

FLOOD RISK ASSESSMENT

PROPOSAL: Change of use of community hall section for
commercial storage - Retrospective

LOCATION: Crowland Community Hall, 65 Broadway Crowland,
Peterborough, PE6 0AW

ARCHITECTS

BRETWAY DESIGNS LTD

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1.0 INTRODUCTION

- 1.0.1 This is a Flood Risk Assessment (FRA) undertaken at Crowland Community Hall, Broadway Crowland, PE6 0AW in support of a retrospective planning application for a change to use the Crowland Community Hall for storage purposes.
- 1.0.2 Relevant Flood Risk Management Authorities (FRMAs), such as the Environment Agency, Lincolnshire County Council (as the Lead Local Flood Authority), North Level Internal Drainage Board, South Holland Internal Drainage Board, and Anglian Water Services Ltd have been consulted in the course of the preparation of this FRA. Similarly, relevant data from these organisations' websites will form the basis for this assessment, conclusions and recommendations.
- 1.0.3 A proportional methodological approach has been adopted for this FRA. In other words, where the risk of flooding is low, as supported by the evidence from the relevant FRMA, suitable recommendations can be made with only desktop research level and historical evidence. Furthermore, flood hazard maps of the location, created by South Holland District Council will be used to support this flood risk assessment.

2.0 SITE LOCATION

- 2.1 The site of the Flood Risk Assessment is the Crowland Community Hall, Crowland Peterborough, PE6 0AW. The Grid Reference for the location is Easting: 523841 and Northing: 310287.

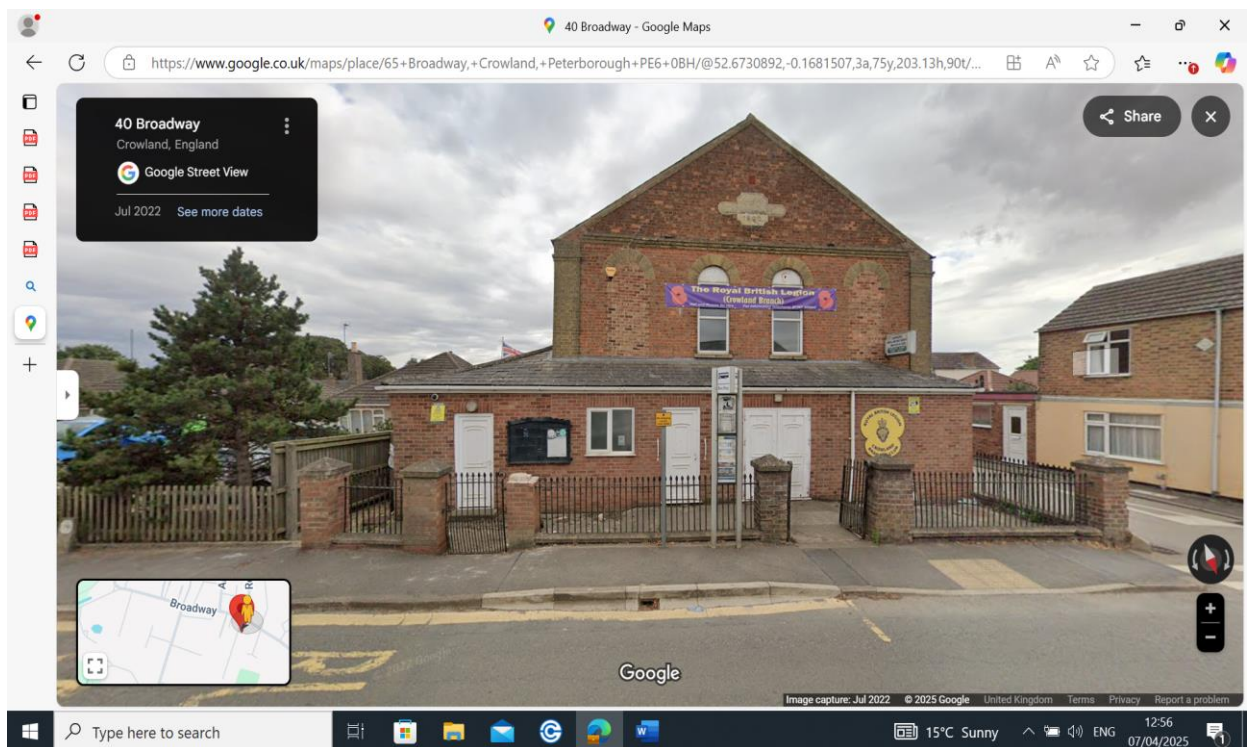


Figure 1 – Screenshot photo of Crowland Community Hall, 65 Broadway Crowland, Peterborough, PE6 0AW (Source: Google)

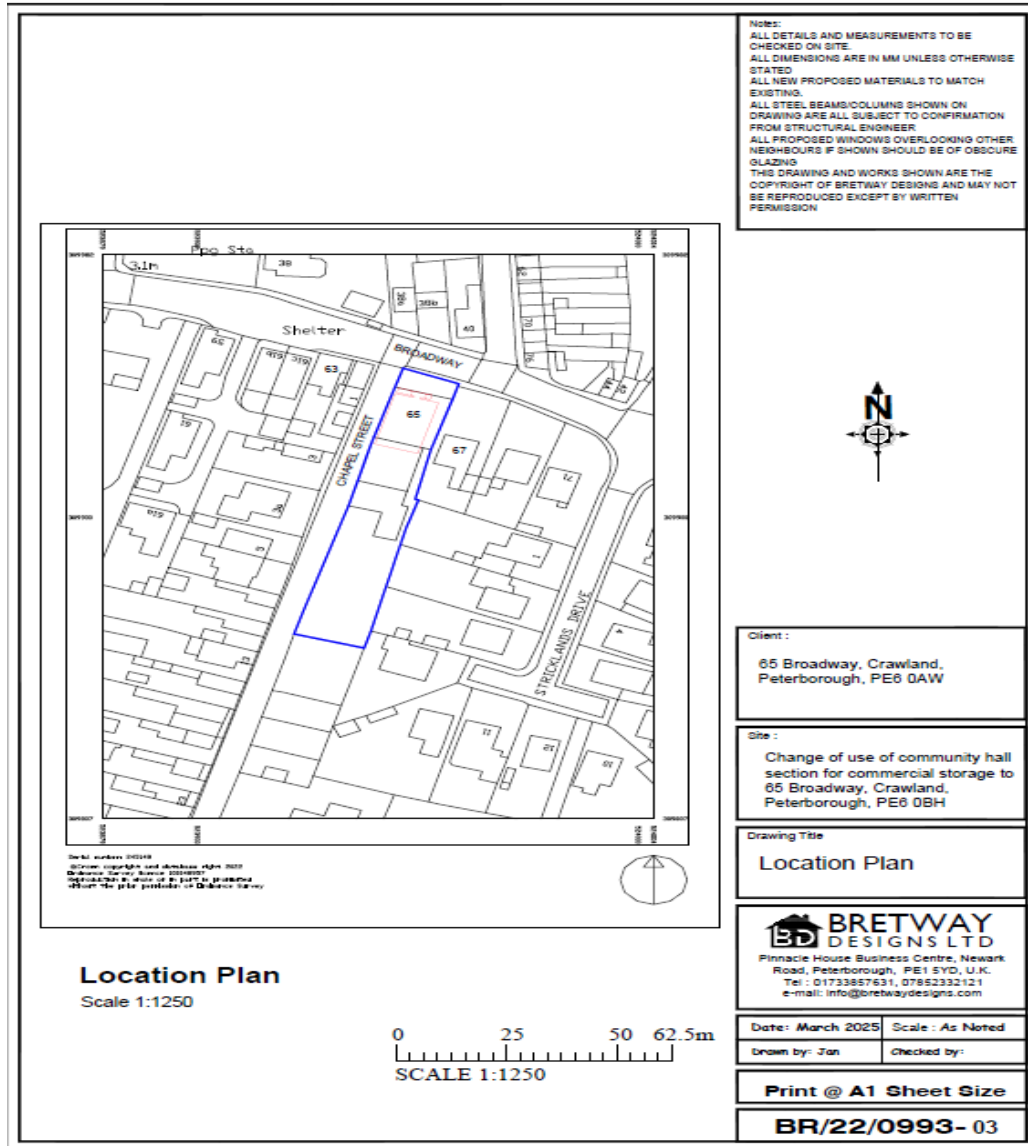


Figure 2 – Drawing of the location plan of 65 Broadway Crowland, PE6 0AW

2.1 DATA COLLECTION

2.1.1 Data Sources

The following data sources have been used to develop this flood risk assessment:

- Topographical surveys
- Site visits
- Fluvial flooding extents (Environment Agency data source, Lincolnshire County Council, North Level Internal Drainage Board, South Holland District Council)
- Surface water flood extents (Source: Environment Agency, Lincolnshire County Council and South Holland District Council)
- Groundwater flood data (Environment Agency and Lincolnshire County Council)
- Combined sources of flood risk map (Environment Agency data sources)
- Flood hazard maps from the updated Strategic Flood Risk Assessment for Crowland (Lincolnshire County Council, South Holland District Council)

3.0 DESCRIPTION OF THE PROPOSALS

3.1 This is a retrospective application, which means that the works proposed has already been completed. The proposal seeks a change of use of the highlighted section of the Crowland Community Hall in Figure 2 for storage purposes.

3.2 The drawing in Figure 3 shows a section marked red different from the original one the left side. This is the section to which the change of use refers. The proposal seeks to utilise this section for storage purposes.

3.2.1 Existing and proposed plans



Figure 3 – Drawing showing existing and proposed sections for the change of use at 65 Broadway Crowland, PE6 0AW

3.2.2 Existing and proposed block plans

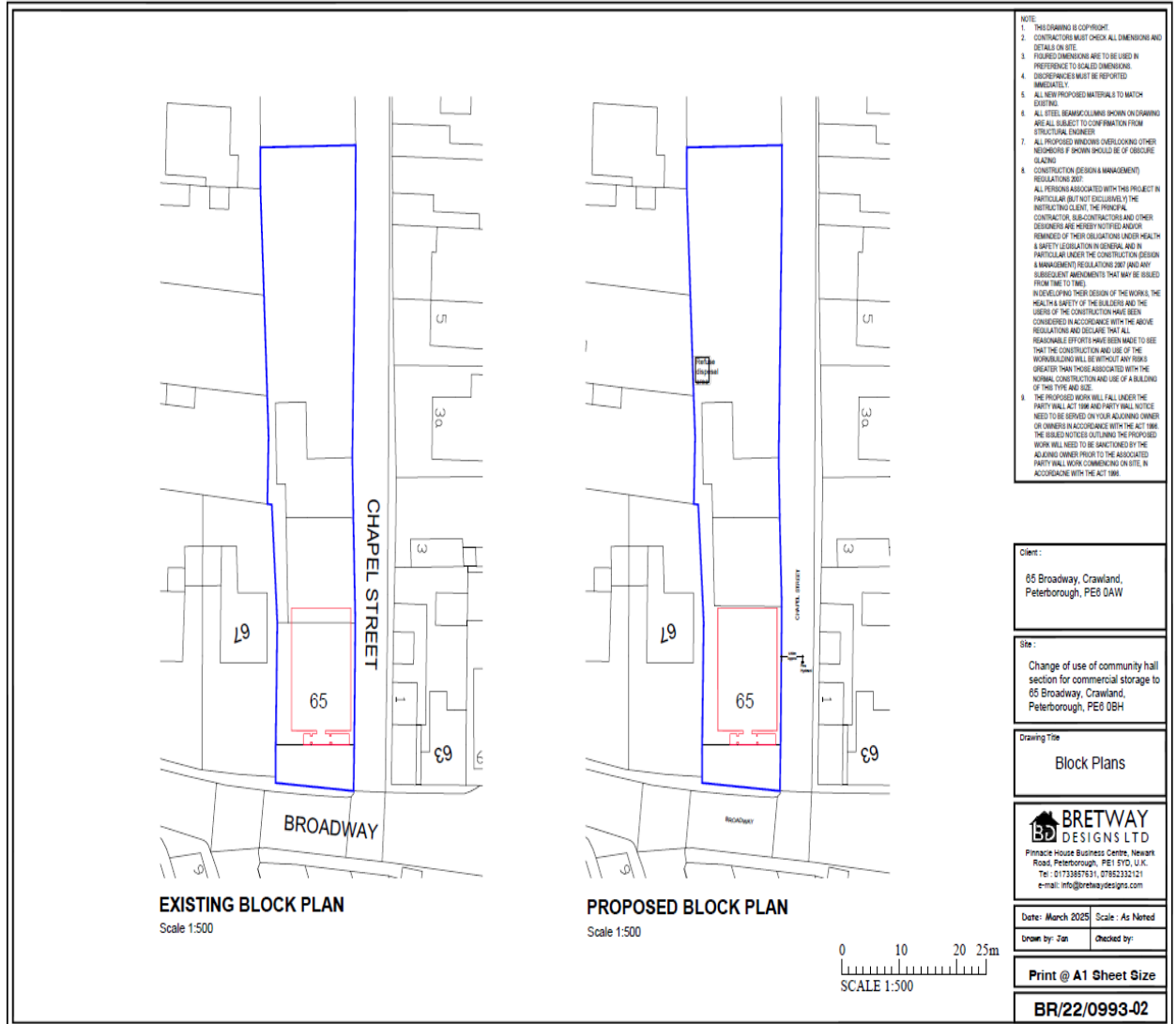


Figure 4 – Drawing showing existing and proposed block plans at 65 Broadway Crowland, Peterborough, PE6 0AW

4.0 APPROACH TO FLOOD RISK ASSESSMENT

- 4.1 The Environment Agency (EA), Lincolnshire County Council and North Level Internal Drainage Board were consulted on the 4th of April 2025 to assist with detailed flood risk information with regards to the location. Flood hazard maps contained in the updated Strategic Flood Risk Assessment for the Crowland area was obtained from Lincolnshire County Council and South Holland District Council.
- 4.2 The Environment Agency is responsible for managing flooding from surface water, flooding from rivers and seas as well as groundwater flooding. Lincolnshire County Council as the Lead Local Flood Authority provided the data on Flood hazards from the updated strategic Flood Risk Assessment maps. The information sought from the Environment Agency was to ascertain the level of flood risk posed by the various sources of flooding at the Crowland area.
- 4.3 The location of the property contained in this retrospective proposal falls within North Level Internal Drainage Board. Figure xxx shows the drains close to 65 Broadway Crowland, Peterborough, PE6 0AW.
- 4.4 The updated strategic flood risk assessment from Lincolnshire County Council show the flood hazards within the Crowland area. flood asset database provided by Lincolnshire County Council provide an indication of the relevant Anglian Water Services assets, such as outfalls, culverts, etc. within the proposed location area.
- 4.5 Historic flood investigations data from the Lead Local Flood Authority (Lincolnshire County Council) will confirm whether the proposed locations has been involved in any significant flooding in the past.

5.0 FINDINGS FROM THE FLOOD RISK ASSESSMENT DATA SOURCES

5.1 Flood maps

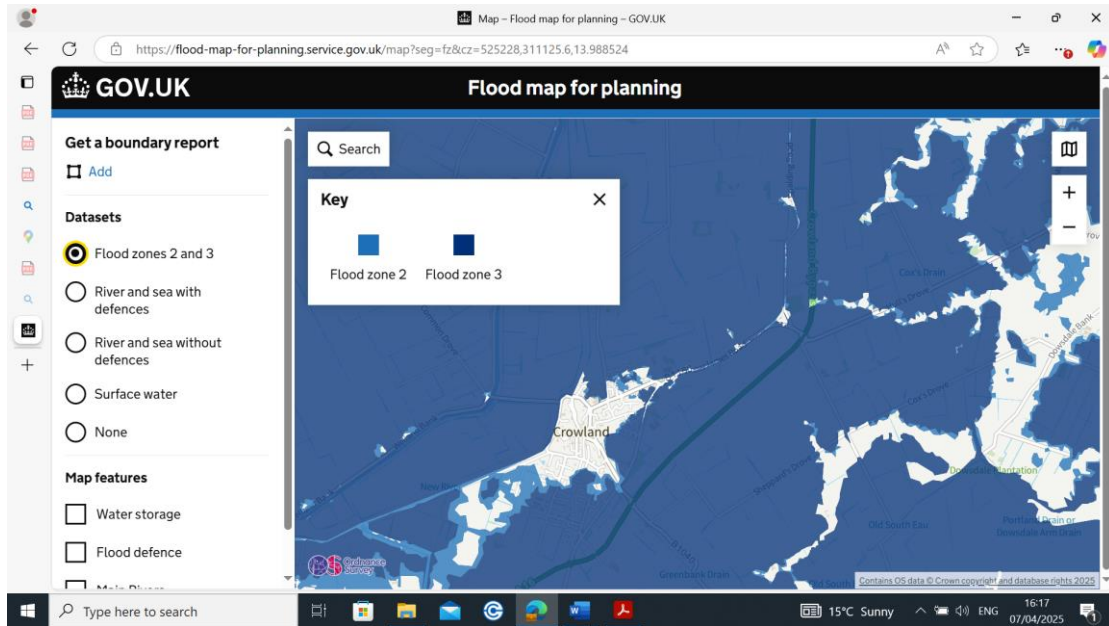


Figure 5 – This shows a screenshot of the flood maps for Flood zones 2 and 3.

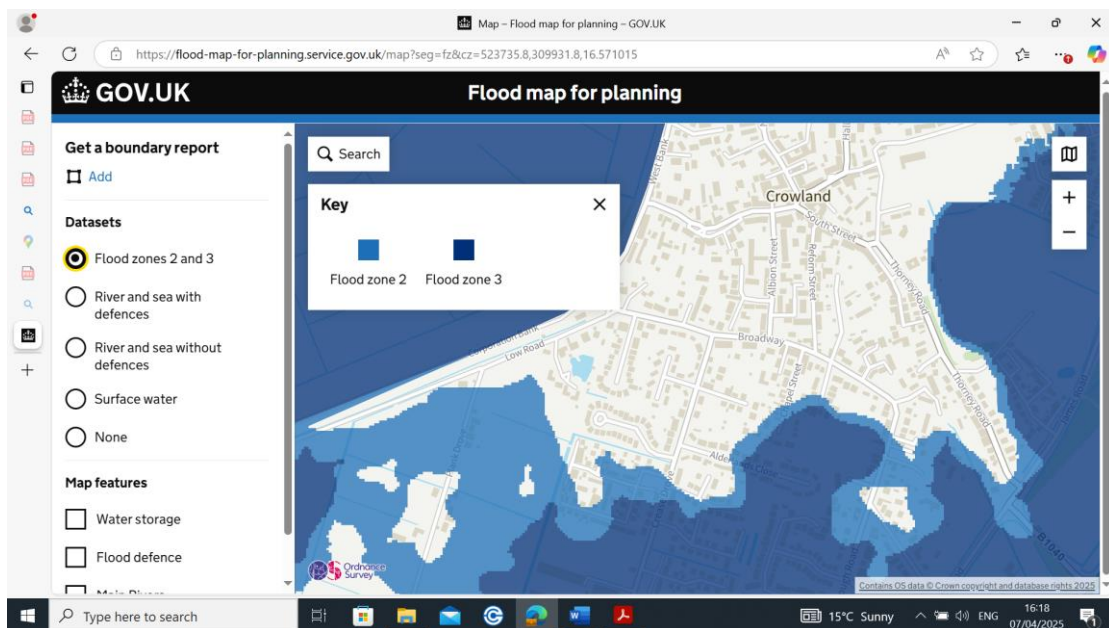


Figure 6 – A screenshot of the map of flood zones 2 and 3 showing that only some part of the Broadway area of Crowland is within Flood zones 2 and 3.

5.2 Risk from surface water flooding (Pluvial flooding)

5.1.1 The screenshots in Figures 7 to 9 show the extent of surface water flood risk for the 1 in 30, 1 in 100 and 1 in 1000 year floods at 65 Broadway Crowland, Peterborough, PE6 0AW.

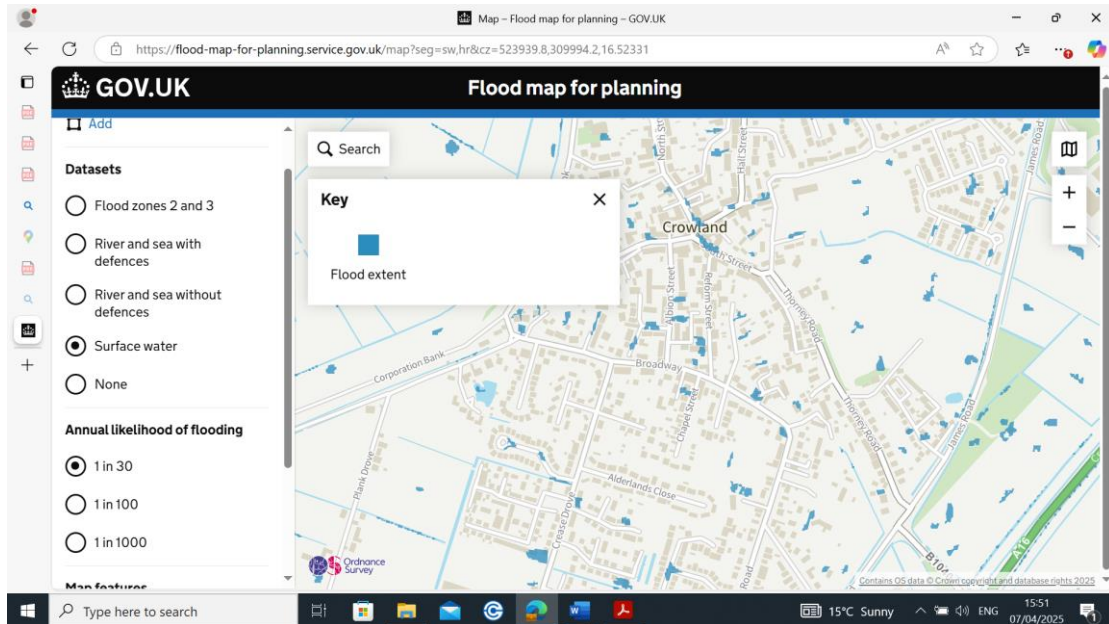


Figure 7 – A screenshot of the Environment Agency map showing the extent of surface water flooding for the 1 in 30 year flood at the location of the proposed works (Source: UK Government website)

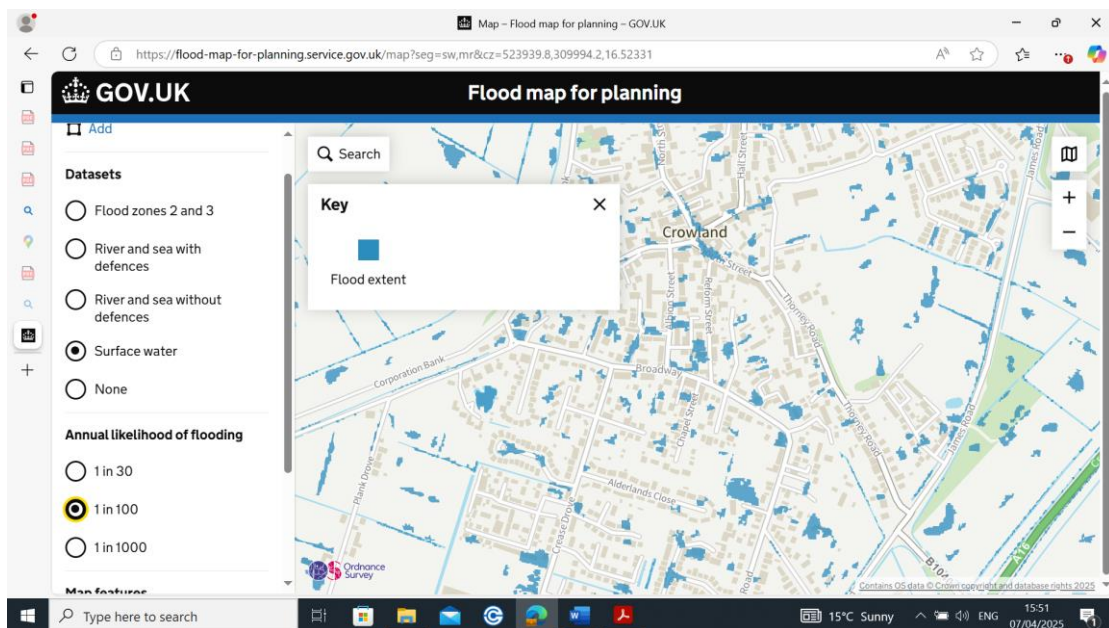


Figure 8 – A screenshot of the Environment Agency map showing the extent of surface water flooding for the 1 in 100 year flood at the location of the proposed works (Source: UK Government website)

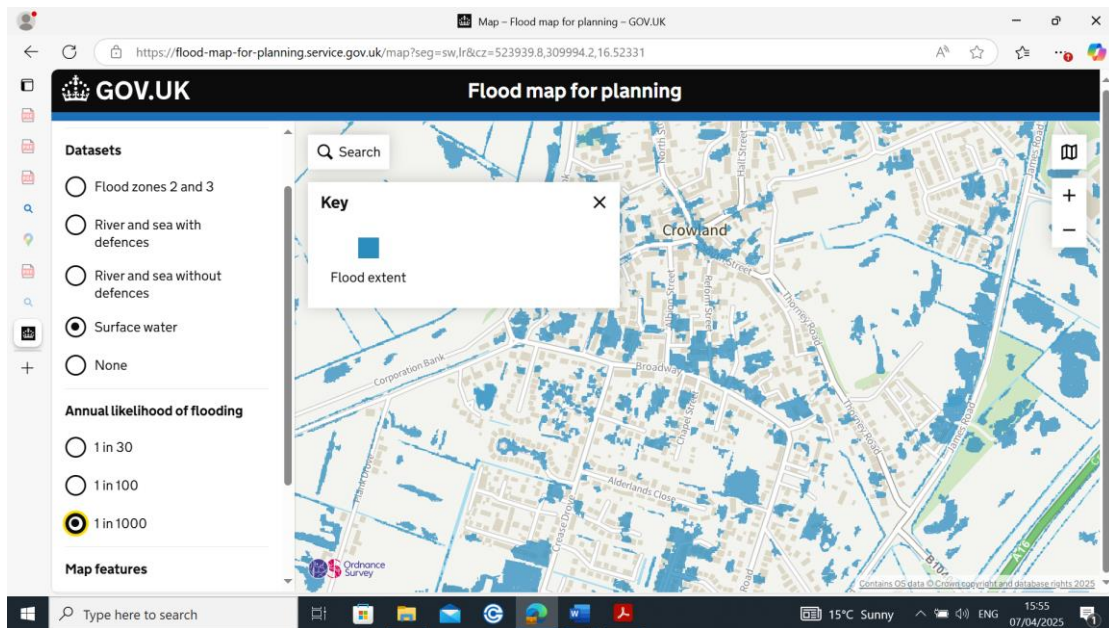


Figure 9 – A screenshot of the Environment Agency map showing the extent of surface water flooding for the 1 in 1000 year flood at the location of the proposed works (Source: UK Government website)

5.1.2 The map of surface water flooding extent for the 1 in 30 year probability of flooding shows that there is little or no flood risk for this level of flood event as shown in Figure 7. However, the surface water flood maps for the 1 in 100 and 1 in 1000 year floods show evidence of surface water flood risk as shown in Figures 8 and 9 at 65 Broadway Crowland, Peterborough PE6 0AW. This means that the probability of surface water flood risk at the location increases with greater flood events than the 1 in 100 year flood event.

5.2 Risk from flooding from rivers and seas (Fluvial and Tidal Flood Risk)

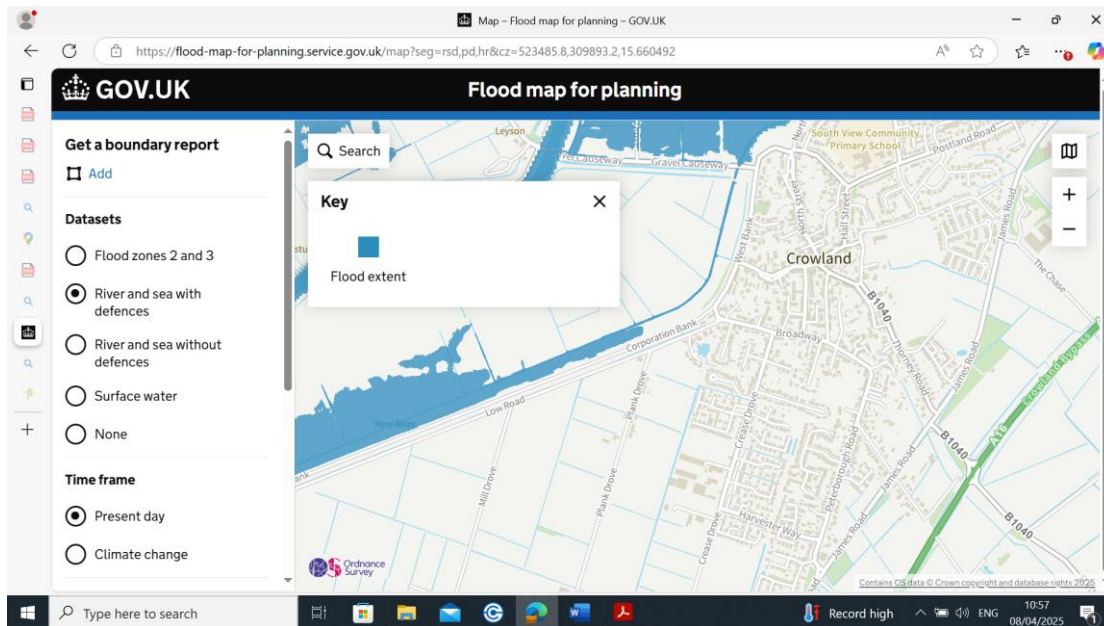


Figure 10 – A screenshot of Environment Agency map showing the flood extents for the probability of flooding from rivers and seas with flood defences at 65 Broadway Crowland, Peterborough, PE6 0AW (Source: UK Government Website)

- 5.2.1 The risk of flooding from rivers and seas at the location of the proposed works is low as evidenced from Figure 10. This is because flood defences are deployed as shown in Figure 10 to defend the Crowland area from fluvial flooding.
- 5.2.2 Without flood defences, the risk of flooding from rivers and seas in Crowland increases as shown in Figure 11. With regards to the specific location within this proposal, there is little or no probability of fluvial flood risk at 65 Broadway Crowland, Peterborough PE6 0AW at the present time. Flood risk considerations for climate change will be addresses in subsequent sections.

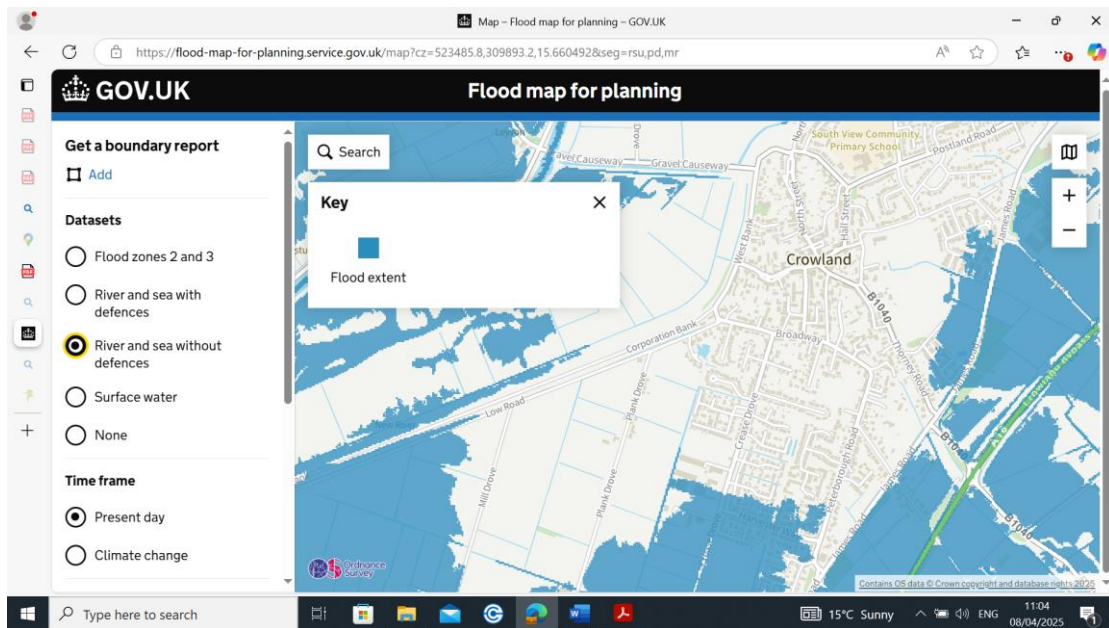
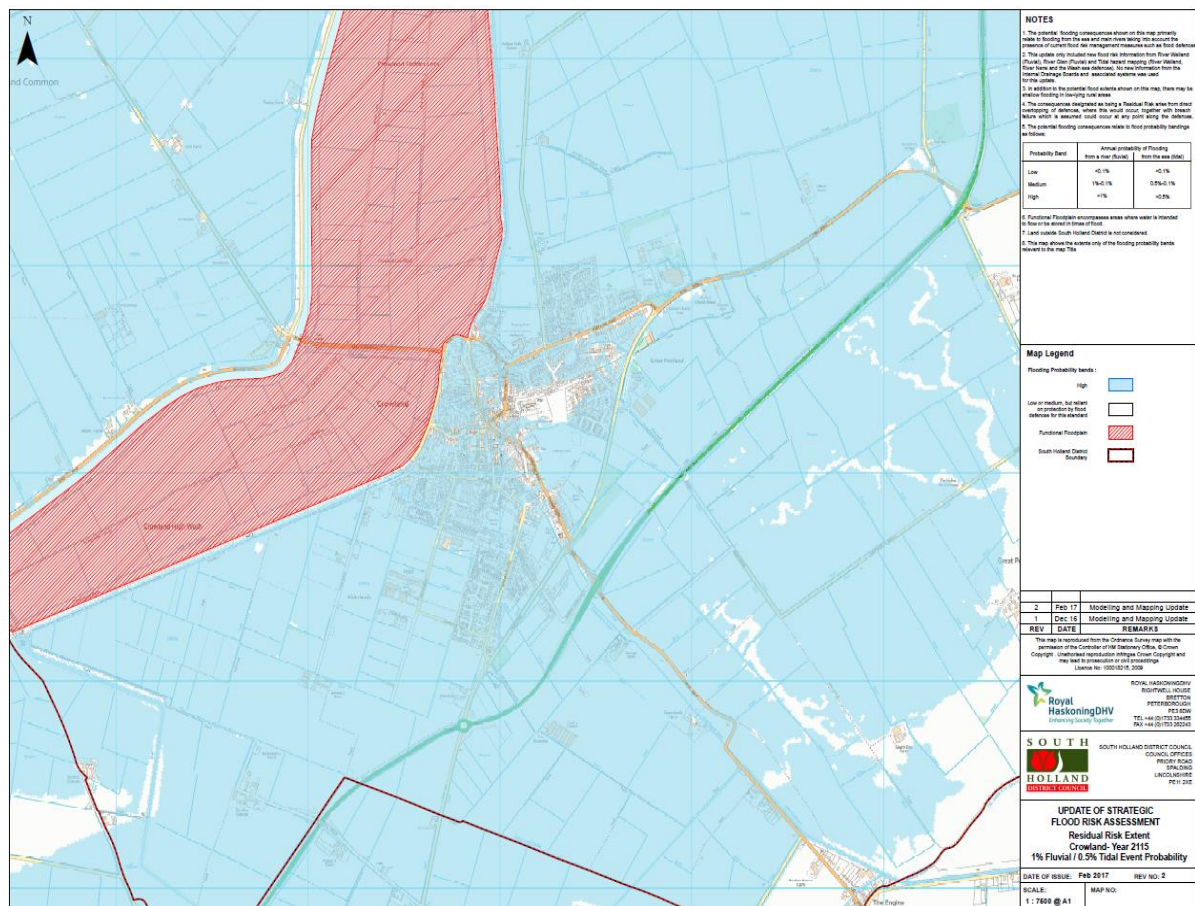


Figure 11 – A screenshot of Environment Agency map showing the flood extents for the probability of flooding from rivers and seas without flood defences at 65 Broadway Crowland, Peterborough, PE6 0AW

(Source: UK Government Website)

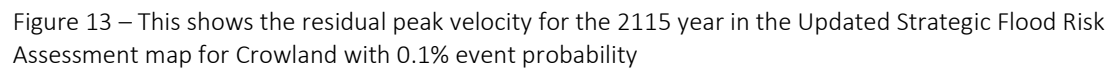
5.2.4 Flood hazard maps from the Updated Strategic Flood Risk Assessment for Crowland



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- 5.2.5 The potential flooding consequences shown on this map primarily relate to flooding from the sea and main rivers taking into account the presence of current flood risk management measures such as flood defences.
- 5.2.6 This update only included new flood risk information from River Welland (Fluvial), River Glen (Fluvial) and Tidal hazard mapping (River Welland, River Nene and the Wash Sea defences). No new information from the Internal Drainage Boards and associated systems was used for this update
- 5.2.7 In addition to the potential flood extents shown on this map, there may be shallow flooding in low-lying rural areas
- 5.2.8 The consequences designated as being a Residual Risk arise from direct overtopping of defences, where this would occur, together with breach failure which is assumed could occur at any point along the defences.
- 5.2.9 The potential flooding consequences relate to flood probability bandings as follows

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



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

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5.2.13 Figures 11 and 12 shows the extents only of the flooding probability bands relevant to the map titles.

5.2.14 The updated Strategic Flood Risk Assessment only included new flood risk information from River Welland (Fluvial), River Glen (Fluvial) and Tidal hazard mapping (River Welland, River Nene and the Wash sea defences). No new information from the Internal Drainage Boards and associated systems was used for this update.

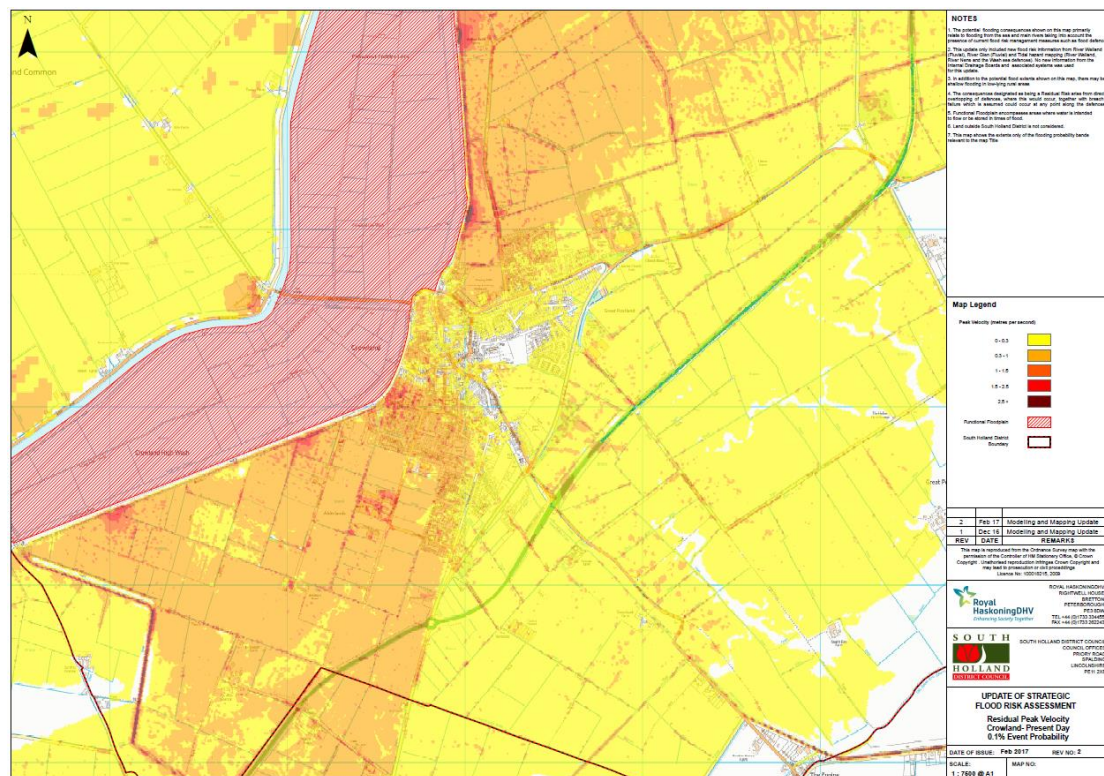


Figure 14 – This shows the residual peak velocity for present day Crowland as taken from the Updated Strategic Flood Risk Assessment map with 0.1% flood event probability

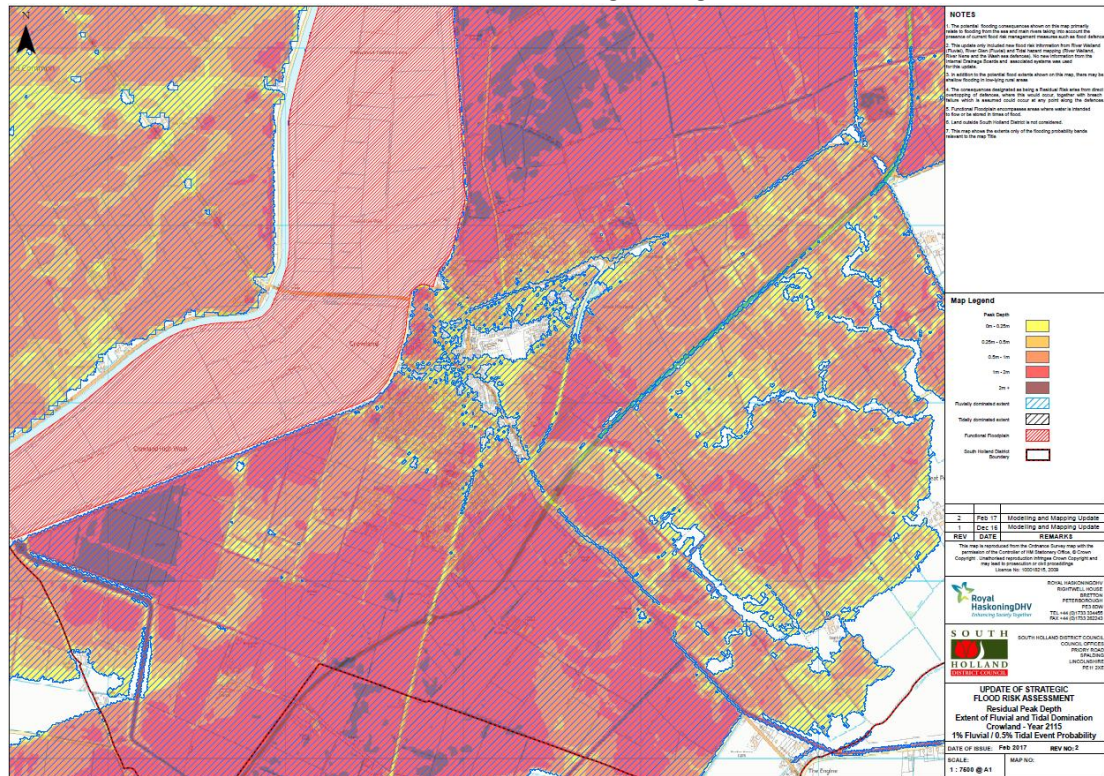


Figure 15 – This shows the map of residual peak depth extent for the fluvial and tidal combination for Crowland in 2115 for the 1% fluvial and 0.5% tidal flood probability

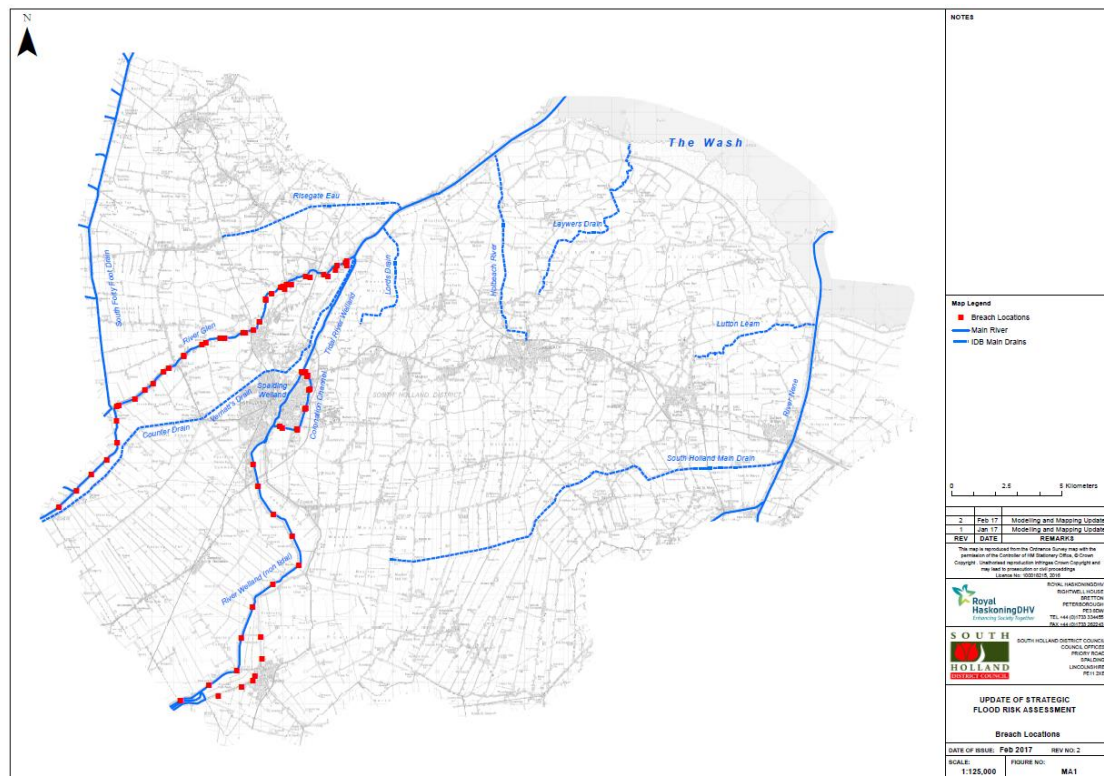


Figure 16 – Breach locations within the updated Strategic Flood Risk Assessment for Crowland

5.3 Internal Drainage Board District and Drains

5.3.1 Figure 17 shows that the location of the proposed works (65 Broadway Crowland, Peterborough, PE6 0AW) is within the North Level IDB District.

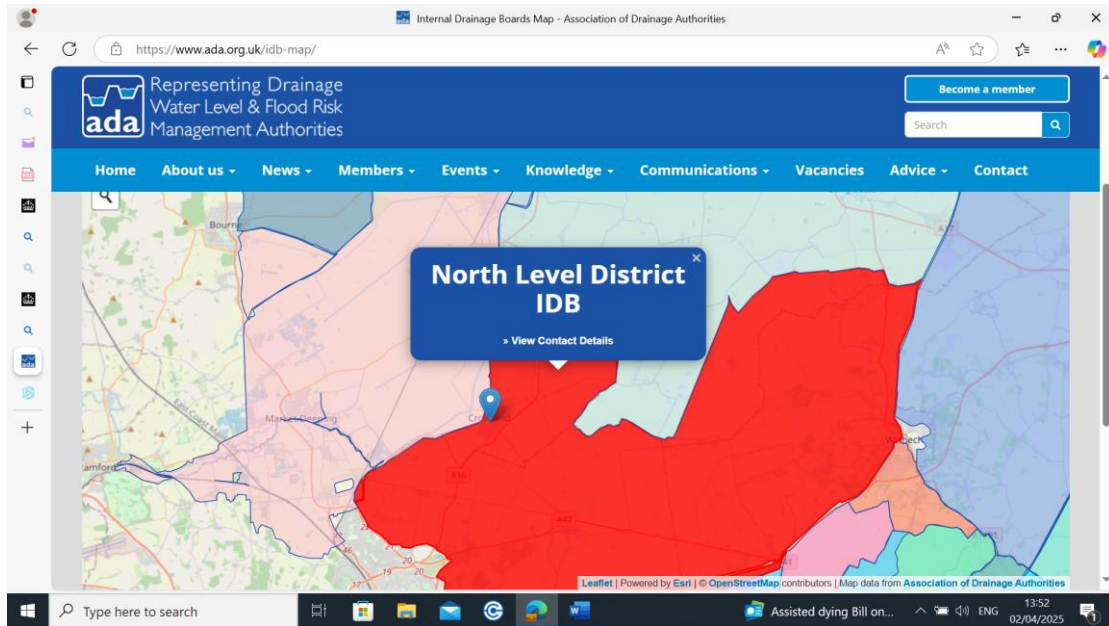


Figure 17 – A screenshot of the Black Sluice Internal Drainage Board map showing the IDB district boundary (Source: Black Sluice IDB website)

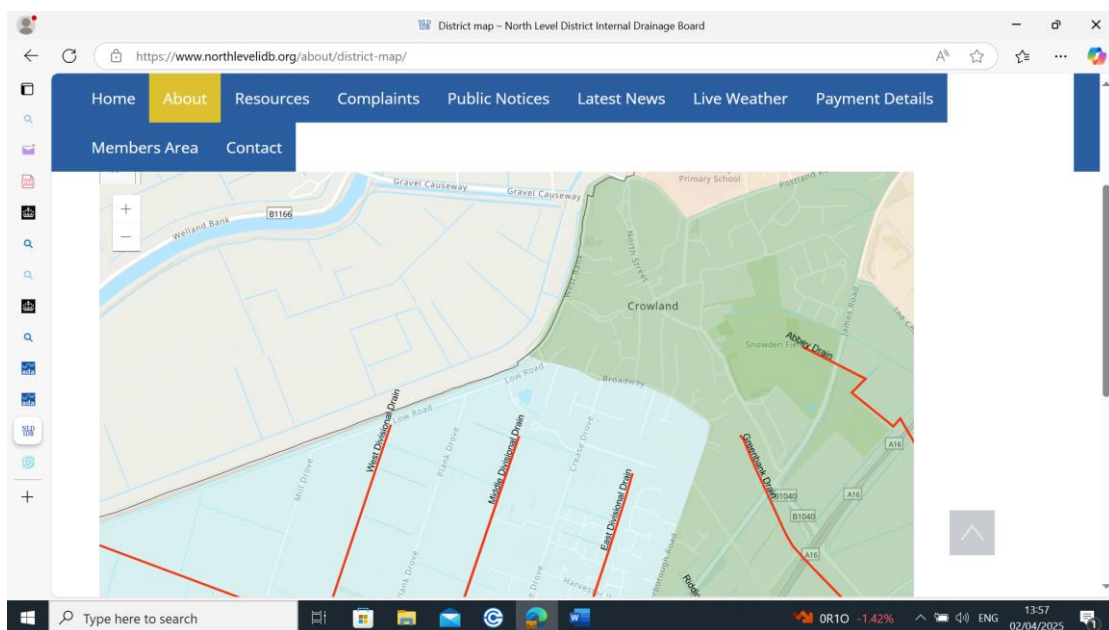


Figure 18 – A screenshot of North Level IDB Drains close to 65 Broadway Crowland Peterborough, PE6 0AW

- 5.3.1 The influence of IDB drains are not accounted for in the updated strategic flood risk assessment for Crowland as shown in Figures 12 to 16. However, the IDB drains closest to 65 Broadway Crowland Peterborough, PE6 0AW are shown in Figure 18.
- 5.3.2 The Internal Drainage Board has a proactive maintenance program of managing flood assets which helps to protect the area from fluvial flooding.

5.4 Risk of groundwater flooding and flooding from reservoirs

- 5.4.1 The location has no known ground water problems as confirmed from enquiries from the Environment Agency and other relevant authorities. No spring wells or bore holes are found close to the property.

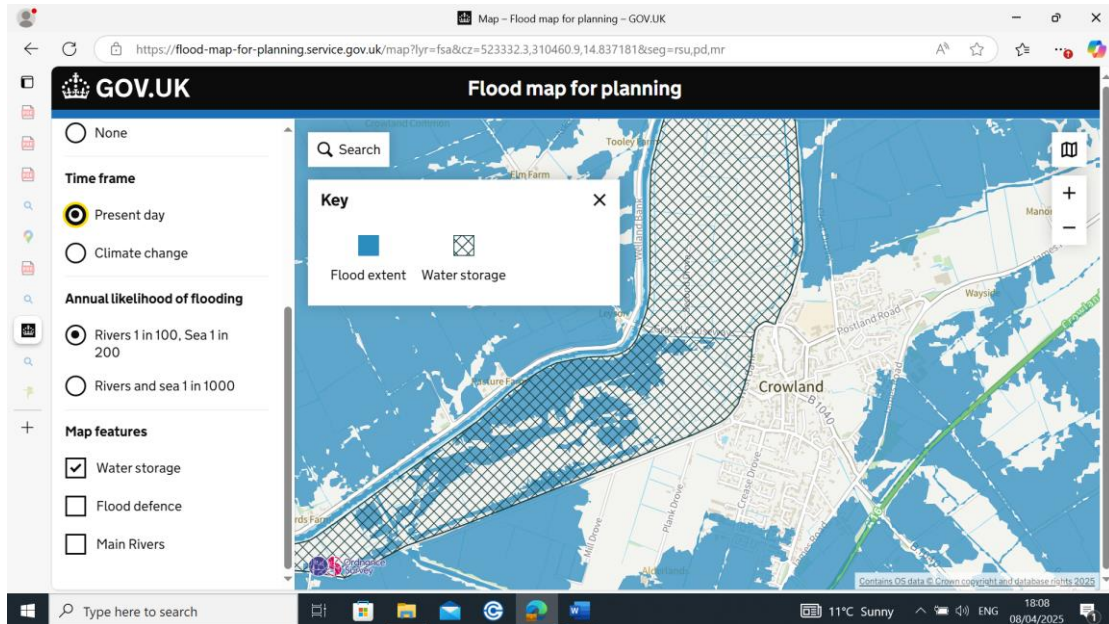


Figure 19 – A screenshot of map of flood storage reservoir showing the Crowland washes. (Source: UK Government map of flood planning)

- 5.4.2 The summary of findings from the UK Government Map on Flood Planning as shown in Figure 19 shows the flood storage reservoir within Crowland. Consequently, there is a risk of reservoir flooding. However, there are flood defences protecting the flood storage reservoir.

6.0 CLIMATE CHANGE ASSESSMENTS AND HISTORIC FLOOD RISK

- 6.0.1 The combined increase in flood risk at the site due to Climate Change is estimated to be within the order of 1 in 1000 year risk of flooding in a given year. It is widely accepted that climate change is occurring and will affect our weather patterns. In 2018, the Met Office published its projections for future climate change 'UK Climate Projections (2018) UKCP18'. The document continues to serve as a guide to flood risk assessment officers and planners and has been consulted for this FRA.
- 6.0.2 In accordance with the requirement of PPS 25, the impacts of Climate Change has been considered in the flood risk assessment for this site. Modelled and/or calculated values of increment deriving from the impacts of the proposed work will have insignificant impacts on Climate Change assessment for the site and the wider catchment. Some of the modelled impacts of climate change are also shown in the hazard maps from the Updated Strategic Flood Risk Assessment from Figures 12 to 16.

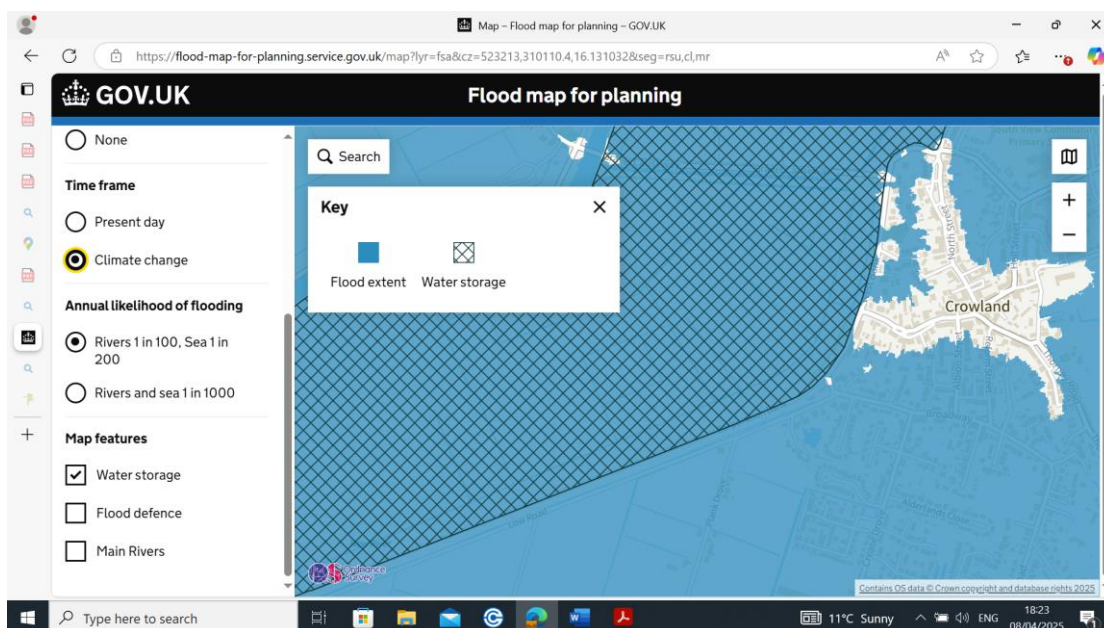


Figure 20 – A screenshot of the map of future fluvial and tidal flooding for the 1 in 200 year flood showing the overtopping of the reservoir (Source: UK Government Map of Flood Planning)

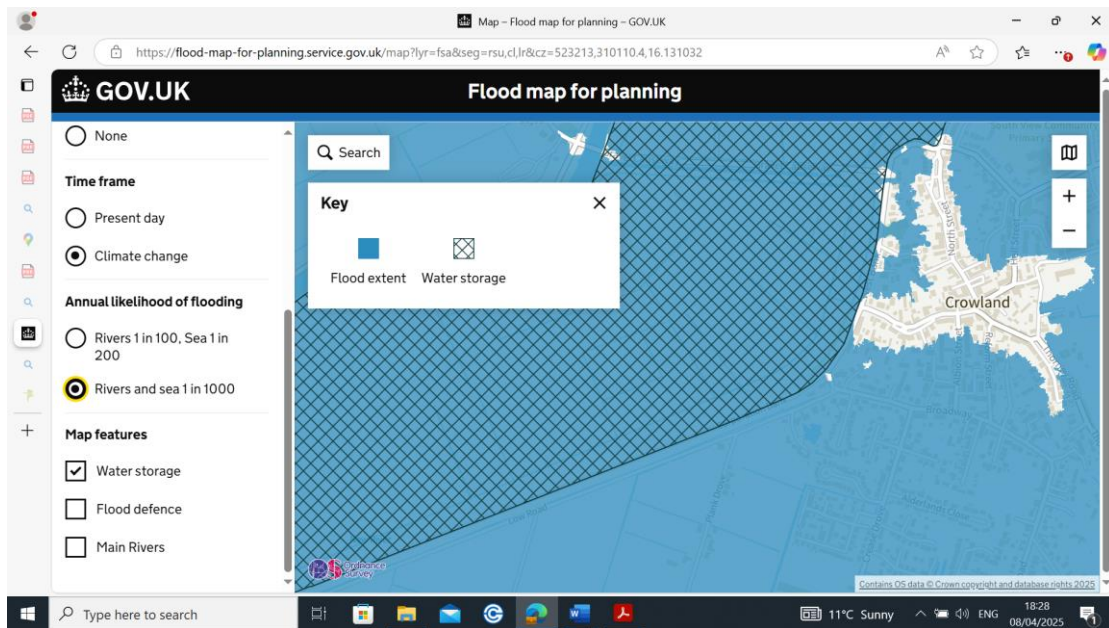


Figure 21 – A screenshot of the map of future fluvial and tidal flooding for the 1 in 1000 year flood showing the overtopping of the reservoir (Source: UK Government Map of Flood Planning)

6.1 Historic Flooding Data

6.1.1 This location has not witnessed any significant flooding since 1947 according to mapped historic flooding data outline from the Environment Agency. Enquiries from Black both the Environment Agency, Lincolnshire County Council and North Level IDB have not associated the site with any known historic flooding.

7.0 CONCLUSION AND RECOMMENDATIONS

7.1 From the assessment of the following attributes of flood risk:

- Surface water drainage including sustainable drainage measures,
- Historical evidence of fluvial flooding at the site
- Information on tidal flooding
- Information on groundwater issues at the site
- Assessment of current fluvial and pluvial flood risk at the site from information collected from both the Environment Agency and Black Sluice Internal Drainage Board

7.2 Recommendations

7.2.1 We have been able show the extent of fluvial (flooding from rivers), pluvial (surface water flooding), tidal, groundwater and reservoir flooding at Broadway Crowland, Peterborough PE6 0AW. It is fair to conclude that the works already undertaken has not contributed to the increase in flood risk at the location.

7.2.2 The original property flood level thresholds have not been affected by the current proposals.

7.2.3 We recommend that the client be requested to register to receive Environment Agency Flood Warning Service. This will ensure that the property receives regular flood alerts and warnings when issued by the Environment Agency.