FLOOD RISK ASSESSMENT FOR PROPOSED CHANGE OF USE AT EASTERN FORGE, STOCKWELL GATE, WHAPLODE, SPALDING, LINCS.

FINAL REPORT

GEOFF BEEL CONSULTANCY

JULY 2024

GCB/COLLINGS

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Fig 5 - South Holland Internal Drainage Board district plan

1.0 INTRODUCTION

1.1 A Change of Use planning application is to be submitted by Geoffrey Collings & Co. on behalf of Mrs K Cleary for development at Eastern Lodge, Stockwell Gate. Whaplode, Spalding.

The Change of Use application is for the existing site specific use to be amended to that of a use which falls within Class E (g) (iii) – any individual process being a use which can be carried out in any residential area without detriment to the amenity of that area by reason of noise, vibrations, smell, fumes, smoke, soot, ash, dust or grit.

1.2 A Flood Risk Assessment is required to accompany the planning application and meet the requirements and general principles contained in the Planning Practice Guidance to the National Planning Policy Framework (NPPF) and for approval by the Environment Agency.

The site, as situated, is located within Flood Zone 3 of the Environment Agency's Flood Map for Planning. The latest Agency Flood Maps have been created as a tool to raise awareness of flood risk with the public and our partner organisations, such as Local Authorities, Emergency Services and Drainage Authorities. The Maps do not take into account any flood defences.

The site is also shown in a Low Risk Flood Zone of the South East Lincs. Strategic Flood Risk Assessment Residual Depths Map.(2016) The site is also located in the South Holland IDB drainage district.

1.3 Geoff Beel Consultancy was appointed on 16th July 2024 to undertake a Flood Risk Assessment.

2.0 LOCATION

2.1 The site is located at Eastern Forge, Stockwell Gate, Whaplode. The National Grid Reference of the central point of the development is TF 33292516.

2.2 The position and extent of the site is shown on Fig 1 – Location Plan at the end of the document.

2.3 The site, located within the South Holland Internal Drainage Board district is shown within Flood Zone 3 as detailed on the Environment Agency Flood Map for Planning but in a Low Risk Flood Zone of the South East Lincs. Strategic Flood Risk Assessment Residual Depths Map (2016).

3.0 THE SITE AND SEQUENTIAL TEST

3.1 The site is currently redundant agricultural buildings.

3.2 The area of the site is approximately 0.10 hectare.

3.3 The site layout remains as existing with land levels generally at 3.00m aOD.

3.4 The Sequential Test and Exception Test will require to be applied but the change of use may be permitted as the site is protected against both the 1 in 200 year return period tidal event and the 1 in 100 year return period fluvial event.

4.0 EXISTING FLOOD ALLEVIATION MEASURES

4.1 The site is within a defended floodplain, as defined in Appendix 1 of the Environment Agency's 'Policy for the Protection of Floodplains' and is considered to be passive until such time as a flood greater than that for which the defences were designed occurs. The likelihood of flooding due to overtopping or failure of a flood defence embankment is considered to be small.

The development site within the South Holland Internal Drainage Board is protected by the River Welland tidal defences between Spalding and Fosdyke Bridge with embankment levels of a minimum of 7.00m aOD.

4.2 The site and the surrounding land drains by gravity to the nearby Whaplode River main drain immediately west of the site and in a northerly direction to the Holbeach River Outfall Sluice and hence to the tidal River Welland.

4.3 The existing standard of drainage for the South Holland Internal Drainage Board is 1 in 50 years return period, compatible with the Department of the Environment, Food and Rural Affairs target level of service for rural drainage and flood defence works. Freeboard of 900mm is provided to the lowest land levels.

4.4 Current maintenance standards within the South Holland Internal Drainage Board and of the Environment Agency defences are generally very good.

During the operation and maintenance of its pumping stations, associated structures and channel systems, particularly those that could affect property, the Board seeks to maintain a general standard capable of providing flood protection to its district. A routine maintenance programme is in place to ensure that the Boards assets are commensurate with the standard of protection that is sought. However, bank slips, blocked culverts etc may occur from time to time and these matters are usually dealt with promptly.

5.0 POTENTIAL SOURCES OF FLOODING

5.1 Five potential sources of flooding have been identified as a result of this assessment:

a) local blockages to soakaways
b) local blockages to IDB main drain system.
c) storm return period of 1 in 50 years being exceeded
d) failure of the Holbeach River Outfall Sluice
e) overtopping and breaching of defences of the tidal River Welland

5.2 The probability of flooding from source a) is low due to the maintenance standards by the future owner and the design requirements of BRE36.

The probability of flooding from b) is also low due to the South Holland IDB main drain design standard incorporating a minimum 900mm freeboard to the lowest land level which provides adequate storage in events greater than 1 in 50 years.

Previous historic rainfall events of 1968 and 1978, estimated to be greater than 1 in 100 year events, caused no flooding to any residential properties at the time and the Boards policy is to provide a standard of drainage which satisfies NPPF requirements of a 1 in 100 year return period for fluvial protection inclusive of the effects of climate change and developments to the arterial system enables a flexible approach to be adopted and meet the criteria for "sustainable urban drainage".

5.3 Failure of the Holbeach River Outfall Sluice may occur due to long term mechanical breakdown or power supply being disrupted. However, in these circumstances, if conditions were such to put properties and land at risk of flooding, the Internal Drainage Board would take emergency action to maintain the drainage level of service by utilising temporary pumping equipment. The probability of such an occurrence is also considered to be low.

5.4 The flood embankments to the tidal River Welland provide a 1 in 200 year return period level of protection.

The 1 in 200 year River Welland tidal event at Fosdyke Bridge is estimated to be 6.41m aOD as against existing embankment levels of a minimum of 7.00m aOD.

There is a low risk during such an event for wave and wind action to cause overtopping and/or breaching of the first line defences parallel with the River Welland. However, the site is located 6.00kms from the River Welland defences and any overtopping/breaching would be minimal.

The development site has existing land levels generally at 3.00m aOD which are compatible with surrounding land levels between the site and the river defences.

5.5 The South East Lincs. Strategic SFRA Residual Depth Map for year 2115 shows the site could be affected by floodwaters as a result of a breach to the River Welland tidal defences to a depth of water between 0.00-0.25m.

It is necessary to mitigate against this remote risk of flooding and any development at the site as a result of the Change of Use will have floor levels raised a minimum of 300mm above existing ground level with a further 300mm of flood resilient construction above floor level.

5.6 Surface water drainage from the development site will be to soakaways to BRE365 design requirements and Building Regulations approval.

6.0 EXTENT OF KNOWN FLOODING

6.1 During the preparation of this assessment, no evidence was discovered of the site being flooded or of any adjoining properties.

7.0 PROBABILITIES AND TRENDS OF FLOODING

7.1 The probability of this development flooding from localised drainage systems is very low.

7.2 The probability of the site flooding with water from any South Holland IDB main drain is less than 1% because of the standards of the existing flood defence systems, storage within existing drainage channels and the location of the site.

7.3 The probability of the site flooding with tidal waters from any main river system is less than 1% because of the standards of the existing flood defences and the location of the site.

7.4 If under very extreme events, levels of floodwater from the South Holland IDB main drains or arterial systems rose to such an extent that the site was affected, the situation would not be sudden. It is very probable that sufficient time would be available to take precautionary actions to limit the extent and potential impact of flooding.

7.5 The water levels in the drainage channels will tend to rise as a result of the impacts of climate change. However the existing systems and defences together with any development as a result of the Change of Use being 300mm above existing ground level with a further 300mm of flood resilient construction above floor level will be appropriate for the design life of tany be development (i.e. 60 years).

7.6 Safe access and egress is readily available onto Stockwell Gate and hence in a generally southerly direction to Whaplode located in Flood Zone 1.

8.0 IMPACTS OF FLOODING

8.1 No significant impacts of flooding are anticipated.

8.2 Floor levels of any development as a result of the Change of Use will be 300mm above existing ground level with a further 300mm of flood resilient construction above floor level which together with the existing soakaway drainage system will offer additional protection against impacts arising from any extreme short duration, localised events.

8.3 The general location of the site within the catchment is such that if flooding occurred from any of the South Holland IDB main drain systems, then probably 2 to 3 days warning time would be available.

9.0 RESIDUAL RISK – EXTREME EVENTS

9.1 The residual risk from extreme events is very low on this site, because of its location within the South Holland IDB area and its location 6.00kms from the River Welland tidal defences.

9.2 The site is within a Low Risk Flood Zone according to NPPF classification and actually has a very low risk of flooding due to the current standards of drainage and flood defence and land levels. The site is not located within a Functional Flood Plain of any 'main river' or 'main drain'. The Environment Agency Flood Map for Planning has been produced irrespective of existing flood defences and standards of protection.

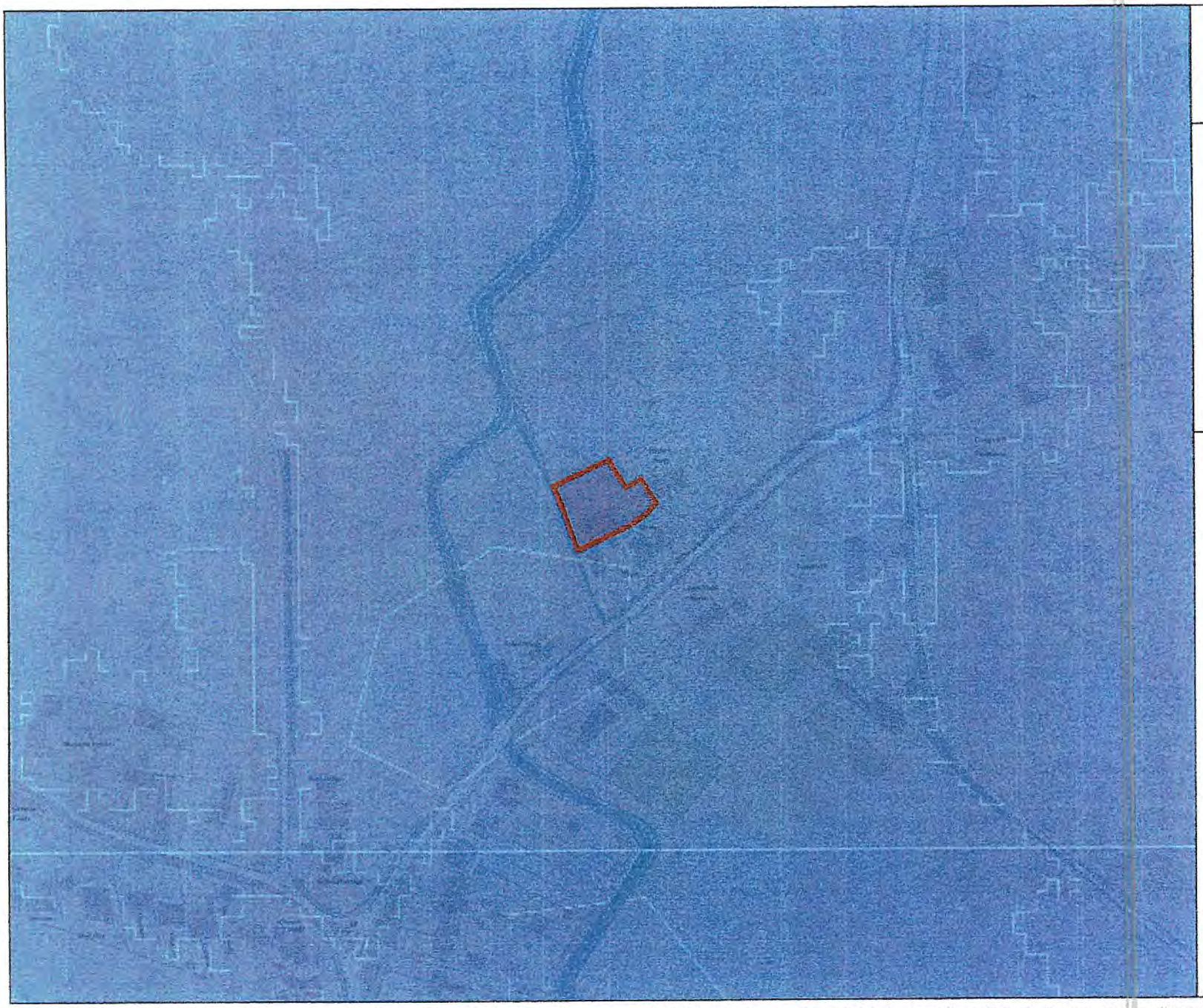
9.3 South Holland District Council and Boston Borough Council in conjunction with the Environment Agency and the local IDB's within the Council's area have carried out the South East Lincs. Strategic Flood Risk Assessment of the whole area by appointed Consulting Engineers.

The South East Lincs. Strategic Flood Risk Assessment has produced similar Flood Risk Maps to those published by the Environment Agency and at the same time has analysed flood return periods of all tidal and fluvial defences to account for the effects of climate change. Breach scenarios of embankments failing and/or being overtopped have also been carried out to establish Flood Risk Zones. As a result of the South East Lincs. Strategic Flood Risk Assessment the site is located in the lowest flood risk zone of between 0.00 and 0.25m for the 0.5% Annual Probability Year 2115 and defended by tidal defences and tidal doors.

10.0 CONCLUSIONS AND RECOMMENDATIONS

10.1 As a result of the assessment, the following conclusions have been reached:-

- The proposed change of use is located in the Passive Floodplain protected by River Welland tidal defences to a 1 in 200 year return period.
- The site is in the Lowest Flood Risk Zone with the actual risk of flooding from any Environment Agency river system being very low (less than 0.5%).
- Although the site is located within an Internal Drainage District with a minimum standard of drainage of 1 in 50 years, this accords with Defra guidelines for rural development. Freeboard to design water level of 900mm to lowest land level is available for events greater than 1 in 50 years providing further storage within the drainage channels.
- Floor level of any development as a result of the Change of Use will be 300mm above existing ground level with a further 300mm of flood resilient construction above floor level.
- On site rainwater from the development will be discharged to existing soakaway drainage to BRE365 design requirements and Building Regulations approval.



Environment Agency

Flood map for planning

Your reference
Eastern Forge

Location (easting/northing)
533289/325161

Scale
1:2500

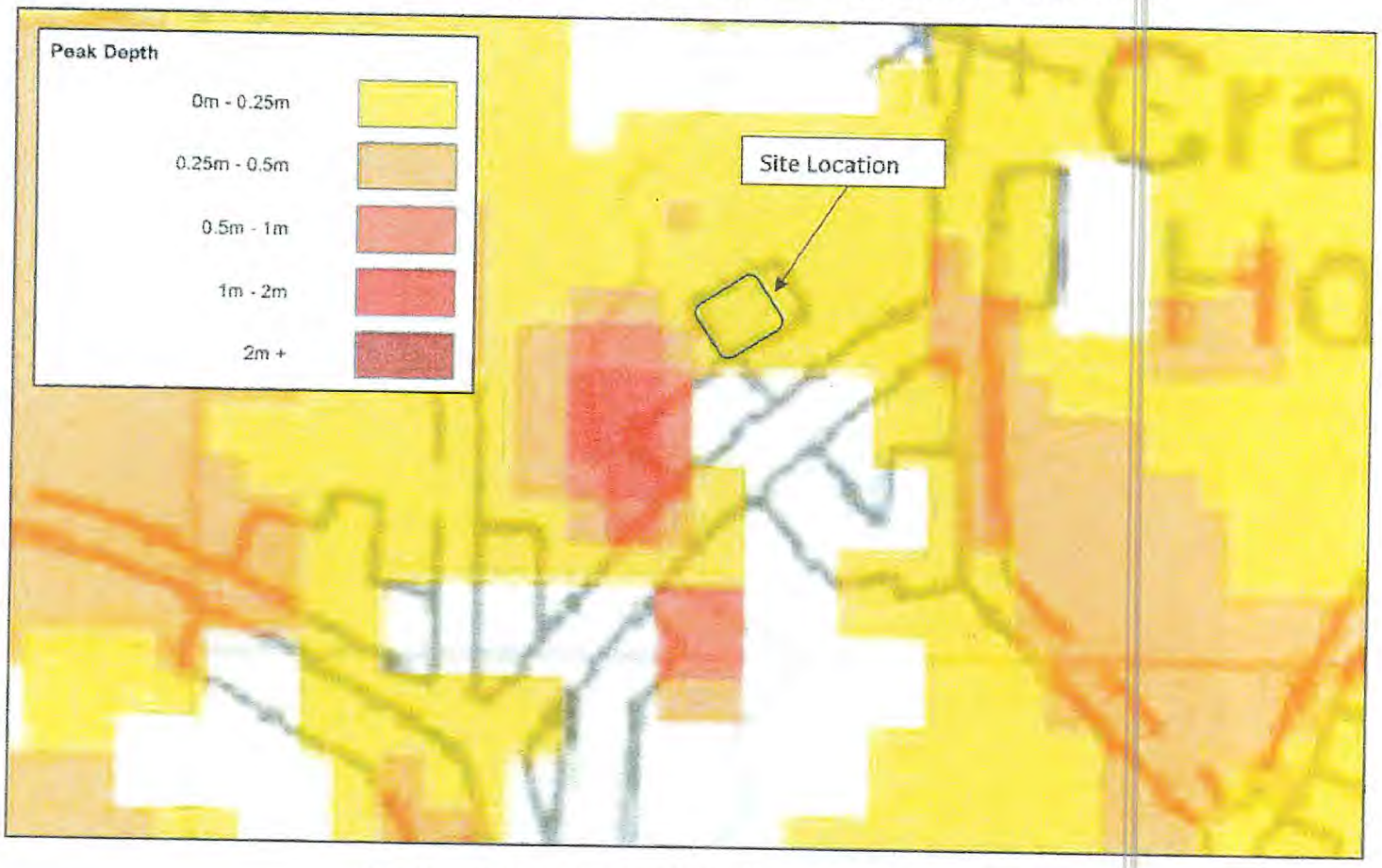
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- Selected area
- Flood zone 3
- Flood zone 2
- Flood zone 1
- Flood defence
- Main river
- Water storage area

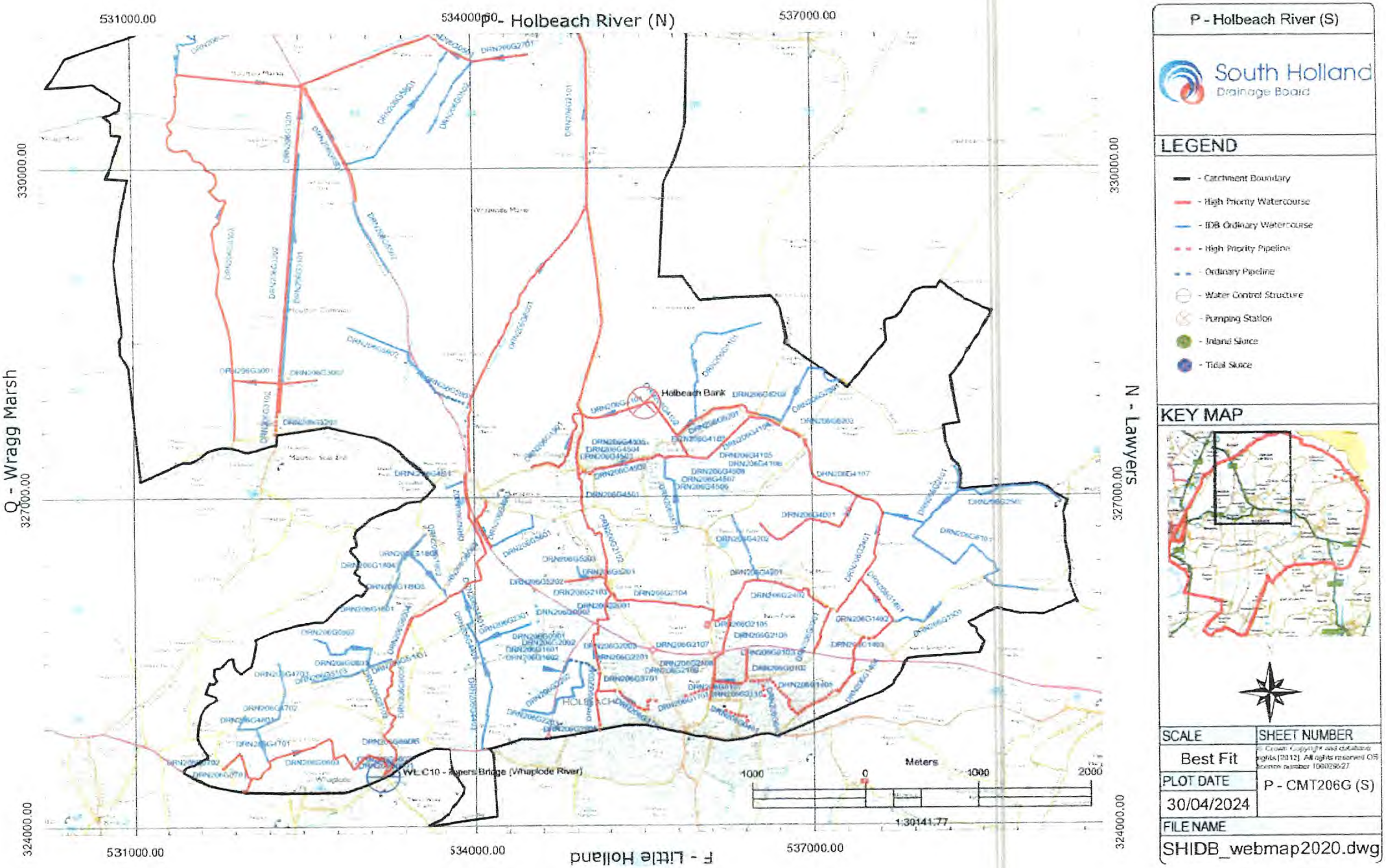
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Residual Peak Depth – 0.5% Annual Probability Year 2115



Eastern Forge, Stockwell Gate, Spalding



P - Holbeach River (S)

South Holland Drainage Board

LEGEND

- Catchment Boundary
- High Priority Watercourse
- IDB Ordinary Watercourse
- High Priority Pipeline
- Ordinary Pipeline
- Water Control Structure
- Pumping Station
- Inland Sluice
- Tidal Sluice

KEY MAP

SCALE	SHEET NUMBER
Best Fit	P - CMT206G (S)
PLOT DATE	
30/04/2024	
FILE NAME	
SHIDB_webmap2020.dwg	

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