FLOOD RISK ASSESSMENT

Proposed Vehicle Storage Building
Mill Green Road,
Pinchbeck,
Spalding,
Lincolnshire.
PE11 3PU.

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November 2023 Version 1

RMA

Contents

INTRODUCTION 1
APPLICATION SITE 1
Table 1: Flood Zones Definition 2
Table 2: Flood Risk Vulnerability Classification 2
Site Levels 2
DRAINAGE AUTHORITIES 3
Environment Agency 3
Flood Zones 4
Flood Map for Planning (Source EA) 4
Risk of Flooding from Rivers & Sea 4
Risk of Flooding from Rivers & Sea Map (Source EA) 5
The River Welland Tidal Defences 5
Breach Analysis to River Welland Tidal Defences 5
River Glen 6
Node Map 6
River Glen Flood Levels & Flows 6
Floor levels 7
South Holland District Council 7
Welland & Deepings Internal Drainage Board 8
Welland & Deepings Drainage Map 8
FLOODING FROM OTHER SOURCES 9
RESIDUAL RISKS 9
SURFACE WATER FLOODING 9
Risk of Flooding From Surface Water Map (Source EA) 10
TABLE 3: Flood Risk Vulnerability and Flood Zones 'Compatibility' 11
Sequential Test 11
CLMATE CHANGE 11
Peak River Flow Allowances 12
Table 1 Peak Rainfall Intensity 12
Table 2 Peak Sea Level Rise 12
DRAINAGE STATEMENT 12
Surface Water Drainage 12
Foul Water Drainage 13
FLOOD RESILIENCE CONSTRUCTION 13
CONCLUSION 13

Figures

Map 1 Tidal Modal Analysis, levels for East Coast and Wash: Immingham to the West Lighthouse
Map 2 South Holland SFRA Residual Flood Hazard District 2115 1% Event Probability Map
Map 3 South Holland SFRA Residual Peak Depth District 2115 1% Event Probability Map
Map 4 South Holland SFRA Residual Peak Velocity District 2115 1% Event Probability Map
Plan 1 Proposed Site Plan
Plan 2 Proposed Storage Building

FLOOD RISK ASSESSMENT PROPOSED VEHICLE STORAGE BUILDING, MILL GREEN ROAD, PINCHBECK, SPALDING, PE11 3PU.

INTRODUCTION

The Government has placed increasing priority on the need to take full account of the risk associated with flooding at all stages of the planning and development process. This seeks to reduce the future damage to property and the risk to life from incidents of flooding. Their expectations relating to flooding are contained in the National Planning Policy Framework Nov. 2023, (NPPF), which identifies how the issue of flooding is dealt with in the drafting of planning policy and the consideration of planning applications by avoiding inappropriate development in areas at risk from flooding and to direct development away from areas at highest risk.

The NPPF provides that development in areas at risk of flooding should be avoided and seeks to direct development away from areas at highest risk. There is a sequential, risk-based approach to the location of development avoiding where possible, flood risk to people and property managing any residual risk and taking account of the impacts of climate change.

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APPLICATION SITE

The site is located at The Anglian Business Centre, Mill Green Road, Pinchbeck, Spalding, PE11 3PU within the South Holland District Council's administrative area. The National Grid Reference is TF 23402 24661**. Plan 1**

This flood risk assessment has been prepared for a planning application for the erection of a vehicle storage building (34m x 20m), on land currently used to store vehicles in the open. **Plans 1 & 2**

The National Planning Policy Framework Guidance NPPG defines three levels of flood risk depending upon the annual probability of fluvial flooding occurring.

Zone 1 – Low Probability (<0.1%)
Zone 2 – Medium Probability (0.1 – 1.0%)
Zone 3 – High Probability (>1.0%)

The proposed development site is shown mainly to be within Flood Zone 3 “High Probability” as detailed on the Environment Agency's Flood Zone Maps **without defences**, and as defined in Table 1 of NPPG**.**

Table 1: Flood Zones Definition

Flood Zone 3- High Probability
Definition Land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. The water-compatible and less vulnerable uses of land are appropriate in this zone. The highly vulnerable uses should not be permitted in this zone. The more vulnerable and essential infrastructure uses should only be permitted in this zone if the Exception Test is passed. Essential Infrastructure permitted in this zone should be designed and constructed to remain operational and safe for uses in times of flood. **Flood Risk Assessments requirements** All proposals in this zone should be accompanied by a Flood Risk Assessment. **Policy aims.** Developers and local authorities should seek opportunities to: • reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage techniques. • relocate existing development to land with a lower probability of flooding. • create space for flooding to occur by allocating and safeguarding open space for flood storage.

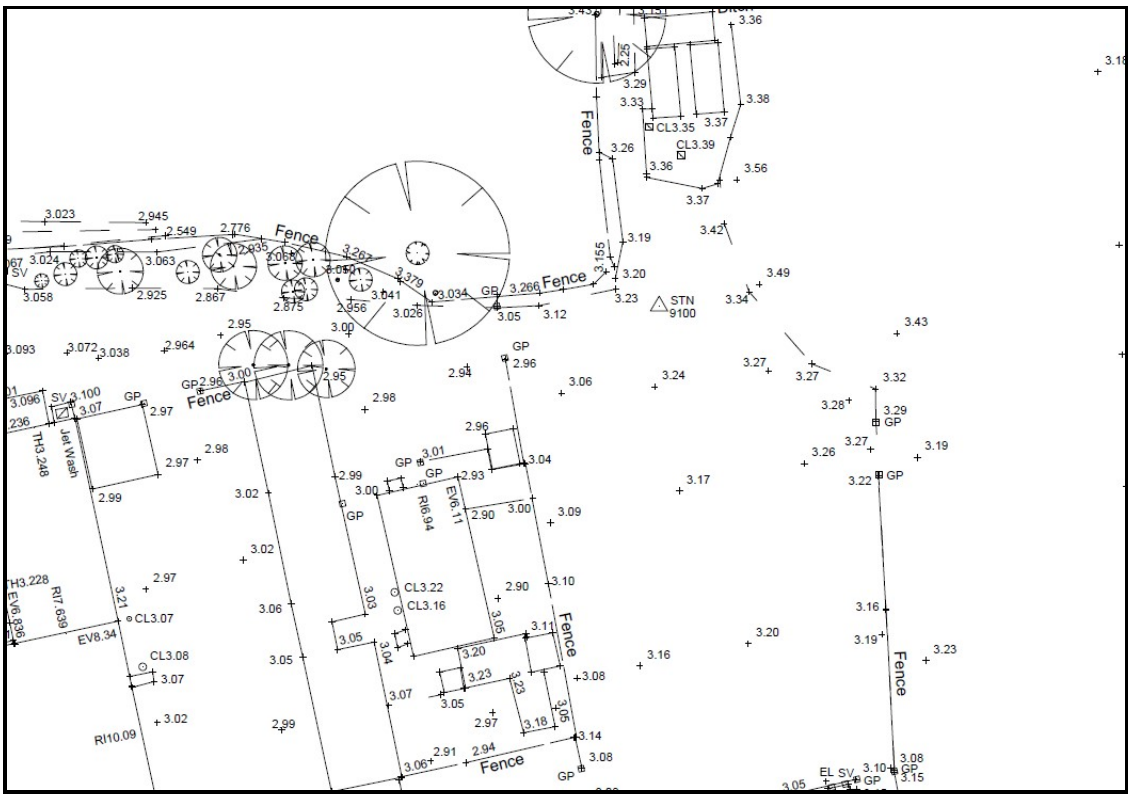
Applying the Flood Risk Vulnerability Classification in Table 2 of NPPG, storage building is classified as “Less Vulnerable,” Table 1 of NPPG states that such uses are permitted in this zone.

Table 2: Flood Risk Vulnerability Classification

Less Vulnerable
• Police ambulance and fire stations that are not required to be operational during flooding. • Buildings used for shops, financial, professional, and other services, restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non-residential institutions not included in “more vulnerable” and assembly and leisure. • Land and buildings used for agricultural and forestry. • Waste treatment (except land fill and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment works that do not need to remain operational during times of flood. • Sewage treatment works (if adequate measures to control pollution and manage sewage during flood events are in place).

Site Levels

From the topographical survey the site is reasonably level, the ground levels for the storage building 3.16mODN.



DRAINAGE AUTHORITIES

Environment Agency

The Environment Agency has permissive powers for reducing the risk of flooding from designated main rivers and from the sea.

The following potential sources of flooding affecting the development site have been identified as:

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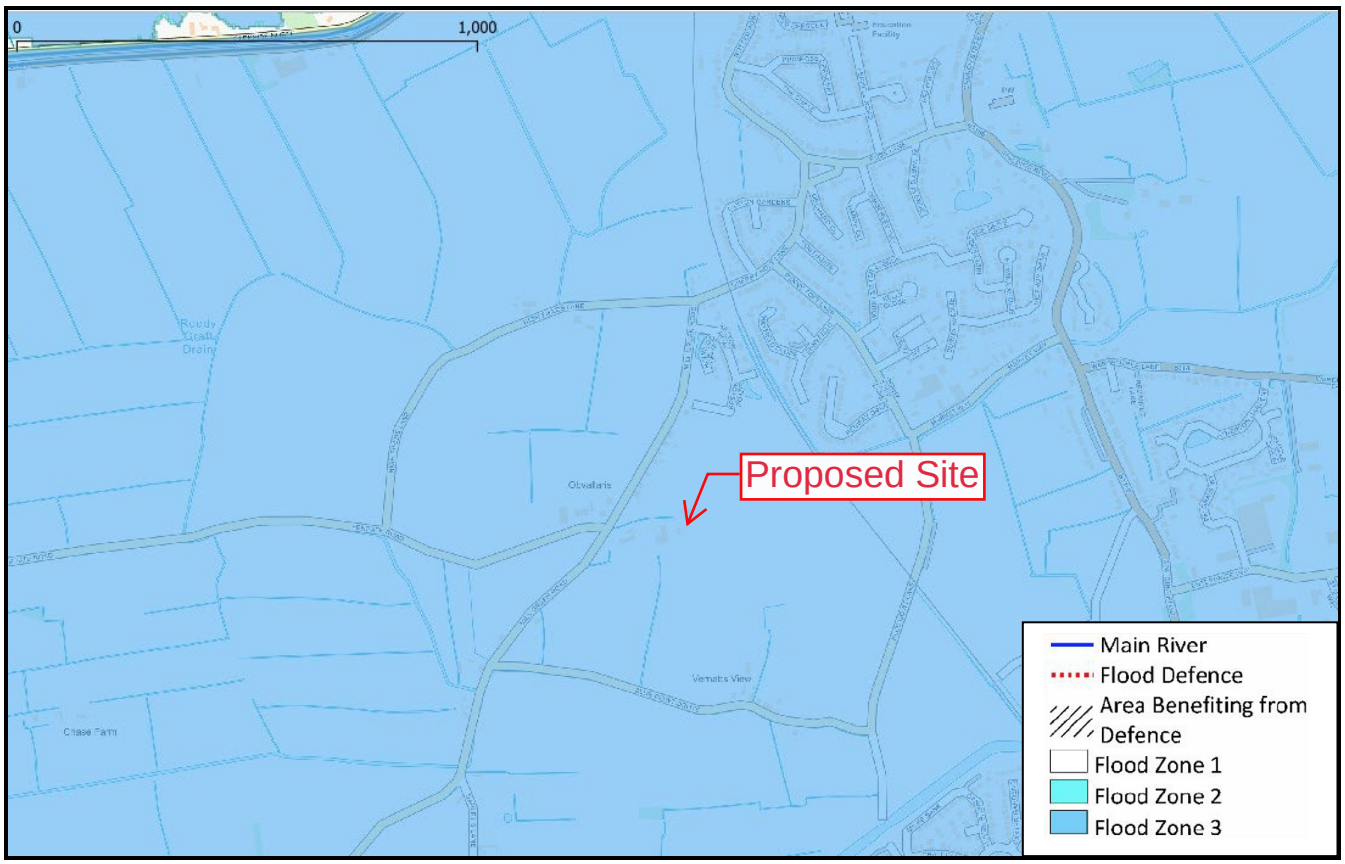
- the River Welland (Tidal)
- The River Glen (Fluvial)
- Welland & Deepings Internal Drainage Board system

The flood zone maps indicate that the area would be flooded without flood defences.). The Flood Map indicates the area at risk of flooding, **assuming no flood defences exist**, for a flood event with a 0.5% chance of occurring in any year for flooding from the sea, or a 1% chance of occurring for fluvial (river) flooding. It also shows the extent of the Extreme Flood Outline which represents the extent of a flood event with a 0.1% chance of occurring in any year, or the highest recorded historic extent if greater. In some locations, such as around the fens and the large coastal floodplains there are many kilometres of raised flood defences. To meet the requirements of the National Planning Policy Framework, these defences are removed in their entirety to produce the Flood Map for Planning (Rivers and Sea). The map therefore shows the full extent of areas that would be at risk of flooding if no defences

existed, and water could spread out across the floodplain.

Flood Zones

These maps show that the site is considered at risk from tidal/fluvial flooding as it is all located within an area zoned as Flood Zone 3a.The maps indicate that the area would be flooded, without flood defences, which are in place, (with an annual probability of more than 0.5% i.e., return frequency of less than 1 in 200 years for tidal flooding or more than 1.33% return frequency of less than 1 in 100 years for fluvial flooding).



Flood Map for Planning (Source EA)

Risk of Flooding from Rivers & Sea

The Risk of flooding from Rivers and Sea map shows the site for the development, to be at Medium Risk. Medium means that each year, this area has a chance of flooding between f between 1% and 3.3%.This takes into account the effect of any flood defences that may be in this area. Flood defences reduce, but do not completely stop the chance of flooding as they can be overtopped or fail.



Risk of Flooding from Rivers & Sea Map (Source EA)

The River Welland Tidal Defences

The River Welland is located some 2.55Km southeast of the site, and is tidal down stream of Marsh Lane Sluice. The tidal defences protecting this site consist of earth embankments, the crest heights are circa 7.00mODN. They are in good condition and reduce the risk of flooding (at the defence) to a 0.67% (1 in 150) chance of occurring in any year. The Environment Agency inspect these defences routinely to ensure potential defects are identified.

Breach Analysis to River Welland Tidal Defences

Taking the precautionary approach, the Hazard Rating following a breach which in Flood Risk Assessment (FD 2320) Guidance for New Development Phase 2 R& D Technical Report these are classified as low <0.75, moderate 0.75-1.25, significant 1.25-2.50 and extreme >2.50 based upon an empirical measure of velocity and depth.

Flood Hazard			Description
	<0.75	Low	**Caution –** Flood Zone with shallow flowing water or deep standing water.
	0.75 – 1.25	Moderate	**Danger for Some -** (i.e. children) Danger Flood Zone with deep or fast flowing water.
	1.25 – 2.0	Significant	**Danger for Most –** Danger Flood Zone with deep fast flowing water.
	>2.0	Extreme	**Danger for All** – Extreme Danger Flood Zone with deep fast flowing water.

HR = d x (v + 0.5) +DF

Where V = Flood flow velocity (m/sec)

D = Flood depth (m)

DF = A debris factor included to represent the greater damage, or risk of injury to people, that can occur if debris

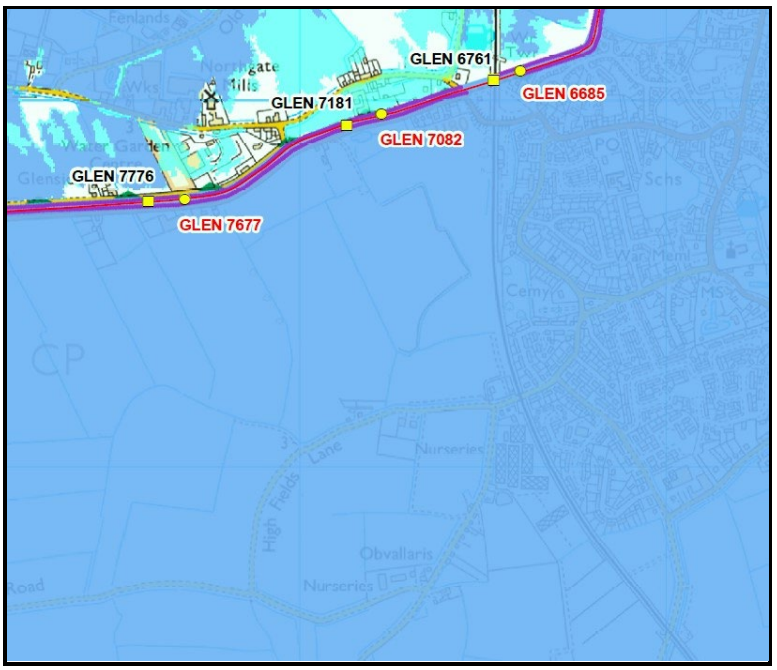
is swept along with the water. = 0.5 for depths <0.25 or 1.0 for depths.

For the degree of Flood Hazard to be classified as low HR must be <0.75

The 2017 Update to SHDC, SFRA has carried out a Tidal & Fluvial Hazard Mapping, for Spalding following a breach to the defences. The Hazard, Velocity and Depth Maps, year 2115, for the 1 in 100-year event, shows that the site where the proposed development is to be located are not within an area affected by flooding from a breach to the flood defences. **Maps 4, 5 & 6.**

River Glen

The River Glen lies some 1.3km to the north of the site and the present day 1 in 100-year flood level with 20% consist of the B1180 Road which are in good condition and the crest heights for the right bank along this stretch of river are circa 5.90mODN. (SHDC SFRA). climate change is 4.87mODN. The flood defences of the River Glen between Herring Bridge and the A151 bridge.



Node Map

River Glen Flood Levels & Flows

The fluvial flood data for the model nodes shown on the map are set out in the tables below.

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)	2% (1 in 50)	1.33% (1 in 75)	1% (1 in 100)	1% (1 in 100) inc 20% Climate Change	0.5% (1 in 200)	0.1% (1 in 1000)	0.1% (1 in 1000) inc 20% Climate Change
GLEN 6685	523603	326081	4.01	4.16	4.23	4.31	4.34	4.35	4.38	4.84	4.44	4.60	4.94
GLEN 7082	523224	325963	4.04	4.17	4.25	4.32	4.36	4.39	4.41	4.87	4.49	4.70	5.01
GLEN 7677	522687	325733	4.06	4.20	4.28	4.35	4.41	4.43	4.45	4.91	4.54	4.79	5.07

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)	2% (1 in 50)	1.33% (1 in 75)	1% (1 in 100)	1% (1 in 100) inc 20% Climate Change	0.5% (1 in 200)	0.1% (1 in 1000)	0.1% (1 in 1000) inc 20% Climate Change
GLEN 6761	523531	326057	25.95	29.44	31.06	33.13	34.59	35.32	35.84	43.56	38.87	48.22	56.95
GLEN 7181	523130	325934	25.69	29.20	30.85	32.93	34.37	35.09	35.60	43.18	38.62	48.05	56.90
GLEN 7776	522589	325726	25.40	29.03	30.65	32.71	34.14	34.86	35.37	42.73	38.33	48.07	56.87

This data is taken from the Welland Model (2016) and are the most up-to date currently available. The Environment Agency aim to review the models on a regular basis.

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.

The site lies within the Welland River Catchment, Peak River flows should be adjusted to reflect the latest climate change allowances of 17% increase in river level for ‘Less Vulnerable’ uses. It must also be assumed, to provide a worst-case scenario, that flood defences have been raised during this period to cater for the rise in river level.

Given the scale and nature of the proposed development and the distance from the River Glen it is considered that additional hydraulic modelling is not appropriate to determine the revised river levels and the 20% Climate Change level has been used in this assessment.

With the crest level of the B1180 road being circa 5.90mODN the climate change river levels for the l in 100 year Central (20%) would remain in channel. Based upon the crest heights of the flood defence the proposed site is protected with a freeboard of over 1.0m.

Floor levels

With the site not being affected by a breach to both fluvial and tidal sources the storage building will be set at 300mm above the existing ground level.

South Holland District Council

In order to inform the process of risk assessment and site selection the District Council commissioned Haskoning UK Ltd Consultants to prepare a Strategic Flood Risk Assessment in December 2002.They have carried out an update of this report and this report was published in January 2010, and this was further updated in February 2017.

This Flood Risk Assessment has taken the results of the (2017) updated South Holland Strategic Flood Risk Assessment (SHSFRA) into account in its findings.

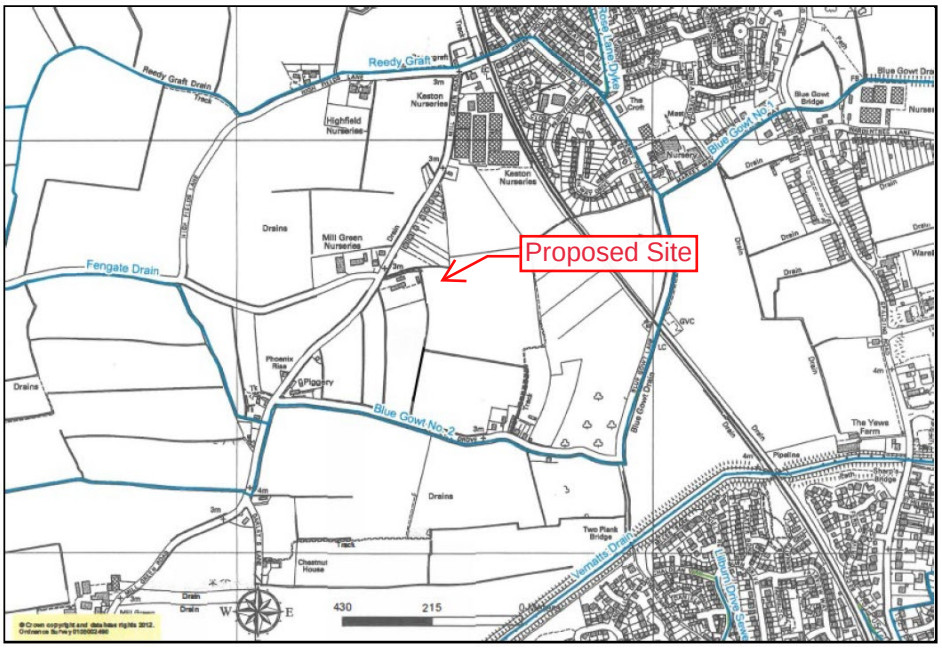
The whole of the tidal flooding information has been replaced by the mapping from the latest Environment Agency Tidal Hazard mapping. Where the mapping for an area contains both fluvial and tidal components, the more severe of the two has been presented.

From the Residual Flood Hazard, Depth and Velocity Spalding - Year 2115 1% Tidal Event Probability maps, from the update of strategic flood risk assessment for South Holland District Council, the site is not affected from a breach to the flood defences and has been used in the findings of this assessment.

Welland & Deepings Internal Drainage Board

The proposed development site is located within Catchment area of Welland & Deepings Internal Drainage Board. The Board is responsible to operate and maintain the arterial fluvial system.

The Board's nearest watercourse to the site is the Blue Gowt No 2 some 500m south of the site.



Welland & Deepings Drainage Map

The Board's prior written consent will be required for any of the following works:

- No person without the previous consent of the Board shall erect any building or structure, whether temporary or permanent, or plant any tree, shrub, willow or other similar growth within 9 metres of the landward toe of the bank where there is an embankment or wall or within 9 metres of the top of the batter where there is no embankment or wall, or where the watercourse is enclosed within 9 metres of the enclosing structure.

- No person shall, without the previous consent of the Board, for any purpose, by means of any channel, siphon, pipeline or sluice or by any other means whatsoever, introduce any water into the district or, whether directly or indirectly, increase the flow or volume of water in any watercourse in the district.

- The erection or alteration of any mill dam, weir or other like obstruction to the flow, or erection or alteration of any culvert within the channel of a riparian watercourse.

FLOODING FROM OTHER SOURCES

Flooding is a natural process and can happen at any time from sources other than watercourses and the sea.

- Flooding from land can occur from intense rainfall, often over short duration of time that is unable to soak into the ground or enter the drainage system. However, with the natural topographic nature of the ground being flat, with no high ground around the site this will not cause any rapid inundation of the site and is likely only lead to local ponding of shallow depth and low velocity. The ground floor level for the proposed building is to be raised 300mm above the existing ground level. The updated SFRA concluded that flooding from this source is limited to minor isolated cases and is not of strategic significance as regards to flood risk.

- The area is not known to suffer from any groundwater problems.

- Flooding from sewers can occur from overloading from heavy rainfall caused by blockages or having inadequate capacity. However, with the natural topographic nature of the ground being flat, with no high ground around the site this will not cause any rapid inundation of the site and is likely only lead to local ponding of shallow depth and low velocity. The updated SFRA concluded that flooding from this source is limited to minor isolated cases and is not of strategic significance as regards to flood risk

- Non-natural or artificial sources of flooding such as reservoirs, lakes, or canals where water is stored above natural ground level could cause flooding if the structure fails or is over topped. There are no known sources within the vicinity of the site.

RESIDUAL RISKS

There is always a possibility of a flood more than that allowed for which might conceivably cause some flooding to the properties. However, such an event would have a very low probability and the risk of flooding to the property would be extremely small. It is therefore considered that the residual risks associated with flooding are not significant.

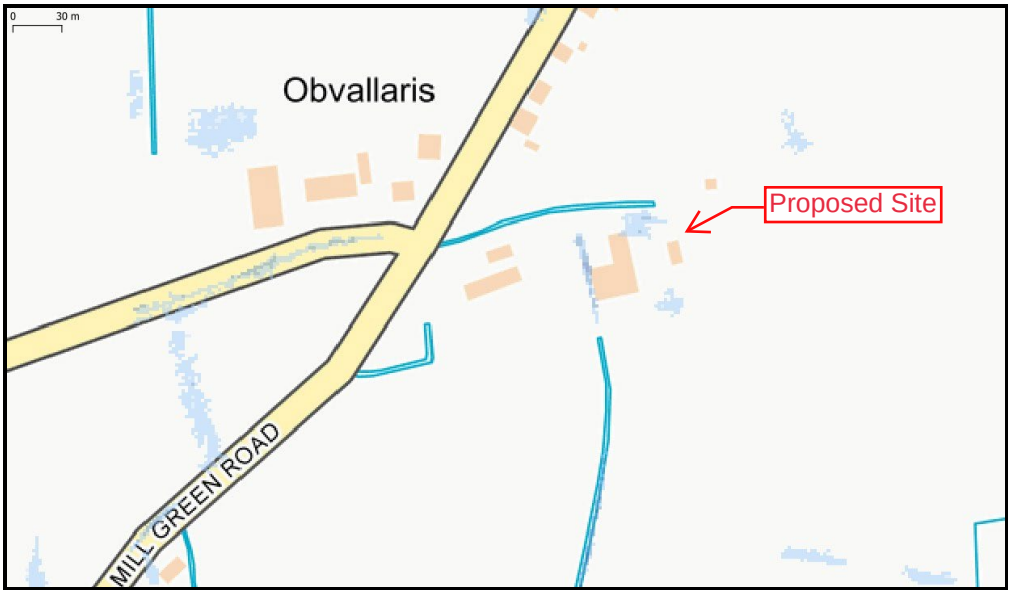
SURFACE WATER FLOODING

Part of the site is shown on the Low-Risk scenario Surface Water flood maps, for the 1 in 1000-year event, to be not affected from surface water flooding.

The maps for surface water and revised maps for river and sea flooding define the risk as High, Medium, Low and Very Low. The chance of flooding for the area defined in any given year is shown below:

- **High:** greater than 1 in 30 (3.3%).

- **Medium:** between 1 in 100 (1%) and 1 in 30 (3.3%).
- **Low:** between 1 in 1000 (0.1%) and 1 in 100 (1%).
- **Very Low:** less than 1 in 1000 (0.1%)



Risk of Flooding From Surface Water Map (Source EA)

Unlike the fluvial mapping, which is based on a detailed hydraulic model, this mapping is based purely on applying rainfall to a digital terrain model. As such this mapping serves to represent a worst-case scenario which may well overstate the actual probability of flooding in this area.

There is a caveat contained in the Environment Agency "What is the Risk of Flooding from Surface Water" Map Report version 2.0, April 2019, as to the use of these maps, which states that:- "*the map does not contain sufficient information for it to be used to determine flood risk to individual properties, but it does give you an indication of whether your area may be affected by surface water flooding and to what extent."*

SEQUENTIAL APPROACH

When applying the sequential approach for flood risk in accordance NPPF the site would fall into Zone 3a (High Probability) as the site is shown to be within the tidal/fluvial flood plain as shown on the Environment Agency's Flood Map without defences in place.

However, the results of the updated SHSFRA shows that the site is not located within a hazard rated area following a breach to the flood defences, but the area is reliant on protection by flood defences providing a standard of protection of 1 in 100 years return period.

TABLE 3: Flood Risk Vulnerability and Flood Zones 'Compatibility'

Flood Risk Vulnerability Classification		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Flood Zone 1	✓	✓	✓	✓	✓
	Flood Zone 2	✓	✓	Exception Test Required	✓	✓
	Flood Zone 3a	Exception Test Required	✓	✗	Exception Test Required	✓
	Flood Zone 3b Functional Floodplain	Exception Test Required	✓	✗	✗	✗

Sequential Test

NPPF Guidance Paragraphs 153 - 173 requires development within high areas of flood risk be determined using a sequential risk-based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account the impacts of climate change.

The aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. The NPPF states that development should not be permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower probability of flooding. It is important to note that the Sequential Test does not specifically mean that sites such as this cannot be developed, rather that sites at less risk should be developed first.

Accordingly, Policy 7 of the adopted SE Lincolnshire Local Plan confirms that new employment development /businesses or the extension of an existing business outside the allocated employment sites will be supported provided that the proposal involves the re-use of previously developed land or the conversion/re-use of redundant buildings. On that basis, it is considered that development would be important to the economic or social needs of the community.

As the proposal for the 'Less Vulnerable' uses are for industrial purposes on the site of the existing business, it would be unreasonable to consider sites elsewhere within the district as this facility is to sustain the established business and provide employment opportunities. In this particular case the business is centred on the land owned and operated by Anglia UK Ltd and to consider areas outside the holding would not be practical. Consequentially the Sequential Test is met, with the development being "Less Vulnerable" the Exception Test is not required.

CLIMATE CHANGE

Global warming is now recognised that it is likely to affect the frequency and severity of extreme events as both tidal and fluvial flooding. The Climate change allowances in the NPPF Guidance was updated on the 20th of July 2021.

Peak River Flow Allowances

For flood risk assessments use the Management Catchment Climate Changes for the peak river flow map. Management catchments are sub-catchments of River Basin Districts.

The site is located within the Welland Management Catchment within the Anglian River Basin District, for sites within Flood Zone 2 or 3a and for "Less Vulnerable" land uses, the Central allowances figures, in the Table below, should be used.

Peak River flow allowances within the Management Catchment Allowances				
River Basin District /Management Catchment	Allowance category	Total potential change anticipated for '2020s'. (2015 to2039)	Total potential change anticipated for '2050s'. (2040 to2069)	Total potential change anticipated for '2080s'. (2070 to2115)
Anglian/ Welland	Upper End	22%	26%	53%
	Higher Central	10%	10%	28%
	Central	5%	4%	17%

The effect of global warming on peak rainfall allowances is given in Table 1.

Table 1 Peak Rainfall Intensity

Table 1 Peak rainfall intensity allowance in small and urban catchments (1961 to1990 baseline)			
Applies across all of England	Total potential change anticipated for 2010 to 2039	Total potential change anticipated for 2040 to 2059	Total potential change anticipated for 2060 to 2115
Upper End	10%	20%	40%
Central	5%	10%	20%

The annual sea rise due to climate change is given in NPPF and the recommended contingency allowances are stated in Table 2.

Table 2 Peak Sea Level Rise

Table 2 Peak Sea level allowance for each epoch in (mm) per year with cumulative sea level rise for each epoch in brackets (use 1981to 2000 baseline)						
Area of England) (Use River Basin	Allowance	2000 to 2035	2036 to 2065	2066 to 2095	2096 to 2125	Cumulative Rise 2000 to 2125 (m)
Anglian	Higher Central	5.8 (203mm)	8.7 (261mm)	11.6 (348mm)	13 (390mm)	1.20m
Anglian	Upper End	7 (245mm)	11.3 (339mm)	15.8 (474mm)	18.1 (543mm)	1.6m

DRAINAGE STATEMENT

Surface Water Drainage

The surface water run-off from the roofs of the storage building will discharge in to the existing surface water system which connects into the surface water attenuation lagoon, before discharged at an attenuated rate of

flow into the existing dyke to the south of the site. This was agreed with the Welland & Deepings IDB under planning application Ref H14-0295-22.

Foul Water Drainage

There are no foul drainage requirements needed for this proposal.

FLOOD RESILIENCE CONSTRUCTION

Any impact of damage to the properties can be foreseen and mitigated against by relatively simple design and construction techniques. There are two forms of flood protection works: -

Flood-resistance or proofing works- these try to reduce the amount of water entering a building.
Flood-resilient works: - these reduce the amount of damage caused by water entering the building.

- The ground finished floor level for the storage building will be raised 300mm above the average ground level.
- The ground floor to be constructed with a solid concrete floor with no voids beneath and no low-level wall vents.
- Electrical services: electrical sockets, should be installed at least 500mm above the ground floor level to minimise damage to electrical services Electric ring mains should be installed at high level with drops to ground floor sockets and switches.
- Avoid the use of absorbent cavity insulation to the ground floor level and use the closed cell type.
- Where possible, all service entries should be sealed (e.g., with expanding foam or similar closed cell material). Closed cell insulation should be used for pipes which are below the predicted flood level.
- As this site is in an area that is capable of receiving flood warnings from the Environment Agency Floodline Warning Direct system. It is recommended that the property Owner contact the Environment Agency's Floodline on 0345 988 1188 to register the property to receive advance warning of flooding by telephone, mobile, fax, SMS text, email or pager. The Environment Agency aim to issue a 'severe flood warning' approximately 2 hours before existing defences are overtopped.

CONCLUSION

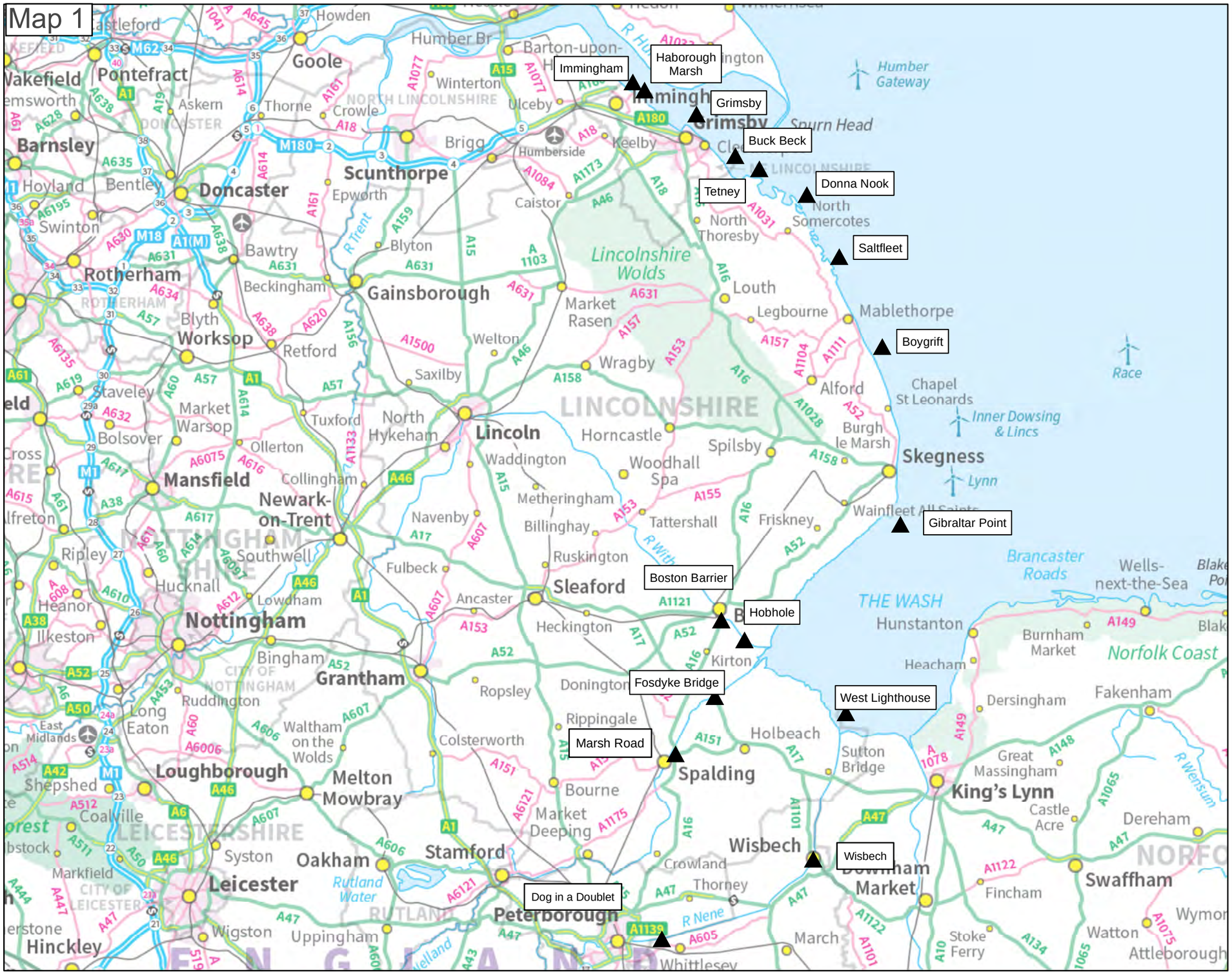
- The site does have the protection of fluvial/ tidal flood defences which are well maintained by the Environment Agency.
- The proposed site for the proposed building is shown to be within Flood Zone 3 'High Probability' as

detailed on the Environment Agency's Flood Zone Maps without defences.

- The ground finished floor level for the storage building will be raised 300mm above the average ground level.
- The Flood Risk Vulnerability Classification in Table 2 of NPPG the proposed development is classified as “Less Vulnerable” use.
- Any impact of damage to the property can be foreseen and mitigated against by relatively simple design and construction techniques. They will be constructed using materials which are flood resilient construction as outlined in the report.
- Flooding from other sources is unlikely to affect the site.
- No obvious constraints have been identified that may impact the proposed development and the type of mitigation measures that can be used to reduce the flood risk, there is no increase in the flood risk to others.
- It is therefore concluded that the proposed development can be constructed, safely and sustainably, to meet the requirements of the South Holland District Council Development Plan Policies, and the National Planning Policy Framework.

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

Map 1



Environment Agency

Scale 1:550,000

N W E S

▲ East Coast and Wash

See seperate 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

Customer services line: 03708 506 506
Calls to 03 numbers cost the same as calls to standard geographic numbers
(i.e. numbers beginning with 01 or 02)

Email: enquiries@environment-agency.gov.uk
www.gov.uk/environment-agency

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.

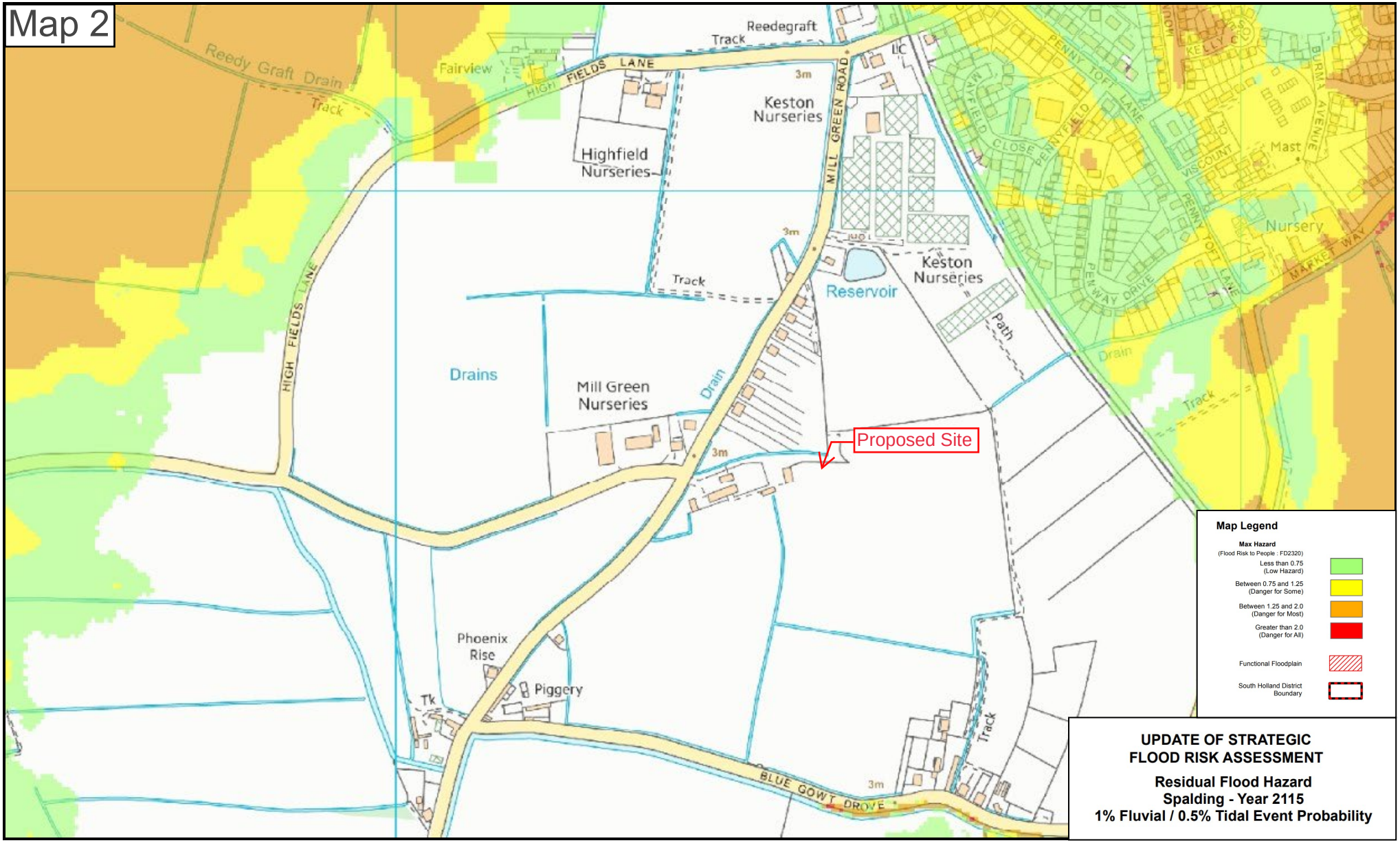
The following notes apply to Grand Sluice

- The data is based on CFB 2018 data for Boston Barrier site, capped at 5.3mAOD to reflect use of the barrier.
- 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

Customer services line: 03708 506 506
Calls to 03 numbers cost the same as calls to standard geographic numbers
(i.e. numbers beginning with 01 or 02)

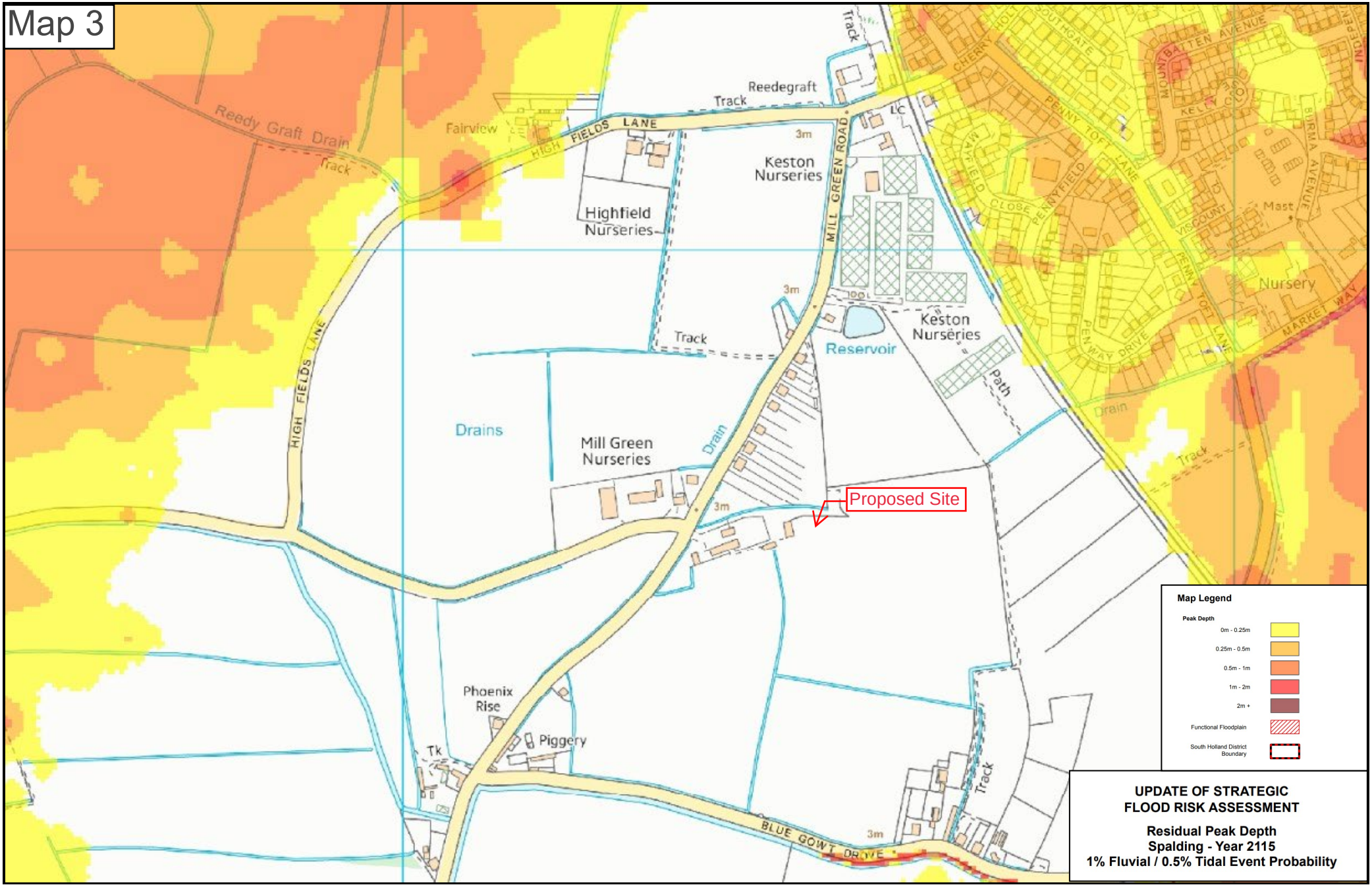
Email: enquiries@environment-agency.gov.uk
www.gov.uk/environment-agency

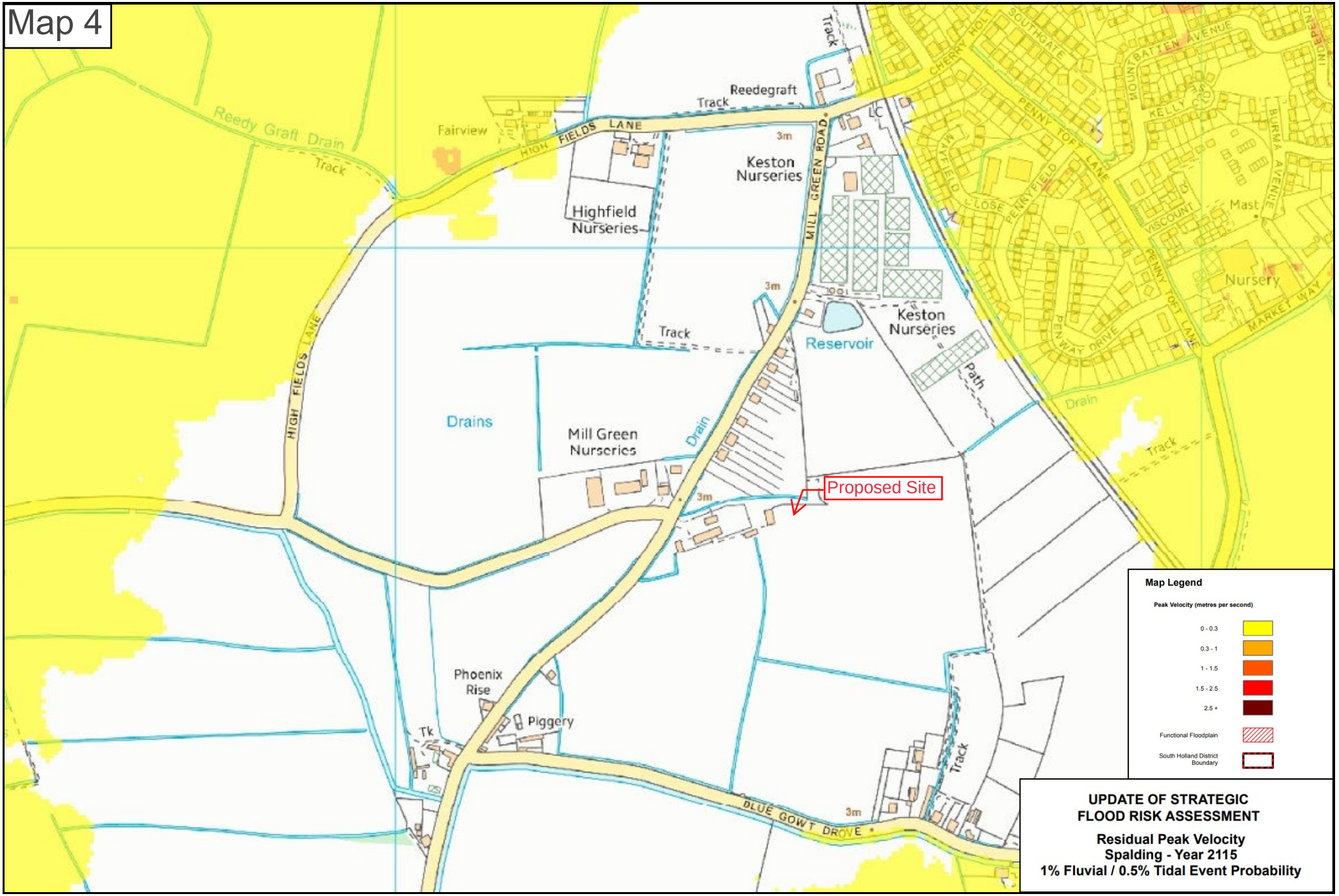
Map 2



UPDATE OF STRATEGIC FLOOD RISK ASSESSMENT

Residual Flood Hazard
Spalding - Year 2115
1% Fluvial / 0.5% Tidal Event Probability


Map 3
Reedegraft
Track
Reedy Graft Drain
Track
Fairview
HIGH FIELDS LANE
3m
Keston Nurseries
Highfield Nurseries
MILL GREEN ROAD
LC
3m
Track
Keston Nurseries
Reservoir
Path
Drains
Mill Green Nurseries
Drain
HIGH FIELDS LANE
3m
Proposed Site
Phoenix Rise
Piggery
Tk
BLUE GOWT DROVE
3m
Track
Drain
Track
Nursery
Mast
MARKET WAY
Map Legend
Peak Depth
0m - 0.25m
0.25m - 0.5m
0.5m - 1m
1m - 2m
2m +
Functional Floodplain
South Holland District Boundary
UPDATE OF STRATEGIC FLOOD RISK ASSESSMENT
Residual Peak Depth
Spalding - Year 2115
1% Fluvial / 0.5% Tidal Event Probability


Map 4
Reedy Graft Drain
Track
Fairview
HIGH FIELDS LANE
Reedegraft
Track
Keston Nurseries
Highfield Nurseries
MILL GREEN ROAD
3m
Track
Reservoir
Keston Nurseries
Path
Drains
Mill Green Nurseries
Drain
Proposed Site
HIGH FIELDS LANE
Phoenix Rise
Piggery
Tk
BLUE GOWT DROVE
Track
Drain
Track
Mast
Nursery
MARKET WAY
Map Legend
Peak Velocity (metres per second)
0 - 0.3
0.3 - 1
1 - 1.5
1.5 - 2.5
2.5 +
Functional Floodplain
South Holland District Boundary
UPDATE OF STRATEGIC FLOOD RISK ASSESSMENT
Residual Peak Velocity
Spalding - Year 2115
1% Fluvial / 0.5% Tidal Event Probability

Fence

GP

Storage containers

Existing weld mesh fencing to compound

34.0m

20.0m

Proposed storage building

Approved (not yet constructed) office building

Existing storage buildings

Approved (not yet constructed) storage building

Existing earth bund

Approved (not yet constructed) access road and turning provision

Approved (not yet constructed) managers dwelling

N

0 5 10 15 20 25m

Notes

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Rev	Description	Date
A	Building size revised to fit within compound	28.11.23

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Client
Anglia UK Ltd

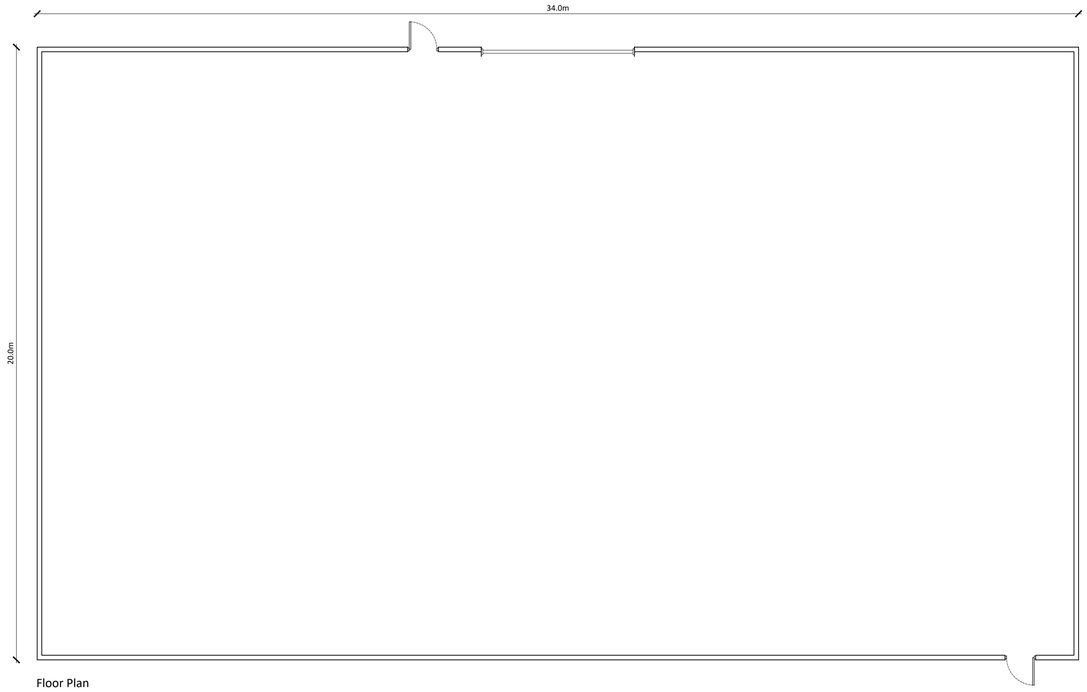
Project
Vehicle Storage Building
Mill Green Road, Pinchbeck

Drawing
Proposed Site Plan

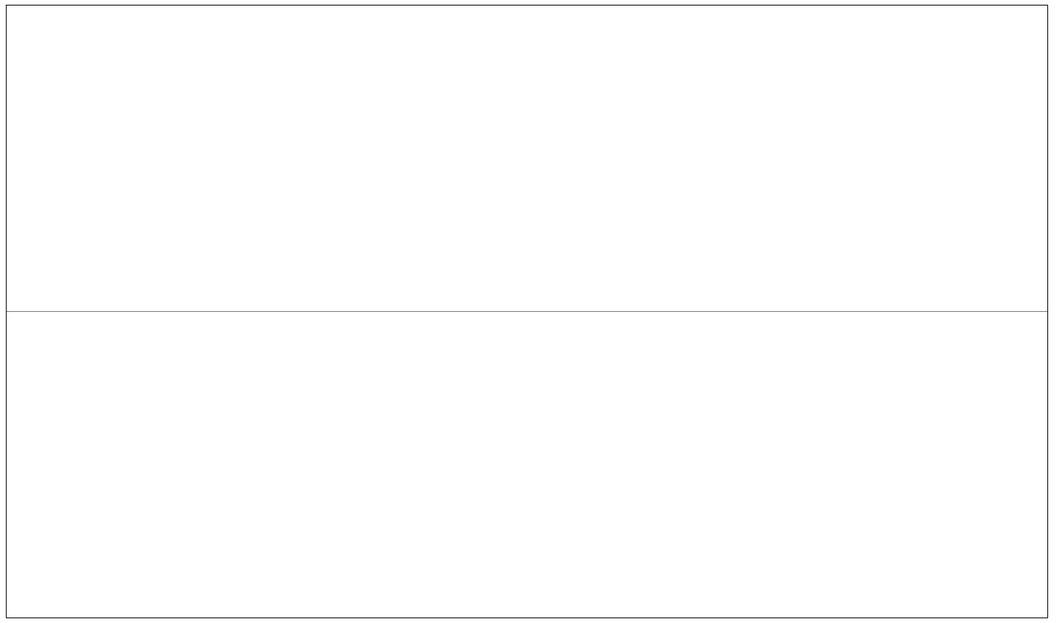
Scale @ A2	Date
1: 500	28/11/23
Drawn By	**Checked By**
WW	LMS

Job Number	Status	Purpose of Issue
823-29	SK	Discussion

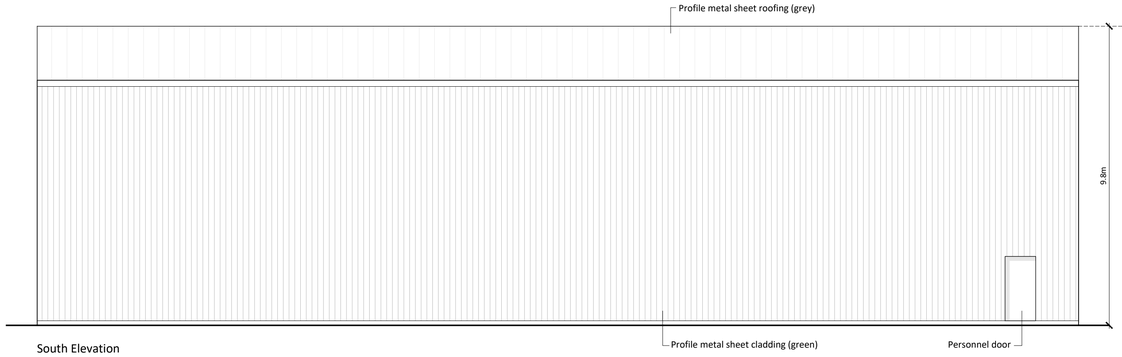
Drawing No.	Rev
823-29_SK_SP01	A



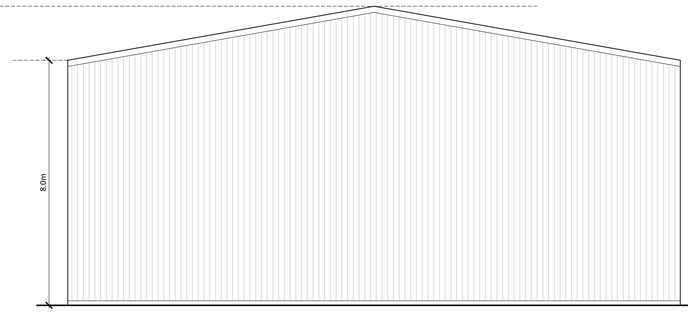
Floor Plan



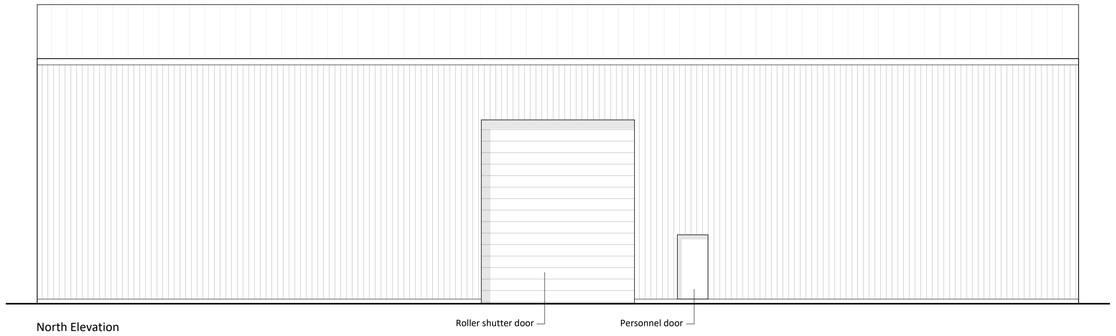
Roof Plan



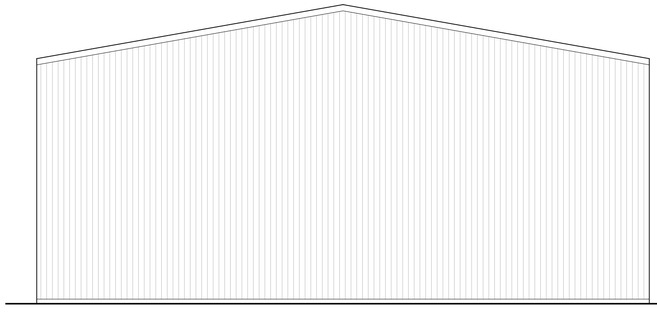
South Elevation



East Elevation



North Elevation



West Elevation

Notes

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0 1 2 3 4 5m

Rev	Description	Date
-	-	-

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Client
Anglia UK Ltd

Project
Vehicle Storage Building
Mill Green Road, Pinchbeck

Drawing
Proposed storage building plans

Scale @ A1	Date
1: 100	28/11/23

Drawn By	Checked By
WW	LMS

Job Number	Status	Purpose of Issue
823-29	SK	Discussion

Drawing No.	Rev
823-29_SK_GA01	-