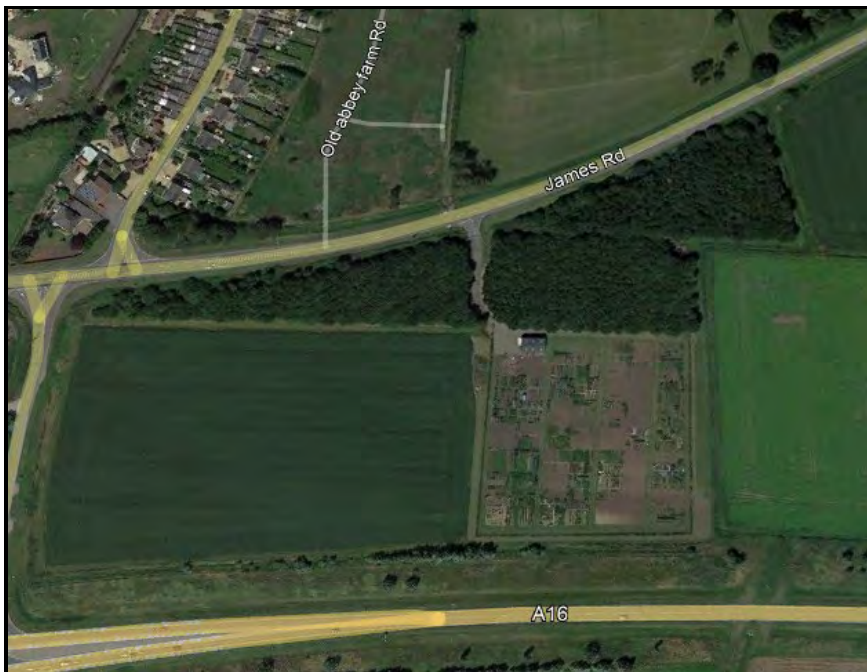


FLOOD RISK ASSESSMENT

Proposed Cemetery,
James Road,
Crowland,
Spalding.



RMA

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February 2025 Version 1

Contents

EXECUTIVE SUMMARY	1
INTRODUCTION	1
APPLICATION SITE.....	2
Table 1: Flood Zones Definition	2
Table 2: Flood Risk Vulnerability Classification.....	3
Site Levels.....	3
DRAINAGE AUTHORITIES	3
Environment Agency	3
Flood Zones	3
Flood Map for Planning (Source EA).....	4
Risk of Flooding from Rivers & Sea	4
Risk of Flooding from Rivers & Sea Map Present Day (Source EA)	4
Risk of Flooding from Rivers & Sea Map Climate Change (Source EA)	5
Schemes in the Area.....	5
Tidal Flooding.....	5
Areas at Risk of Tidal Flooding Map (Source EA).....	5
Fluvial Flood Risk.....	6
Fluvial Defences.....	6
River Welland.....	6
Breach Analysis to Welland Washes Defences.....	6
Finished Floor Levels	7
North Level Internal Drainage Board.....	7
Extract from North Level IDB Drainage Map	8
FLOODING FROM OTHER SOURCES	8
Flooding From Reservoirs Map (Source EA).....	9
SURFACE WATER FLOODING	10
Risk of Flooding from Surface Water Map Present Day (Source EA)	11
Risk of Flooding from Surface Water Map Climate Change (Source EA)	11
Extract from DFRA Magic Map Source Protection	13
Extract from DFRA Magic Map Groundwater Vulnerability Map.....	13
RESIDUAL RISKS.....	14
SEQUENTIAL APPROACH.....	14
Table 3: Flood risk vulnerability and flood zone 'compatibility'	14
Sequential Test and Exceptions Test.....	15
CLIMATE CHANGE	15
Peak River Flow Allowances	15
Table 1 Peak Rainfall Intensity.....	16
Table 2 Peak Sea Level Rise	16
DRAINAGE STATEMENT	16
Surface Water Drainage.....	16
Foul Water Drainage	17
FLOOD RESILIENCE CONSTRUCTION	17
CONCLUSION	18

Figures

- Map 1 Flood Hazard, Depth and Velocity Crowland – 1% fluvial and 0.5% Tidal Event Probability Map Present Day
- Map 2 Flood Hazard, Depth and Velocity Crowland – 1% fluvial and 0.5% Tidal Event Probability Map with Climate Change
- Plan 1 Location Plan
- Plan 2 Proposed Site Plan
- Plan 3 Proposed Floor Plan & Elevations Amenity Building
- Plan 4 Topographical Survey

FLOOD RISK ASSESSMENT FOR THE PROPOSED CEMETERY, JAMES ROAD, CROWLAND, SPALDING.

EXECUTIVE SUMMARY

Summary of Possible Sources of Flooding		
Source	Significant	Comment
Fluvial (Main River)	Medium	The site may be at risk from rivers in the form of residual risk due to the failure of flood management infrastructure such as a breach of a raised flood defence. scenario, today or with an allowance for climate change
Tidal	No	Not affected by any Tidal Source
Pluvial	Very Low	Shown on Flooding from Surface Water Maps to be affected in parts Low Chance
Ground Water	No	Unlikely due to ground conditions
Overland flow	No	No high ground surrounding the site
Blockage	Low	IDB watercourses close by
Infrastructure	No	No Public sewers close by
Reservoirs	Low	Maps show the site is at risk from flooding in the Dry Day or Wet Day scenario
Lakes & Canals	No	No lakes or canals close to the site

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 December 2024, (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 proposed site is located on Land off James Road, Crowland, Spalding, within the administrative area of South Holland District Council. The National Grid Reference is TF24552 09774. **Plan 1**

This flood risk assessment has been prepared for a planning application for the change of use of agricultural land to a cemetery. The amenity building is to provide shelter from inclement weather for people attending a funeral.

Plans 2 & 3

The existing cemetery is close to capacity and with the rising population and growing settlement, there is the need for a new cemetery to facilitate the demand for burial plots in the future.

Outline planning permission was granted for the cemetery under application number H02-0259-15 for the proposed residential development, replacement allotments and new cemetery including woodland burial plots, associated infrastructure and new accesses. The new access to the replacement allotments and cemetery has been provided under planning application H02-0579-17.

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.

The Flood Risk Vulnerability Classification in Table 2 of NPPG, is silent for Cemeteries, therefore the proposed use for the site is taken to be 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).

With the application being for a change of use to agricultural land to a cemetery, the Sequential Test and Exception Test are not applicable. As set out in the National Planning Policy Framework (para.173) change of use should not be subject to the sequential and exception tests but will still need to meet the requirements of a site-specific flood risk assessment.

Site Levels

From the topographical survey, the site has a gentle fall southeast to northwest from 1.46mODN to 0.50mODN with an average site level of 1.40mODN. **Plan 4**

DRAINAGE AUTHORITIES

Environment Agency

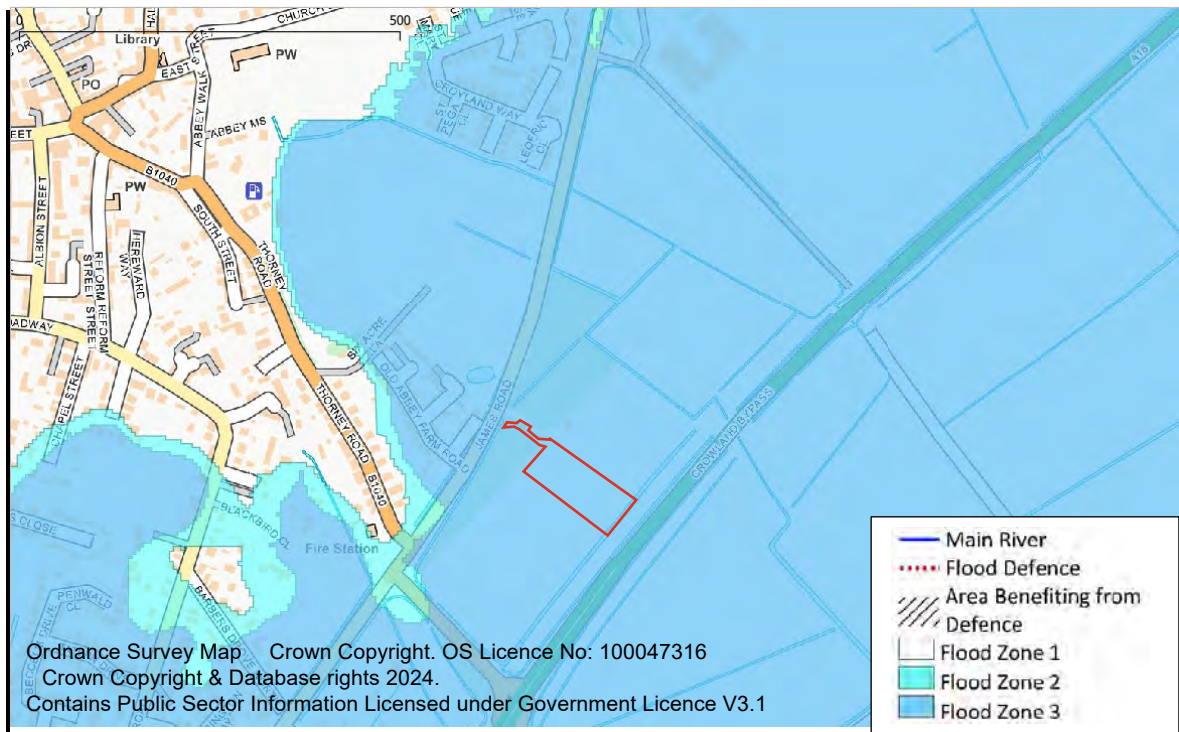
The Environment Agency has permissive powers for reducing the risk of flooding from designated main rivers and from the sea.

The following potential source of flooding affecting the development site has been identified as:

- River Welland (Fluvial)

Flood Zones

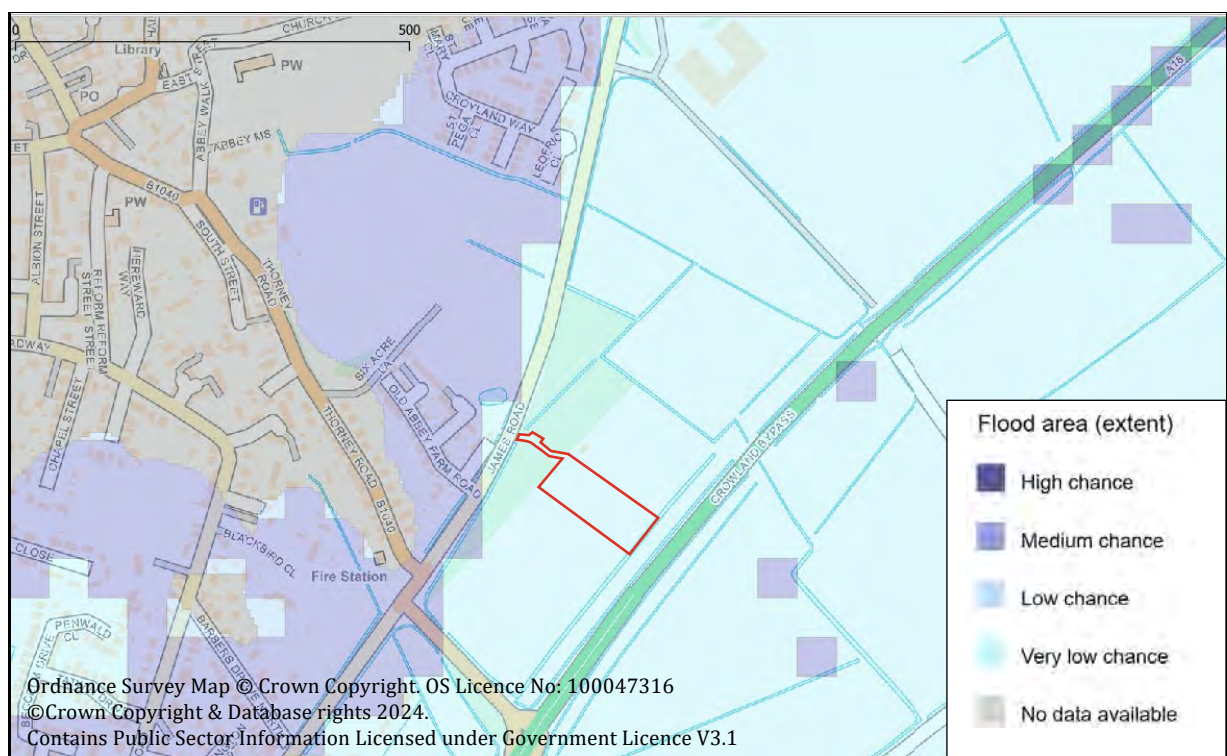
These maps show that the site is considered at risk from tidal/fluvial flooding as it is all located within an area zoned as Flood Zone 3. The maps indicate that the area would be flooded without flood defences, which are in place, (with an annual probability of more than 0.5% i.e., return frequency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



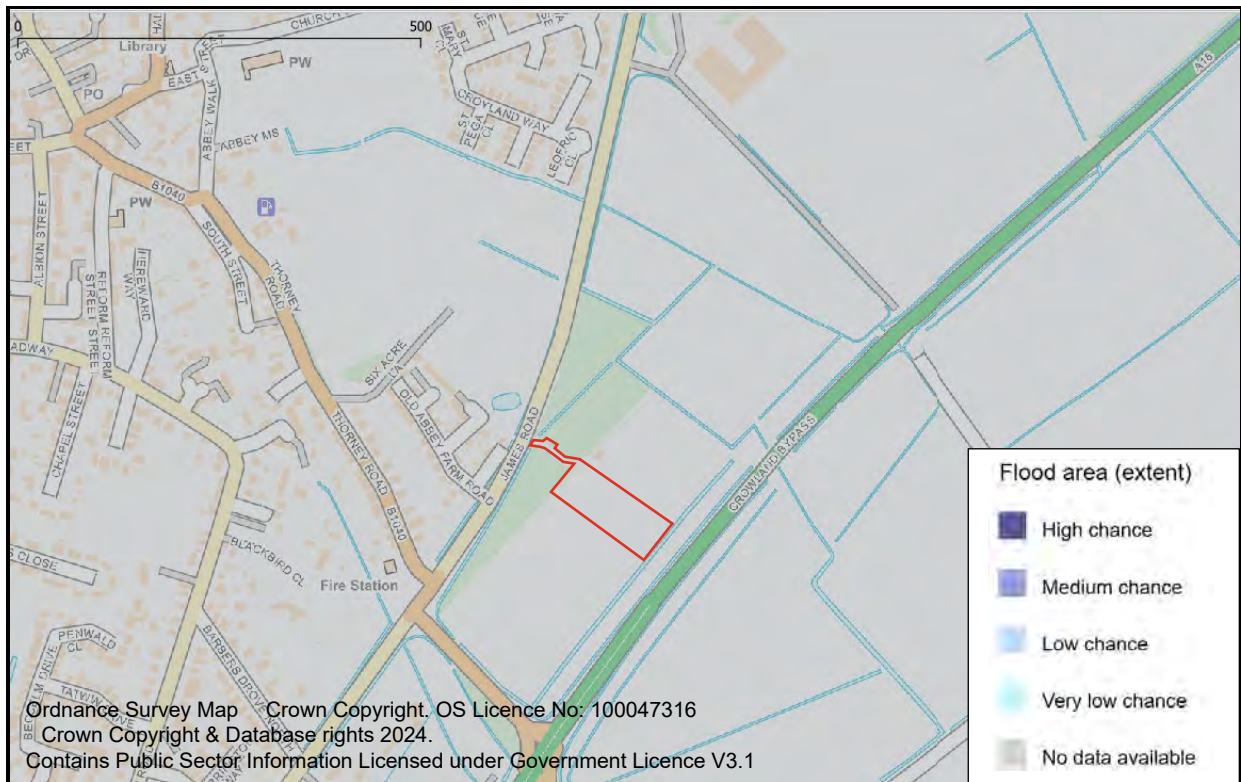
Flood Map for Planning (Source EA)

Risk of Flooding from Rivers & Sea

The Risk of flooding from Rivers and Sea map was updated in January 2025 and for the present day shows that the majority of the site for the development, to be at Low Chance. Low means that each year, this area has a chance of flooding between 0.1% and 1.0%. 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 Present Day (Source EA)



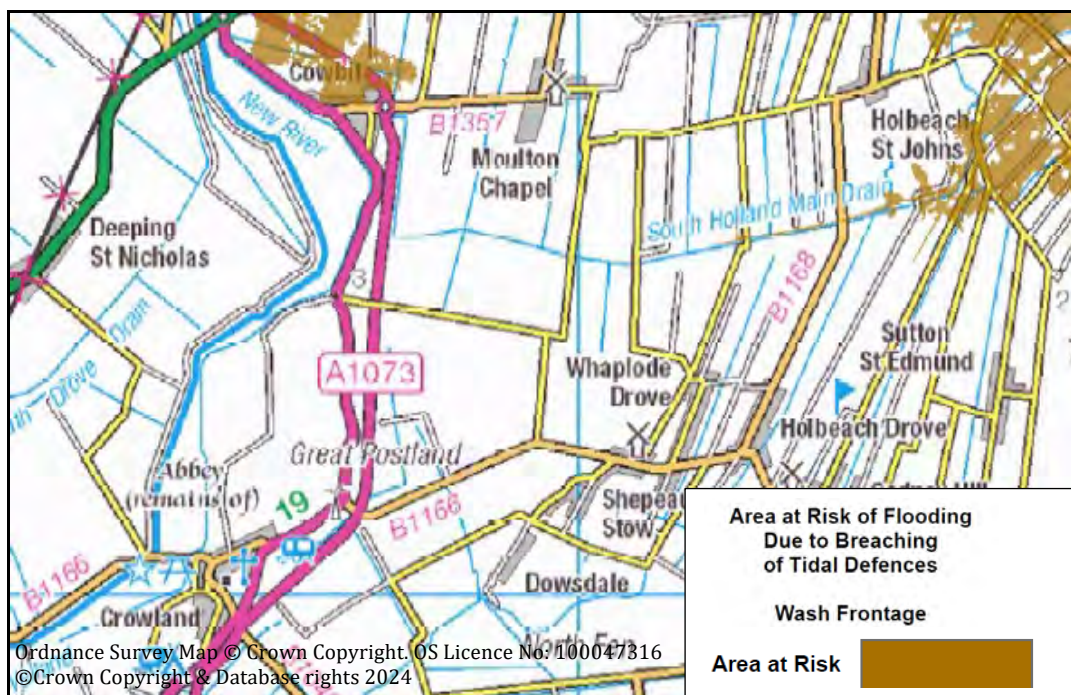
Risk of Flooding from Rivers & Sea Map Climate Change (Source EA)

The Environment Agency does not have, at present, any data for climate change for this area.

Schemes in the Area

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

Tidal Flooding



Areas at Risk of Tidal Flooding Map (Source EA)

The site is not shown on the above map to be affected from tidal flooding following a breach to the defences.

Fluvial Flood Risk

In this particular area, the main risk of flooding is from a breach to the Crowland Washlands embankment which lies some 1050m west of the site with the River Welland lies some 730m further to the west.

Fluvial Defences

The fluvial defences protecting the site consist of Crowland-Cowbit Washes and embankment. They are in fair condition and reduce the risk of flooding to a 1% (1 in 100) chance of occurring in any year. The Environment Agency inspect these defences routinely to ensure potential defects are identified.

River Welland.

The site is located approximately 1050m from the River Welland Crowland Washes, a controlled flood storage area on the River Welland. Flood levels in the Washes are governed by the level in the River Welland and the structures which control flow of water between them. The Wash lands are located to the east of the River Welland and the right bank is lower than the left bank any over topping on this stretch of river will therefore be into the Washlands.

Breach Analysis to Welland Washes 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 - 2.00 and extreme >2.0 based upon an empirical measure of velocity and depth.

$$HR = d \times (v + 0.5) + DF$$

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

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.

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.

The present-day for the Residual Flood Hazard, Depth and Velocity District –1% fluvial and 0.5% Tidal Event Probability maps show that the site where the proposed development is to be located is within hazard area of between 0.75 – 1.25 (Danger for Some), Depth of flooding 0 – 0.5m, velocity 0 - 0.3m/sec. **Map 1**

With climate change (2115) the Residual Flood Hazard, Depth and Velocity District –1% fluvial and 0.5% Tidal Event Probability maps show that the site where the proposed development is to be located is within hazard area of between 1.25 – 2.0 (Danger for Most) Depth of flooding 0.25 – 1.0m, velocity 0 - 0.3m/sec. **Map 2**

Finished Floor Levels

The floor level for the assembly building is to be raised 300mm above the existing ground level. This building is only used to provide shelter from inclement weather for people attending a funeral.

North Level Internal Drainage Board

The site lies within the administrative area of the North Level Internal Drainage Board who has powers under the Land Drainage Act to carry out measures to alleviate flooding in Districts with special drainage needs other than Main River.

The Board does not have any maintained drains close to the site. The two nearest water courses are Abbey Drain to the northeast and Greenbank Drain to the southwest of the site.

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, discharge of any surface water or treated effluent 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.



Extract from North Level IDB Drainage Map

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 buildings is to be raised 300mm above the surrounding ground level. It is concluded that flooding from this source is limited to minor isolated cases and is not of strategic significance as regards to flood risk.
- Groundwater flooding occurs when groundwater levels increase sufficiently for the water table to intersect the ground surface. Groundwater flooding can occur in a variety of geological settings including valleys, in areas underlain by chalk, and in river valleys with thick deposits of alluvium and river gravels. The area is not known to suffer from any groundwater problems.
- o Flooding from sewers can occur from overloading from heavy rainfall caused by blockages or having

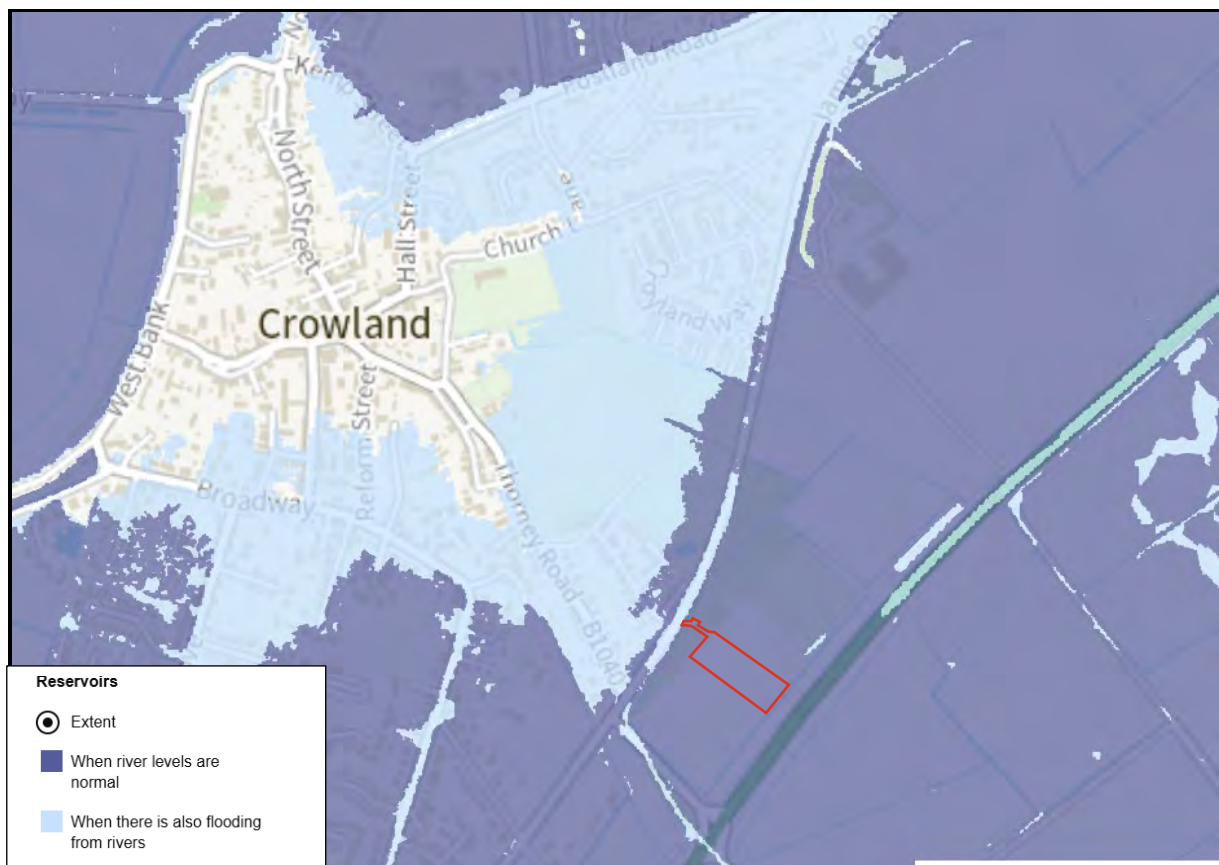
inadequate capacity. There are no public sewers within the vicinity of the site.

- o 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.

Reservoirs

The EA has prepared reservoir failure flood risk mapping to show the largest area that might be flooded if a reservoir were to fail and release the water it holds. The mapping displays two scenarios as follows:

- o Dry this is the extent when the river levels are normal,
- o Wet this is the extent when there is also flooding from rivers.



Flooding From Reservoirs Map (Source EA)

The mapping displays a worst-case scenario and is only intended as a guide. The site is shown to be at risk of flooding due to the failure of a large, raised reservoir in both the dry and or wet scenario. All large reservoirs must be inspected and supervised by reservoir panel engineers as detailed by the enforcement authority for the Reservoirs Act 1975 in England. The EA are responsible to ensure that reservoirs are inspected regularly, and essential safety work is carried out. As such, the risk of flooding from this source is relatively low.

Canals and or Artificial Water Bodies.

The site is not at risk of flooding from canals and or Artificial Water Bodies.

SURFACE WATER FLOODING

The Risk of flooding from surface water was updated in January 2025 and for the climate change scenario the map shows part of the proposed location for the cemetery, for the present day to be at no chance of surface water flooding, with climate change this remains the same.

The site will be provided with a positive surface water drainage system and regrading the circulation areas thus reducing the chance of flooding.

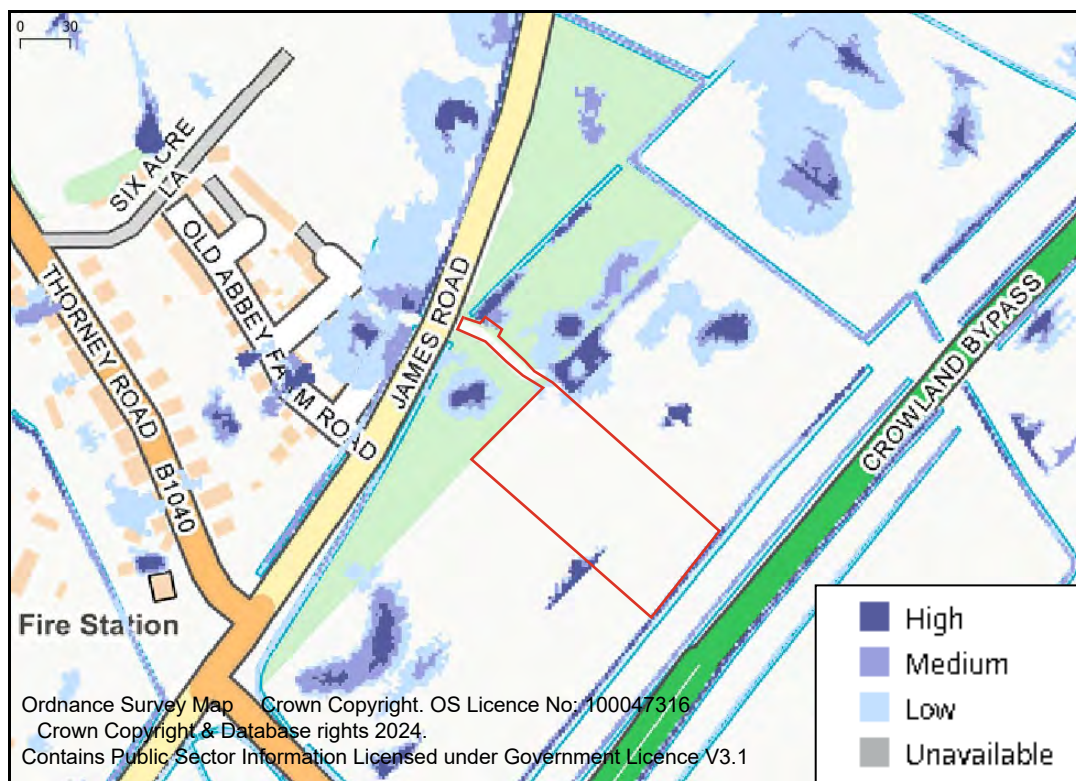
The maps for surface water and the maps for river and sea flooding define the risk as High, Medium, Low and Very Low. The chance of flooding for the area defined in any given year is shown below:

- **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%)

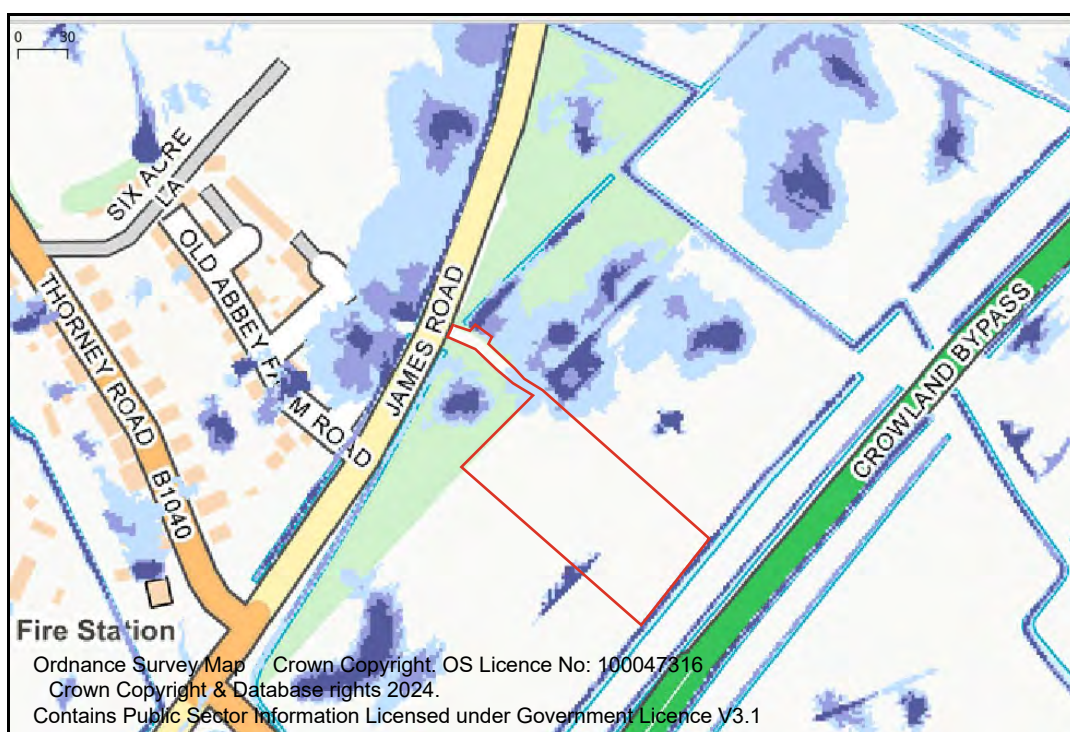
The RoFSW products are an assessment of where surface water flooding may occur when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead. It includes information about flooding extents and depths.

There is a caveat contained in the Environment Agency's "Product description for the risk of flooding from surface water." RoFSW outputs are generally not suitable for property level assessment; instead, they estimate flood risk to an area of land. The method used does not provide information relating to when the floodwater may be deep enough to start causing damage or disruption to homes, roads or other infrastructure.

A near-term epoch (2040 – 2060 "2050s" epoch) and central allowances are being used initially, to support short and medium-term decisions informed by the highest flood likelihood projections.



Risk of Flooding from Surface Water Map Present Day (Source EA)



Risk of Flooding from Surface Water Map Climate Change (Source EA)

ENVIRONMENT AGENCY GUIDANCE ON CEMETERIES

New cemeteries and cemetery extensions have recently been brought into regulation under the Environmental Permitting Regulations (EPR) 2016. From 2nd October 2023, there are three tiers of regulatory control:

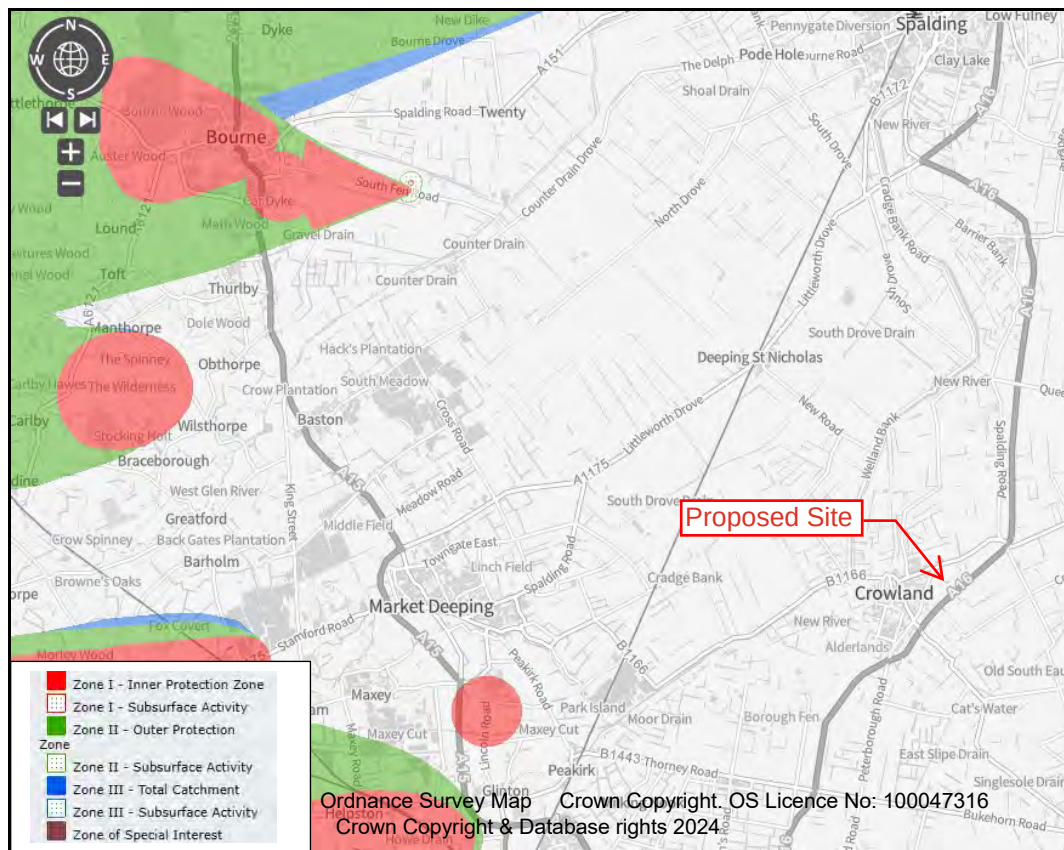
1. Exemptions (low risk)
2. Standard Rules Permits (medium risk)

3. Bespoke Permits (high risk).

New cemeteries intending to operate under the exemption tier (Low Risk), require submission of relevant information to demonstrate the development can meet all the 14 exemption conditions. New cemetery developments that can meet the 14 exemption conditions will be exempt from the requirement of an environmental permit.

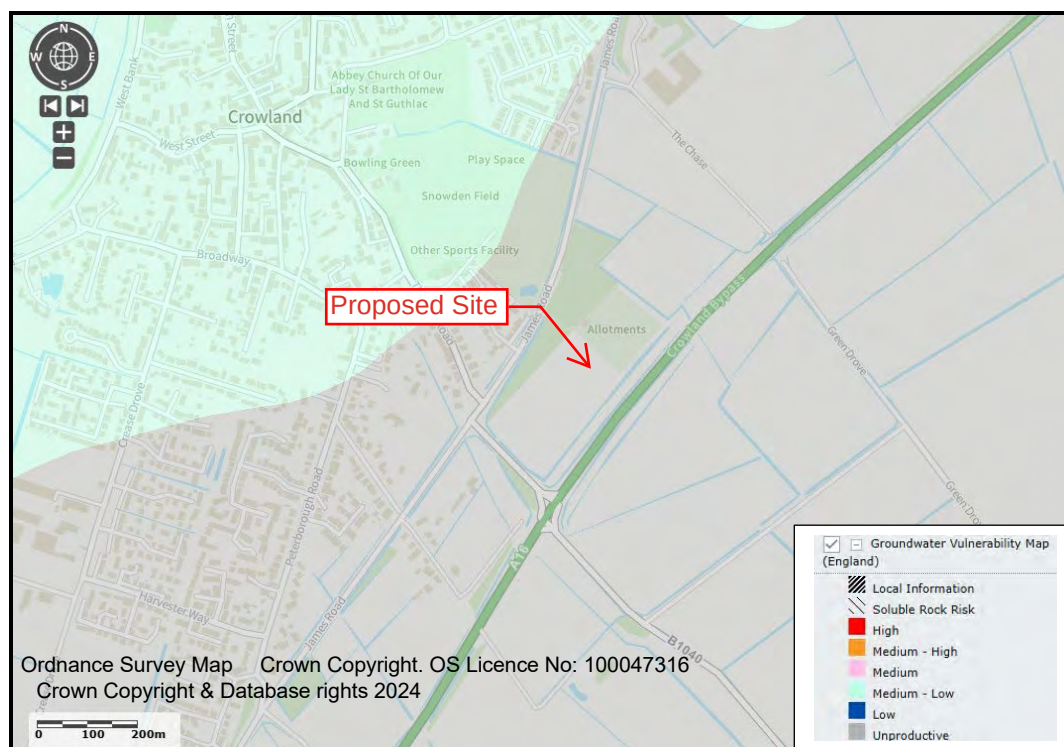
The 14 exemption conditions are as follows-

1. A burial or any activity relating to burials must not cause pollution of surface water or ground water. *The surface water regime will mimic the predevelopment ie infiltration into the subsoil.*
2. A burial must not be within 10 metres of any field drain or dry ditch. *The site will not have any burials within 10 metres of any dry ditch and unaware of any field drains close to the site.*
3. There must be at least 1 metre clearance between the base of a grave and the top of the water table. *The Parish Council have undertaken a trial hole to a depth of circa 2.5m and did not reach the water table*
4. A burial must not be undertaken directly into groundwater. *This will not be the case with burials. The site is located in an area with unproductive strata and therefore considered to be of a low sensitivity with respect to groundwater.*
5. A grave must not be dug in unaltered or unweathered bedrock. *This will not be the case with graves on the site. The site is underlain by the solid geology of Oxford Clay Formation that is designated as an unproductive stratum, this is in turn overlaid by Tidal Flat Deposits, which are also designated as unproductive.*
6. A grave must not be dug in an area that's likely to be affected by groundwater flooding. *The site is not affected by groundwater flooding.*
7. A burial must not be within 30 metres of any spring or watercourse. *The site will not have any burials within 30 metres of any spring or watercourse.*
8. A burial must not be in or within 50 metres of a protected site and must not be in an ancient woodland. *The site is not close to any protected sites or ancient woodland.*
9. There must not be more than 2,500 burials per hectare, in proportion to the total area of the new cemetery or extension. *This proposal is only for 172 burial plots.*
10. The new cemetery or extension must not be in a groundwater source protection zone 1. *The site is not within any source protection zones and the maps below show the site to be above an unproductive aquifer.*
11. The new cemetery or extension must not be within 250 metres of any well, spring or borehole used to supply water for domestic drinking or food production purposes.
12. Burial numbers. *The number of burial spaces under this application is for 172 plots*
13. Cemeteries on strata with different aquifer types. *The site lies above an unproductive aquifer.*
14. The cemetery must not need ongoing active control measures in place to protect the environment. *It is not proposed to have any active control measures to protect the environment for this site.*



Extract from DFRA Magic Map Source Protection

With the site being over a nonproductive aquifer and therefore is outside Source Protection Zone 1 and any other designated SPZ, the proposed cemetery, therefore, poses no unacceptable risk to groundwater used for drinking water and food production purposes.



Extract from DFRA Magic Map Groundwater Vulnerability Map

The British Geology Survey maps reveals that the geology of this area consists of tidal flat deposits- clay & silt,

overlying the Oxford clay formation – Mudstone. At this location, see map below, the superficial deposits are classified as an Unproductive Aquifer: These rocks have negligible significance for water supply or baseflow to rivers, lakes and wetlands. They consist of bedrock or superficial deposits with low permeability that naturally offer protection to any aquifers that may be present beneath.

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 properties would be extremely small. It is therefore considered that the residual risks associated with flooding are not significant.

SEQUENTIAL APPROACH

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

The Environment Agency categorise land into one of three Flood Zones.

- Flood Zone 1 is land outside the 0.1% floodplain (with a chance of flooding of less than 0.1% chance in any given year).
- Flood Zone 2 is land that falls between the 1 in 100-year extent and the 1 in 1000-year extent (a chance of flooding between 1% and 0.1% in any given year).
- Flood Zone 3a is land which falls within the 1 in 100-year flood extent (has a 1% chance of a flood occurring in any given year).

Applying the Flood Risk Vulnerability Classification in Table 2 of NPPG, the proposed development for residential use is classified as, "More Vulnerable" with Table 1 of NPPG stating that such uses are appropriate in this zone (as summarised in Table 3 NPPG).

Table 3: Flood risk vulnerability and flood zone '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 and Exceptions Test

NPPF Guidance Paragraphs 161 - 186 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.

As set out in the National Planning Policy Framework Technical Guidance (para.176), change of use should not be subject to the sequential and exception tests but will still need to meet the requirements of a site-specific flood risk assessment.

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 “More 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 to 1990 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%	25%	40%

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 1981 to 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

In accordance with recognised guidance, National Planning Policy Framework & Building Regulations, there is a hierarchy of where surface water should discharge. This hierarchy should be followed where practicable, and is as follows:

- 1) Infiltration
- 2) Watercourse
- 3) Public sewer

Surface Water Drainage

Applications for developments where the proposals will result in the increase the amount of surface water run-off require that an appropriate drainage strategy to be undertaken to ensure that the surface water discharge mimics the existing pre-development regime.

When rain falls on a natural landscape it soaks into the ground, evaporates, is taken up by plants and some of it eventually finds its way into streams and rivers.

These stages of the water cycle can be impeded when land is developed and there tends to be less permeable ground available for infiltration and less vegetation for evapotranspiration. Sustainable drainage systems, (SuDS), are designed to maximise the opportunities and benefits that can be secured from surface water management.

Hierarchy of Surface Water Drainage.

The recommended surface water drainage hierarchy is to utilise soakaway, or infiltration as the preferred option, followed by discharging to an appropriate watercourse or if this is not available the final option is to an existing public sewer.

For this development the proposed impermeable area is from the amenity building and the construction of footpaths/ access. The runoff from these small areas will flow onto the surrounding grassed areas which will allow the surface water to soak into the ground, evaporate and be taken up by the grass. Roof water from the amenity building will discharge to a soakaway. This will mimic the existing runoff and there will be no positive drainage system installed.

The access and parking areas will be constructed using permeable materials such as hardcore with gravel topping.

Foul Water Drainage

Government guidance contained within the National Planning Practice Guidance (Water supply, wastewater and water quality – considerations for planning applications, paragraph 20 sets out a hierarchy of drainage options that must be considered and discounted in the following order:

1. Connection to the public sewer
2. Package sewage treatment plant (adopted in due course by the sewerage company or owned and operated under a new appointment or variation)
3. Septic Tank

It is proposed to provide a gravity private foul drainage network from the assembly building, which will discharge to a package treatment unit, as there are no public sewers within the vicinity of the site.

As there is a positive drainage system capable of receiving flows from the development there is no likely impact on neighbouring property.

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 proposed development will have resilient measures incorporated in the construction in accordance with “Improving the flood performance of new buildings” CLG (2007).

- o The ground floor for the proposed assembly building is to be raised 300mm above the existing ground

level.

- o Water, electricity meters: should be located above the predicted flood level. Electrical services: electrical sockets, heating systems: boiler units and ancillary devices should be installed at least 500mm above the 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.
- o The ground floor to be constructed with a solid concrete floor with no voids beneath and no low-level wall vents.
- o Avoid the use of mineral fibre insulation to the ground floor level (walls & floor) and use a rigid closed cell material as these retain integrity and have low moisture take-up.
- o 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.
- o 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

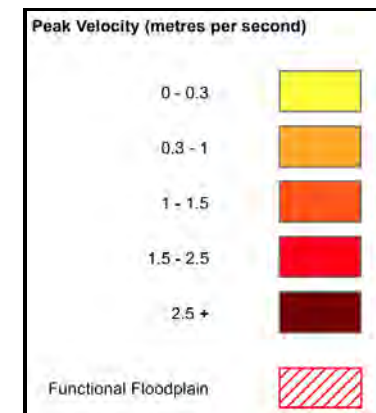
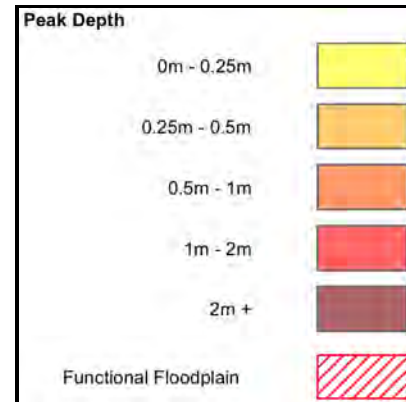
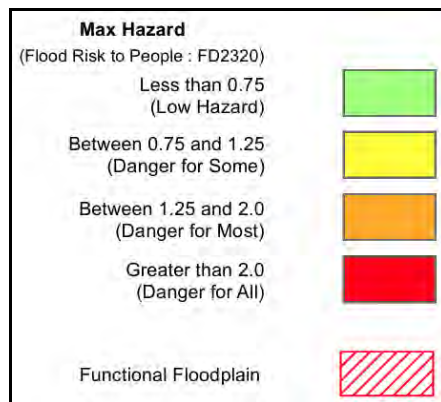
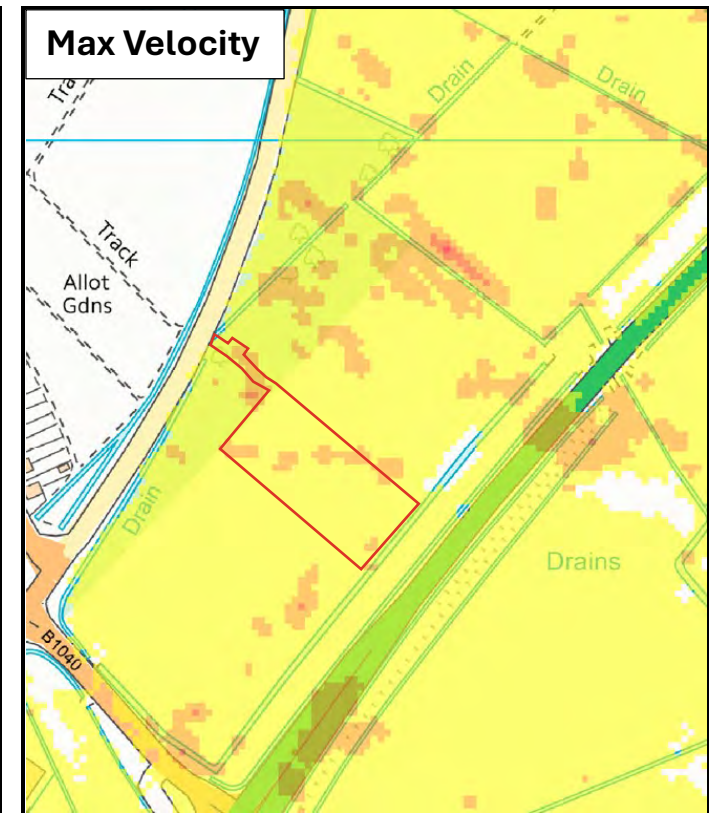
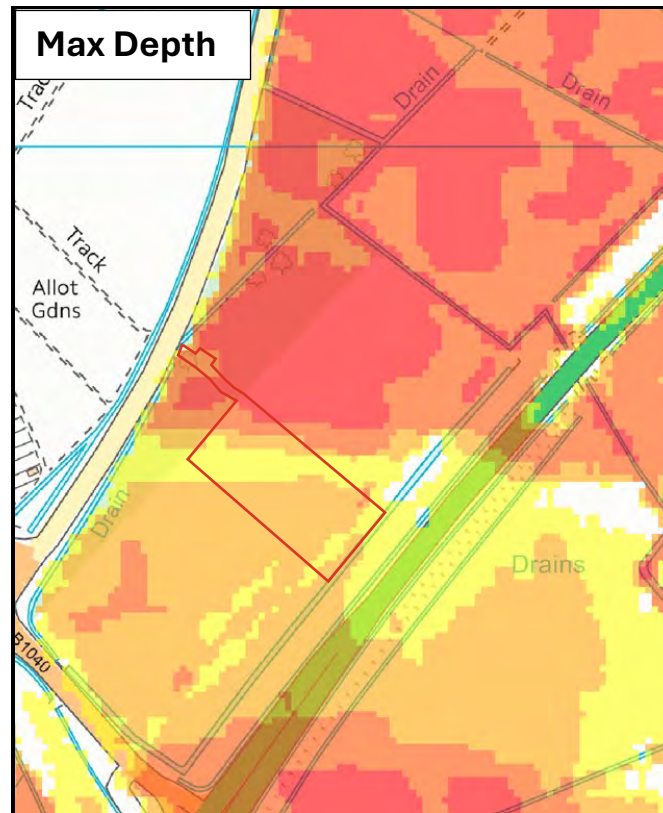
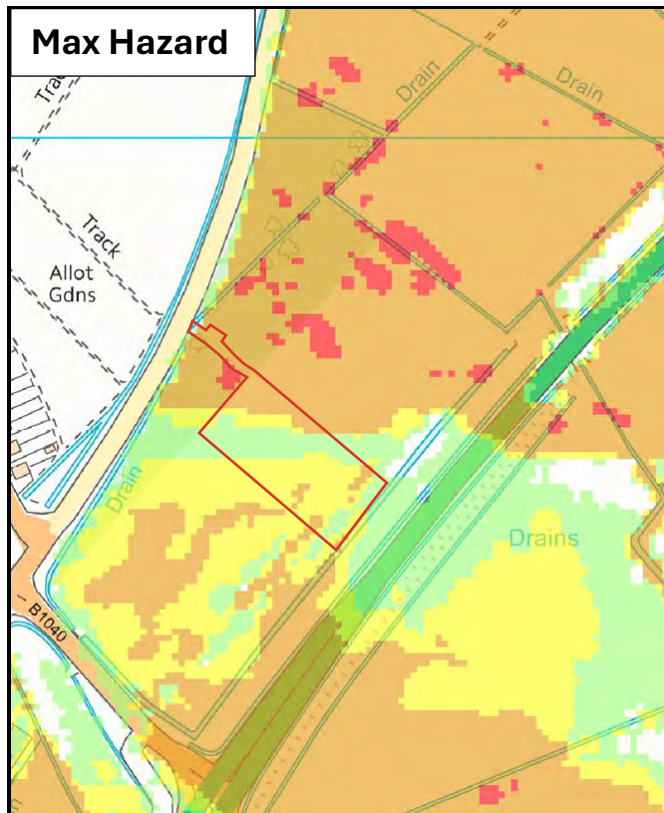
- o The site does have the protection of flood defences which are well maintained by the Environment Agency.
- o The site for the proposed cemetery is shown to be within Flood Zone 3 'High Probability' as detailed on the Environment Agency's Flood Zone Maps without defences.
- o The main risk of flooding is from a breach to the Crowland Washes earth flood bank.
- o The ground floor for the proposed assembly building is to be raised 300mm above the existing ground level.
- o The Flood Risk Vulnerability Classification in Table 2 of NPPG the proposed development is classified as "Less Vulnerable", with Table 1 of NPPG stating that such uses are appropriate in this zone.
- o As set out in the National Planning Policy Framework Technical Guidance (para.176), change of use should not be subject to the sequential and exception tests but will still need to meet the requirements of a site-specific flood risk assessment.
- o It is considered that the proposed cemetery can meet the 14 exemption conditions of the

Environmental Permitting Regulations (EPR) 2016.

- o 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.
- o When a Flood Warning has been issued that affects the site, all funerals will be cancelled for that day.
- o Flooding from other sources is unlikely to affect the site.
- o 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. Following the guidelines contained within the NPPF, the proposed development is considered to be suitable assuming appropriate mitigation is maintained for the lifetime of the development.
- o It is therefore concluded that the proposed development can be constructed, safely and sustainably, to meet the requirements of NPPF and the policies of South Holland District Council.

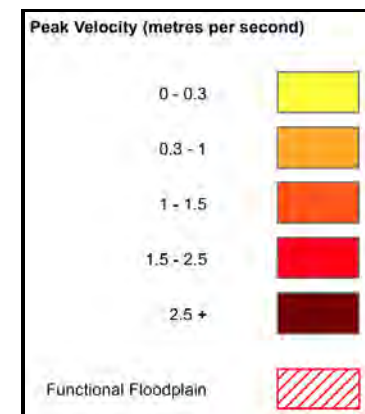
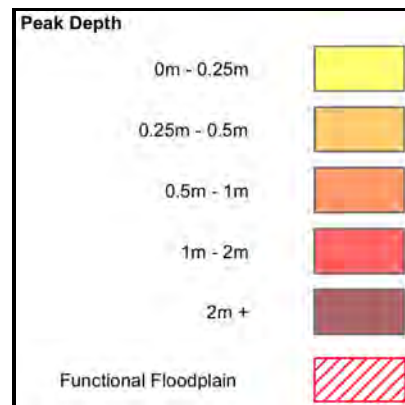
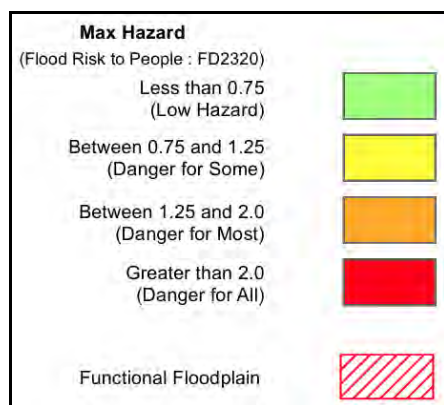
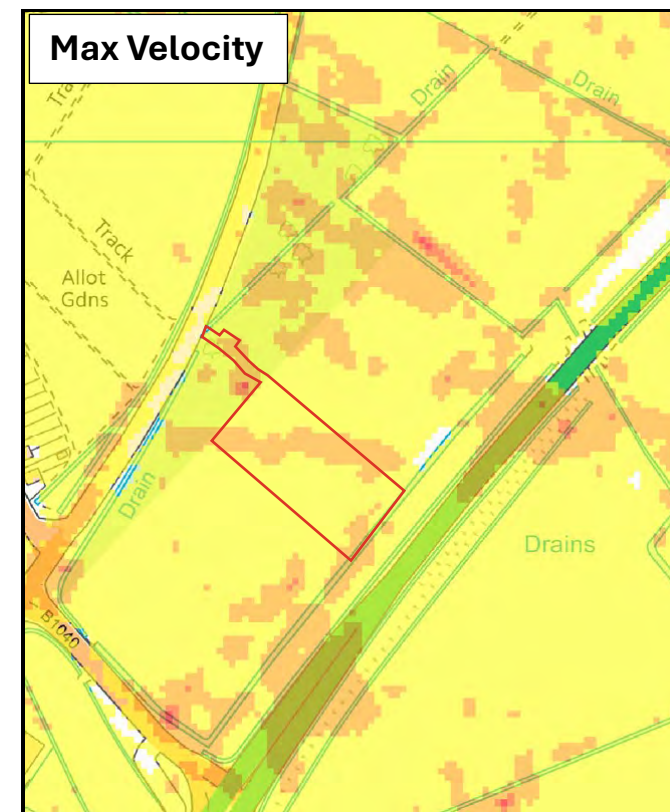
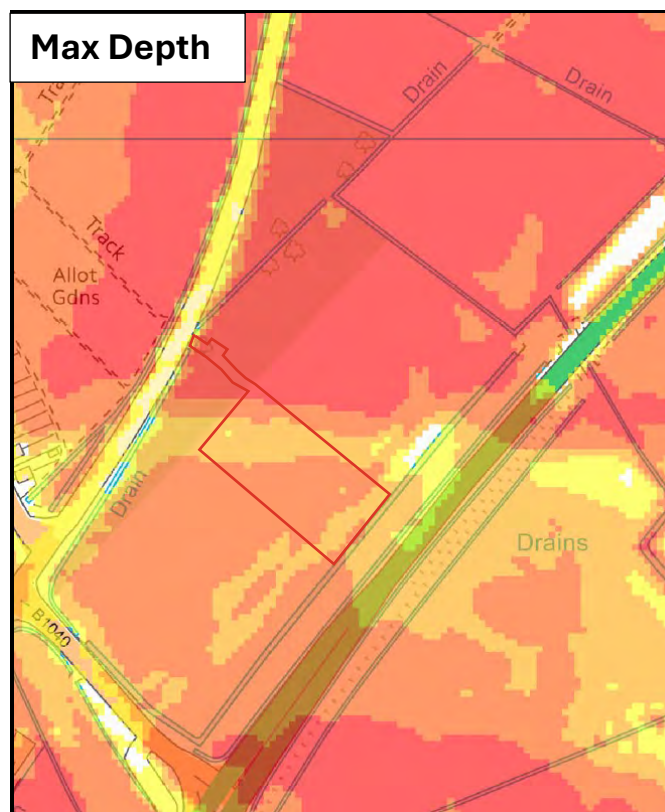
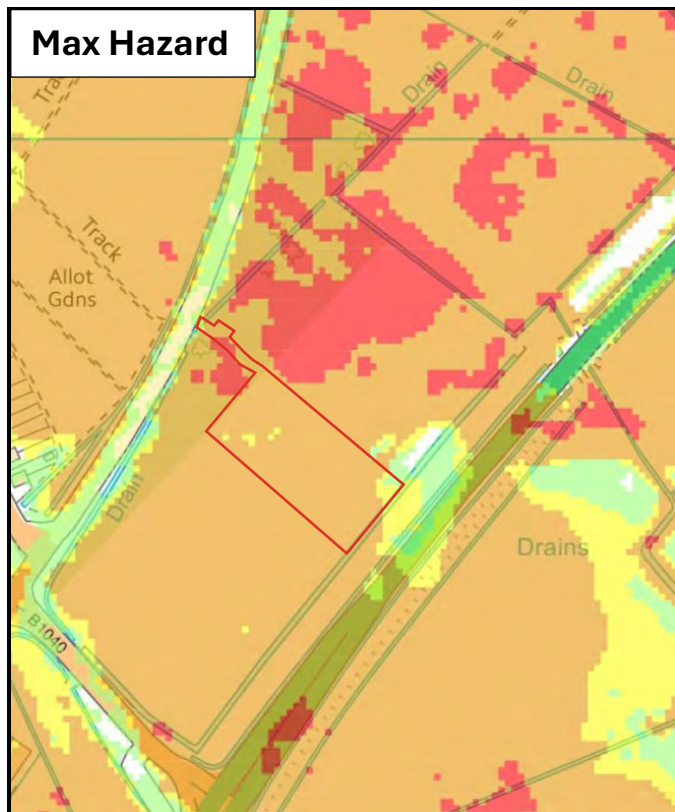
Map 1

Extract From SHDC Strategic Flood Risk Assessment – Crowland Present Day 1% Fluvial 0.5% Tidal Event Probability

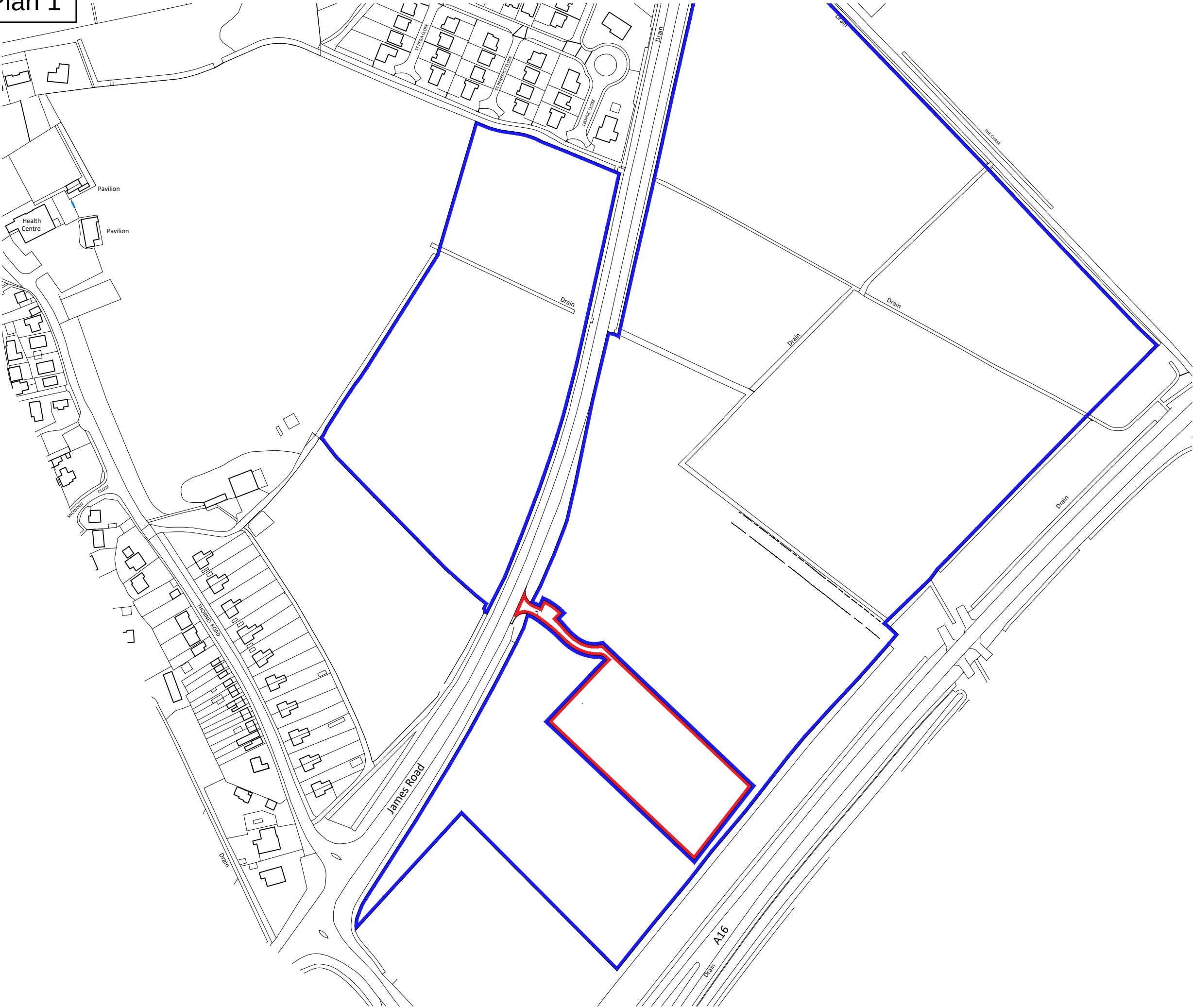


Map 2

Extract From SHDC Strategic Flood Risk Assessment – Crowland 2115 1% Fluvial 0.5% Tidal Event Probability



Plan 1



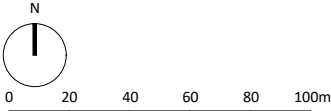
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Client
Crowland Parish Council

Project
Cemetery
Land off James Road, Crowland

Drawing
Location Plan

Scale @ A3 1: 2500		Date 14/02/25
Drawn By WW		Checked By LMS
Job Number 1144-9	Status FP	Purpose of Issue Planning

Drawing No. 1144-9_FP_LP01	Rev -
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Client

Crowland Parish Council

Project

Cemetery
Land off James Road, Crowland

Drawing

Proposed Site Plan

Scale @ A2

1: 500

Date

14/02/25

Drawn By

WW

Checked By

LMS

Job Number

1144-9

Status

FP

Purpose of Issue

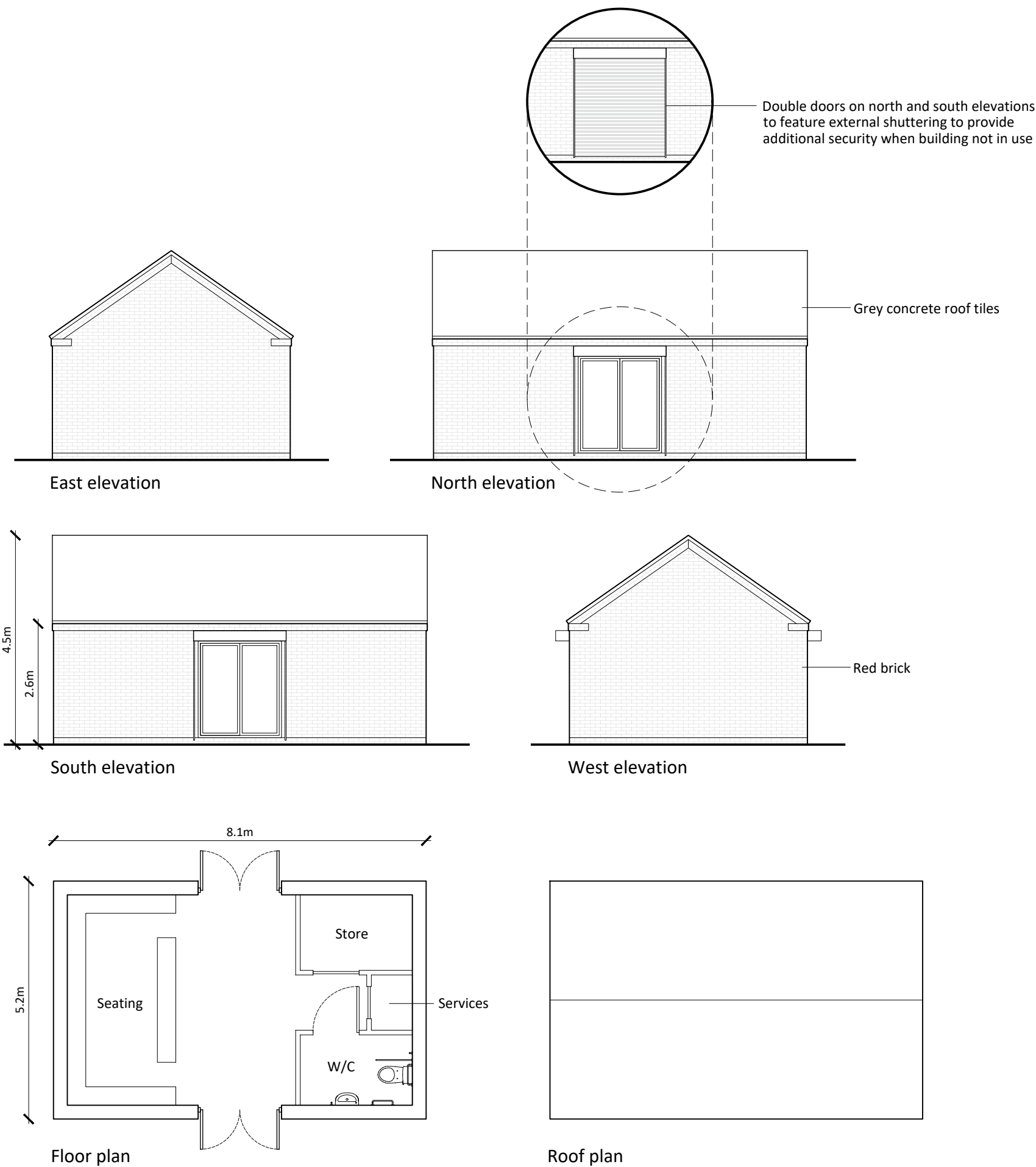
Planning

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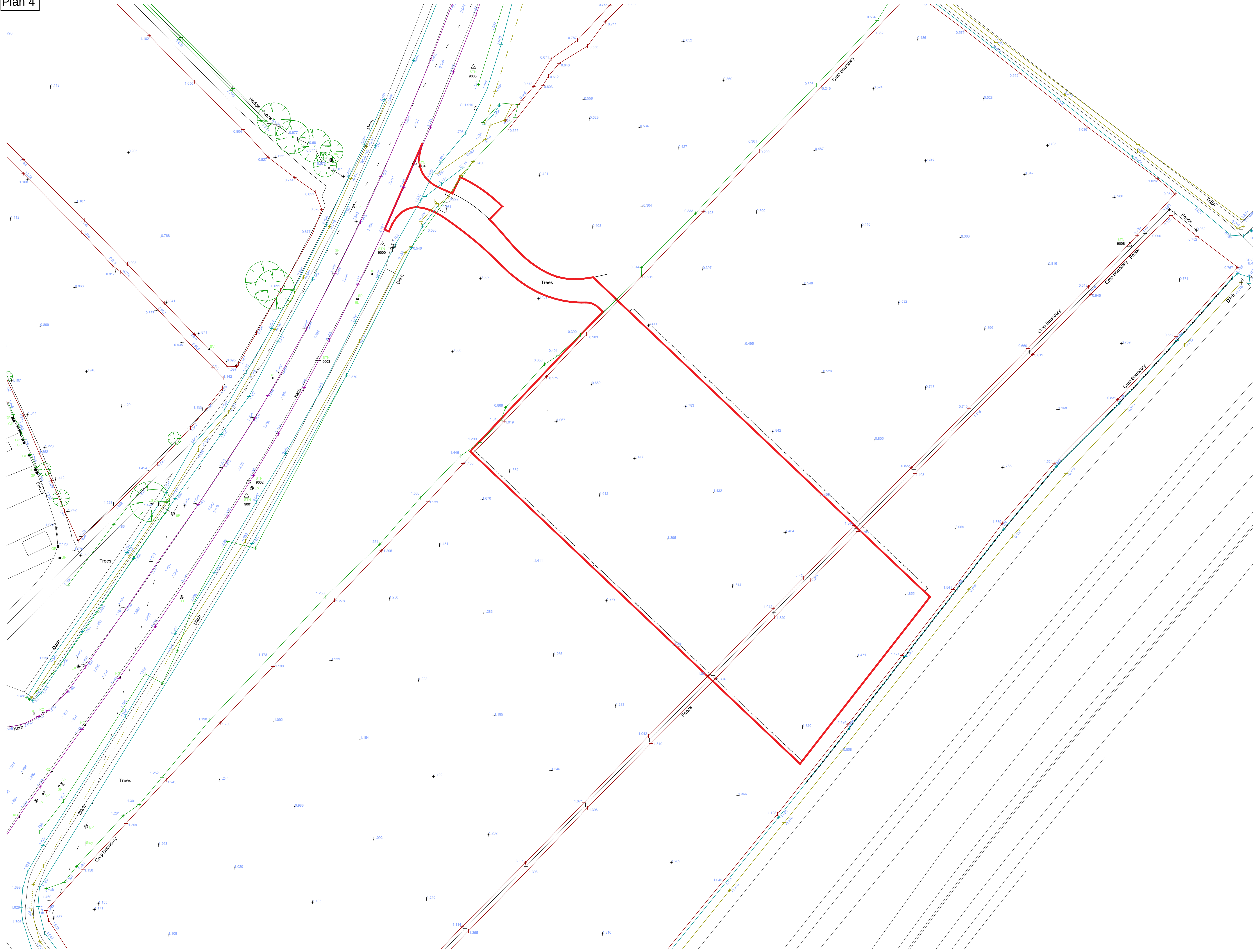
1144-9_FP_SP02

Rev

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Client Crowland Parish Council			
Project Cemetery Land off James Road, Crowland			
Drawing Amenity Building			
Scale @ A3 1: 100		Date 14/02/25	
Drawn By WW		Checked By LMS	
Job Number 1144-9	Status FP	Purpose of Issue Planning	
Drawing No. 1144-9_FP_GA01			Rev -



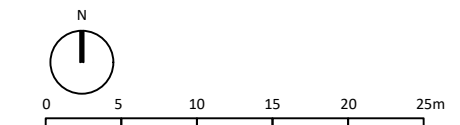
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Client
Crowland Parish Council

Project
Cemetery
Land off James Road, Crowland

Drawing
Topo survey

Scale @ A1 1: 500	Date 19/02/25		
Drawn By WW	Checked By -		
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