than 1%) and a 1 in 200 chance or greater annual probability of flooding from the sea (less than 0.5%).

3.3 The Flood Map for Planning confirms that the site, and a significant area surrounding the site, is located within Flood Zone 3, indicating a 'high' probability of flooding from rivers and/or the sea. It is confirmed within the Environment Agency response that the site is at risk of flooding from Main Rivers (i.e. from the River Welland and its tributaries) and that the site is not considered to be at risk from tidal flooding.

3.4 The Flood Map for Planning shows that raised defences are present around the Coronation Channel and the River Welland to the west of the site. The Environment Agency notes in its response that the defences are in *"fair condition"* and that they *"reduce the risk of flooding (at the defence) to a 1% (1 in 100) chance of occurring in any year"*. It was noted that the Environment Agency inspect these defences *"routinely"* to identify potential defects.

3.5 Available modelled fluvial flood levels and flows for the River Welland and the Coronation Channel, taken from the 2016 Welland Catchment Strategic Model, were provided by the Environment Agency. A plan showing the modelled fluvial flood extents, with the protection afforded by flood defences included, was also provided.

3.6 It was confirmed that no flood defence overtopping/breach mapping has been prepared by the Environment Agency for this area. However, it was noted that detailed hazard mapping is available within the 2017 update of the South East Lincolnshire Strategic Flood Risk Assessment.

3.7 The Environment Agency note that *in some locations, such as around the fens and the large coastal floodplains, showing the area at risk of flooding assuming no defences may give a slightly misleading picture in that if there were no flood defences, water would spread out across these large floodplains. This flooding could cover large areas of land but to relatively shallow depths and could leave pockets of locally slightly higher land as isolated dry islands. It is important to understand the actual risk of the flooding to these dry islands, particularly in the event of defence failure".*

3.8 It is also noted that *"the site may also be at risk from local Ordinary Watercourses for which other risk management authorities, such as the Lead Local Flood Authority or Internal Drainage Board have responsibility"*.

3.9 The Environment Agency Risk of Flooding from Surface Water map shows areas which may be at risk of flooding from surface water flow paths or surface water ponding during a significant rainfall event. These maps do not account for the projected impacts of climate change. The classifications of risk for surface water flooding are as follows:

Very low - This area has a chance of flooding of less than 1 in 1000 (0.1%) in any given year.

Low - This area has a chance of flooding between 1 in 1000 (0.1%) and 1 in 100 (1%) in any given year.

Medium - This area has a chance of flooding between 1 in 100 (1%) and 1 in 30 (3.3%) in any given year.

High - This area has a chance of flooding greater than 1 in 30 in any given year (annual probability of flooding 3.3%).

3.10 The Environment Agency Risk of Flooding from Surface Water map suggests that the majority of the site and the immediate surrounding area is at a 'very low' risk of flooding from surface water. A 'low' risk of flooding is indicated along the route of the swale to the west of the site and the Ordinary Watercourses to the south of the site, and a 'medium' risk of flooding is indicated around the drain in the east of the site. A small, isolated area in the south of the site is also shown to be at a 'medium' risk of flooding.

3.11 The Environment Agency Flood Risk from Reservoirs map has been reviewed as part of this study. This mapping shows the expected inundation area should a reservoir fail and release its capacity. There are two flooding scenarios shown on theses maps:

Dry Day - The 'dry day' scenario predicts the flooding that would occur if the dam or reservoir failed when downstream watercourses are at 'normal' levels.

Wet Day - The 'wet day' scenario predicts how much worse the flooding might be if downstream watercourses are already experiencing an extreme natural flood.

3.12 The Risk from Reservoirs map confirms that some areas in the east of the site are at potential risk of flooding from a reservoir breach, during the 'dry day' scenario.

3.13 The Environment Agency confirmed that it has no records of historical flooding affecting the site. However, it is noted that this it is possible recent flooding may have occurred which is not yet recorded, and it is possible other flooding may have occurred which other organisations, such as the Lead Local Flood Authority or Internal Drainage Board, may have records.

Internal Drainage Board

3.14 Consultation has been undertaken with South Holland Internal Drainage Board (IDB), which is the Land Drainage Authority for this area. A copy of its response, dated 14th May 2024, is included in Appendix E for reference.

3.15 The IDB confirmed that the site lies within the South Holland IDB Drainage District, and specifically within the Wisemans pumped catchment. The separate Lords catchment lies immediately north of the site. On this basis, the Board's Byelaws apply, a copy of which can be accessed on the Board's website.

3.16 The IDB provided modelled water levels (for the 1 in 2 year, 1 in 30 year and 1 in 100 year plus climate change allowance events) for the closest IDB arterial (maintained) watercourses to the site, known as B25 Old Exeter Drain (Drain ID DRN193P2503) and R07 Lords (Drain ID DRN208P0704), which lie to the east and north of the site, respectively. It is noted that the climate change scenario used in the Board's modelling may not meet current standards.

3.17 The IDB confirmed that it is *"not aware of any known / historical flooding within or near to the site"* and has *"no records of any flood defence breaches or pumping station failures in proximity to the site"*.

3.18 It was confirmed that the watercourses along the southern site boundary and through the east of the site are riparian (privately owned / maintained) and therefore do not normally receive maintenance from the IDB. The Board note that *"knowledge of the condition and connectivity of*

the system here is limited and we would recommend investigations are undertaken as part of the drainage design to ensure a suitable flow path away from the site". However, it is further noted that *"as both are within the Wisemans catchment the assumption would be that the riparian system drains south / east towards the IDB's maintained network"*. The Board is aware of connections into the Old Exeter Drain from the riparian network to the west (i.e. from the direction of the site).

3.19 The IDB advises that the water table in this locality is relatively high and that this should be taken into account when incorporating any below ground storage features into the design.

Local Planning Authority

3.20 The 2017 update of the South East Lincolnshire Strategic Flood Risk Assessment (SFRA) has been reviewed to inform this assessment. The SFRA includes mapping which shows the consequences of breach or overtopping of existing flood defences, presented as residual risk maps showing the extent, depth, velocity and hazard rating for the 1% fluvial / 0.5% tidal event and the 0.1% fluvial/tidal event. Copies of the district wide flood depth and flood hazard maps are included in Appendix F for reference.

3.21 The 2017 South East Lincolnshire SFRA confirms that in the South Holland district, the Functional Floodplain (Flood Zone 3b) comprises the designated flood storage areas of the Crowland and Cowbit Washes and the Surfleet Reservoir, i.e. areas of Flood Zone 3 which are not in the above defined areas (including the site) are by definition within Flood Zone 3a.

3.22 The SFRA also incorporates a matrix of 'standing advice' produced by the Local Planning Authority and Environment Agency, which sets out requirements and recommendations in relation to flood mitigation for different types of development in different flood risk areas. The matrix will be used to inform any requirements for flood mitigation.

4.0 CLIMATE CHANGE

4.1 NPPF requires that the projected impacts of climate change are taken into account over the lifetime of a development. Studies have projected that the Global sea level will continue to rise and there will be an increase in river flows and rainfall intensity across the country, with the degree of change depending on greenhouse gas emissions and the sensitivity of the climate system.

4.2 Recommended allowances for assessment are set out in Environment Agency publication 'Flood risk assessments: climate change allowances' (published February 2016; last updated May 2022). Within this guidance, a regionalised approach is adopted to climate change impacts based upon the river Management Catchment within which the proposed development site falls, and the intended design life of the development.

4.3 The site is situated within the Nene Management Catchment of the Anglian River Basin District. For commercial development, climate change impacts over a design life of at least 60 years should be considered, thus a notional end-of-life date of 2085 has been used in the assessment.

4.4 Impact on River Flooding - With respect to river flows, the applicable allowances are also influenced by the flood risk vulnerability of the proposed development and the present-day Flood Zone classification of the site. For 'Less Vulnerable' development in Flood Zone 3a, the impacts of the 'central' climate change scenario (50th percentile of potential scenarios) should be considered. Within this Management Catchment, the 'central' climate change scenario is predicted to lead to an increase in peak river flows of up to 4% over the predicted lifetime of the development.

4.5 Impact on Rainfall Intensity - In accordance with the current guidance, for a development with a with a lifetime extending to between 2061 and 2100, the impacts of the 'central' climate change scenario (50th percentile of potential scenarios) for the '2070s epoch' should be considered with respect rainfall intensity. Within this Management Catchment, this is predicted to lead to an increase in rainfall intensity of up to 25% in the 1 in 30 year (3.33% annual exceedance probability) rainfall event, and up to 25% in the 1 in 100 year (1% annual exceedance probability) rainfall event.

5.0 DEVELOPMENT PROPOSALS

Proposed Scheme

5.1 The development proposals for the site are for the construction of two commercial buildings – a drive-through restaurant/café and a retail unit – with associated access, car parking, and landscaping.

5.2 It is proposed the site will be accessed via a new entrance from the A151 to the north.

5.3 The development proposals are illustrated in the plan in Appendix G.

Flood Risk Vulnerability Classification

5.4 When applying Table 2 of the PPG, the flood risk vulnerability classification shows that the proposed end use is considered to be “Less Vulnerable'' development under the general designation “Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways”.

6.0 MATERIAL CONSIDERATION IN RESPECT OF NPPF AND PPG

Risk of Flooding from the Sea (Tidal Flood Risk)

6.1 The site is located within Flood Zone 3a, which indicates a 1 in 100 or greater annual probability of river flooding in any year (greater than 1%) and/or a 1 in 200 chance or greater annual probability of flooding from the sea (less than 0.5%). However, the Environment Agency has previously confirmed that the site is not considered to be at risk from tidal flooding.

Risk of Flooding from Rivers (Fluvial Flood Risk)

6.2 Main Rivers – As the site is located within Flood Zone 3a and is not at risk from tidal flooding, it can be concluded that the site is considered to have a 1 in 100 or greater annual probability of flooding from rivers in any year (greater than 1%).

6.3 The River Welland is located approximately 825m west of the site, and the Coronation Channel - a bypass channel of the main River Welland which flows around the east of Spalding - lies just 350m west of the site at its nearest point. Raised defences are present around the Coronation Channel and the River Welland to the west of the site, which provide protection to the local area from flood events.

6.4 The Environment Agency provided flood risk data for the Coronation Channel and the River Welland from the 2016 Welland Catchment Strategic Model. A plan showing the modelled fluvial flood extents, with the protection afforded by flood defences included, was provided as included in Appendix D for reference.

6.5 It can be seen from the plan that, with flood defences in place and operating normally, the site and the surrounding area are not considered to be at risk of flooding during the 1 in 30 year (3.33% annual probability) event, the 1 in 100 year (1% annual probability) event, the 1 in 1000 year (0.1% annual probability) event, or the 1 in 100 year plus 20% climate change allowance event.

6.6 It is noted that the 20% climate change allowance on river flows is well in excess of the 4% allowance which is currently required to be applied (as discussed in Section 4), and therefore presents a precautionary assessment of future risk.

6.7 On the above basis, it can be concluded that the risk of flooding to the site which is suggested by the Flood Map for Planning is theoretical risk of flooding representing a scenario where no flood defences exist. In reality, defences are present, and the risk is low. However, there remains a residual risk of potential flooding in the event that local flood defences are breached during a flood event, and this must be considered further.

6.8 The 2017 update of the South East Lincolnshire SFRA includes mapping showing the consequences of breach of existing flood defences. The district wide residual flood depth and residual flood hazard maps (included in Appendix F) have been reviewed to determine the anticipated residual risk of flooding at the site in the event of flood defence breach.

6.9 The maps show that, in the event of a breach, the site is at a risk of potential flooding to a depth of up to 0.25m in the present day, with a Flood Hazard Rating of 1 in 100 year plus climate change flood event, with a Flood Hazard Rating of between 0.75 and 1.25 which is classified as a 'Danger for Some'. In the future 1 in 100 year plus climate change flood event the site is at a residual risk of potential flooding to a depth of between 0.25-0.50m, with a Flood Hazard Rating of between 1.25 and 2.00 which is classified as a 'Danger for Most'.

6.10 Appropriate mitigation for the identified residual risk is discussed below.

6.11 Land Drainage Catchment – The site is located within the Wisemans catchment of the South Holland IDB district, and the site is adjacent to Ordinary Watercourses which form part of the catchment: A drain located outside of the southern boundary of the site flows from west to east before flowing south into the wider IDB catchment. It was noted by the IDB that it is aware of connections into the Old Exeter Drain (located to the east of the site) from the riparian network to the west (i.e. from the direction of the site).

6.12 There is also a drain which flows through the east of the site in a southerly direction and may have discharged into the above system in the past, but currently no positive connection is detectable on site.

6.13 Directly north of the site, there is an Ordinary Watercourse in culvert and open-channel on the opposite side of the A151, which feeds into the separate Lords catchment of the IDB district. It is most likely that the highway drainage swale to the west of the site feeds into this network also.

6.14 Any risk of flooding associated with the Ordinary Watercourses of the local land drainage catchment is not likely to be represented on the Environment Agency's flood mapping due to the relatively small catchments of the majority of drains, however alternative modelled flood data has been provided by the IDB. The data shows that predicted water levels in the Old Exter Drain, to the east of the site, are up to 2.34mAOD during the 1 in 100 year plus climate change event. Predicted water levels in the Lords Drain, directly to the north of the site, are up to 2.48mAOD during the 1 in 100 year plus climate change event.

6.15 The IDB note that the climate change allowances applied in the above modelling are not to current standards, However, it is likely that the previous 'standard' allowance of 20% on river flows was used in this modelling, which is well in excess of the 4% allowance which is currently required to be applied (as discussed in Section 4), and therefore presents a precautionary assessment of future risk.

6.16 The above flood levels are below the ground level of the site, and therefore suggest that the site is not at risk of flooding from the watercourses of the local IDB land drainage catchments. It is also noteworthy that both the Environment Agency and the IDB confirmed they had no records of historical flooding having affected the site, although it must be recognised that flooding is not always recorded, especially in rural area. On this basis, the risk of flooding from this source is considered likely to be low.

6.17 However, given that the IDB network relies on pumped outfalls to downstream watercourses, there is a residual risk of flooding to the local area in the event of pump failure at any of the IDB

pumping stations. In such an event, water levels within the catchment could rise, although this would be expected to manifest relatively slowly and would most likely lead to shallow flooding over a wide area. It would not be expected for levels to risk to greater depths than those identified in relation to the residual risk of flooding from Main Rivers, therefore the mitigation to be provided in respect of that risk is likely to be sufficient to mitigate the residual risk of flooding from the land drainage catchment also.

6.18 Removal of Ditch in East of Site - In order to enable development, it will be necessary to infill the section of ditch within the east of the site. Assessment of the local topography suggests that the catchment of this section of ditch is largely within the site itself, and very little flow is likely to enter it from the land to the east. The upstream end of the ditch is within the development site boundary and there is no evident positive downstream discharge from the ditch. The ditch is shown by Ordnance Survey mapping to begin within the adjacent landholding, however this is not supported by the topographical survey or inspection on site.

6.19 On this basis, given that the site will be developed with a positive drainage system, the removal of the ditch within the site is unlikely to have a significant impact on flood risk upstream or downstream of the site.

Risk of Flooding from Surface Water (Pluvial Flood Risk)

6.20 The Environment Agency Risk of Flooding from Surface Water map suggests that the majority of the site is at a 'very low' risk of flooding from surface water. This is to be expected, as the site and surrounding land is relatively flat, therefore there is limited potential for significant runoff into the site from outside.

6.21 The mapping suggests a potential 'low' risk of flooding is indicated along the route of the swale to the west of the site and the Ordinary Watercourses to the south of the site, and a 'medium' risk of flooding is indicated around the drain in the east of the site. A small, isolated area in the south of the site is also shown to be at a 'medium' risk of flooding. It should be noted that this mapping is based on a generalised and relatively 'broad-brush' method, and is therefore indicative only. The presence of culvert connections between drains is not represented by the

mapping, therefore it could be considered that the mapping presents a 'worst case' scenario where culverts are blocked. Subsequently, as these areas of risk are coincident with the watercourse channels in these locations, they simply represent 'ponding' of water within the model in these lower areas.

6.22 An increase in rainfall intensity due to climate change impacts, as discussed in Section 4, could result in increased pluvial flows into the site, however it remains the case that the site and surrounding area are relatively flat, and therefore the risk is unlikely to increase significantly in the future. On the above basis, the risk of flooding from surface water is considered to be low.

Risk of Flooding from Groundwater

6.23 Flooding from groundwater can happen when groundwater levels are high. This may be due to rainfall in the groundwater source area, but can also happen on floodplains if river levels are held above the level of the flood plain by embankments.

6.24 As set out in Section 3, the IDB noted that the water table in this locality is known to be "relatively high".

6.25 Figure D4 of the 'Joint Lincolnshire Flood Risk and Drainage Management Strategy 2012-2025' (Part 2B of 3 Annexes A-F) shows the Areas Susceptible to Groundwater Flooding in Lincolnshire. This mapping gives an indication of the potential susceptibility of areas to groundwater emergence, based on the prevailing geological factors. The mapping suggests that the site is not in an area with any significant susceptibility to groundwater flooding.

6.26 Logs from nine trial pits across the site (undertaken in November 2010) have been reviewed to inform this assessment. The trial pits vary in depth from 2.9m to 3.6m. Groundwater was not encountered in the majority of the trial pits, but in two locations it was recorded as being 1.6m below ground. It must be recognised that groundwater levels may be subject to significant seasonal variation.

6.27 Further detailed intrusive ground investigations will be undertaken in due course and may provide further evidence of local groundwater level.

6.28 On the basis of the above evidence it is concluded that the risk of groundwater flooding at the surface is likely to be low, but groundwater levels may be expected to be high, and should therefore be taken into account in infrastructure design.

Risk of Flooding from Existing Drains and Sewers

6.29 As set out in Section 2, there are no existing public sewers within the site or local to the site. There is existing highway drainage infrastructure in the adjacent roads, plus a highway drainage swale on the western/north-western site boundary.

6.30 Due to the relatively flat topography of the site and surrounding area, any flooding from adjacent highway drains would be expected to remain relatively shallow. Should flooding from the highway systems enter the site it would be expected to enter the on-site drainage system or pool in areas of roads and/or landscaping, and is therefore unlikely to have a detrimental impact upon the proposed buildings or users of the site. On this basis the risk of flooding from this source is considered to be low.

Risk of Flooding from Reservoirs, Canals or Artificial Sources

6.31 The Environment Agency Risk of Flooding from Reservoir map (Appendix D) shows the expected inundation area should a reservoir fail and release its capacity, under both 'dry day' conditions and in the event that this occurs at the same time as river flooding in 'wet day' conditions. Some areas within the east of the site are shown to be at potential risk of flooding from this source during the 'dry day' scenario, which could potentially impact upon the food retail building and surrounding area.

6.32 However, it must be recognised that, although the *consequences* of reservoir breach may be significant, the *likelihood* of a reservoir breach is extremely low (there has been no loss of life in

the UK from reservoir flooding since 1925). On this basis, the risk of flooding from this source is considered to be low and does not therefore warrant specific mitigation.

6.33 There are no canals or artificial sources located near to the site. On this basis the risk of flooding from this source is deemed to be low.

Surface Water Management

6.34 It is a requirement of the NPPF to ensure that surface water run-off from any proposed development has negligible consequence on downstream areas either in terms of impact upon downstream sewer capacity or flood risk impacts due to discharge to a watercourse. The existing and proposed surface water run-off regimes are summarised below.

6.35 Full details of the proposed surface water drainage strategy are set out in the ARP Foul and Surface Water Drainage Strategy report (reference 1506-54r2), which should be read in conjunction with this report. However, key details are summarised below for reference.

6.36 As set out in Section 2, some overland flows from the site may reach the existing ditch in the east, although this does not appear to have a positive outfall. The majority of overland flow is likely to infiltrate into the ground or be lost via evapotranspiration.

6.37 As set out in the Foul and Surface Water Drainage Strategy report, the proposed means of managing surface water runoff from the proposed development has been considered with respect to the hierarchy set out in Building Regulations Part H (2010). The potential for use of infiltration is considered low due to the likely high groundwater level, and the existing watercourse within the east of the site does not have any identifiable downstream connectivity, therefore it is proposed that surface water from the development will be discharged to the existing Ordinary Watercourse to the north of the site, on the opposite side of the A151 Holbeach Road. The discharge to this system will require a pumped outfall.

6.38 So that the development does not cause any downstream detriment, the maximum rate of discharge shall be restricted to as close as reasonably practicable to the equivalent Qbar

greenfield runoff rate from the site, this being determined to be 2.0l/s. On this basis the discharge would not be expected to lead to an increase in flood risk downstream of the site.

6.39 The proposed surface water system will be designed to accommodate a 1 in 30 year plus climate change allowance storm event without flooding, and the 1 in 100 year plus climate change allowance storm event without causing flooding of property or third-party land. Surface water storage will be provided by means of below-ground storage beneath parking and other hardstanding areas.

6.40 As per the requirements of the current national guidance, an additional 25% allowance on the 1 in 30 year design rainfall intensity and an additional 25% allowance on the 1 in 100 year design rainfall intensity will be considered in the design of surface water drainage systems. On this basis the capacity of the surface water drainage system would be expected to remain robust over the lifetime of the development and will not lead to an increase in flood risk in the future.

6.41 As with any drainage system, it is possible that flooding may occur from manholes or gullies in the event that the system becomes blocked or is overwhelmed. External levels should therefore be designed with falls to direct any overland flows away from building entrances, so that any residual surface water flooding remains in less vulnerable areas such as landscaped areas, car parks, or roads, where the consequences would be less significant. Where falls towards buildings are unavoidable, additional cut-off drainage and gullies/channel drains should be provided to prevent water entering buildings during extreme events.

6.42 As detailed within the Foul and Surface Water Drainage Strategy report, the above residual risks have been considered in terms of any implications for the proposed development and surrounding land uses. This assessment has shown that these flows can be managed such that they do not have an adverse impact upon the proposed development or off-site properties, with exceedance flows expected to pond in less vulnerable areas of the site or follow the existing and proposed topography towards the south-east of the site.

Safe Access/Egress During Times of Flood

6.43 It is a requirement of PPG that occupants should be able to egress any building during times of flood, without being trapped by flood conditions. As the risk of flooding to the site and surrounding area is a 'residual' risk in the event of defence failure, the requirement to evacuate the site due to flooding would be unlikely, and as a large proportion of the local area would be affected by flooding in this case, there is unlikely to be a clear evacuation route at low risk of flooding. As the flooding would be widespread the speed of onset is likely to be tempered and it would therefore likely be more appropriate and more likely to evacuate the site prior to any significant flooding occurring.

6.44 The site is located within the Environment Agency's 'Flood Alert' areas for the 'Lower Welland' and the 'Far extent of Tidal Flooding from the Wash and Tidal Estuaries'. The site is located within the Environment Agency's 'Flood Warning' areas for 'Tidal flooding from the Right Bank of the River Welland near Spalding and Moulton Common'. A Flood Warning and Evacuation Plan should be prepared for each of the buildings on site, to outline how staff and visitors should prepare in advance for potential flooding, and how they should respond to a potential flood situation, based on the receiving of Environment Agency Warnings and Alerts.

6.45 Assuming implementation of an appropriate Flood Warning and Evacuation Plan, the proposals are not considered to represent a significant barrier to safe access/egress.

Impact on Flood Plain Storage

6.46 The proposed development has the potential to lead to loss of flood plain storage due to the raising of levels in some areas of the site by up to 300mm, and the proposed buildings. However, given the expansive local flood extents and the relatively shallow depth of flooding which could be expected at the site, the loss of storage is likely to be insignificant as a fraction of the total flood plain. Also, it must be recognised that the risk of flooding is a residual risk which would only be expected to manifest in the event of flood defence failure, therefore the development does not impact upon any area of flood plain under normal defence operating conditions.

6.47 On this basis the potential impact on flood plain storage is likely to be low, and the development is unlikely to lead to a detrimental increase in flood risk elsewhere.

Flood Mitigation

6.48 The report has demonstrated that the site is at a low risk of flooding from the majority of potential sources, but is considered to be at a residual risk of fluvial flooding which could theoretically manifest in flood depths of up to 0.5m (above existing ground levels) in the event of a flood defence breach.

6.49 As set out in Section 3, the 2017 South East Lincolnshire SFRA incorporates a matrix of 'standing advice', which sets out requirements and recommendations in relation to flood mitigation for different types of development in different flood risk areas. With respect to 'Major' 'Less Vulnerable' development in Flood Zone 3, the matrix makes 'No comment'. With respect to 'Major' 'Less Vulnerable' development in areas with a Flood Hazard Rating of 'Danger for Most', the advice given is as follows:

"The Environment Agency recommends that the following mitigation is incorporated into the development.

The finished floor levels should be raised as high as practicable (minimum 300mm above the existing ground level).The Environment Agency recommends that appropriate mitigation measures/flood resilience techniques are incorporated into the development. Please refer to the following document for information on flood resilience and resistance techniques to be included: 'Improving Flood Performance of New Buildings - Flood Resilient Construction' (DCLG 2007).

Single storey buildings should be built with FFLs above the predicted flood depth (refer to the relevant 2115 1% fluvial or 0.5% tidal Max Depth Map). If this is not practicable an area of safe refuge should be provided or an appropriate flood warning and evacuation plan will need to demonstrate how this risk will be managed. It is the responsibility of the Local Planning Authority to determine the adequacy of the plan."

6.50 There is also a need to consider the topography of the site in terms of the residual risk of surface water flooding due to blockage or exceedance of drainage system capacity, and a requirement to consider potentially high groundwater levels in design.

6.51 Based on the standing advice and the assessment detailed above, the following precautionary mitigation measures are recommended:

i. The finished floor levels of buildings shall be raised at least 300mm above existing ground levels i.e. The drive-through should have a finished floor level at or above 3.45mAOD and the main retail building should have a finished floor level at or above 3.40mAOD.

ii. Consideration should be given to integrating appropriate flood resistance and/or flood resilience measures into the design of the new building, up to 0.6m above Finished Floor Level, to provide additional mitigation for the residual risk of fluvial flooding in the event of defence breach. Measures may include the use of flood doors or demountable barriers at building entrances, sacrificial floor and wall coverings, use of flood resistant construction materials etc.

iii. The finished floor levels of buildings shall be above general external levels by a minimum of 150mm.

iv. Incoming electricity supplies shall be raised above ground floor level (after the meter) and ground floor electric sockets shall be served by loops from above.

v. It is recommended that any plant and/or sensitive equipment, including electrical installations, should be elevated at least 0.6m above the Finished Floor Level of the associated building, to provide additional mitigation for the residual risk of fluvial flooding in the event of defence breach.

vi. The proposed ground floors shall comprise solid concrete slabs or beam and block floors with screed construction. Beam and block floors may need to be designed with an increased void size to account for potentially high groundwater, depending on the outcomes of further geotechnical investigations.

vii. A Flood Warning and Evacuation Plan should be prepared for each of the buildings on site, to outline how staff and visitors should respond to a potential flood situation, and how to prepare in advance.

viii. It is recommended that the site owner / site manager should sign up to the Environment Agency Flood Alert / Flood Warning service, such that advance warning of potential flood risk scenarios can be received.

ix. A sustainable surface water drainage system shall be provided to manage surface water run-off from the site itself up to the 1 in 100 year plus climate change event.

x. Detailed design of drainage systems should be undertaken with reference to the potentially high groundwater levels, including 'tanking' of storage and consideration of floatation potential, as deemed necessary depending on the outcomes of further geotechnical investigations.

xi. External levels should be designed with falls to direct overland flows away from the building entrances. Where falls towards buildings are unavoidable, additional cut-off drainage and gullies/channel drains should be provided.

xii. Suitable maintenance systems to be developed and implemented for any flood mitigation or drainage systems, so that the design standard is maintained over the lifetime of the development.

Sequential Test

6.52 As set out in NPPF, the aim of the Sequential Test is to steer new development to areas with the lowest risk of flooding from any source. Considering potential sources in turn:

6.52.1 Tidal – The Environment Agency has confirmed that the site is not at risk of tidal flooding.

6.52.2 Fluvial – The site has been shown to be at a low risk of fluvial flooding when existing flood defences are taken into account.

6.52.3 Pluvial - The Environment Agency Risk of Flooding from Surface Water map confirms that the site is considered to be at a low or very low risk of pluvial flooding.

6.52.4 Groundwater - As discussed above, the risk of flooding from groundwater is considered likely to be low.

6.52.5 Drains/Sewers - As discussed above, the risk of flooding from existing drains and sewers is considered to be low.

6.52.6 Reservoirs - The Environment Agency Risk of Flooding from Reservoirs map has identified that parts of the site are at potential risk of flooding in the event of a reservoir breach. However, the report has demonstrated that the risk to the proposed development from this source is low.

6.53 On the above basis it is suggested that the proposed development meets the requirements of the Sequential Test, and it is not envisaged that any further application of the Sequential Test should be required, subject to agreement with the Local Planning Authority.

Exception Test

6.54 When the proposed development is evaluated in accordance with Table 3 of the PPG, is determined that there is no requirement to apply the Exception Test to "Less Vulnerable" development in Flood Zone 3a.

Land Drainage Consents

6.55 A Land Drainage Consent (under the Land Drainage Act 1991) will be required from the IDB for any works affecting the Ordinary Watercourses, including for the construction of any new surface water outfall.

6.56 A detailed design for these works, along with construction method statements and other supporting evidence, will need to be submitted to the LLFA for approval in due course, following further design development.

6.57 It should be noted that the granting of planning permission does not guarantee the granting of Land Drainage Consents.

7.0 SUMMARY

7.1 The report has demonstrated that the site is at a low risk of flooding from the majority of potential sources, but is considered to be at a residual risk of fluvial flooding which could manifest in flood depths of up to 0.5m (above existing ground levels) in the event of a flood defence breach. There is also a need to consider the topography of the site in terms of the residual risk of surface water flooding due to blockage or exceedance of drainage system capacity, and a requirement to consider potentially high groundwater levels in design.

7.2 Based on local standing advice and the assessment detailed herein, the following precautionary mitigation measures are recommended:

i. The finished floor levels of buildings shall be raised at least 300mm above existing ground levels i.e. The drive-through should have a finished floor level at or above 3.45mAOD and the main retail building should have a finished floor level at or above 3.40mAOD.

ii. Consideration should be given to integrating appropriate flood resistance and/or flood resilience measures into the design of the new building, up to 0.6m above Finished Floor Level, to provide additional mitigation for the residual risk of fluvial flooding in the event of defence breach. Measures may include the use of flood doors or demountable barriers at building entrances, sacrificial floor and wall coverings, use of flood resistant construction materials etc.

iii. The finished floor levels of buildings shall be above general external levels by a minimum of 150mm.

iv. Incoming electricity supplies shall be raised above ground floor level (after the meter) and ground floor electric sockets shall be served by loops from above.

v. It is recommended that any plant and/or sensitive equipment, including electrical installations, should be elevated at least 0.6m above the Finished Floor Level of the associated building, to provide additional mitigation for the residual risk of fluvial flooding in the event of defence breach.

vi. The proposed ground floors shall comprise solid concrete slabs or beam and block floors with screed construction. Beam and block floors may need to be designed with an increased void size to account for potentially high groundwater, depending on the outcomes of further geotechnical investigations.

vii. A Flood Warning and Evacuation Plan should be prepared for each of the buildings on site, to outline how staff and visitors should respond to a potential flood situation, and how to prepare in advance.

viii. It is recommended that the site owner / site manager should sign up to the Environment Agency Flood Alert / Flood Warning service, such that advance warning of potential flood risk scenarios can be received.

ix. A sustainable surface water drainage system shall be provided to manage surface water run-off from the site itself up to the 1 in 100 year plus climate change event.

x. Detailed design of drainage systems should be undertaken with reference to the potentially high groundwater levels, including 'tanking' of storage and consideration of floatation potential, as deemed necessary depending on the outcomes of further geotechnical investigations.

xi. External levels should be designed with falls to direct overland flows away from the building entrances. Where falls towards buildings are unavoidable, additional cut-off drainage and gullies/channel drains should be provided.

xii. Suitable maintenance systems to be developed and implemented for any flood mitigation or drainage systems, so that the design standard is maintained over the lifetime of the development.

7.3 The principles of a sustainable surface water management strategy for the proposed development are outlined within the report. Surface water shall discharge to the watercourse on the opposite side of Holbeach Road to the north of the site, via a pumped discharge at an appropriately restricted rate, with storage provided on site to manage surface water up to the 1 in 100 year rainfall event, including an additional 25% allowance for the projected impacts of climate change. Further details of the proposed surface water drainage strategy are set out in

the ARP Foul and Surface Water Drainage Strategy report (reference 1506/54r2) and the drawings and calculations which accompany that report.

7.4 A Land Drainage Consent will be required from the IDB for any works affecting Ordinary Watercourses.

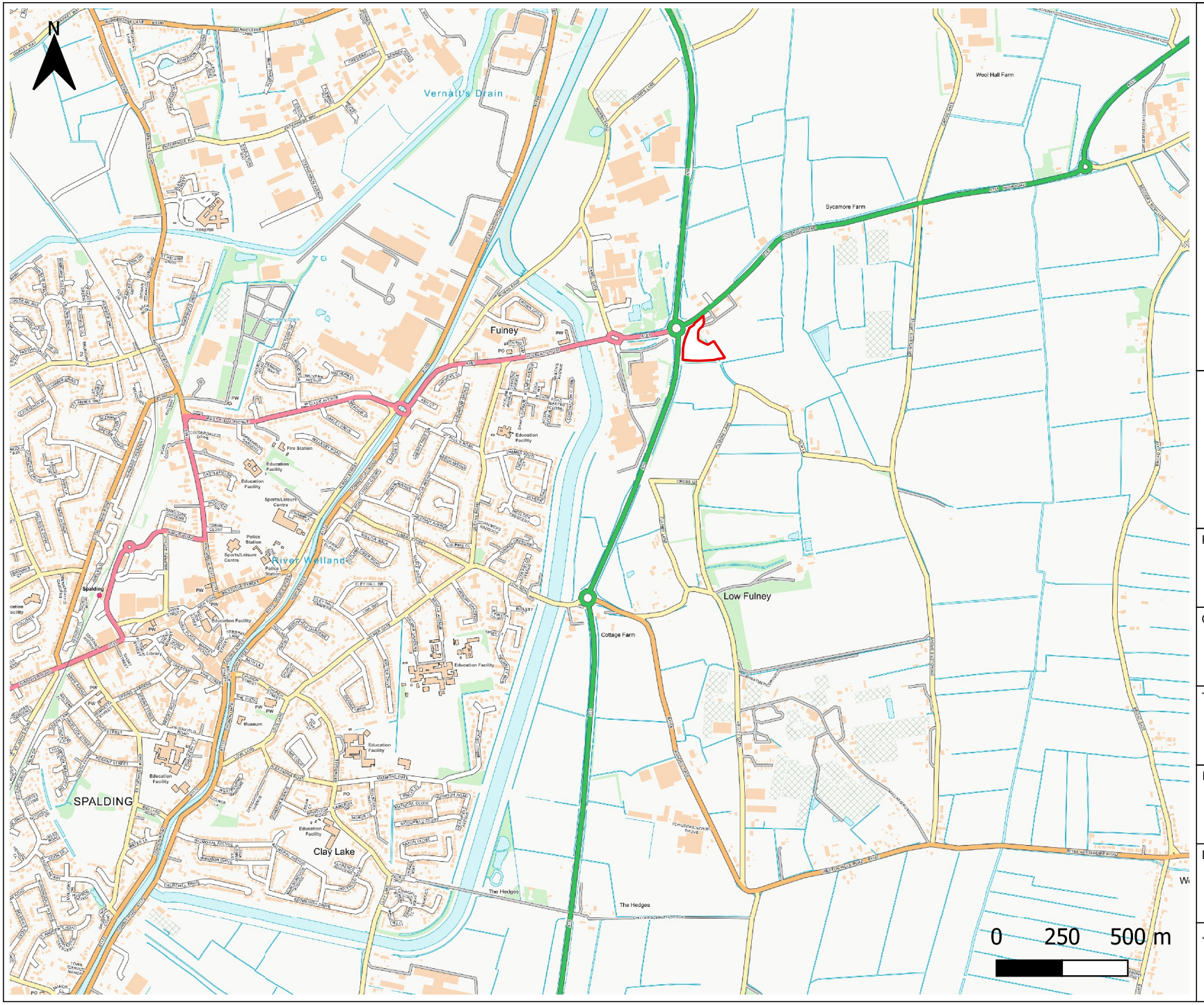
7.5 The report finds that the development meets the requirements of the NPPF Sequential Test for flood risk, and that application of the NPPF Exception Test is not required.

7.6 The findings of this report and the details of any further design works are subject to the approval of the Regulatory Authorities

7.7 Subject to compliance with the above, the proposed development can satisfy the requirements of the National Planning Policy Framework and the Planning Practice Guidance in relation to flood risk.

A P P E N D I X A

SITE LOCATION PLAN



Key

Development Site Boundary

ARP ASSOCIATES
Chartered Consulting Engineers
Northwest House, 5-6 Northwest Business Park, Servia Hill, Leeds LS6 2QH
Telephone: 0113 245 8498 E-Mail: leeds@arpassociates.co.uk
www.arpassociates.co.uk

Project
PROPOSED DEVELOPMENT AT HOLBEACH ROAD, SPALDING

Client
COMMERCIAL DEVELOPMENT PROJECTS LTD

Title
LOCATION PLAN

Date
MAY 2024

Drawn
MGW

Scale
AS SHOWN

Job No.
1506/54

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A P P E N D I X B

SITE TOPOGRAPHY

Survey Grid and Datum

The derived coordinate system used for this survey is related to Ordnance Survey national grid using Smartnet RTK (OSTN15 Transformation), orientated to north with a scale factor of 1.000.

The derived level datum used for this survey is related to Ordnance Survey (OSGM15 Geoid Model) using Smartnet RTK.

To avoid discrepancies any coordinated data used in conjunction with this survey must be derived directly from this control data.

The survey control listed is only to be used for topographical surveys at the stated scale. All control must be checked and verified prior to use.

Legend

- Top/Bottom of bank
- Building
- Channel
- Concrete slab
- Closeboard fence
- Chainlink fence
- Concrete post & panel fence
- Iron railing fence
- Palisade fence
- Post & Panel fence
- Post & rail fence
- Post and Wire Fence
- Hedge
- Invert
- Kerb line (bottom)
- Kerb line (top)
- Overhead Power lines
- SBX Switchbox
- Steel
- Tree spread
- Verge
- Wall
- BH Borehole
- Bol Bollard
- CATV Cable tv
- Elec Electric cover
- EP Electricity pole
- Earth Earth rod
- FH Fire hydrant
- G Gulley
- GAS Gas cover
- IC Inspection cover
- LP Lamp post
- MH Manhole
- Marker Marker post
- OSBM OSBM
- RE Rodding eye
- RS Road sign
- SP Sign post
- Stump Stump
- SV Sluice Valve
- TP Telegraph Pole
- Trees
- TRL Traffic lights
- TP Trial pit
- Tree Trunk
- W Water cover
- Bus Stop Bus stop
- BT BT rectangle 3 pts

Notes

The contractor must ensure that adequates checks on building dimensions, levels, features are completed prior to commencing any construction works.

Any errors or discrepancies must be notified to Powers UK Ltd immediately.

The accuracy of the digital data is the same as the plotting scale implies.

All dimensions are in metres unless otherwise stated.

Topographical Surveys

Any surveyed boundary features may not be representative of the legal boundary of the site

All reasonable effort has been made to survey features and detail that are unobstructed/visible during at the time of survey

Grouped trees have been shown as a tree spread, individual trees are drawn to scale showing a bole diameter taken at approximately 1.5m above GL and an average spread

Measured Building Surveys

All measurements to internal wall are taken at approximately 1.5m above floor level and assumed to be vertical

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Do not scale from this drawing.

Station Listing

SURVEY STATIONS

Name	Easting	Northing	Height
STN1	526659.806	323879.233	3.241
STN2	526691.047	323785.692	2.853
STN3	526721.134	323740.955	2.683
STN4	526667.550	323735.475	2.926
STN5	526614.007	323736.111	3.057
JL1	526639.693	323875.610	3.530

Layout Key

(1)

Rev	Date	Description	Check
-	dd/mm/yyyy		---

powers
Integrated Survey Partner
Meridian House, 58-60 Hillside Road, Frodsham, Cheshire WA6 6AG
Tel: 01928 734473
Email: surveyors@powersuk.com
www.powersuk.com

Client: Harris Partnership

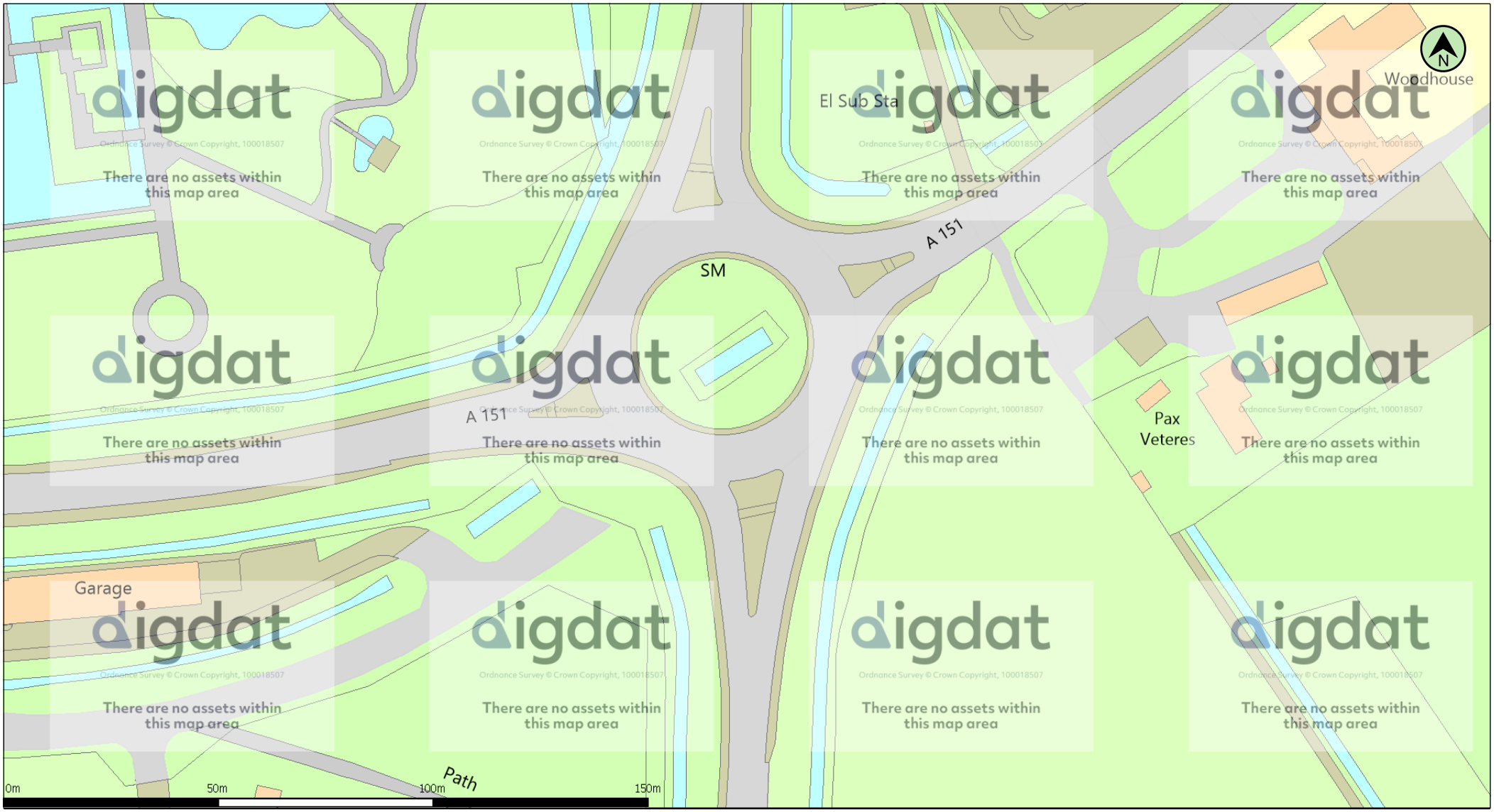
Site: Land off Holbeach Road, Spalding, Lincolnshire, PE12 6JP

Title: Topographical Survey

Survey by	JL/PJB	Drawn by	JL
Check by	CS	Date	24/04/24
Scale [A1 Sheet] 1:500	Project No. FP-6372		Status FINAL
Drawing No. FP-6372-T-001			Revision

APPENDIX C

WATER AUTHORITY INFORMATION



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Date: 08/04/24 | Scale: 1:1250 | Map Centre: 526575,323840 | Data updated: 31/03/24 | Our Ref: 1438904 - 2 | Wastewater Plan A4

This plan is provided by Anglian Water pursuant its obligations under the Water Industry Act 1991 sections 198 or 199. It must be used in conjunction with any search results attached. The information on this plan is based on data currently recorded but position must be regarded as approximate. Service pipes, private sewers and drains are generally not shown. Users of this map are strongly advised to commission their own survey of the area shown on the plan before carrying out any works. The actual position of all apparatus MUST be established by trial holes. No liability whatsoever, including liability for negligence, is accepted by Anglian Water for any error or inaccuracy or omission, including the failure to accurately record, or record at all, the location of any water main, discharge pipe, sewer or disposal main or any item of apparatus. This information is valid for the date printed. This plan is produced by Anglian Water Services Limited (c) Crown copyright and database rights 2024 Ordnance Survey 100022432.This map is to be used for the purposes of viewing the location of Anglian Water plant only. Any other uses of the map data or further copies is not permitted. This notice is not intended to exclude or restrict liability for death or personal injury resulting from negligence.

Foul Sewer	Outfall*	Sewage Treatment Works	
Surface Sewer			
Combined Sewer			
Final Effluent	Inlet*	Public Pumping Station	
Rising Main*			
Private Sewer*			
Decommissioned Sewer*	Manhole*	Decomissioned Pumping Station	

*(Colour denotes effluent type)

andyhawkin@arpassociates.co.uk

Spalding

love every drop anglianwater

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Liquid Type	Cover Level	Invert Level	Depth to Invert

A P P E N D I X D

ENVIRONMENT AGENCY INFORMATION

Matthew Wilson
MatthewWilson@arpnorthwest.co.uk

Your ref: 1506-54
Our ref: CCN-2024-356227
Date: 24/04/2024

Dear Matthew,

Provision of Flood Risk Information for Holbeach Road, Spalding.

Thank you for your request for our flood risk information for the above site. The information is set out below and attached. It is important you read any contextual notes on the maps provided.

If you are preparing a Flood Risk Assessment (FRA) for this site, please note this information may not be sufficient by itself to produce an adequate FRA to demonstrate the development is safe over its lifetime. Additional information may be required to carry out an appropriate assessment of all risk, such as consequence of a breach in defences.

We aim to review our information on a regular basis, so if you are using this data more than twelve months from the date of this letter, please contact us again to check it is still valid.

Please read the letter in full as the information covered has been updated in **June 2023.**

1. Flood Map for Planning

The attached map includes the current Flood Map for Planning for your area. The map indicates the area at risk of flooding, **assuming no flood defences exist**, for a flood 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 with a 0.1% chance of occurring in any year, or the highest recorded historic extent if greater.

In some locations, such as around the fens and the large coastal floodplains, showing the area at risk of flooding assuming no defences may give a slightly misleading picture in that if there were no flood defences, water would spread out across these large floodplains. This flooding could cover large areas of land but to relatively shallow depths and could leave pockets of locally slightly higher land as isolated dry islands. It is important to understand the actual risk of the flooding to these dry islands, particularly in the event of defence failure.

The Flood Map for Planning also shows the location of formal raised flood defences and flood storage reservoirs. It represents areas at risk of flooding for present day only and does not take account of climate change.

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

2. Recorded Flood Outlines

With regards to the history of flooding I can advise we do not have any records of flooding in this area. It is possible recent flooding may have occurred which we are currently investigating, therefore this information may be subject to change. It is possible other flooding may have occurred which other risk management authorities, such as the Lead Local Flood Authority (ie top tier council) or Internal Drainage Board (where they exist) have responsibility.

Please note, our Recorded Flood Outlines do not reflect the latest (October 2023-present) flood incidents. Due to the scale of the events, it will take time to gather the information and verify the extent of the flooding before we are able to provide this information.

3. Schemes in the area

There are no ongoing capital projects to reduce or sustain the current flood risk to this site.

4. Fluvial Flood Risk Information

This site is considered to be at risk of flooding from main rivers.

The site may also be at risk from local ordinary watercourses for which other risk management authorities, such as the Lead Local Flood Authority (ie top tier council) or Internal Drainage Board (where they exist) have responsibility.

4.1 Fluvial Defence Information

The existing fluvial defences reducing the risk of flooding from main river to this site consist of embankments. They are in fair condition and reduce the risk of flooding (at the defence) to a 1% (1 in 100) chance of occurring in any year. We inspect these defences routinely to ensure potential defects are identified.

Refer to paragraph 3 for details of any ongoing capital projects to reduce the flood risk to this site.

4.2 Fluvial Modelled Levels and Flows

Available modelled fluvial flood levels and flows for the model nodes shown on the attached map are set out in the data table attached. This data is taken from the model named on the data table, which is the most up-to-date model currently available.

Please note 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.

Our models may not have the most up to date climate change allowances. In time we will update our models for the latest allowances. You should refer to 'Flood risk assessments: climate change allowances' to check if the allowances modelled are 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.

4.3 Fluvial Modelled Flood Extents

Please find attached a map showing available modelled flood extents, taking into account flood defences, for your area. This data is taken from the model named on the map, which is the most up-to-date model currently available.

In some cases the flood extents shown may not be from main river, but may be from other sources such as IDB lowland drainage networks.

4.4 Fluvial Hazard Mapping

For certain locations we have carried out modelling to map the maximum values of flood depth, velocity and hazard rating (danger to people) resulting from overtopping and / or breaching of defences at specific locations for a number of scenarios.

At present this information is available for fluvial flood risk in Northampton, Lincoln, Wainfleet and some isolated rural locations.

The number of locations we have this information for is expected to increase in time.

At present this site is not covered by any Environment Agency hazard mapping.

Detailed Hazard Mapping is available within the 2017 Update of South Holland Strategic Flood Risk Assessment. This can be downloaded via the following link:
http://www.southeastlincslocalplan.org/water/

5. Tidal Flood Risk Information

This site is not considered to be at risk from tidal flooding.

6. Development Planning

If you would like local guidance on preparing a flood risk assessment for a planning application, please contact our Sustainable Places team at LNplanning@environment-agency.gov.uk. It will help if you mention this data request and attach your site location plan.

We provide free preliminary advice; additional/detailed advice, review of draft FRAs and meetings are chargeable at a rate set to cover our costs, currently £100 (plus VAT) per hour of staff time. Further details are available on our website at
https://www.gov.uk/guidance/developers-get-environmental-advice-on-your-planning-proposals.

General advice on flood risk assessment for planning applications can be found on GOV.UK at https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications

Climate change will increase flood risk due to overtopping of defences. Please note, unless specified otherwise, the climate change data included has an allowance for 20% increase in flow. Updated guidance on how climate change could affect flood risk to new development - 'Flood risk assessments: climate change allowances' was published on GOV.UK in **July 2021**. The appropriate updated climate change allowance should be applied in a Flood Risk Assessment.

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

7. Data Licence and Other Supporting Information

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

This information is provided in accordance with the Open Government Licence which can be found here: http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

Further information on flood risk can be found on the GOV.UK website at:
https://www.gov.uk/browse/environment-countryside/flooding-extreme-weather

8. Other Flood Risk Management Authorities

The information provided with this letter relates to flood risk from main river or the sea. The Flood Map for Surface Water can be viewed at https://www.gov.uk/check-long-term-flood-risk

Additional information may be available from other risk management authorities, such as the Lead Local Flood Authority (ie top tier council) or Internal Drainage Board (where they exist).

I hope we have correctly interpreted your request. If you have any queries or would like to discuss the content of this letter further please contact Christopher using the email address below and quoting our CCN reference number above.

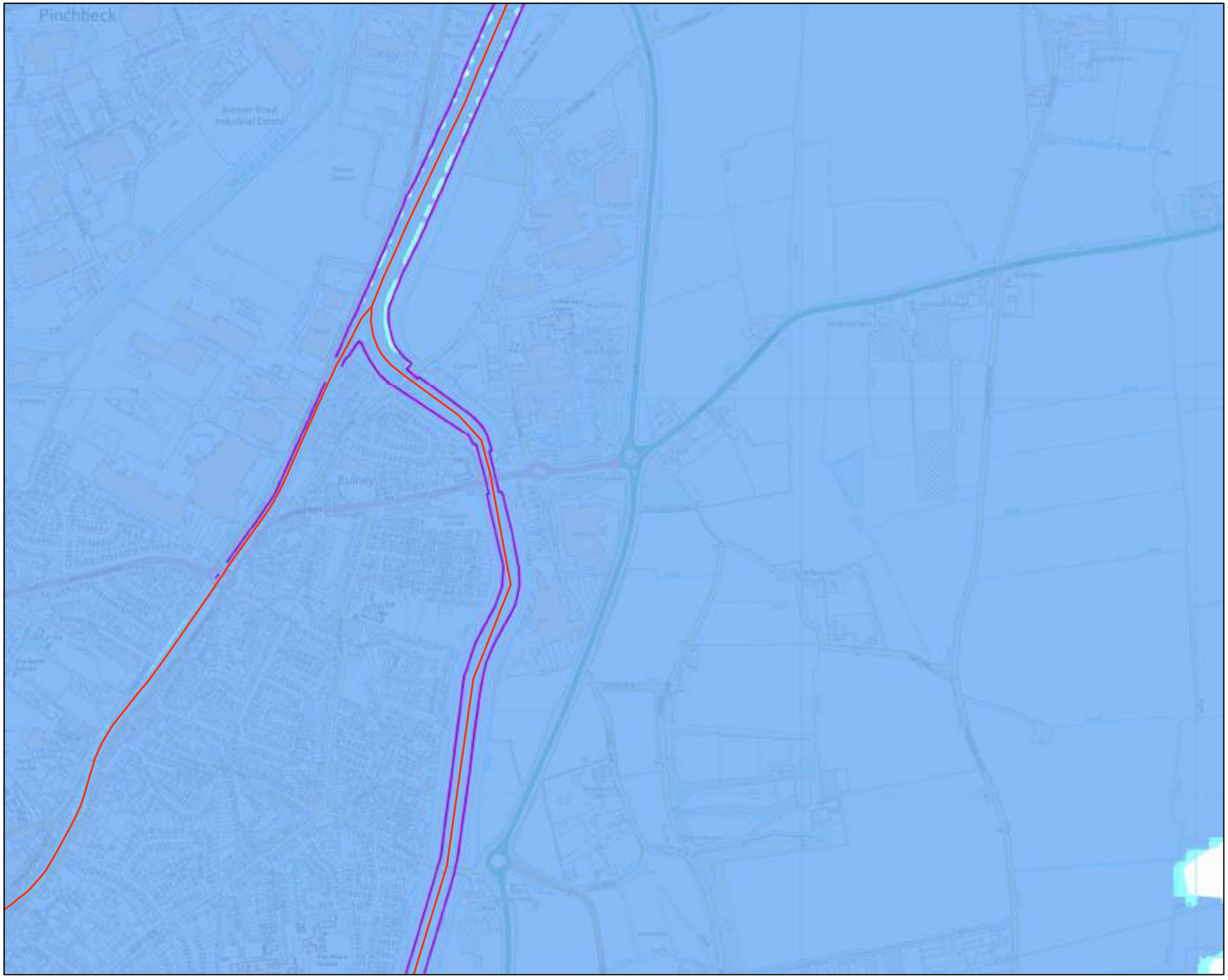
Yours sincerely,

+44 7385226602

for John O'Neill
Welland and Nene Partnerships and Strategic Overview Team Leader
e-mail PSOWN@environment-agency.gov.uk

Enc.
Flood Map for Planning
Modelled Node Points Map
Modelled Fluvial Levels and Flows Data Sheet
Modelled Flood Extent Maps
Tidal Level Data Sheets - Map and Tables
Tidal Breach Points – Locations Map

Flood Map centred on TF 26630 23821 - created April 2024 [Ref: CCN-2024-356227]



Environment Agency

Scale 1:10,000

N

Legend

- Main Rivers
- Raised Defences
- Flood Storage Areas
- Areas at Risk of Flooding from Rivers or the Sea
- Extreme Flood Outline

Dark blue shows the area that could be affected by flooding, either from rivers or the sea, if there were no flood defences. This area could be flooded:

- from the sea by a flood that has a 0.5% (1 in 200) or greater chance of happening each year.

- or from a river by a flood that has a 1% (1 in 100) or greater chance of happening each year.

Light blue 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.

These two colours show the extent of the natural floodplain if there were no flood defences or certain other manmade structures and channel improvements. Sites outside the two extents, but behind raised defences, may be affected by flooding if the defences are overtopped or fail.

Created by the Partnerships and Strategic Overview Team, Kettering

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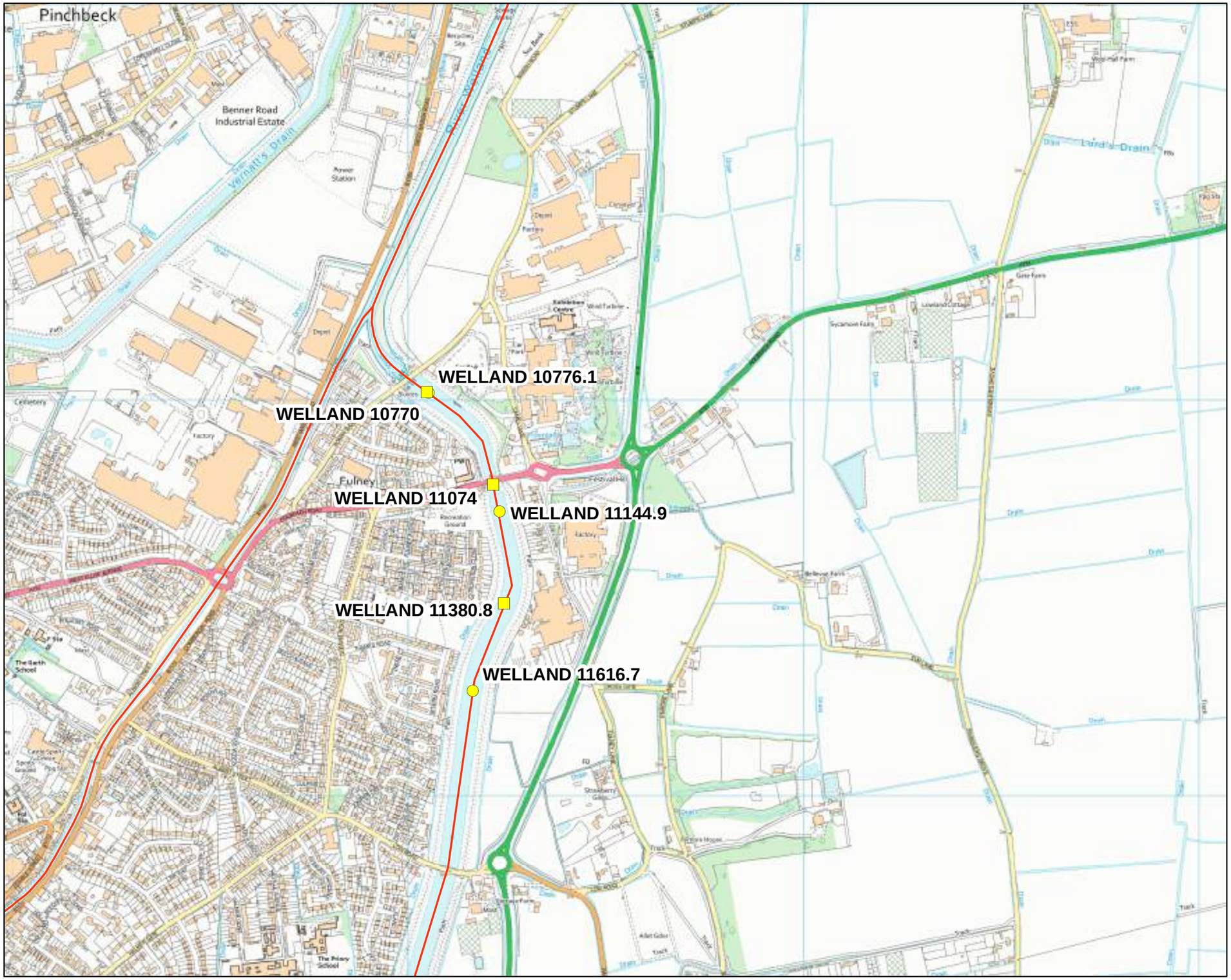
Modelled Node Points Map centred on TF 26630 23821 - created April 2024 [Ref: CCN-2024-356227]



Environment Agency

Scale 1:10,000

N

Legend

- Model Nodes - Flows
- Model Nodes - Levels
- Main Rivers

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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).

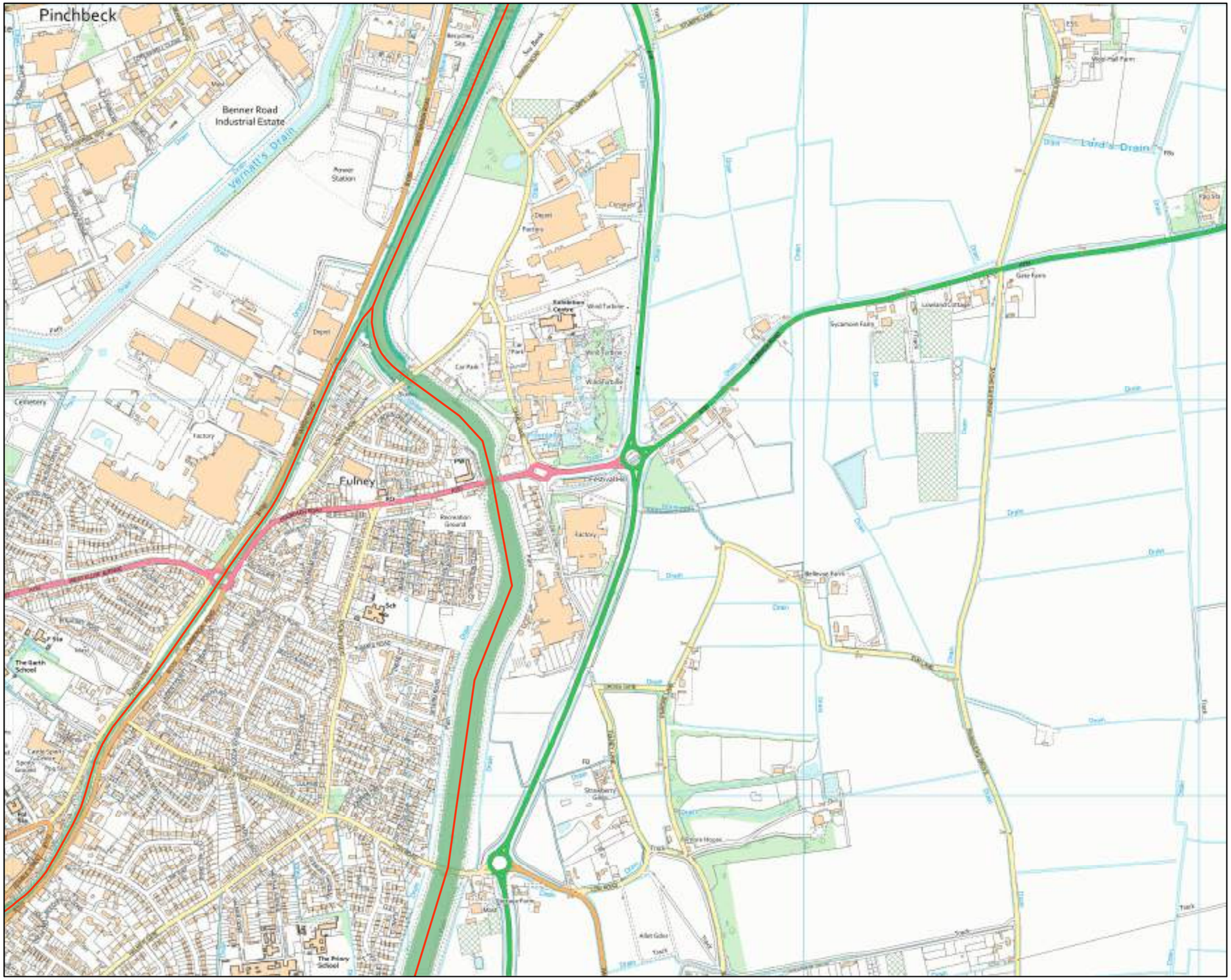
			Annual Exceedance Probability - Maximum Water Levels (mODN)											
Node Label	**Easting**	**Northing**	**50% (1 in 2)**	**20% (1 in 5)**	**10% (1 in 10)**	**5% (1 in 20)**	**3.33% (1in 30)**	**2% (1 in 50)**	**1.33% (1 in 75)**	**1% (1 in 100)**	**1% (1 in 100) inc 20% Climate Change**	**0.5% (1 in 200)**	**0.1% (1 in 1000)**	**0.1% (1 in 1000) inc 20% Climate Change**
WELLAND 10776.1	526053	324019	3.64	3.90	4.10	4.36	4.37	4.38	4.41	4.43	4.68	4.44	4.45	4.68
WELLAND 11144.9	526232	323719	3.65	3.91	4.10	4.36	4.39	4.39	4.42	4.44	4.68	4.45	4.46	4.68
WELLAND 11616.7	526165	323266	3.66	3.92	4.11	4.36	4.40	4.41	4.42	4.45	4.68	4.46	4.47	4.68

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)**	**3.33% (1in 30)**	**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**
WELLAND 10770	526048	324023	74.58	91.64	102.46	116.08	120.26	121.43	121.70	123.79	124.12	122.86	123.37	236.17
WELLAND 11074	526216	323788	73.88	89.28	100.54	115.25	119.36	118.58	119.51	123.31	124.59	121.86	124.52	119.07
WELLAND 11380.8	526243	323488	73.26	88.29	99.60	113.62	116.57	117.69	118.52	120.34	123.53	119.44	119.22	118.30

Modelled Flood Extents (with defences) Model: Welland Catchment Strategic (2016) centred on TF 26630 23821 - created April 2024 [Ref: CCN-2024-356227]



Environment Agency

Scale 1:10,000

N

Legend

- Main Rivers
- 3.33% (1 in 30) fluvial event
- 1% (1 in 100) fluvial event
- 1% (1 in 100) inc 20% climate change fluvial event
- 0.1% (1 in 1000) fluvial event
- 0.1% (1 in 1000) inc 20% climate change fluvial event

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East Coast and Wash - 2018 Coastal Flood Boundary [CFB] Dataset
Key Node Points

Environment Agency

Scale 1:550,000

N W E S

▲ East Coast and Wash

See separate data sheet for predicted flood levels

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East Coast and Wash: Immingham to the West Lighthouse

2018 Coastal Flood Boundary Extreme Sea Levels

CFB Ref	Location	Easting	Northing	Annual Chance (1 in x) of Tide Level in metres ODN																				
				1			10			50			100			200			300			1000		
				Confidence Bound			Confidence Bound			Confidence Bound			Confidence Bound			Confidence Bound			Confidence Bound			Confidence Bound		
				2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%
3888	**Immingham**	520440	417625	4.16	4.17	4.19	4.50	4.53	4.62	4.73	4.80	5.00	4.83	4.93	5.19	4.93	5.06	5.41	4.98	5.14	5.55	5.15	5.38	6.01
3890	**Haborough Marsh**	522100	416512	4.14	4.15	4.17	4.48	4.51	4.60	4.70	4.77	4.97	4.80	4.90	5.16	4.90	5.03	5.38	4.94	5.10	5.51	5.11	5.34	5.97
3898	**Grimsby**	529295	413162	3.98	3.99	4.01	4.31	4.34	4.43	4.53	4.60	4.80	4.61	4.71	4.97	4.71	4.84	5.19	4.74	4.90	5.31	4.88	5.11	5.74
3906	**Buck Beck**	534709	407369	3.87	3.88	3.90	4.19	4.23	4.31	4.41	4.50	4.68	4.50	4.61	4.86	4.61	4.75	5.10	4.64	4.82	5.22	4.80	5.05	5.66
3910	**Tetney**	538035	405537	3.85	3.86	3.89	4.17	4.22	4.30	4.40	4.50	4.67	4.49	4.61	4.86	4.60	4.75	5.10	4.63	4.82	5.21	4.80	5.06	5.66
3918	**Donna Nook**	544641	401997	3.82	3.83	3.86	4.14	4.19	4.27	4.38	4.48	4.65	4.47	4.60	4.85	4.58	4.74	5.10	4.63	4.82	5.22	4.81	5.08	5.68
3928	**Saltfleet**	549131	393360	3.78	3.79	3.82	4.11	4.16	4.26	4.36	4.46	4.64	4.47	4.59	4.86	4.57	4.74	5.11	4.63	4.83	5.25	4.83	5.11	5.74
3942	**Boygrift**	555131	380860	3.72	3.74	3.77	4.06	4.11	4.22	4.33	4.43	4.65	4.43	4.57	4.87	4.56	4.73	5.13	4.62	4.83	5.28	4.85	5.15	5.82
3968	**Gibraltar Point**	557652	356181	4.16	4.17	4.20	4.51	4.56	4.67	4.76	4.85	5.08	4.85	4.97	5.27	4.94	5.10	5.49	4.99	5.18	5.63	5.14	5.41	6.09
3992_14	**Hobhole**	535990	340116	4.96	4.97	5.01	5.40	5.44	5.56	5.66	5.76	5.98	5.78	5.90	6.20	5.88	6.04	6.44	5.92	6.11	6.57	6.03	6.31	6.99
	Grand Sluice*	532366	344510	4.93	4.94	4.98	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
3992_9	**Boston Barrier**	532754	342852	4.93	4.94	4.98	5.41	5.45	5.57	5.73	5.83	6.05	5.85	5.97	6.27	5.93	6.09	6.49	5.94	6.13	6.59	5.98	6.26	6.94
3992_5	**Fosdyke Bridge**	531886	332234	4.87	4.88	4.92	5.31	5.35	5.47	5.58	5.68	5.90	5.71	5.83	6.13	5.82	5.98	6.38	5.87	6.06	6.52	6.01	6.29	6.97
4008	**West Lighthouse**	550094	329971	4.87	4.88	4.91	5.21	5.26	5.37	5.46	5.56	5.78	5.56	5.68	5.98	5.66	5.82	6.21	5.71	5.90	6.35	5.86	6.14	6.81
-	**Marsh Road**	525988	324065	-	5.04	-	-	5.44	-	-	5.73	-	-	5.85	-	-	5.98	-	-	-	-	-	-	-
-	**Wisbech**	546110	309940	-	4.83	-	-	5.25	-	-	5.53	-	-	5.66	-	-	5.78	-	-	-	-	-	-	-
-	**Dog-in-a-Doublet**	527200	299287	-	3.67	-	-	4.00	-	-	4.22	-	-	4.32	-	-	4.42	-	-	-	-	-	-	-

See next page for notes

East Coast and Wash: Immingham to the West Lighthouse

2018 Coastal Flood Boundary Extreme Sea Levels

NOTES:

The following notes apply to all CFB sites (ie all on table excluding Marsh Road, Wisbech, Dog-in-a-Doublet)

- The base date for the data is 2017.
- The levels are still water levels. Depending on the use of the data it may be necessary to consider wave heights and / or joint probability analysis of water level and other variables.
- Levels for other annual chance probabilities are available if required.
- For additional information relating to the 2018 Coastal Flood Boundary Extreme Sea Levels or to access the full dataset for the above sites or intermediate locations refer to the Defra Metadata Catalogue at https://deframetadata.com/geonetwork/srv/eng/catalog.search#/metadata/84a5c7c0-d465-11e4-b0bd-f0def148f590

The following notes apply to all Marsh Road, Wisbech, Dog-in-a-Doublet

- The base date for the data is 2006
- The levels are still water levels. Depending on the use of the data it may be necessary to consider wave heights and / or joint probability analysis of water level and other variables.
- Levels for other annual chance probabilities are available if required.
- These levels will be updated as their respective tidal river models are updated.

The following notes apply to Grand Sluice

- Grand Sluice remains the tidal limit for the River Witham.
- The data is based on CFB 2018 data for Boston Barrier site, capped at 5.3mAOD to reflect use of the barrier which raises for tides above this level.
- The base date for the data is 2017
- The levels are still water levels. Depending on the use of the data it may be necessary to consider wave heights and / or joint probability analysis of water level and other variables.
- For additional information relating to the 2018 Coastal Flood Boundary Extreme Sea Levels or to access the full dataset for the above sites or intermediate locations refer to the Defra Metadata Catalogue at https://deframetadata.com/geonetwork/srv/eng/catalog.search#/metadata/84a5c7c0-d465-11e4-b0bd-f0def148f590

★ **Modelled Breach Locations**

0 3.5 7 14 Kilometers

This map idicates the location of where we have modelled the consequence of breaches in the defences along the coastline and tidal rivers. We have mapped the maximum values of Hazard Rating (Danger to People), Depth and Velocity.

We have not assumed that all breaches occur at the same time, but have modelled each breach individually and overlaid the results to find the maximum values.

Our modelling only considers the consequences of a breach, it does not make any assumption about the likelihood of a breach occurring. Our defences generally provide a good standard of flood defence but a risk of breaching remains.

Please contact the Environment Agency for information on how these maps are used in the management of flood risk.

General Enquiries No: 03708 506 506.
Weekday calls cost 5p plus up to 6ppm from BT Weekend Unlimited. Mobile and other providers charges may vary.

Environment Agency

Produced by the Partnership and Strategic Overview Team, Lincoln
General Enquiries No: 03708 506 506

Northern Area Tidal Hazard Mapping

Location of Modelled Breaches

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Flood map for planning

Your reference	Location (easting/northing)	Created
Site at Spalding	**526655/323789**	**4 July 2025 14:28**

Your selected location is in flood zone 3, an area with a high probability of flooding.

This means:

- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see https://www.gov.uk/guidance/flood-risk-assessment-standing-advice)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3

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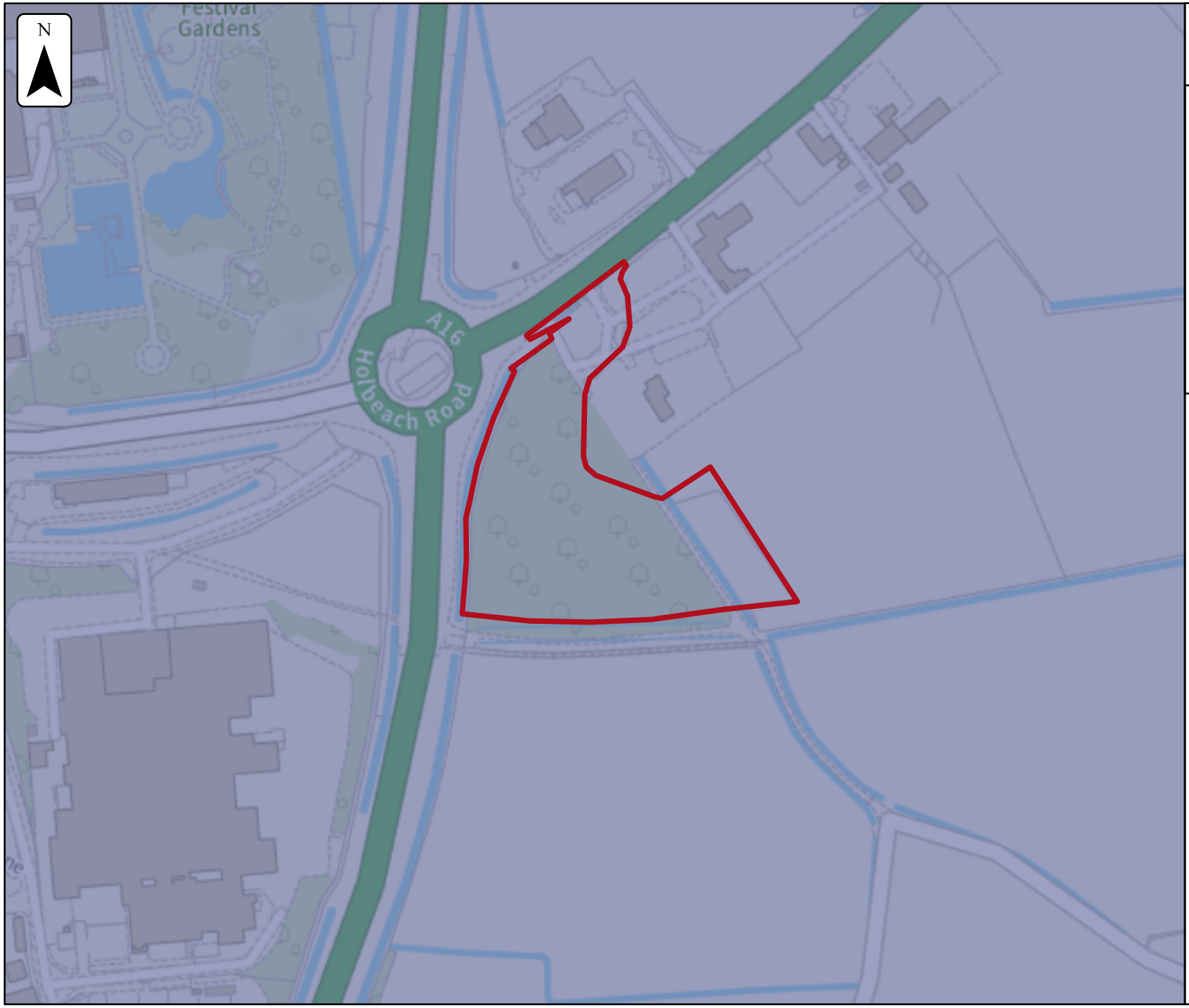

Environment Agency

Flood map for planning

Your reference
Site at Spalding

Location (easting/northing)
526655/323789

Scale
1:2,500

Created
4 Jul 2025 14:29

- Selected area
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

0 20 40 60m

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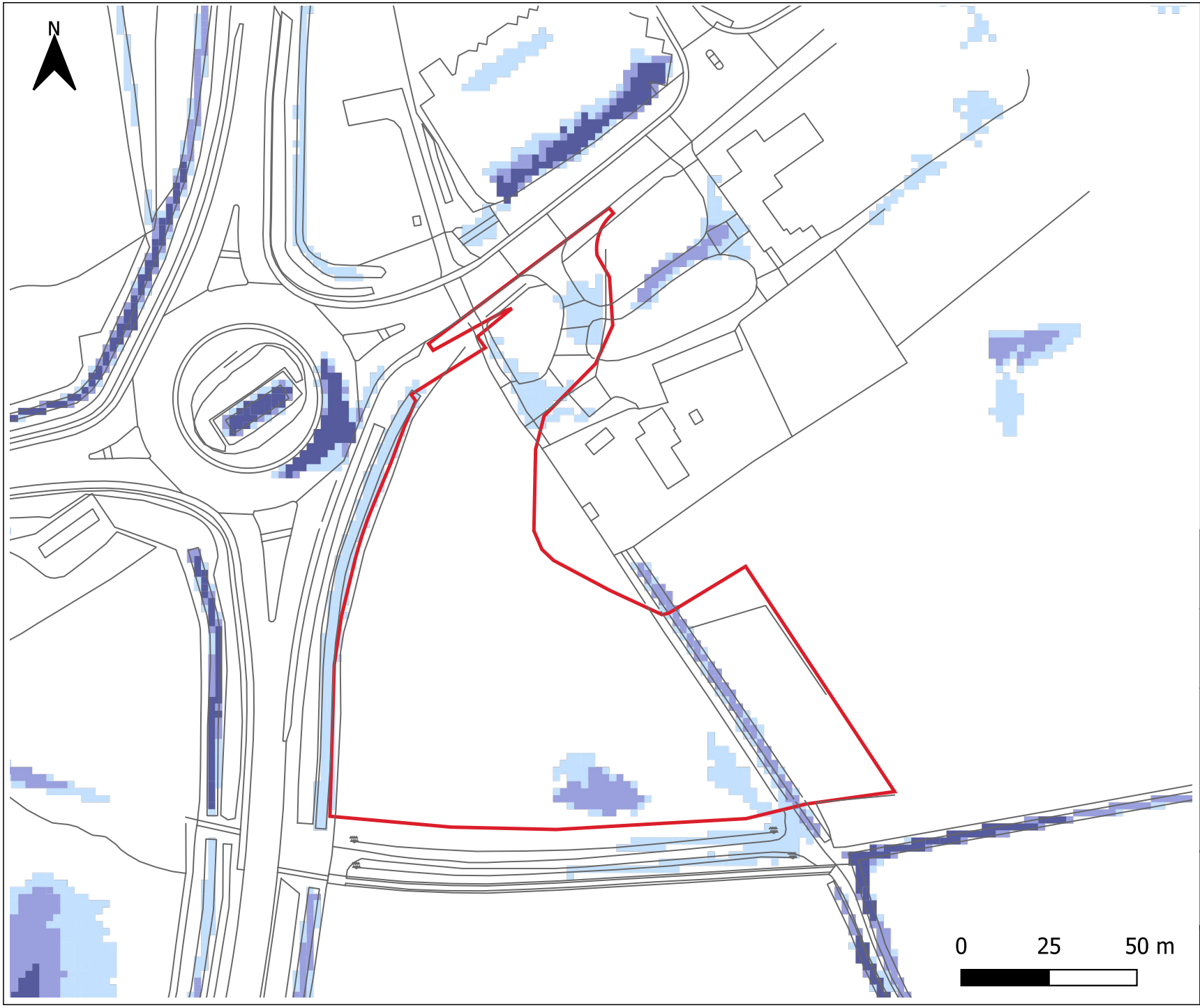

Key

Site boundary

Risk of Flooding from Surface Water:

- High
- Medium
- Low
- Very low
- Unavailable

Project
PROPOSED DEVELOPMENT AT HOLBEACH ROAD, SPALDING

Client
COMMERCIAL DEVELOPMENT PROJECTS LIMITED

Title
RISK OF FLOODING FROM SURFACE WATER - PRESENT DAY SCENARIO

Date
JULY 2025

Drawn
MGW

Scale
AS SHOWN

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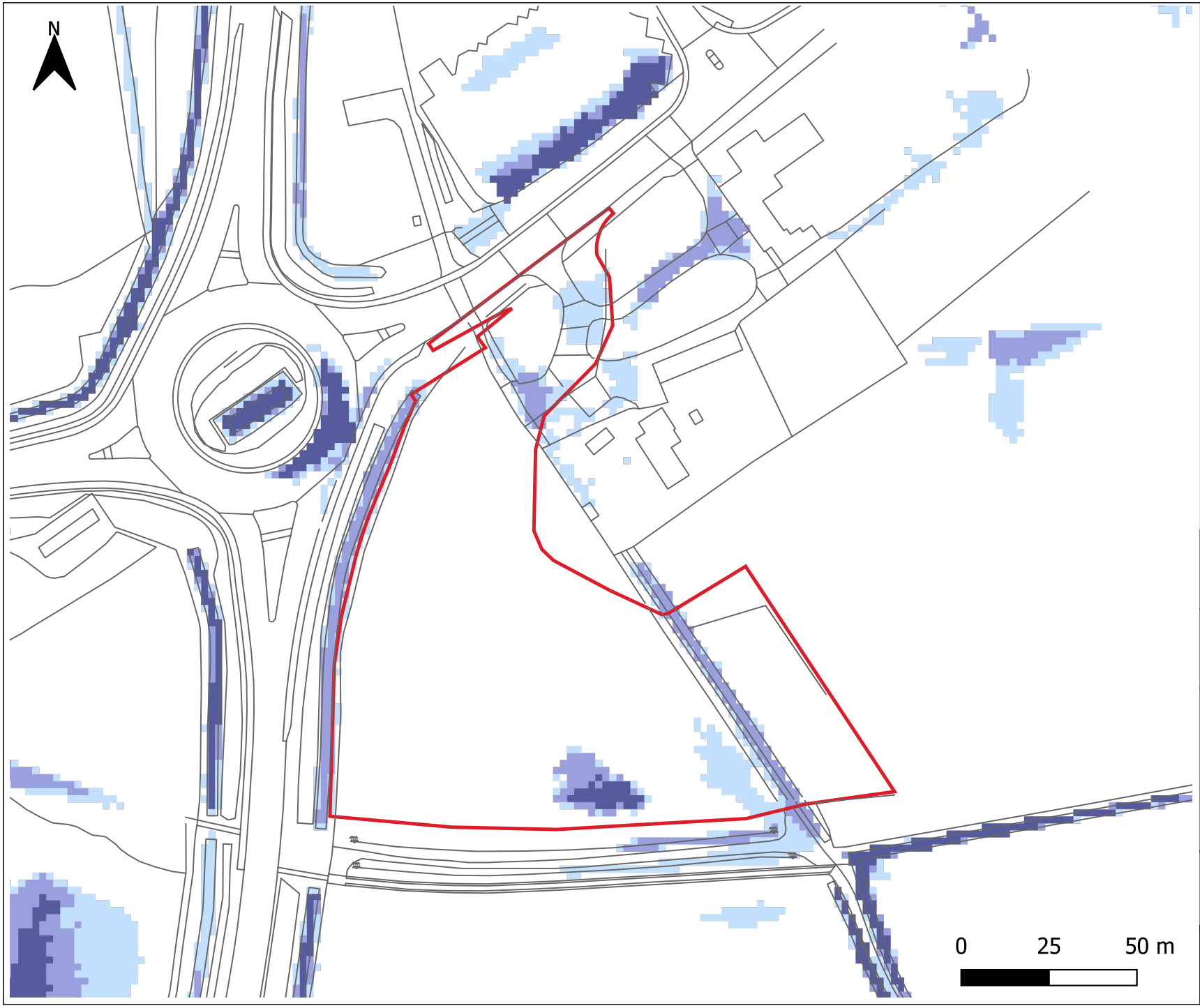

Key

Site boundary

Risk of Flooding from Surface Water:

- High
- Medium
- Low
- Very low
- Unavailable

Project
PROPOSED DEVELOPMENT AT HOLBEACH ROAD, SPALDING

Client
COMMERCIAL DEVELOPMENT PROJECTS LIMITED

Title
RISK OF FLOODING FROM SURFACE WATER - FUTURE (WITH CLIMATE CHANGE ALLOWANCE) SCENARIO

Date
JULY 2025

Drawn
MGW

Scale
AS SHOWN

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