Humber Gate, Grimsby

Flood Risk Assessment

March 2025

Waterco

Assessment | Modelling | Design

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This report will remain valid for a period of twelve months (from the date of last issue) after which the source data should be reviewed in order to reassess the findings and conclusions on the basis of latest available information.

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Introduction

Waterco has been commissioned to undertake a Flood Risk Assessment in relation to a proposed waste management site at Humber Gate, Energy Park Way, Grimsby, DN31 2TT.

The purpose of this report is to outline the potential flood risk to the site, the impact of the proposed development on flood risk elsewhere, and the proposed measures which could be incorporated to mitigate the identified risk. This report has been prepared in accordance with the guidance contained in the National Planning Policy Framework (NPPF) and the National Planning Practice Guidance (NPPG): Flood Risk and Coastal Change.

This Flood Risk Assessment has been supported by and should be read in conjunction with the Waterco Hydraulic Modelling Report (document reference: 15887-HMR-02).

Existing Conditions

The site covers an area of approximately 8.736ha and is located at National Grid Reference (NGR): 523683, 412733. A location plan and an aerial image are included in Appendix A.

The site is split into 2 distinct parcels which are separated by a ditch. The northern parcel is referred to as Plot I and covers approximately 7.055ha. The southern parcel is referred to as Plot C and covers approximately 1.681 ha.

Online mapping (including Google Maps / Google Streetview imagery, accessed March 2025) shows that the northern extent of the site (Plot I) comprises undeveloped land. The southern extent of the site (Plot C) is currently undeveloped however has been subject to historical industrial land use.

The site is bordered by a former landfill (now capped) and undeveloped land to the north-east, industrial land use to the south-east and south-west, and Oldfleet Drain with agricultural land beyond to the north-west. Access is provided from a shared access road to the south-east of the site which leads onto Energy Park Way. The Humber Estuary is located approximately 335m north-east of the site.

Local Topography

A topographical survey has been undertaken by Latitude Surveys in September 2023. The topographical survey shows that ground levels in Plot I vary from 2.88 metres Above Ordnance Datum (m AOD) in the north-west to 1.99m AOD in the south-west. Site levels in Plot C vary from approximately 3.00m AOD in the south-west to 2.47m AOD in the north-west.

Topographic levels to m AOD have also been derived from a 1m resolution Environment Agency (EA) composite ‘Light Detecting and Ranging’ (LiDAR) Digital Terrain Model (DTM). The LiDAR data generally corroborates the topographical survey.

Topographical information is provided as Appendix B.

Ground Conditions

The British Geological Survey (BGS) online mapping (1:50,000 scale) shows that the site is underlain by tidal flat deposits generally comprising clay and silt. The superficial deposits are identified as being underlain by the Flamborough Chalk Formation.

The geological mapping is available at a scale of 1:50,000 and as such may not be accurate on a site-specific basis.

Ground Investigations have been undertaken by Mayer Environmental Ltd in November 2023 (document reference: R-129-002870) to establish the ground conditions at the site. An extract of the ground investigation report is included as Appendix C. A summary of the ground investigation report is provided below:

- Plot I - Made Ground was not encountered in any location. Topsoil was encountered in some locations at the surface. In all locations the stiff clay of the tidal flat deposits was encountered to a maximum thickness of 3m, which was underlain by soft grey clay with peat and organic matter inclusions. The maximum thickness of this layer was 7.3m, with the firm brown clay present again under the grey clay. This in turn was underlain by putty chalk of the Flamborough Chalk Formation from a depth of circa 20m below ground level (m.bgl).

- Plot C - Made Ground was encountered at some locations to a maximum depth of 1.7m.bgl. Below this the Tidal Flat Deposits comprising a stiff brown clay were identified, with a soft grey clay also noted in some locations.

- Groundwater was encountered at 14m.bgl at BH03. Subsequent monitoring indicates that the groundwater is near the surface. This could be due to the monitoring wells creating preferential pathways for the groundwater, making it appear higher than it actually is. Artesian groundwater, that can rise to the surface under its own pressure, was encountered at all borehole locations.

The EA's 'Source Protection Zones' data, viewed from MAGIC's online mapping [accessed November 2024], indicates that the site is not located within a Groundwater Source Protection Zone.

Development Proposals

The proposed development is for a waste management site which will include the processing of specialist waste. A proposed development plan is included as Appendix D.

Plot I will contain all buildings and equipment involved in the waste management process. Plot C will contain the site office and staff car park. It is proposed to raise ground levels at Plot I to a minimum level of 4.26m AOD. This will ensure that all areas of development where waste management will occur will be above design flood levels with an allowance for freeboard.

Flood Zone Classification & Policy Context

The Environment Agency (EA) 'Flood Map for Planning', included in Appendix E, shows that the site is located within Flood Zone 3 – an area considered to be at flood risk with a 1% (1 in 100) or greater annual probability of fluvial flooding and / or a 0.5% (1 in 200) or greater annual probability of tidal flooding.

In accordance with Annex 3 of the NPPF, the waste management element of the development is considered to be 'more vulnerable'. Development on Plot I is therefore considered to be more vulnerable development. Sites used for offices are considered to be 'less vulnerable' development. Development on Plot C is therefore considered to be less vulnerable.

Table 2 of the NPPG: Flood Risk and Coastal Change, states that the Exception Test must be satisfied for 'more vulnerable' development within Flood Zone 3.

For the Exception Test to be passed it should be demonstrated that:

- the development would provide wider sustainability benefits to the community that outweigh flood risk, and
- the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

This report details the flood risk to the site and the mitigation measures which could be carried out to ensure that the development will be safe for its lifetime.

Local Policy

The North East Lincolnshire Local Plan 2013 to 2032 (adopted 2018) contains the following policy relating to flood risk:

'Policy 33 – Flood Risk:

1. Development proposals should have regard to the requirements of the flood risk sequential test and, if necessary, the exception test. The regeneration benefits of development in areas of high flood risk should also be considered in light of the Council's Guidance Note on the application of the Sequential and Exception Tests in North East Lincolnshire, and the Environment Agency's Standing Advice.

2. In order to minimise flood risk impacts and mitigate against the likely effects of climate change, development proposals should demonstrate that:

a. where appropriate, a site specific flood risk assessment has been undertaken, which takes account of the best available information related to all potential forms of flooding;

b. there is no unacceptable increased risk of flooding to the development site or to existing properties;

c. the development will be safe during its lifetime;

d. Sustainable Drainage Systems (SuDS) have been incorporated into the development unless their use has been deemed inappropriate;

e. opportunities to provide natural flood management and mitigation through green infrastructure have been assessed and justified, based upon sound evidence, and, where appropriate, incorporated, particularly in combination with delivery of other aspects of green infrastructure in an integrated approach across the site;

f. arrangements for the adoption, maintenance and management of any mitigation measures have been established and the necessary agreements are in place;

g. access to any watercourse or flood defence asset for maintenance, clearance, repair or replacement is not adversely affected; and,

h. the restoration, improvement or provision of additional flood defence infrastructure represents an appropriate response to local flood risk, and does not conflict with other Plan policies.'

The site is allocated in the North East Lincolnshire Local Plan 2013-2032 for employment use under allocation reference ERL015a.

The North and North East Lincolnshire Strategic Flood Risk Assessment (SFRA) (June 2022) and the North East Lincolnshire Council Preliminary Flood Risk Assessment (PFRA) (June 2011 and its 2017 addendum) have been reviewed and inform this report.

Consultation

Following a meeting with the Environment Agency on 9th September 2024, the following parameters were agreed:

- The waste processing facility (Plot I) is 'more vulnerable' development and therefore is required to be flood free through appropriate mitigation.
- Site welfare facilities (Plot C) is 'less vulnerable' development and does not need to be flood free.
- The design flood event, for which mitigation measures and off-site impact is to be assessed, is the 0.5% Annual Exceedance Probability (AEP) plus Upper End Climate Change (CC) tidal breach event. A 75 year climate change is applied (up to the year 2099) which is a standard for industrial development.
- For the tidal breach event, it is assumed that the flood defences will not be simultaneously overtopped. This replicates the flood defences being improved in future.

Sources of Flooding and Probability

Fluvial & Tidal

Oldfleet Drain is located along the north-western boundary of the site. Oldfleet Drain flows north-east in this location and joins the Humber Estuary approximately 320m north-east of the site. Other watercourses in this area include a ditch which intersects Plots I and C. The ditch is identified on the Topographical Survey (Appendix B) and drains into a series of ditches which serve the wider industrial estate. The ditches serving the industrial estate ultimately discharge to Mawmbridge Drain which is located approximately 450m south-east of the site at its nearest point.

The Topographical Survey (Appendix B) also identifies a ditch on the north-eastern boundary of Plot I. The ditch flows south-east and discharges into the ditch which intersects Plots I and C.

The development site is located in an area which benefits from flood defences in the form of natural high ground adjacent to Oldfleet Drain and earth embankments along the Humber Estuary.

Fluvial flooding could occur if Oldfleet Drain overtopped its banks / defences during or following an extreme rainfall event. Coastal / tidal flooding could occur from overtopping of the Humber Estuary defences during an extreme tidal event. Flooding could also occur from a breach of the flood defences.

The EA 'Historic Flood Risk' map (Appendix E) indicates that tidal flooding affected the site and the wider area in January of 1953 as a result of overtopping of flood defences.

EA Fluvial Modelled Data

Modelled output data for Oldfleet Drain has been obtained from the EA. The modelled outputs are taken from the Stallingborough & Oldfleet (2020) model. Fluvial modelled outputs are included as Appendix F.

As shown in Figure 1, the site is shown to be flood free during the 1% Annual Exceedance Probability (AEP) plus 20% Climate Change (CC) Baseline Defended Scenario.

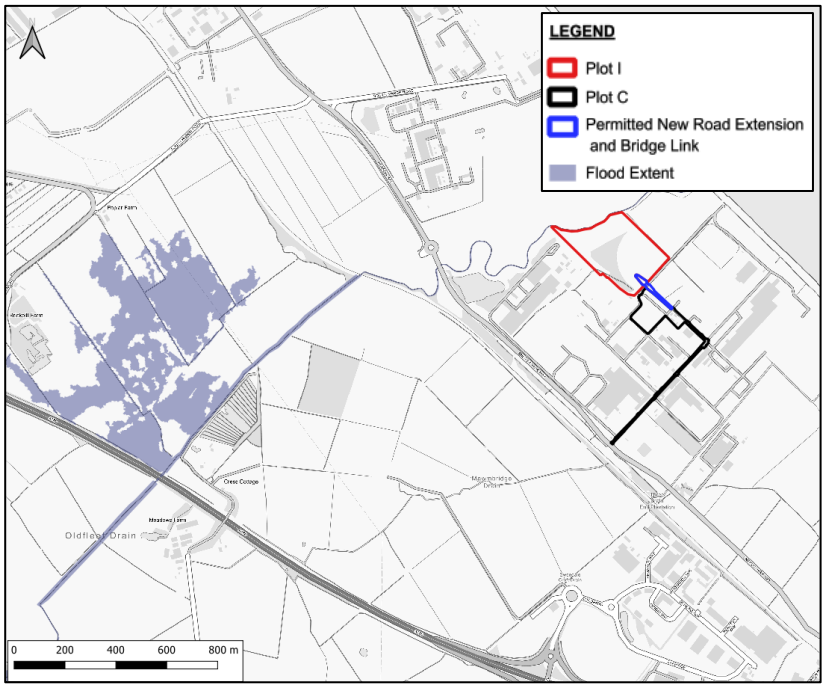


Figure 1 – Fluvial 1% AEP + 20% CC Baseline Defended Scenario

As shown in Figure 2, the site is shown to be flood free during the 0.1% AEP plus 20% CC Baseline Defended Scenario. No out of channel flooding from Oldfleet Drain is estimated in the vicinity of the site.

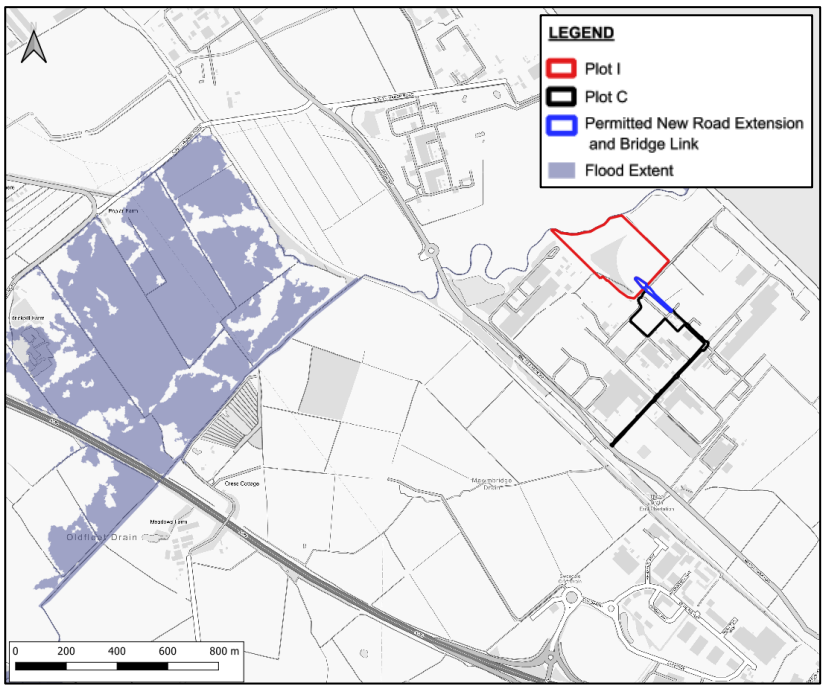


Figure 2 – Fluvial 0.1% AEP + 20% CC Baseline Defended Scenario.

The risk of fluvial flooding from Oldfleet Drain is therefore considered to be very low.

The ditches located in the vicinity of the site serve a limited catchment area and the water levels in the ditches are controlled by pumping stations i.e. the Mawbridge Drain pumping station which pumps flows from

Mawbridge Drain (which his hydraulically linked to the ditches on site) to the Humber Estuary. The risk of flooding from the ditches adjacent to the site is therefore considered to be very low.

Waterco Modelled Tidal Output Data

A 2-Dimensional (2D) hydraulic model of the Humber Estuary was constructed by Waterco in September 2024. Two breach scenarios, BR1 and BR2, for present day (2024) and future climate change (2099) scenarios have been considered.

For Breach 1 (BR1), the breach in the defence has been applied for the entire duration of the model simulation. For Breach 2 (BR2) scenario, the breach has been applied at the peak tide.

The model has been set up with existing flood defences (earth embankments along the Humber) raised so that no overtopping of defences occurs in any considered events. This is in line with EA requirements and assumes that the flood defences will be raised as part of a future flood defence improvement scheme.

Modelled output mapping for the breach scenarios, including flood depth, water level, velocity and hazard mapping is included as Appendix G.

Baseline Scenario

As shown in Figure 3, during the 0.5% AEP (year 2099) Breach 1 event, the site is estimated to flood with depths of up to 1.52m. The maximum flood level is 3.54m AOD on Plot I and 3.63m AOD on Plot C.

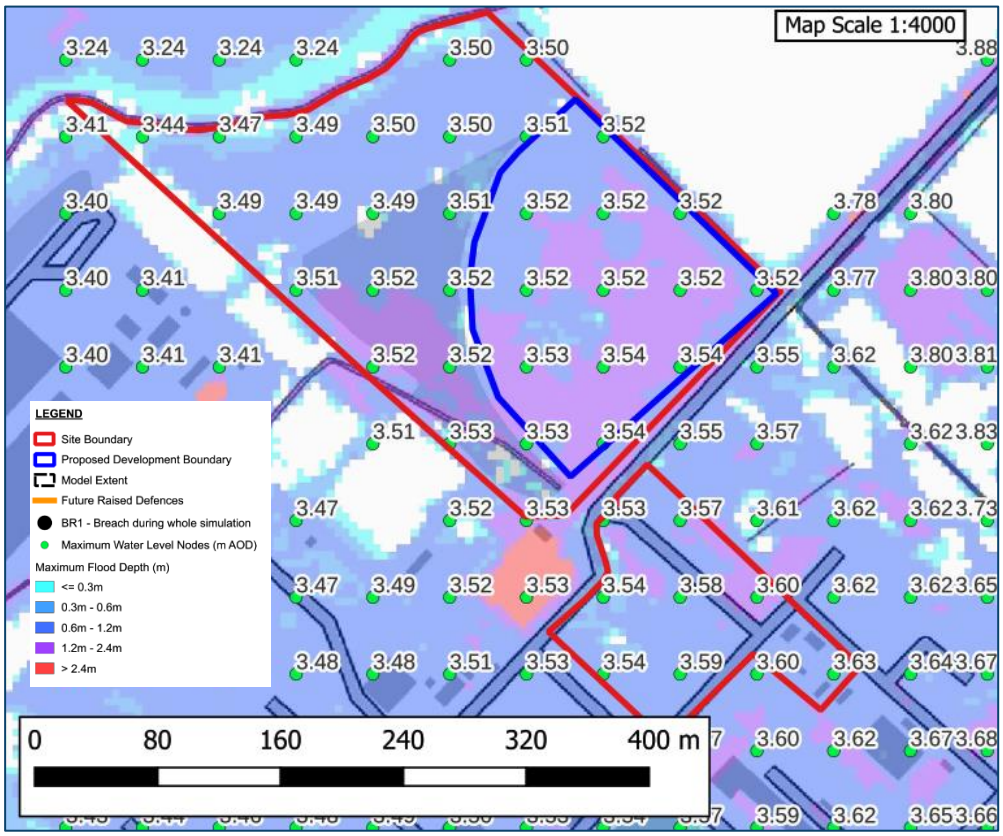


Figure 3 – Baseline 0.5% AEP Upper End CC (Year 2099) Breach 1 Event – Water Levels

As shown in Figure 4, during the 0.5% AEP (Year 2099) Breach 2 event, the site is estimated to flood with depths of up to 1.35m. The maximum flood level is 3.41m AOD on Plot I and 3.47m AOD on Plot C.

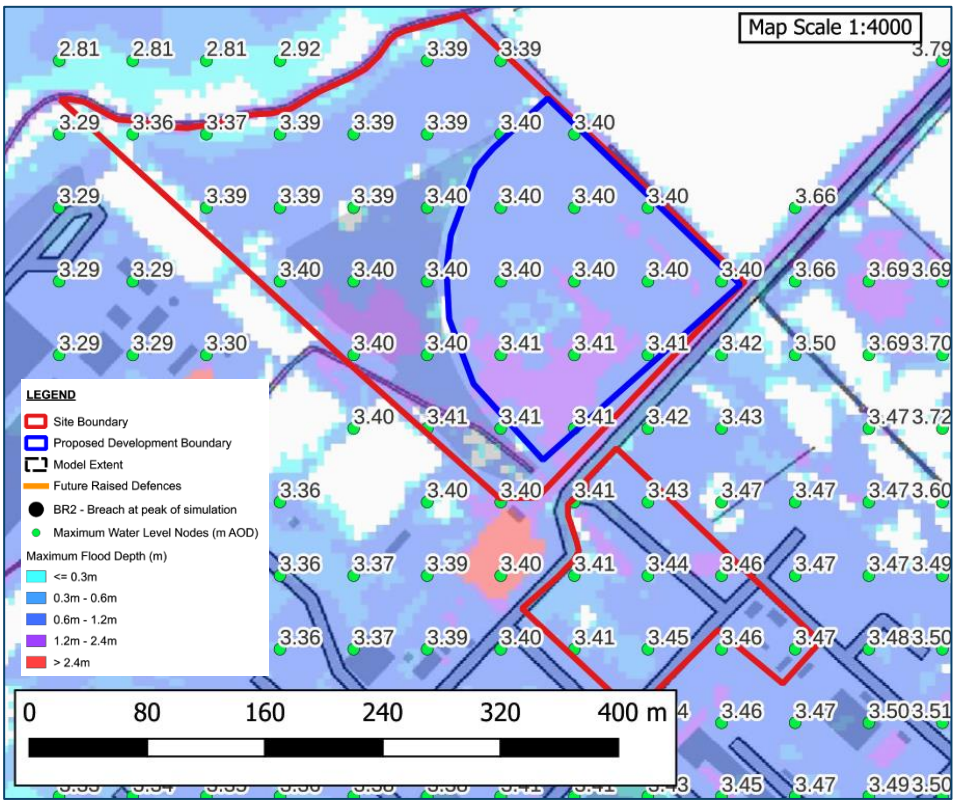


Figure 4 – Baseline 0.5% AEP Upper End CC (Year 2099) Breach 2 Event – Water Levels

Proposed Development Scenario

In order to mitigate the flood risk to the 'more vulnerable' waste processing facility (Plot I), ground levels will be raised above flood levels. Hydraulic Modelling has been undertaken for the development scenario to determine the required level of ground raising.

As shown in Figure 5, during the 0.5% AEP (year 2099) Breach 1 event, with Plot I raised above flood levels, the maximum estimated flood level adjacent to the raised development platform is 3.66m AOD.

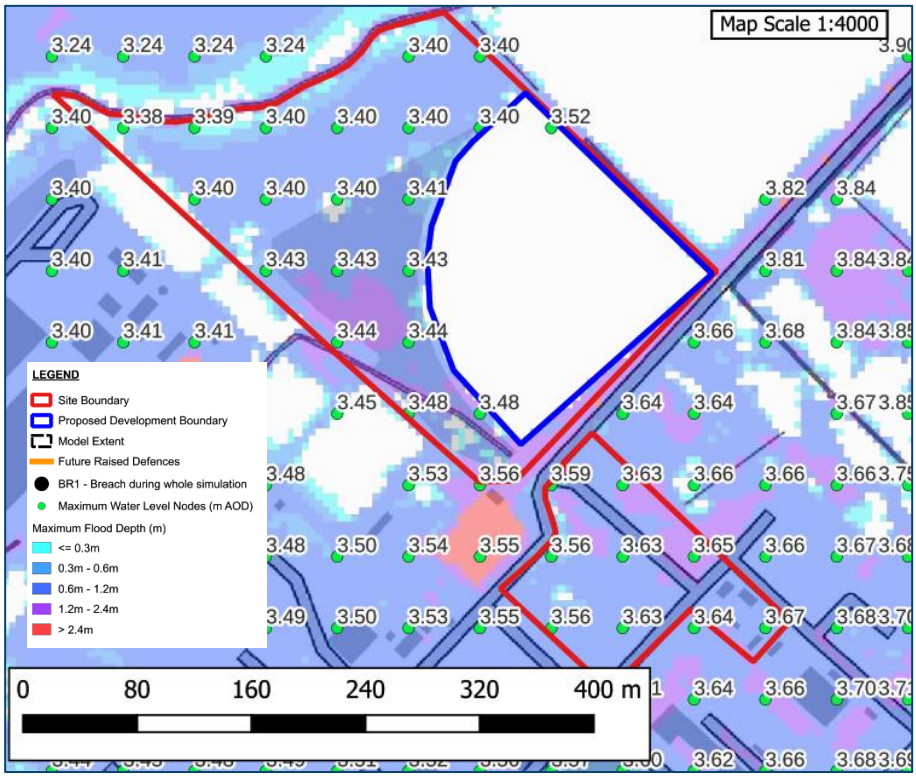


Figure 5 – Development Scenario - 0.5% AEP Upper End CC (Year 2099) Breach 1 Event – Water Levels

As shown in Figure 6, during the 0.5% AEP (year 2099) Breach 2 event, with Plot I raised above flood levels, the maximum estimated flood level adjacent to the raised development platform is 3.5m AOD.

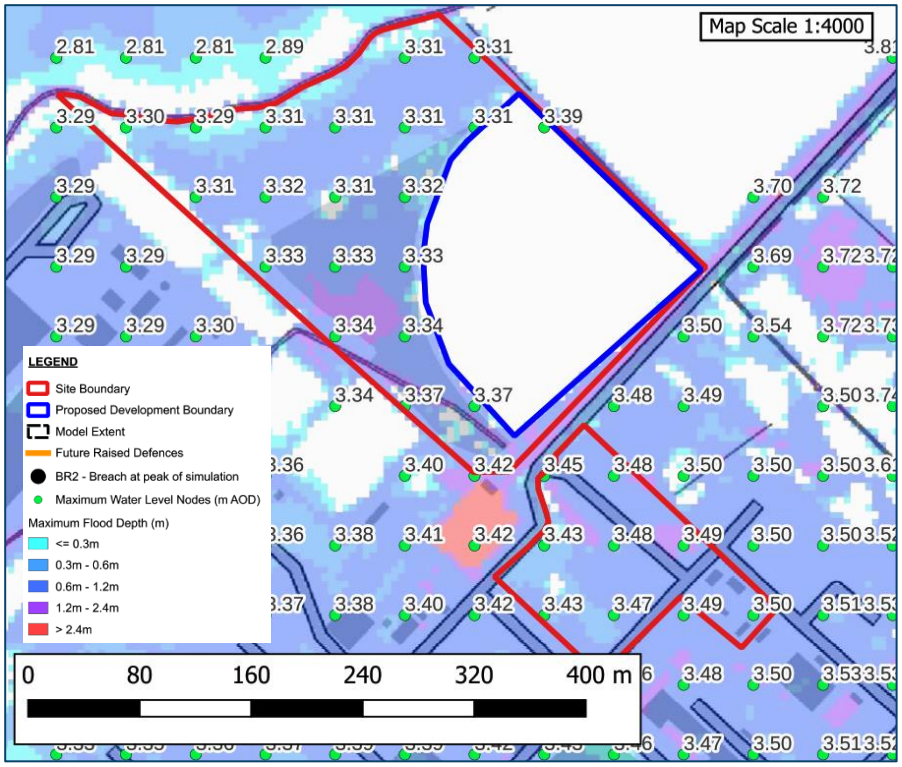


Figure 6 – Development Scenario – 0.5% AEP Upper End CC (Year 2099) Breach 2 Event – Water Levels

It can therefore be concluded that the site is at risk from a breach of the flood defences. The maximum water level is 3.66m AOD during the development scenario 0.5% AEP (year 2099) Breach 1 event.

Surface Water

Surface water flooding occurs when rainwater does not drain away through the normal drainage system or soak into the ground. It is usually associated with high intensity rainfall events but can also occur with lower intensity rainfall or melting snow where the ground is saturated, frozen or developed, resulting in overland flow and ponding in depressions in topography. Surface water flooding can occur anywhere without warning. However, flow paths can be determined by consideration of contours and relative levels.

The EA 'Flood Risk from Surface Water' map (Appendix E) indicates that the majority of the site is at very low risk of surface water flooding, meaning it has a less than 0.1% annual probability of flooding. Isolated areas within the site are shown at low risk of surface water flooding, with between a 1% and 0.1% annual probability of flooding. The low risk flood extent is minimal on site.

The low flood risk identified on EA surface water flood mapping is associated with rainfall ponding in topographical low points. There are no distinct flow routes in the area which would direct any potential surface water flooding towards the site.

The risk of surface water ponding in isolated topographical low points will be removed post-development through ground raising in Plot I and introduction of a sustainable drainage system designed to accommodate the 1 in 100 year plus climate change event.

There are no records of surface water flooding affecting the site.

It can therefore be concluded that the risk of surface water flooding is very low.

Sewer

Public sewer records have been obtained from Anglian Water and are included in Appendix H. The sewer records show that there are no public sewers in the immediate vicinity of the site.

There are no records of sewer flooding affecting the site or its immediate surrounds. The risk of sewer flooding is therefore considered to be very low.

Groundwater

Groundwater flooding occurs when water levels underneath the ground rise above normal levels. Prolonged heavy rainfall soaks into the ground and can cause the ground to become saturated. This results in rising groundwater levels which leads to flooding above ground.

The Lincolnshire County Council PFRA (June 2011) 'Areas Susceptible to Groundwater Flooding' map (Appendix I) shows that the site is in an area with between a 25% and 50% susceptibility of groundwater flooding.

The Ground Investigation report (Mayer Environmental Ltd, document reference: R-129-002870) identified

superficial deposits of clay. Groundwater was encountered at 14m.bgl at BH03. Subsequent monitoring identified groundwater near the surface. This could be due to the monitoring wells creating preferential pathways for the groundwater. Artesian groundwater, that can rise to the surface under its own pressure, was encountered at all borehole locations.

The impermeable nature of the underlying clay will limit the vertical migration of groundwater. On the basis that any previous boreholes have been capped / sealed, it can be concluded that the risk of groundwater flooding is low.

Artificial Sources

There are no canals within the vicinity of the site. The EA 'Flood Risk from Reservoirs' map (Appendix E) shows that the site is not at risk of flooding from reservoirs. It can therefore be concluded that the risk of flooding from artificial sources is very low.

Summary of Potential Flooding

It can be concluded that tidal flooding is the main potential source of flood risk to the site. During the 0.5% AEP (year 2099) Breach 1 event, the maximum estimated flood level is 3.66m AOD. The associated risk has been used to inform mitigation design.

Mitigation

The site is identified at risk of tidal flooding with a maximum flood level of 3.66m AOD during the 0.5% AEP (year 2099) Breach 1 event.

For Plot I, which will contain all of the 'more vulnerable' waste management development, it is proposed to raise the site level to a minimum of 4.26m AOD. This will ensure all 'more vulnerable' elements of the development are flood free and provides 600mm freeboard above the flood level.

In order to minimise the impact of flooding to Plot C which will contain the site office building, the following flood resilience and resistance measures can be applied where practical:

- Use robust construction materials (engineering bricks) to a height of 3.66m AOD.
- Raise electronic control units and sockets as high as practical.
- Use solid flooring (tiled, resin, concrete) at ground floor level.
- Install smart air bricks or air brick covers.
- Use non-hygroscopic renders, where applicable.
- Install flood guards to all external doors.
- Seal cable entry points.

- Store any equipment sensitive to flood damage at a high level.
- Use plastic and stainless-steel fixtures and fittings and avoid wooden alternatives.

Flood Warnings and Evacuation

Flood Warnings are available for the tidal River Humber. Site management and staff should register to receive Flood Warnings. Flood Warnings is a free service that provides prior warning of a tidal flood event.

The site management should prepare a flood plan to inform site users of the flood risk and to provide advice on what to do in the event of a flood. The flood plan should include details of an evacuation route to be used upon receipt of a Flood Warnings and prior to flooding occurring. Evacuation is available by heading south-east on Energy Park Way. A flood evacuation route plan is included as Appendix J.

When a Flood Warning is in place the site should not be occupied. Where no Flood Warning is received and prior evacuation has not been possible, it is considered safe for site users to remain on site (within Plot I) which will be raised above flood levels. Site users should not evacuate into flood water unless instructed to do so otherwise by the emergency services.

Impact on Flood Risk Elsewhere

To quantify the impact of the proposed land raising on flood risk elsewhere, hydraulic modelling has been undertaken to compare flood depths and water levels in the existing (as existing ground levels) and proposed development (site levels raised) scenarios. Water level difference mapping has been prepared showing relative water level changes across the wider floodplain. Modelled output mapping for the existing and proposed scenario 0.5% AEP plus Upper End CC breach flood event is included Appendix G.

Figure 7 shows the relative changes in flood depths across the wider floodplain as a result of raising site levels. Increases in flood risk off-site are localised to land immediately east of the development site. Water levels generally increase by 30mm – 50mm and up to a maximum of 90mm in an isolated area. The flood extent is not increased, and the increase in flood depths occur where flood depths generally vary from 600mm – 1.2m.

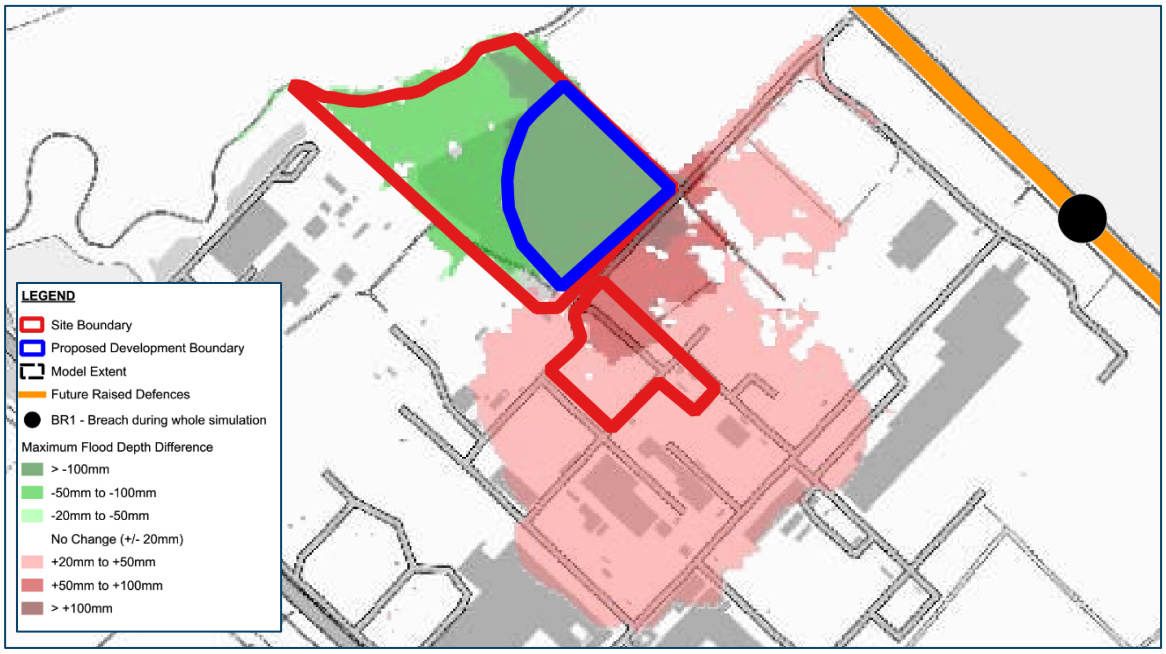


Figure 7 – Maximum Flood Depth Difference – 0.5% AEP Upper End CC (Year 2099) Breach Event

Land where flood depths are shown to increase is generally constrained to undeveloped land and existing / proposed industrial development. The adjacent existing / proposed industrial buildings are not raised above flood levels. As such, during a flood event, the adjacent industrial buildings would not be operational. A marginal increase in flood depths of up to 35mm would therefore not impact the ability of any adjacent industrial units to be operational in times of flood.

As shown in Figure 8, and on the modelled output mapping (Appendix G), the flood hazard rating across the wider floodplain does not change as a result of raising the proposed site level. As the flood hazard rating is not changed, the proposed development (site raising) is not considered to impact on the operation of adjacent industrial units or impact upon safe access / egress to / from the adjacent industrial units during a flood event.

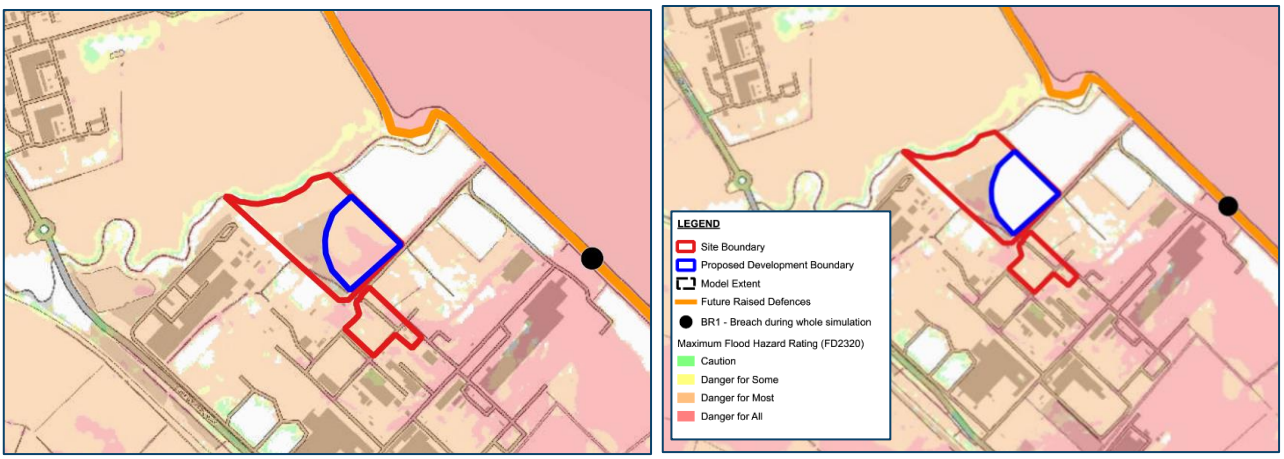


Figure 8 – Existing (left image) and Proposed (right image) Flood Hazard Rating – 0.5% AEP Upper End CC (Year 2099) Breach Event.

It can therefore be concluded that the marginal increase in flood risk off-site as a result of raising the development platform will not impact on the operation of the adjacent industrial land use.

Other Considerations

Maintenance access to Oldfleet Drain will be retained. No development is proposed within 50m of Oldfleet Drain. Landscaped buffers will be provided to the ditch which intersects Plots I and C, and the ditch north-east of Plot I.

Sequential and Exception Test

Sequential Test

The NPPF requires the Local Authority to apply the Sequential Test in consideration of new development. The aim of the Test is to steer new development to areas at the lowest probability of flooding. The Sequential Test is based on the EA Flood Zones and information contained within the SFRA.

The development is considered to pass the Sequential Test as the site is allocated in the North East Lincolnshire Local Plan 2013-2032 for employment use under allocation ERL015a.

Exception Test

The NPPF advises that the Exemption Test is required for 'more vulnerable' development in Flood Zone 3. For the Exception Test to be passed, it must be demonstrated that:

A. the development would provide wider sustainability benefits to the community that outweigh flood risk, and;

B. the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

With reference to point (a) above, the proposed waste management site will provide employment land within a designated employment allocation (ELR015a) in the North East Lincolnshire Local Plan 2013-2032. With reference to point (b) above, this Flood Risk Assessment demonstrates that through the application of mitigation measures the development will be safe for its lifetime.

Conclusions

The proposed development is for a waste management site which will include the processing of specialist waste. The site is split into 2 distinct parcels which are separated by a ditch. The northern parcel is referred to as Plot I. The southern parcel is referred to as Plot C. Plot I will contain all buildings and equipment involved in the waste management process. Plot C will contain the site office and staff car park.

The Environment Agency 'Flood Map for Planning' shows that the site is located within Flood Zone 3 – an area considered to be at flood risk with a 0.5% (1 in 200) or greater annual probability of tidal flooding.

The main potential source of flooding to the site is tidal flooding from the Humber Estuary. During the 0.5% Annual Exceedance Probability (AEP) (year 2099) Breach 1 event, the site is estimated to flood with depths of up to 1.52m and a maximum flood level of 3.66m AOD.

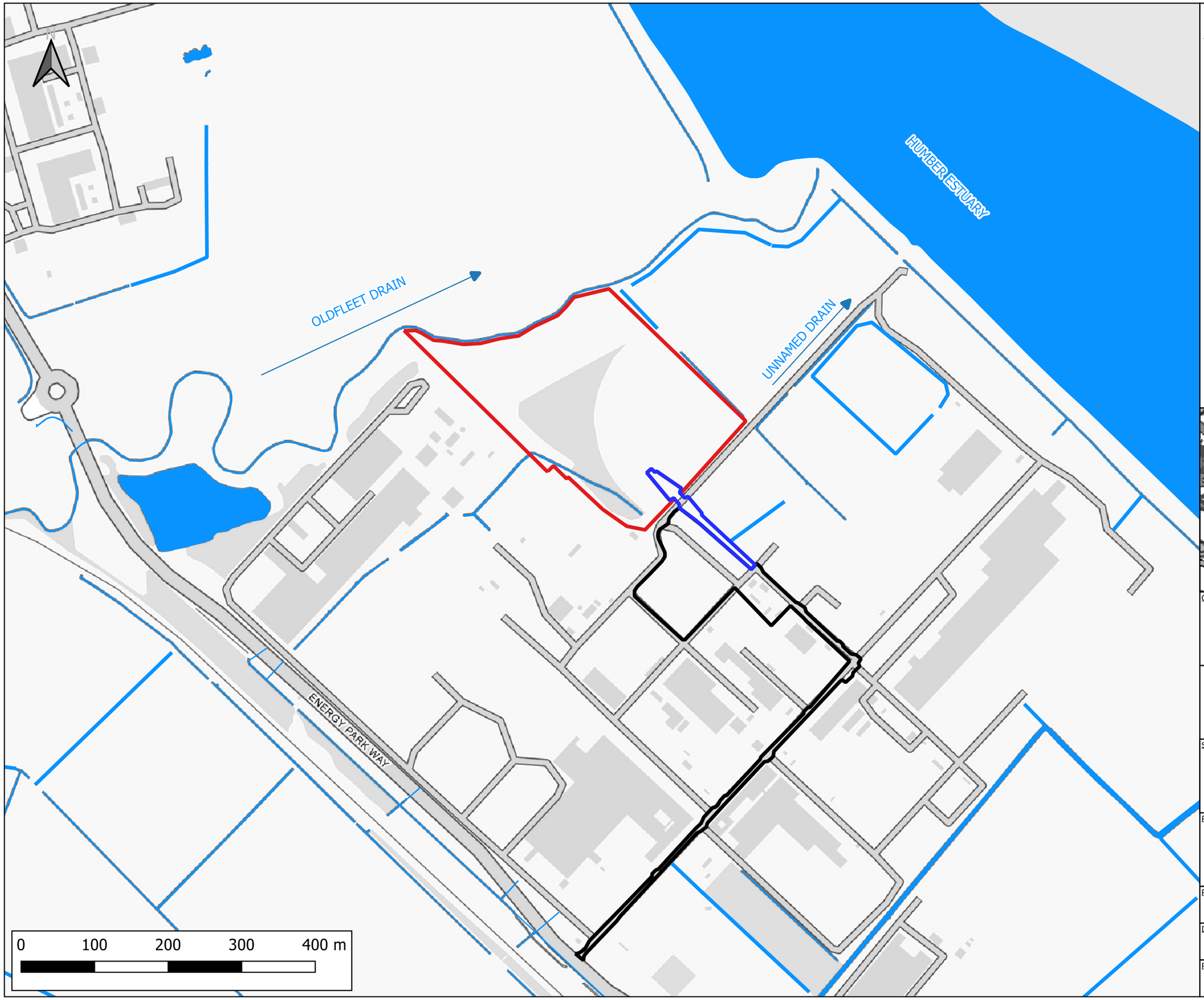
For Plot I, which will contain all of the 'more vulnerable' waste management development, it is proposed to raise the site level to a minimum of 4.26m AOD. This will ensure all 'more vulnerable' elements of the development are flood free and provides 600mm freeboard above the flood level.

Raising site levels across Plot I will result in a minor increase in flood depths off-site. The off-site flood depth increase is localised to land immediately east of the development site. Water levels generally increase by between 30mm and 50mm in locations where flood depths generally vary from 600mm – 1.2m. Land where flood depths are shown to increase is generally constrained to undeveloped land and existing / proposed industrial development. The adjacent existing / proposed industrial buildings are not raised above flood levels. As such, during a flood event, the adjacent industrial buildings would not be operational. A marginal increase in flood depths of up to 50mm would therefore not impact the ability of any adjacent industrial units to be operational in times of flood. The flood hazard rating across the wider floodplain does not change as a result of raising the proposed site level.

Recommendations

1. Submit this Flood Risk Assessment to the Planning Authority in support of the Planning Application.
2. Set the minimum site level at Plot I (in the location of all 'more vulnerable' development) to 4.26m AOD.
3. Install the flood resilience measures, detailed in this report where practical (applicable to Plot C).

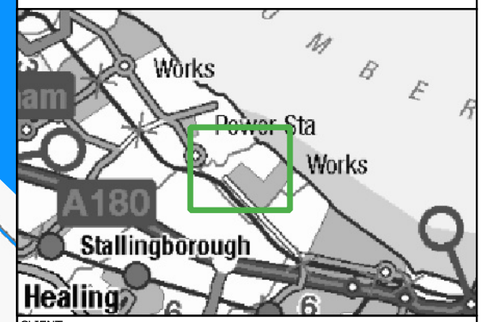
Appendix A Location & Aerial Plan



Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Plot I
- Plot C
- Permitted New Road Extension and Bridge Link
- Waterbodies
- Watercourses



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Location Plan

PLOT STATUS:	DATE:
FINAL	09-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
IH	AA	LS	1:5000

PLOT NAME:	REVISION:
15887_Location_Plan	-

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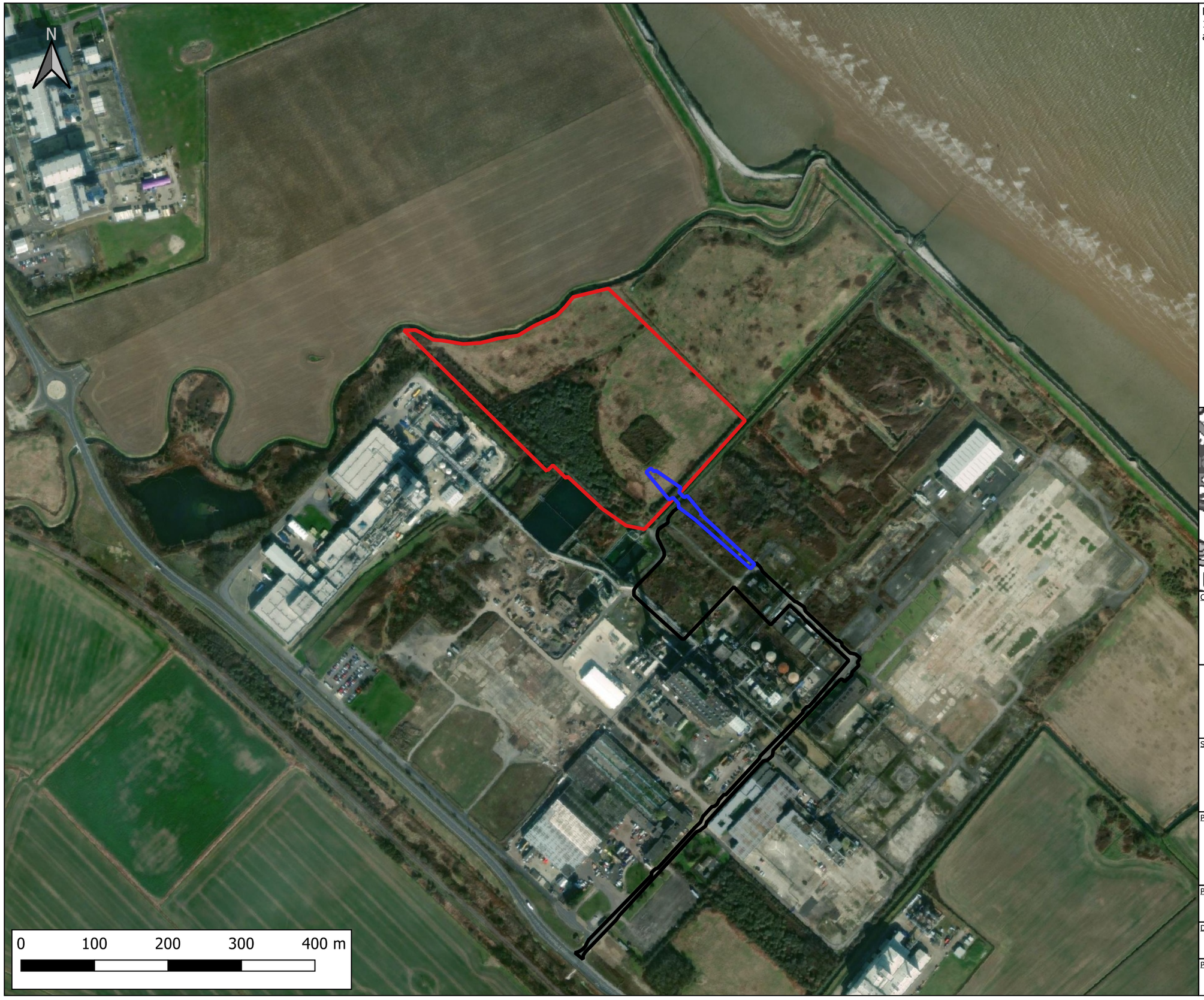
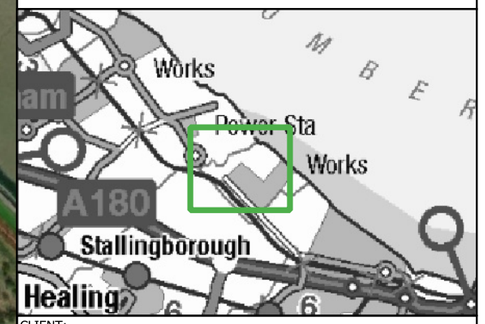


Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Plot I
- Plot C
- Permitted New Road Extension and Bridge Link



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Aerial Plan

PLOT STATUS:	DATE:
FINAL	09-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
IH	AA	LS	1:5000

PLOT NAME:	REVISION:
15887_Aerial_Plan	-

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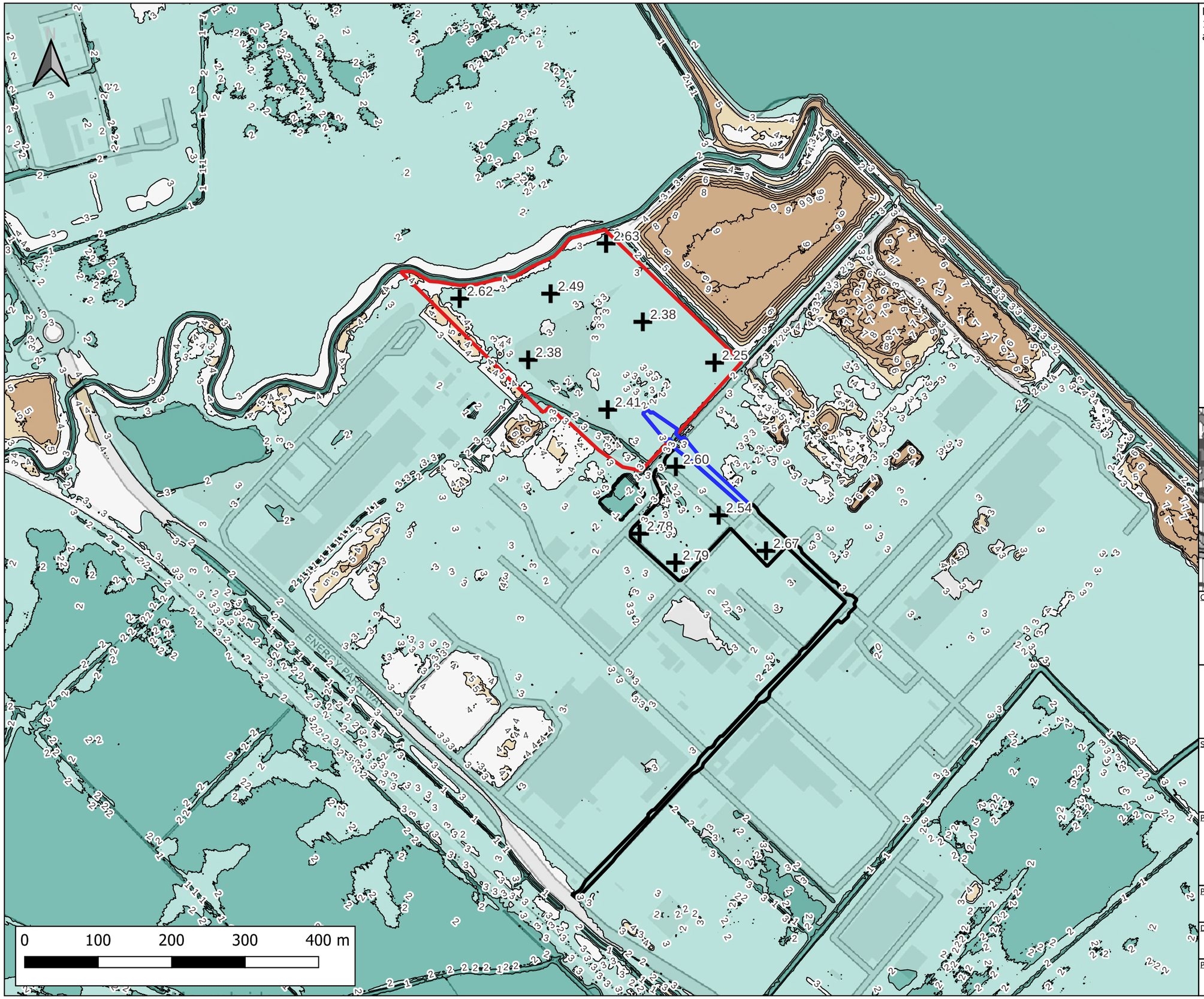
Appendix B Topographical Information



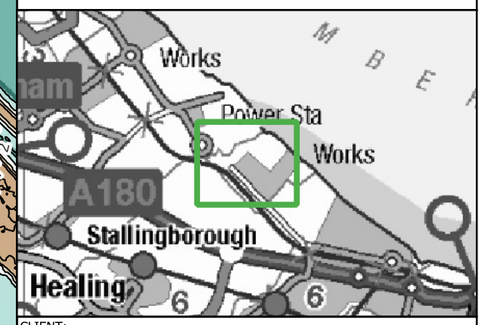
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Plot I
- Plot C
- Permitted New Road Extension and Bridge Link
- 1m contour
- Site Levels (m AOD)

Ground Elevations (m AOD)

- <= 2
- 2 - 3
- 3 - 4
- 4 - 5
- > 5



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
LiDAR Plan
1m Resolution
Data from Environment Agency

PLOT STATUS:	DATE:
FINAL	09-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	AW	MW	1:5000

PLOT NAME:	REVISION:
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E523400 E523450 E523500 E523550 E523600 E523650 E523700

N413000 N412950 N412900 N412850 N412800 N412750

Bank Top
Ditch
Ditch Drain
Dense Foliage
Dense Foliage (Brambles)
Dense Foliage (Mainly Bushes)
Rough
Overhead Powerline (Disrupted)
Borehole

SYMBOL LEGEND

- Borehole
- Benchmark
- Bollard
- Bus Stop
- Electric Box
- Electricity Pole
- Fence Post
- Gas Stop Valve
- Gate Post
- Gas Marker
- Gully
- Gas Well
- Kerb Outlet
- Litter Bin
- Leachate Chamber
- Lamp Post
- Manhole Point
- MH Triangular
- Wooden Peg
- Ground Marker
- Marker Post
- Pylon
- Rodding Eye
- Sample Point
- Sign Post
- Spot Height
- Eave Level
- Ridge Level
- Stile
- Survey Station
- Traffic Camera
- Telephone Box
- Trial Pit
- Telegraph Pole
- Deciduous Tree
- Road Sign
- Valve
- Vent
- Water Meter
- Letter Box
- MH
- Knockout Pot

LINETYPE LEGEND

- Bridge
- Bottom of Bank
- Building
- Canopy Edge
- Concrete Edge
- Ditch
- Drop Kerb
- Overhead Cable
- Fence
- Gate
- Kerb
- Path
- Pipe Line
- River
- Surface Water Drain
- Railway Line
- Road Centre Line
- Tarmac Edge
- Top of Bank
- Track
- Wall
- Verge
- Flagstone Paving
- Stone
- Hedgeline
- Grass Edge

MANHOLE LEGEND

MHCT	Cable Television
MHEL	Electricity
MHGA	Gas
MHSW	Surface Water
MHFW	Foul Water
MHBT	British Telecom
MHWT	Water

ABBREVIATIONS

LP.	Lamp Post
TP.	Telegraph Pole
EP.	Electricity Pole
SP.	Sign Post
TL.	Tarffic Light
BS.	Bus Stop
GM.	Gas Marker Monument
MH.	Manhole
GU.	Gully
FH.	Fire Hydrant
CATV.	Cable Television Point
WM.	Water Meter
WSV.	Water Stop Valve
GSV.	Gas Stop Valve
RE.	Rodding Eye
GU.	Gully
FH.	Fire Hydrant
CATV.	Cable Television Point
WM.	Water Meter
WSV.	Water Stop Valve
GSV.	Gas Stop Valve
TTP.	TTP Paving

SURVEY IS ORIENTED TO ORDNANCE SURVEY NATIONAL GRID. POSITIONS FIXED BY GPS ACTIVE NETWORK TO OSGB36(15), LEVELS TO OSGM15.

THIS SURVEY SHOWS PHYSICAL SITE BOUNDARIES ONLY. CONFIRMATION OF LEGAL OWNERSHIP BOUNDARIES SHOULD BE OBTAINED BY REFERENCE TO THE H.M. LAND REGISTRY TITLE PLAN

THE PLAN SCALE IS FOR GUIDANCE ONLY.
DO NOT SCALE DIRECTLY .
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REV.	DESCRIPTION	DATE

LATITUDE SURVEYS | Chartered Land Surveyors

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CLIENT

JOB TITLE

HUMBER GATE, IMMINGHAM

DRAWING TITLE

TOPOGRAPHIC SURVEY

DRAWN	SIGNATURE	DATE	STATUS
TD		29/09/2023	FOR COMMENT ☐
APPROVED	SIGNATURE	DATE	FOR APPROVAL ☐
			DRAFT ☐
			FINAL ☑

SCALE	SHEET	DRAWING NO.	REVISION
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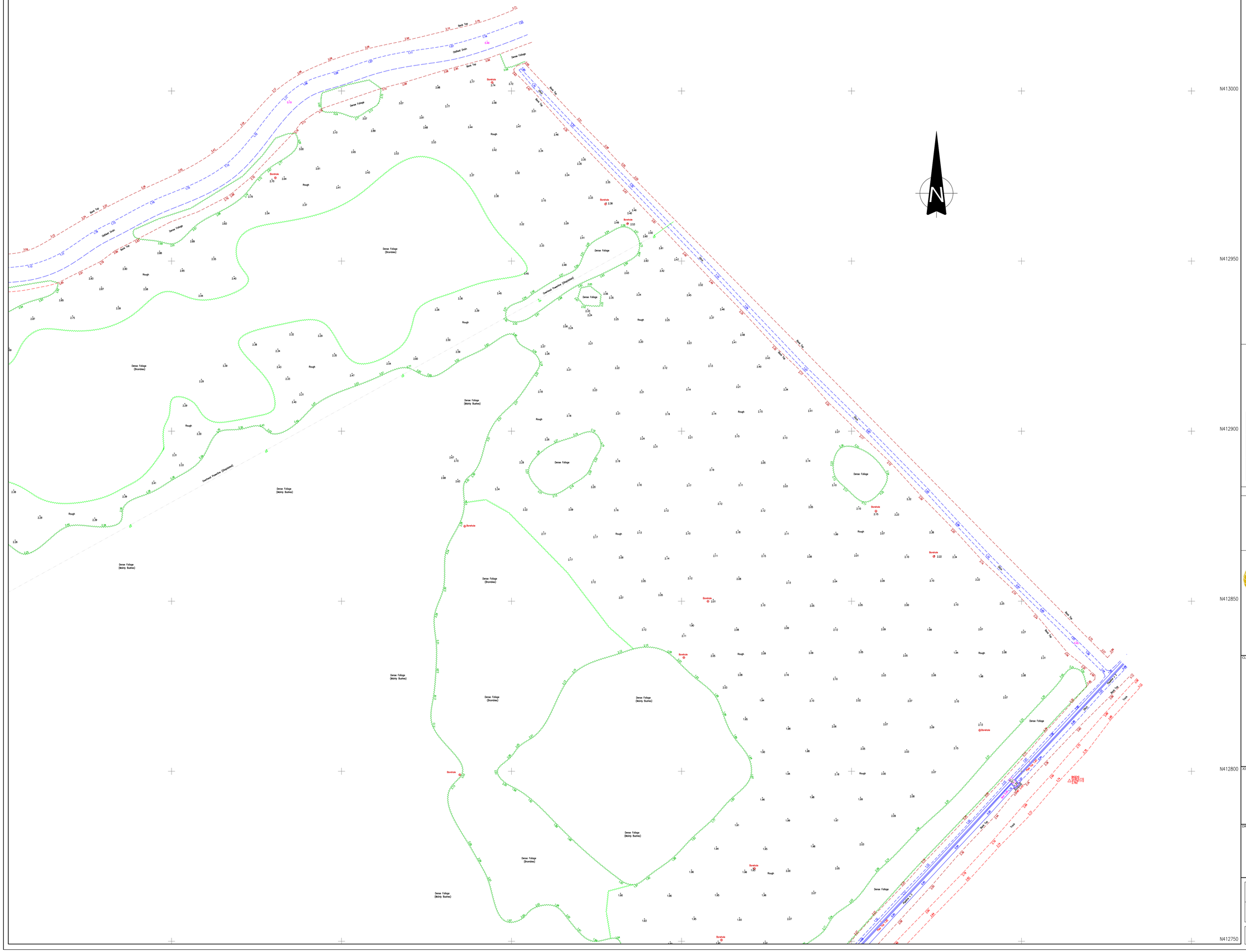

SYMBOL LEGEND

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- Benchmark
- Bollard
- Bus Stop
- Electric Box
- Electricity Pole
- Fence Post
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- Litter Bin
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- Spot Height
- Eave Level
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- Trial Pit
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- Deciduous Tree
- Road Sign
- Valve
- Vent
- Water Meter
- Letter Box
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- Knockout Pot

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- Kerb
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- Pipe Line
- River
- Surface Water Drain
- Railway Line
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- Track
- Wall
- Verge
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REV.	DESCRIPTION	DATE

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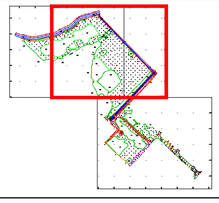

JOB TITLE

HUMBER GATE, IMMINGHAM

DRAWING TITLE

TOPOGRAPHIC SURVEY

DRAWN	SIGNATURE	DATE	STATUS
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APPROVED	SIGNATURE	DATE	FOR APPROVAL ☐
			DRAFT ☐
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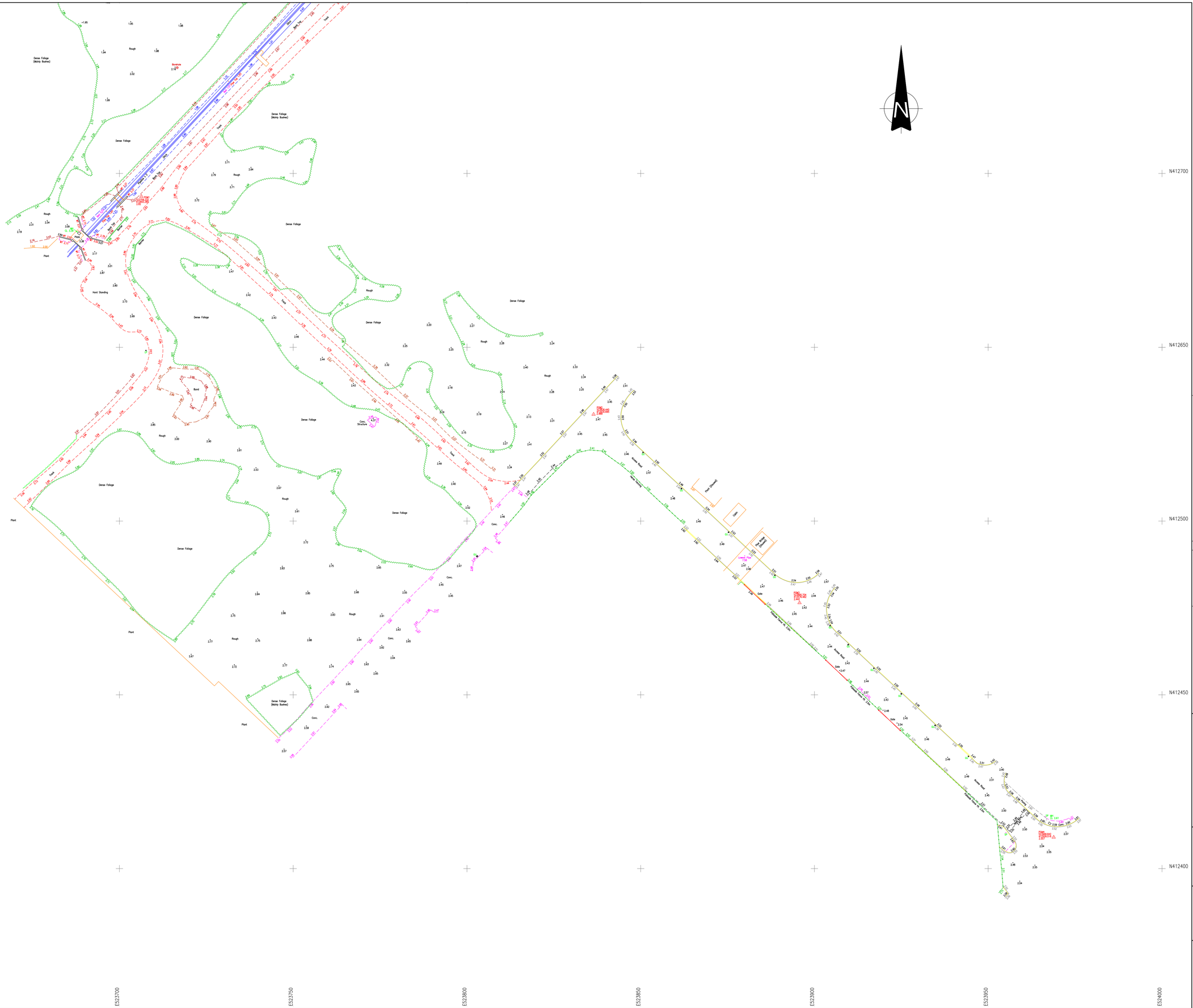
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N412650
N412500
N412450
N412400
E523650
E523700
E523750
E523800
E523850
E523900
E523950
E524000
Dense Foliage (Mainly Bushes)
Rough
Hard Standing
Plant
Bund
Bollard
Bus Stop
Gate
Conc.
Conc. Structure
Acacia Road
Hawk Spring
Four Oaks Road
Four Oaks Crescent
The Willow (Beech)
Lower Pine
Pine
Oak
Ash
Lime
Sycamore
Cedar
Elder
Holly
Hawthorn
Privet
Laurel
Yew
Rhododendron
Rose
Fuchsia
Heather
Gorse
Broom
Bramble
Nettle
Thistle
Dock
Bracken
Fern
Moss
Lichen
Fungus
Mushroom
Toadstool
Acorn
Leaf
Twig
Branch
Trunk
Root
Stump
Log
Pile
Heap
Mound
Hill
Valley
Ridge
Slope
Flat
Level
Uneven
Rough
Smooth
Hard
Soft
Wet
Dry
Muddy
Dusty
Sandy
Gravel
Stone
Rock
Boulder
Pebble
Shingle
Clay
Silt
Peat
Soil
Turf
Grass
Weed
Plant
Tree
Shrub
Hedge
Fence
Wall
Gate
Post
Rail
Wire
Mesh
Net
Cage
Pen
Enclosure
Compound
Yard
Area
Zone
Section
Part
Piece
Plot
Lot
Parcel
Tract
Land
Ground
Earth
Dirt
Mud
Sand

Appendix C Ground Investigation Results

Summary of GI Findings	
Site Works	Site work was undertaken from the 11th to the 27th September 2023.
Ground Conditions Encountered	Plot C - Made Ground was encountered at some locations to a maximum depth of 1.7 m bgl. Below this the Tidal Flat Deposits comprising a stiff brown clay were identified, with a soft grey clay also noted in some locations. Plot I – Made Ground was not encountered on Plot I in any location. Topsoil was encountered in some locations at the surface. In all locations the stiff clay of the tidal flat deposits was encountered to a maximum thickness of 3m, which was underlain by soft grey clay with peat and organic matter inclusions. The maximum thickness of this layer was 7.3m, with the firm brown clay present again under the grey clay. This in turn was underlain by putty chalk of the Flamborough Chalk Formation from a depth of circa 20m bgl.
Conclusions	**Soils** No significant levels of contaminants were identified in the soils from Plot I. Asbestos fibres and PAHs were identified in discrete areas on Plot C. **Groundwater** No significant levels of contaminants were identified within the groundwater. **Ground Gas** Elevated levels of methane have been identified within boreholes BH03 and BH05, potentially linked to dissolved methane identified in the groundwater which is likely to be from the peat and organic matter present within the clay. **Asbestos** Asbestos cladding is potentially present on the existing buildings on Plot C.
Final Conceptual Site Model	Overall the main pollutant linkage of concern is considered to be the presence of ground gas and the potential impact it may have on the proposed development. Further monitoring is required to further establish the significance of these ground gases.
Recommendations	Further gas monitoring is required comprising in-situ continuous gas monitoring and surface gas monitoring.
The Executive Summary is based on the information presented in the full report and does not form a full assessment of the available data. This summary is to be read in conjunction with the full report.	

6 GROUND INVESTIGATION

6.1 Site Works & Methodology

The work has been done to provide information for both environmental and geotechnical purposes. Mayer have worked alongside geotechnical specialists EAL on the following scope and interpretation of the subsequent findings and data.

Prior to any work being undertaken an underground utilities report was obtained for the site. Prior to commencing, services were scanned for at all exploratory hole locations. Locations of the exploratory holes are marked on the site plan included in Appendix A. Logs and installation details are included in Appendix F.

The main ground investigation was undertaken between 11th and 27th September 2023 with a Seismic Survey undertaken on 3rd October 2023 by Zetica Ltd and a resistivity survey undertaken on 16th October 2023 by EAL.

Soil samples were collected in accordance with the laboratory requirements for analysis, appropriately commensurate with BS 10175: 2011+A1:2013.

The following tables summarise the rationale for exploratory points and details of those undertaken.

TABLE 6.0 GROUND INVESTIGATION – PLOT C

Exploratory Holes	Depth (m bgl)	Method	Purpose	Notes / Installations
TP01, TP02, TP10	Max 2m bgl	Trial Pitting (JCB 3CX)	Establish ground conditions across Plot C focussing on areas of fly tipping.	Backfilled
TP09	3.0	Trial Pitting (JCB 3CX)	Establish ground conditions closest to existing buildings where asbestos sheeting and cans of paint stored.	Backfilled
WS05, WS06	Max 4m bgl	Tracked window sampling rig	Establish ground conditions across Plot C	Backfilled
TP11, TP12, TP13	Max 3.1m bgl	Trial Pitting (JCB 3CX)	Establish conditions under current roadway in anticipation of new roadway being located in same area.	Backfilled

TABLE 6.1 GROUND INVESTIGATION – PLOT I

Exploratory Holes	Depth (m bgl)	Method	Purpose	Notes / Installations
WS01 through WS04	Max 4m bgl	Tracked window sampling rig	Establish ground conditions across Plot I in area of proposed development with installation wells to establish if any ground gas moving on site from adjacent inert landfill.	Installed with 50mm Ø monitoring well to full depth drilled.
BH01, BH03, BH05	Max 27m bgl	Cable Percussion	Establish ground conditions across Plot I in area of proposed development and establish depth of chalk.	Installed with 50mm Ø monitoring well to 10m bgl.
BH02	23m bgl	Cable Percussion	Establish ground conditions in area of proposed chimney.	Installed with 150mm Ø plain pipe to 21m bgl for seismic survey.
BH04	21m bgl	Cable Percussion	Establish ground conditions across Plot I in area of proposed development.	Backfilled
TP03 through TP08	Max 4m bgl	Trial Pitting (JCB 3CX)	Establish ground conditions across Plot I in area of proposed development.	Backfilled
CBR01 through CBR09	Excavations max 1m bgl	Test Pits & CBR (Jackson Drilling) by JCB 3CX.	Establish ground conditions across Plot I in area of proposed development.	Backfilled
CPT 1-1, CPT 2-2, CPT 3-3, CPT 4-6, CPT 5-5, CPT 6-4	Excavations max 1.2m bgl	Test Pits by JCB 3CX. SPTs by 200KN Crawler CPT Rig operated by Central Alliance Ltd	Establish ground conditions across Plot I in area of proposed development.	Backfilled

6.2 Strata Encountered

Soils were logged in accordance with BS5930, logs and cross sections are included in Appendix F and Appendix G and a summary is included in the following tables.

TABLE 6.2 SUMMARY OF STRATA ENCOUNTERED

Strata	General Description	Depth to Top (m bgl)	Depth to Base (max) (m bgl)	Max Thickness (m bgl)
Made Ground	Topsoil, Brick, concrete, ash, surface roadstone, concrete and brickwork layers, limestone slab, pieces of rubber and fabric.	Surface	2.00	2.00
Tidal Flat	(Firm crust) Soft and very soft silty clay, clayey silt, peat,	0.0 – 2.0	8.9	8.9
Glacial Till	Firm brown clay with gravel Sand and gravel	7.0 – 8.9	22.1	13.2
Chalk	Chalk	18.5 – 22.1	N/A	Base not proven

Made Ground was encountered in most locations in Plot C and in only two locations in Plot I.

In Plot I, Made ground was encountered in BH01 and in TP08, comprising soils with brick to 0.3m and cobbles of brick and concrete with occasional plastic 0.5m, respectively.

In Plot C, all of the positions except TP10 encountered made ground, up to a maximum of 2m depth (WS05, TP09). The made ground generally comprised demolition type materials (brick and concrete, including whole bricks), surface concrete and roadstone (WS06, WS07) and gravelly ashy material with clinker, anthracite and slag (TP12, TP01). Layers of possible former slabs (concrete / limestone) and brickwork were found in TP 11, TP12 and TP13.

Some positions encountered more than one layer of fill: In TP09, brick and concrete gravel and cobbles 0.4m thick were over a layer of boulders of chalk to 1m depth. In TP01, two layers were observed with a 0.3m layer of ashy made ground with flint brick and concrete, above a layer of ashy made ground with brick, concrete, anthracite and pieces of rubber and fabric to 0.85m depth.

Topsoil type materials were noted, typically 0.4m thick in TP03, TP04, TP06, TP07 (including piece of wood and metal) and TP10. Shallower topsoil materials, overlying made ground, were found in TP11 (5cm thickness) TP12 and TP 13 (0.2m).

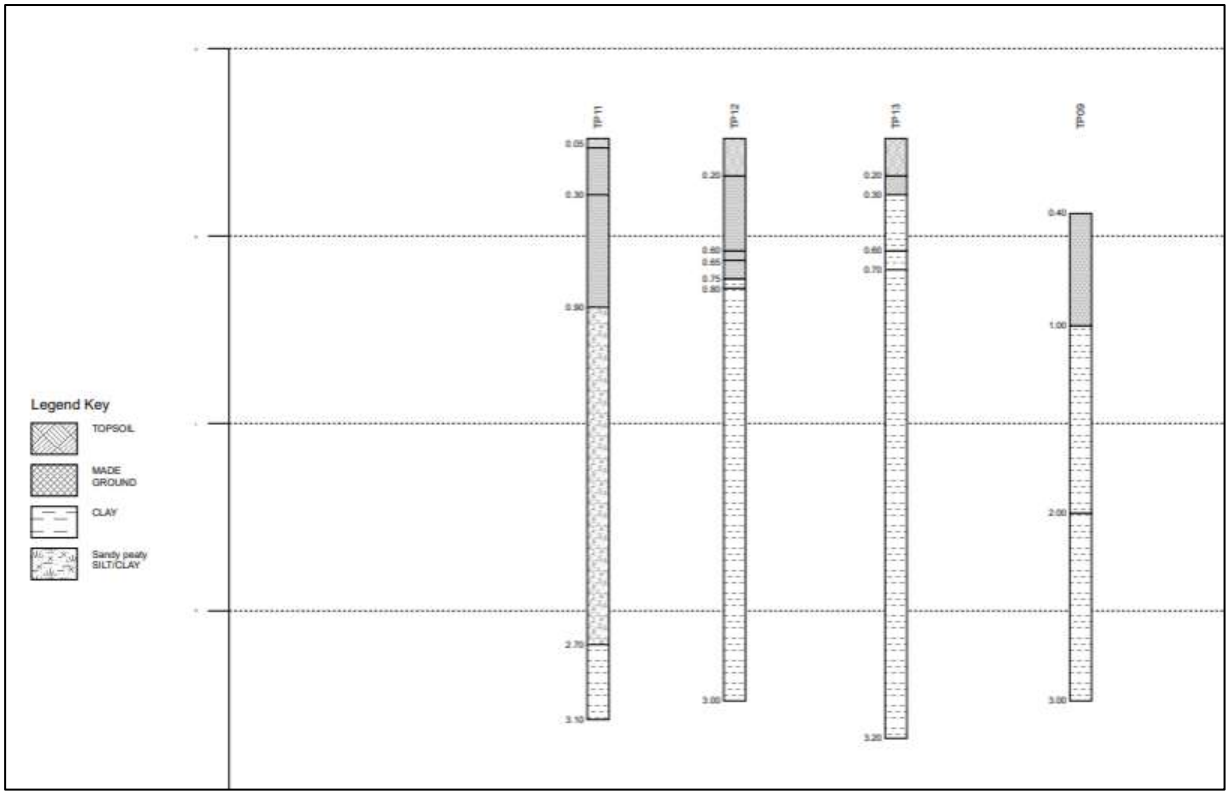
Below the made ground or topsoil, or from surface where made ground / topsoil was absent, strata comprised layered tidal flat deposits of mixed silts, clays, and peat. In the boreholes, it was possible to discern a “crust” of slightly more competent material to around 2m depth, but in general, the material was very soft and soft.

From between around 7m to 9m depth, glacial clay was encountered which became stiffer with depth and included layers of sand and gravel, which were associated with water strikes.

Chalk bedrock was encountered from 18.5 to 22m depth, initially comprising chalk gravel or clay wit chalk gravel, with competent rock proven from around 20m. SPT tests undertaken in the chalk in BH1 from 19.5m to 27.0m depth indicate variable strength, which is typical of the material.

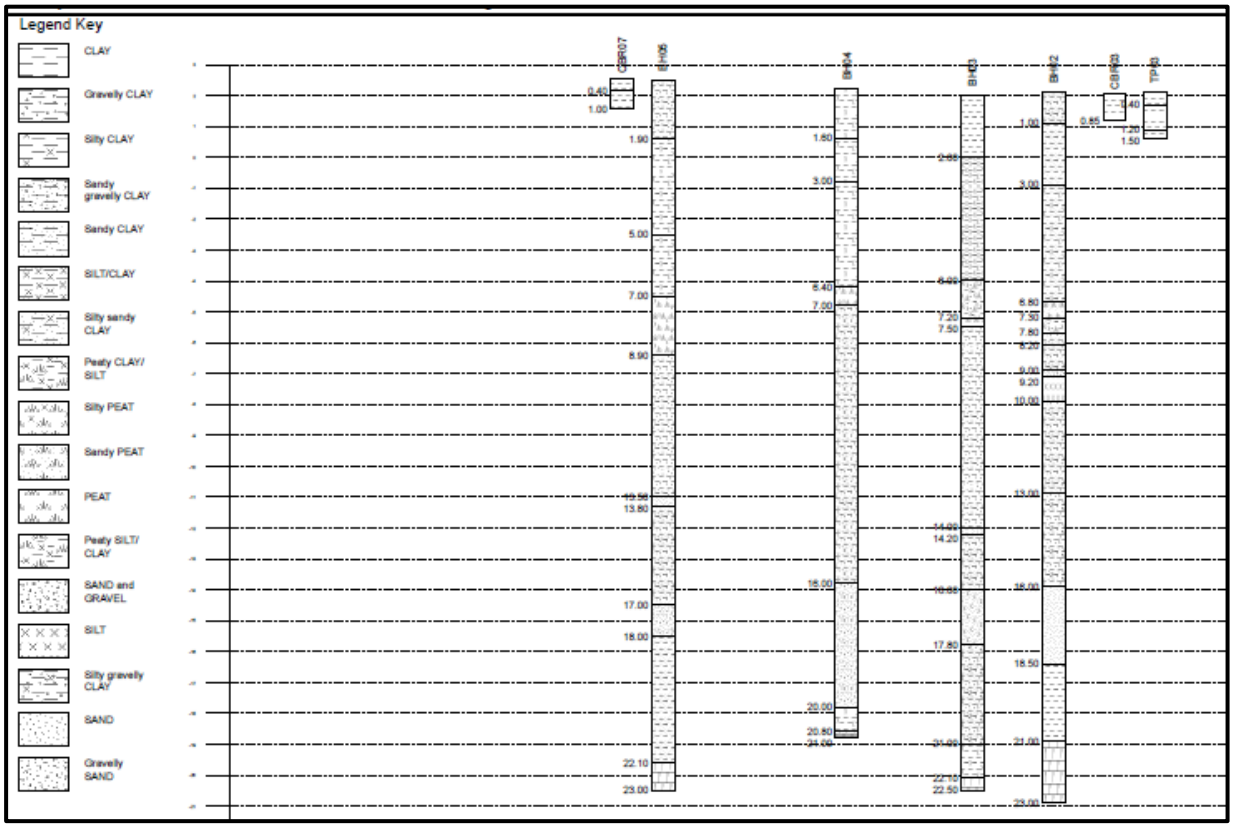
The diagram below shows a cross section of the underlying geology of Plot C running north to south. The Cross Section is also included in Appendix G.

SECTION 1 PLOT C CROSS SECTION RUNNING NORTH TO SOUTH ON PLOT C



The diagram below shows a cross section of the geology underlying Plot I running from the Oldfleet drain towards Plot C. The full cross section is included in Appendix G.

SECTION 2 PLOT I CROSS SECTION RUNNING OLDFLEET DRAIN TO PLOT C



6.3 Site Observations

From the ground investigation undertaken, the following table summarises the observations noted in each exploratory point, comprising subsurface structures or features and any visual or olfactory evidence of contamination.

Typically, contamination that can be apparent from visual or olfactory evidence includes (but not exclusively) organics / hydrocarbons, sulphurous materials, metals, free cyanides and cemented asbestos fragments.

TABLE 6.3 SUMMARY OF SITE OBSERVATIONS

Exploratory Point	Depth	Observation
TP01 – Plot C	0.0 – 0.3	Ashy Made Ground
	0.3 – 0.85	Ashy Made Ground
TP07 – Plot I	0.0 – 0.4	Made Ground with fragments of wood (potentially remnants of sidings) and metal bolt.
TP12 – Plot C	0.2 – 0.65	Made Ground, fragments of clinker and slag
WS06/06A Plot C	0.0 – 1	Ashy Made Ground

6.4 Scheduled Chemical Analysis

6.4.1 Soils

Representative samples of the Made Ground and natural soils were submitted for chemical analysis at a NAMAS / UKAS accredited laboratory with MCERTS certificates (where available) for analytes.

TABLE 6.4 SUMMARY OF SOIL ANALYSIS – PLOT C

Soil Analysis Suite	Made Ground	Natural Clay
ME2	7	5
Asbestos	7	1
TPH CWG	7	5
PCB	5	0
SVOC / VOC	5	0

TABLE 6.5 SUMMARY OF SOIL ANALYSIS – PLOT I

Soil Analysis Suite	Made Ground	Topsoil	Natural Clay	Chalk
ME2	1	4	19	1
Asbestos	1	1	0	0
TPH CWG	1	2	19	1
PCB	1	1	3	0
SVOC / VOC	1	2	3	0
LF1 (Waste Assessment)	0	1	1	0

Note that minimal Made Ground was encountered on Plot I and therefore very few samples were available for testing. In addition, Chalk was only encountered at sufficient depth to enable sampling at location BH01 due to the presence of artesian groundwater across the site.

6.4.2 Groundwater

To provide a general indication of the groundwater quality, three groundwater samples from BH01, BH03 and BH05, were collected on the 30th October 2023 and submitted for the general Mayer suite of contaminants and TPHCWG analysis.

The data is presented in the certificates of analysis in Appendix I.

6.5 Groundwater Conditions

The following table details the groundwater levels in locations with well installations noted during the ground investigation and afterwards, during monitoring. The groundwater monitoring records are included in Appendix M.

TABLE 6.4 GROUNDWATER LEVELS, DURING MONITORING

	BH01	BH03	BH05	Tide Level
During GI	16.5 m bgl	14 m bgl	17 m bgl	n/a
16.10.2023	0.22 m bgl	0.79 m bgl	1.12 m bgl	Falling
30.10.2023	0.05 m bgl	0.44mbgl	0.67 m bgl	Rising
09.11.2023	Above GL	Not recorded	Not recorded	Rising
16.11.2023	Above GL	1.15 m bgl	1.7 m bgl	Falling

The groundwater monitoring data suggests that during the drilling the groundwater was encountered at depth. Subsequent monitoring indicates that the groundwater is near surface. This could be due to the monitoring wells creating preferential pathways for the groundwater, making it appear higher than it actually is. Within the trial pits, groundwater seepage was noted at the base of some of the pits at approximately 4m bgl. Artesian groundwater, that can rise to the surface under its own pressure, was encountered at all borehole locations (BH01 through BH05) once the chalk was reached. This limited the depth of drilling as it was considered prudent to seal the boreholes once the artesian water was encountered. BH01 was drilled to depth to establish the presence and significance of the artesian water and was sealed prior to installing the monitoring well. However, the recent monitoring data indicates that the groundwater level in BH01 is still rising.

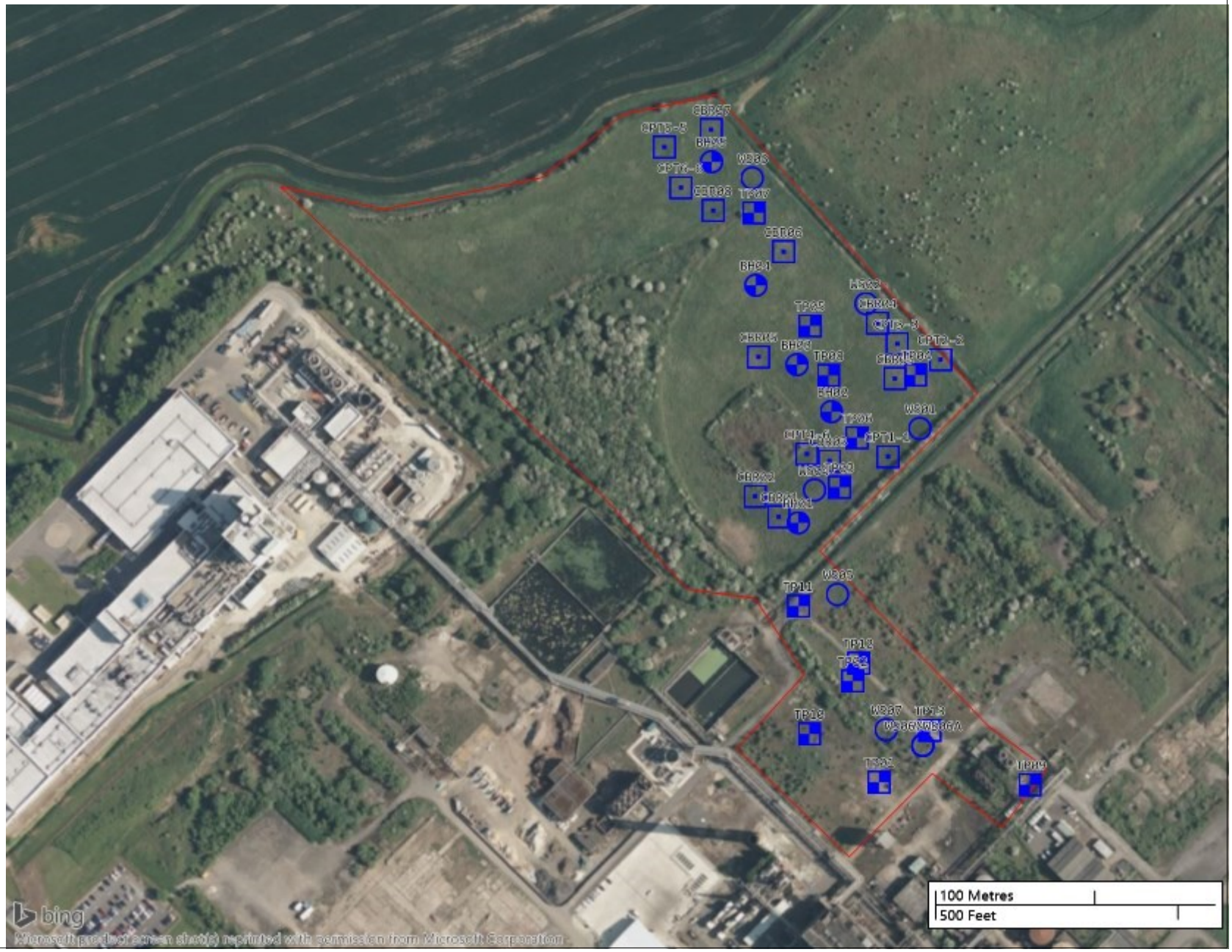
Comparing the groundwater levels to the rise and fall of the tide suggest that there is a tidal influence on the groundwater underlying the site.

Groundwater sampling for chemical analysis was undertaken in the BHs referred to on 30th October 2023. The wells were purged of three well volumes and the water purged from the wells was generally noted to be of dark grey and dark brown in colour, with some suspended sediment. No sheens or other odours were noted during the sampling.

Project Id:	129-002870	Title:	Site Plan
Project Title:	Humber Gate, Grimsby	Scale:	1:3500
Location:	Humber Gate, Energy Park Way, DN31 2TT	Engineer:	Rebecca Beddard
Client:	Mayer Environmental Ltd		

Legend Key

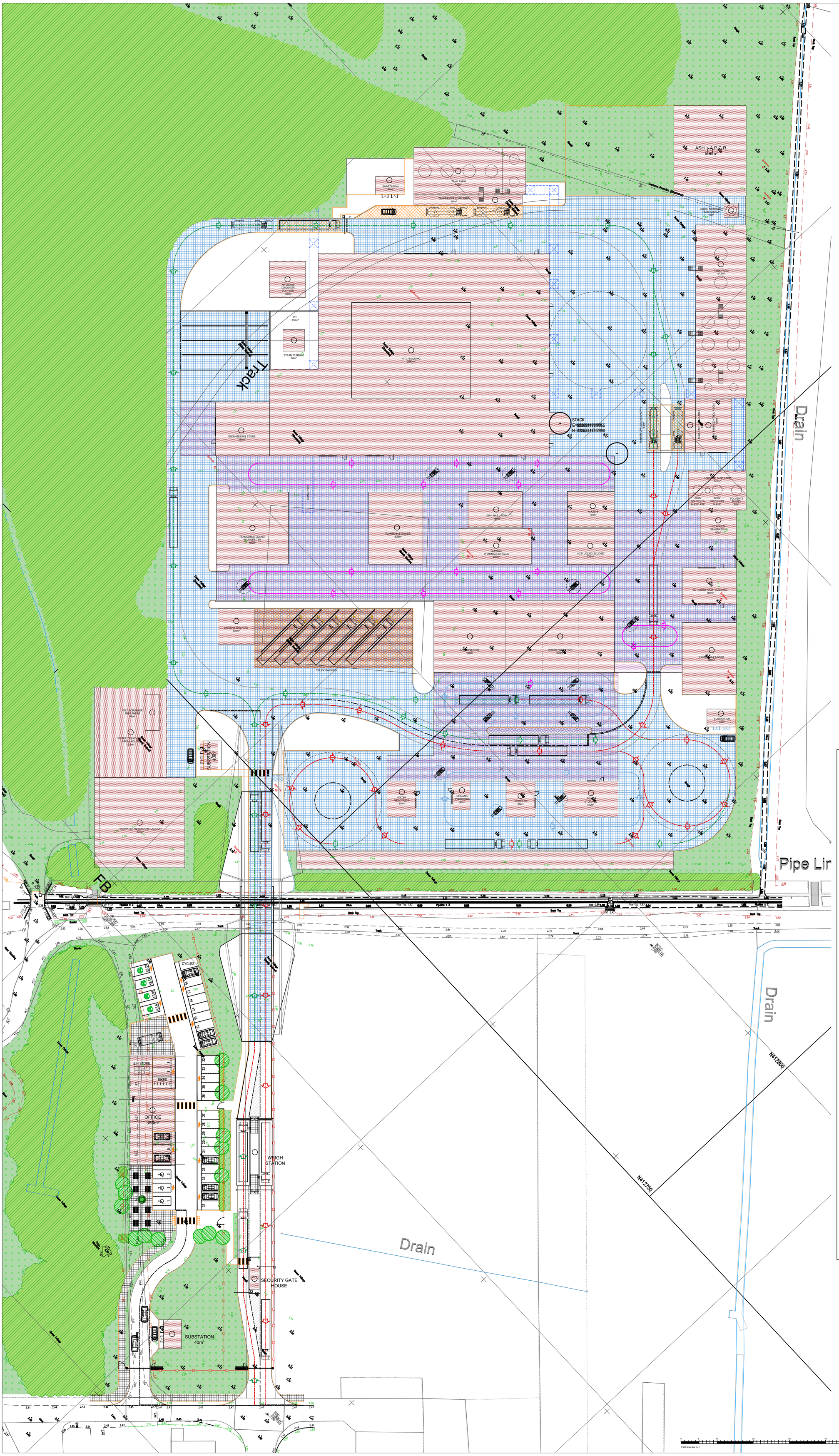
- Locations By Type - Empty
- Locations By Type - CP
- Locations By Type - IP
- Locations By Type - TP
- Locations By Type - WLS
- Project Bounds - Project Bounds



Appendix D Proposed Development Plan

This drawing is copyright.
It is sent to you in confidence and must not be reproduced or disclosed to third parties without our prior permission.
Do not scale from this drawing.
This drawing is to be read in conjunction with all relevant consultants, specialist manufacturers drawings and specifications.
Any discrepancies in dimensions or details on or between these drawings should be drawn to our attention.
All dimensions are in millimeters unless noted otherwise.
Any surveyed information incorporated within this drawing cannot be guaranteed as accurate unless confirmed by fixed dimension.

REV	DESCRIPTION	BY	CHKD	DATE
P01	PRELIMINARY INFORMATION FOR COMMENT AND DISCUSSION.	MPS	PAC	04/11/2024
P02	LAYOUT UPDATED.	MPS	PAC	05/11/2024



AREA SCHEDULE

1. Firewater Reservoir
2. Water Treatment Press House
3. Wet Scrubber Treatment
4. Sub-Station
5. Air Cooled Condenser Platform
6. Tank Farm Control Room
7. Flammable Gas Storage (Portable Tanks)
8. Tanker Offload Area (Space for 2No. Tankers)
9. Liquid Nitrogen Tank (back-up)
10. Nitrogen Generator
11. Tank Farm
12. H.T.I. Building
13. Steam Turbine
14. Control Room for H.T.I.
15. Oxidizers
16. Organic Peroxides
17. Carbon Capture
18. Toxic Storage
19. Environmentally Hazardous Waste
20. Clinical Pharmaceuticals
21. Alkali's
22. Acid Liquid Sludge
23. Water Reactive's
24. Flammable Liquid / Sludge's
25. Flammable Solids
26. Waste Reception
27. Single Storey Laboratory and Welfare
28. Engineering Store
29. Ash and Air Pollution Control Residues
30. Local N
31. Carbon Abatement
32. TF2
33. Packaged Solvent Process Area
34. Flammable Liquids
35. IBC / Drum Wash Area
36. Unwashed Drum / IBC Storage
37. Site Office/ Visitor Centre
38. Security Gate House
39. Drivers Welfare

PURPOSE:	INFORMATION
PROJECT:	G.R.G. Waste UK. Grimsby Waste Recycling Centre.
DESCRIPTION:	Concept Site Layout. Option 6

DRAWN BY:	SCALE:	SHEET SIZE:	DATE:
MPS	1:500	A1	07/10/2024

PRO. NO:	ORIG:	VOLUME:	LEVEL:	TYPE:	ROLE:	NUMBER:	SUITABILITY:	REV:
24003	HL	ZZ	ZZ	DR	A	1606	S2	P02

HOWARTH LITCHFIELD
Liddon House, Belmont Business Park, Durham. DH1 1TW.
Tele: (0191) 3849470 E: hlp@hlpuk.com www.howarthlitchfield.com

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Appendix E EA Flood Maps

N

ROUTH MARSH ROAD

HORSON WAY

ENERGY PARK WAY

Cress Cottage

A180

Maymbridge Drain

Three Drain End Plantation

PEGASUS WAY

INNOVATION WAY

GENESIS WAY

ORION WAY

EUROPA WAY

Sweedale Croft Drain

Town's Croft Drain

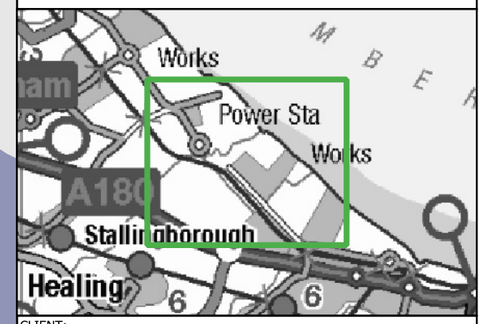
Pyewipe

0 200 400 600 800 1,000 m

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Plot I
- Plot C
- Permitted New Road Extension and Bridge Link
- AIMS Spatial Flood Defences
- Main River
- Flood Zone 1
- Flood Zone 2
- Flood Zone 3



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

EA Flood Map for Planning
Data published March 2025

PLOT STATUS:	DATE:
FINAL	09-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	AW	NJ	1:10000

PLOT NAME:	REVISION:
15887_EA_FMfP	-

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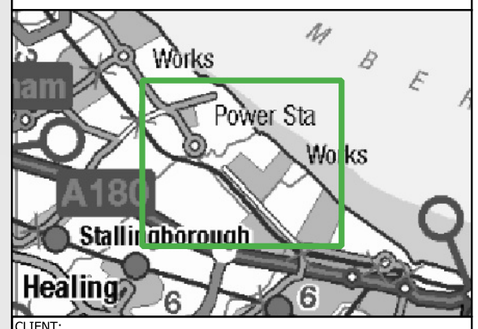
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Plot I
- Plot C
- Permitted New Road Extension and Bridge Link

Annual Likelihood of Flooding

- 1 in 30
- 1 in 100
- 1 in 1000



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
EA Risk of Flooding from Surface Water
Data published January 2025

PLOT STATUS:	DATE:
FINAL	09-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	AW	NJ	1:10000

PLOT NAME:	REVISION:
15887_EA_FMfP_SW_PD	-

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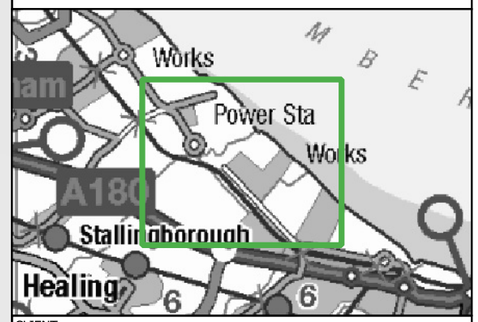
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Plot I
- Plot C
- Permitted New Road Extension and Bridge Link
- When river levels are normal
- When there is also flooding from rivers



CLIENT:

Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

EA Flood Risk from Reservoirs
Data revised March 2025

PLOT STATUS:			DATE:
FINAL			09-05-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	AW	NJ	1:10000

PLOT NAME:	REVISION:
15887_EA_Flood_Risk_from_Reservoirs	-

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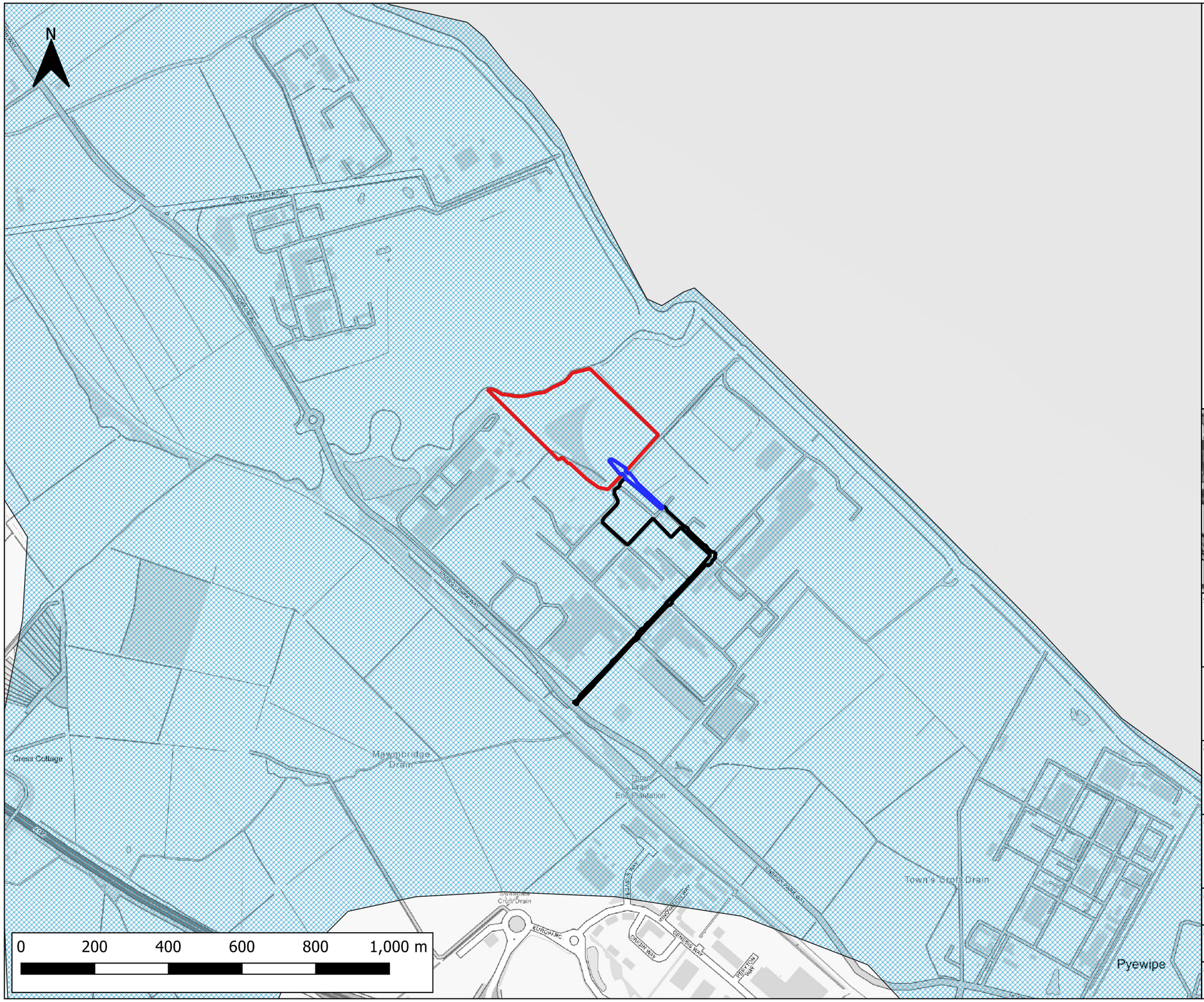
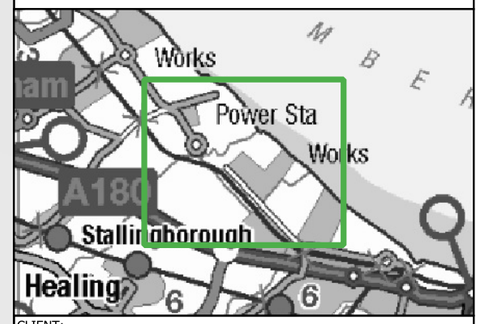


Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise
2) The Historic Flood Map is a GIS layer showing the maximum extent of individual Recorded Flood Outlines from river, the sea and groundwater springs that meet a set criteria. It shows areas of land that have previously been subject to flooding in England. This excludes flooding from surface water, except in areas where it is impossible to determine whether the source is fluvial or surface water but the dominant source is fluvial.
3) If an area is not covered by the Historic Flood Map it does not mean that the area has never flooded, only that the EA do not currently have records of flooding in this area that meet the criteria for inclusion.
4) The Historic Flood Map takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding. It will include flood extents that may have been affected by overtopping, breaches or blockages.

LEGEND

- Plot I
- Plot C
- Permitted New Road Extension and Bridge Link
- Historic Flood Map



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
EA Historic Flood Risk
Data revised February 2025

PLOT STATUS:			DATE:
FINAL			09-05-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	AW	NJ	1:10000

PLOT NAME:	REVISION:
15887_EA_Historic_Flood_Risk	-

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mercedesuden@clarkebond.com

Our ref: CCN-2024-344760

Date: 05/02/2024

Dear Mercedes

Provision of Flood Risk Information for Humber Gate, Energy Park Way, Grimsby.

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

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

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

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

1. Flood Map for Planning

The attached map includes the current Flood Map for Planning for your area. The map indicates the area at risk of flooding, **assuming no flood defences exist**, for a flood with a 0.5% chance of occurring in any year for flooding from the sea, or a 1% chance of occurring for fluvial (river) flooding. It also shows the extent of the Extreme Flood Outline which represents the extent of a flood with a 0.1% chance of occurring in any year, or the highest recorded historic extent if greater.

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

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

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

2. Recorded Flood Outlines

The area was previously known to have flooded in January 1953.

A copy of the Recorded Flood Outlines Map showing the extent of previous recorded flooding in your area is attached. This only covers information we hold and it is possible recent flooding may have occurred which we are currently investigating, therefore this information may be subject to change. It is possible other flooding may have occurred which other organisations, such as the Lead Local Flood Authority (ie top tier council), Local Authority or Internal Drainage Board (where they exist), may have records.

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

3. Schemes in the area

The following capital project is ongoing to reduce or sustain the current flood risk to this site.

There are ongoing tidal defence improvements between Immingham and Grimsby.

The third phase of the Stallingborough Sea Defence Improvement Scheme (part of a wider investment plan to manage tidal flood risk across the Humber estuary) has just begun and will further reduce the tidal risk to this section of coastline.

4. Fluvial Flood Risk Information

The site is not considered to be at risk of flooding from main rivers.

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

5. Tidal Flood Risk Information

This site is considered to be at risk from tidal flooding.

5.1 Tidal Defence Information

The existing tidal defences protecting this site consist of earth embankments and concrete floodwalls.

They are in fair condition and reduce the risk of flooding (at the defence) to a 0.67% (1 in 150) chance of occurring in any year. We inspect these defences routinely to ensure potential defects are identified.

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

5.2 Tidal Flood Levels

The attached data sheets show our current best estimate for extreme tide levels.

Please read the information notes on the data sheets.

5.3 Tidal Hazard Mapping

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

At present this information is available along the full coastal / tidal floodplain, except the tidal Witham Haven in Boston (upstream of Hobhole) where only breaching and not overtopping has been modelled and the tidal River Welland upstream of Fosdyke Bridge where neither breaching nor overtopping are available.

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

The attached maps show the maximum values of flood depth, velocity and hazard rating (danger to people) resulting from breaching of the defences at specific locations for the scenarios below. For some locations the breach mapping also includes flooding from overtopping if this is expected in that scenario. The location of modelled tidal breaches is shown on a separate attached map.

5.3.1 Tidal Hazard Mapping – Breaches

- Year 2006 0.5% (1 in 200) chance
- Year 2006 0.1% (1 in 1000) chance
- Year 2115 0.5% (1 in 200) chance
- Year 2115 0.1% (1 in 1000) chance

5.3.2 Tidal Hazard Mapping - Overtopping

The attached maps show the maximum values of flood depth, velocity and hazard rating (danger to people) resulting from simulated overtopping of defences for the following scenarios:

- Year 2006 0.5% (1 in 200) chance
- Year 2006 0.1% (1 in 1000) chance
- Year 2115 0.5% (1 in 200) chance
- Year 2115 0.1% (1 in 1000) chance

6. Development Planning

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

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

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

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

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

7. Data Licence and Other Supporting Information

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

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

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

8. Other Flood Risk Management Authorities

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

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

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

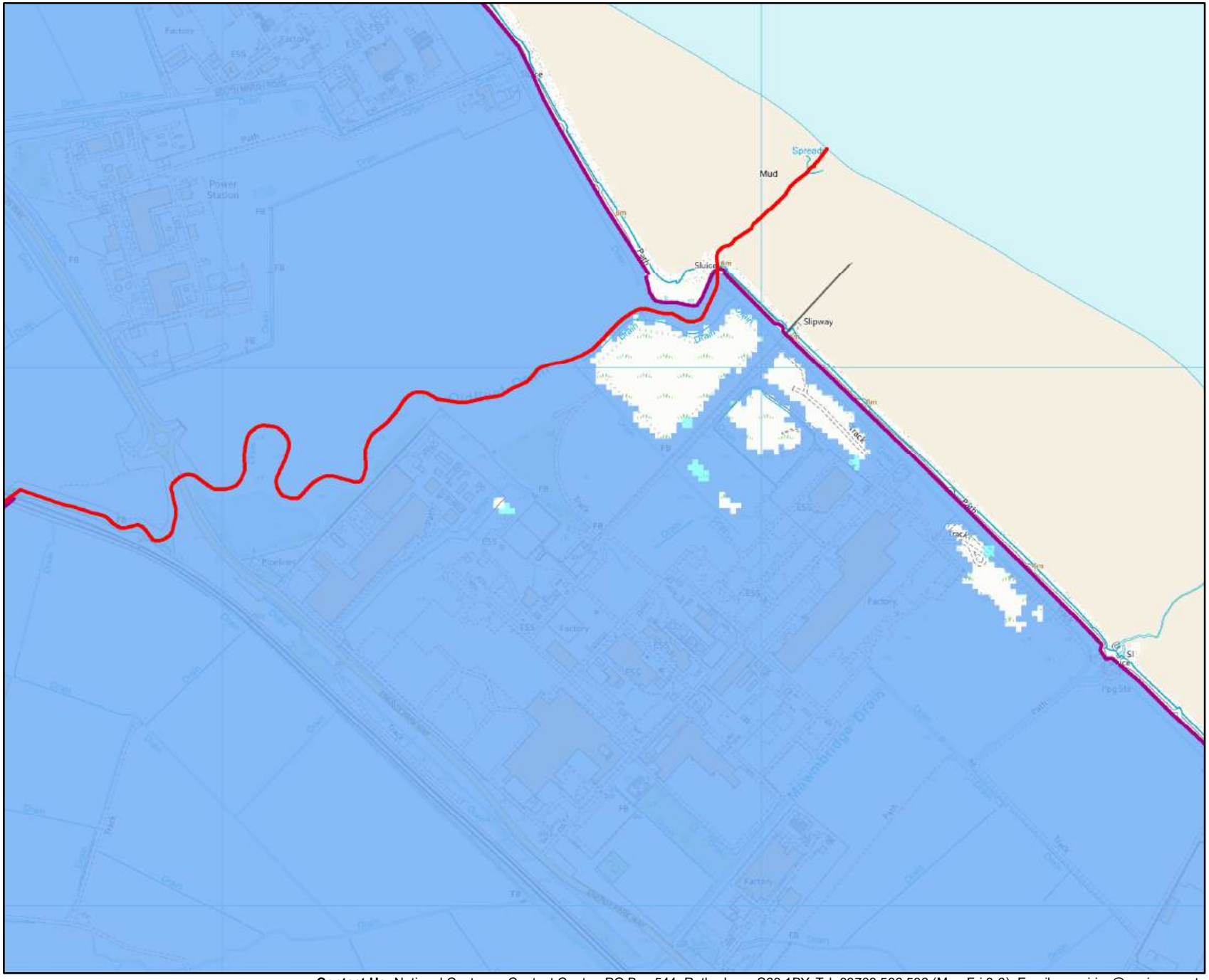
Yours sincerely,

FS

for Paul Payne
South Humber and East Coast Partnerships and Strategic Overview Team Leader
e-mail PSO_Coastal@environment-agency.gov.uk

Enc.
Flood Map for Planning
Recorded Flood Event Outlines Map
Tidal Level Data Sheets - Map and Tables
Tidal Breach Points – Locations Map
Hazard Mapping – Breaching
Hazard Mapping – Overtopping

Flood Map for Planning centred on TA 23710 12777 - created February 2024 [Ref: CCN-2024-344760]



Environment Agency

Scale 1:10,000

N
W E
S

Legend

- Main River
- Raised Defences
- Areas at Risk of Flooding from Rivers and Sea
- Extreme Flood Outline

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

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

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

Light blue shows the extent of the Extreme Flood Outline, which represents the extent of a flood event with a 0.1% chance of occurring in any year, or the highest recorded historic extent if greater.

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

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk
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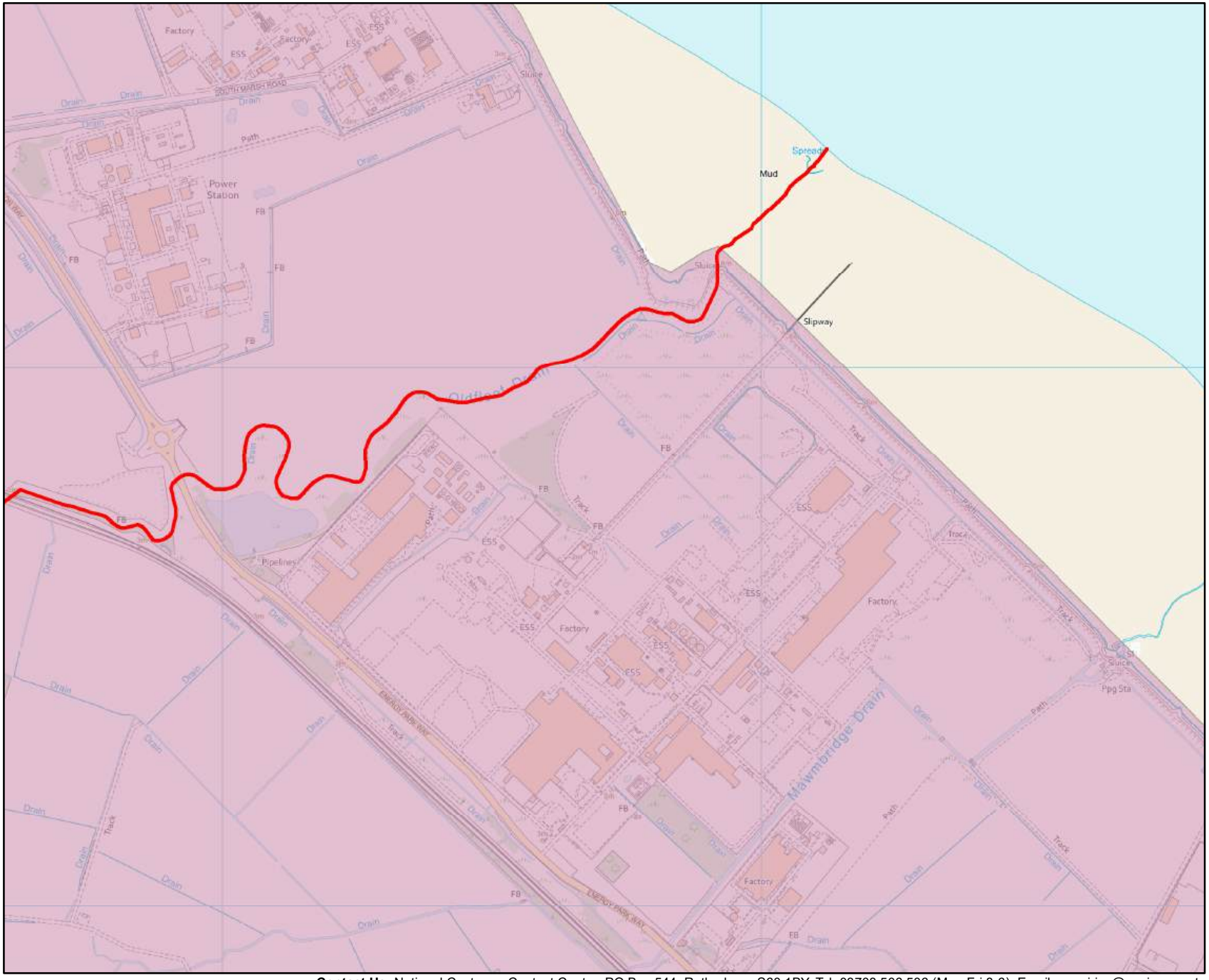
Recorded Flood Outlines centred on TA 23710 12777 - created February 2024 [Ref: CCN-2024-344760]



Environment Agency

Scale 1:10,000

N
W E
S

Legend

- Main River
- LNA_1953_01_Lincolnshire Coastline

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★ **Modelled Breach Locations**

0 3.5 7 14 Kilometers

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

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

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

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

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

Environment Agency

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

Northern Area Tidal Hazard Mapping

Location of Modelled Breaches

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

Environment Agency

Scale 1:550,000

N
W E
S

▲ East Coast and Wash

See separate data sheet for predicted flood levels

Created by the Partnerships and Strategic Overview Team, Lincoln

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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

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Calls to 03 numbers cost the same as calls to standard geographic numbers
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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

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

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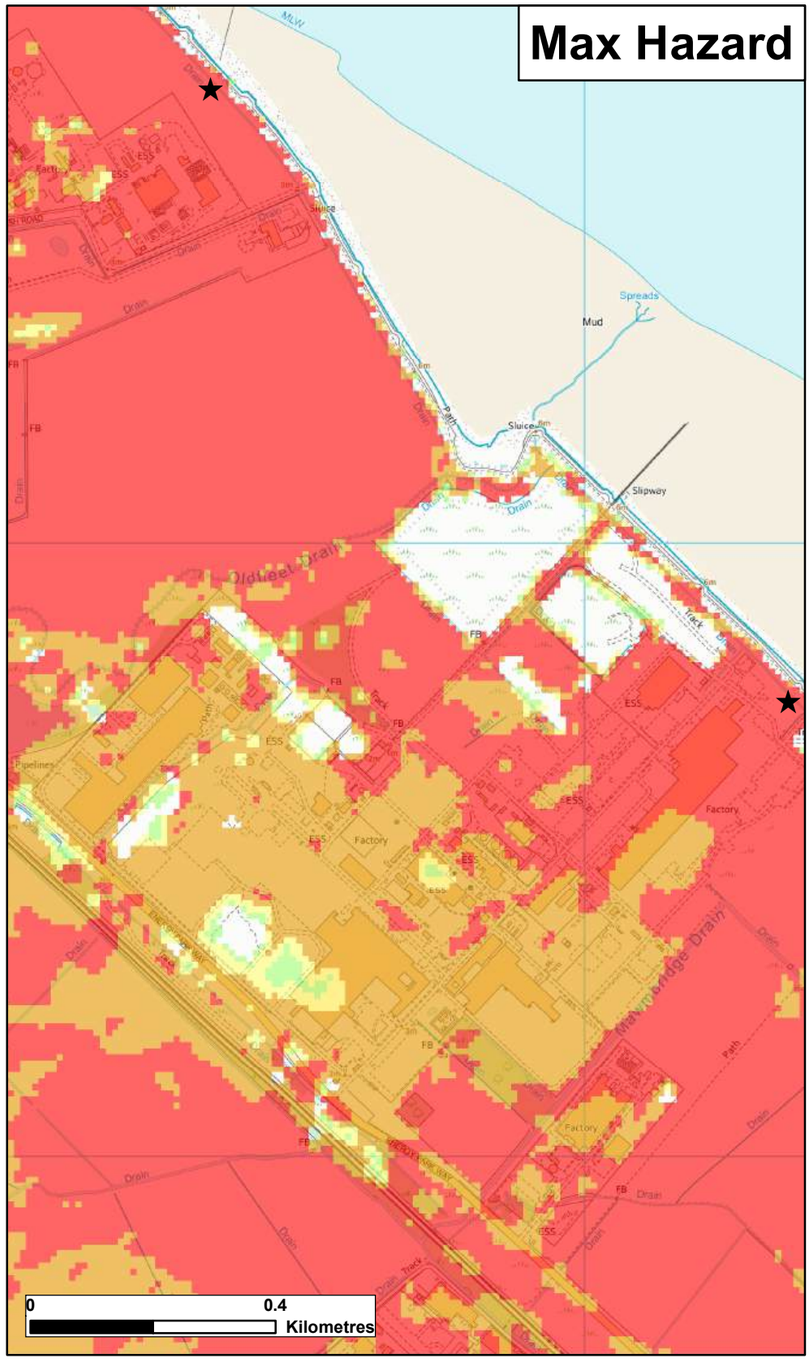

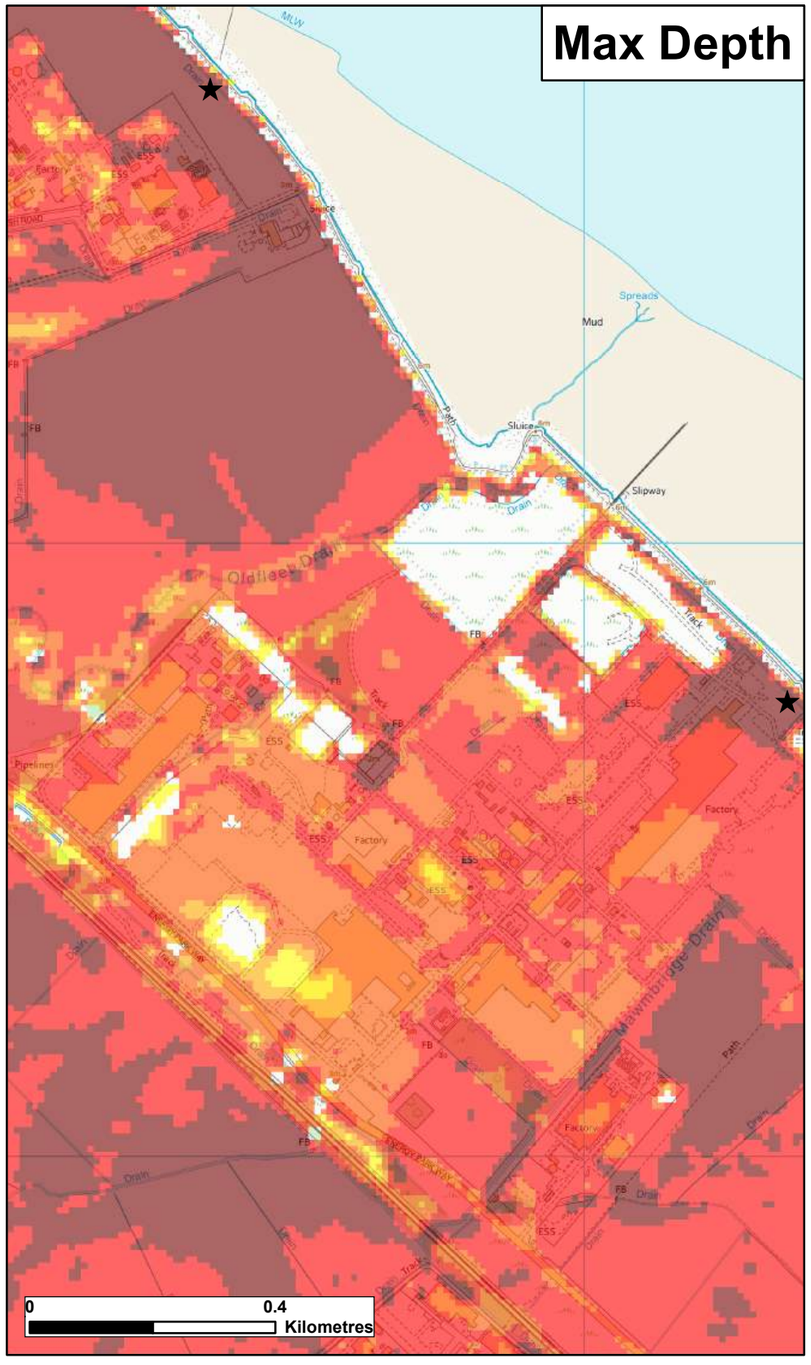

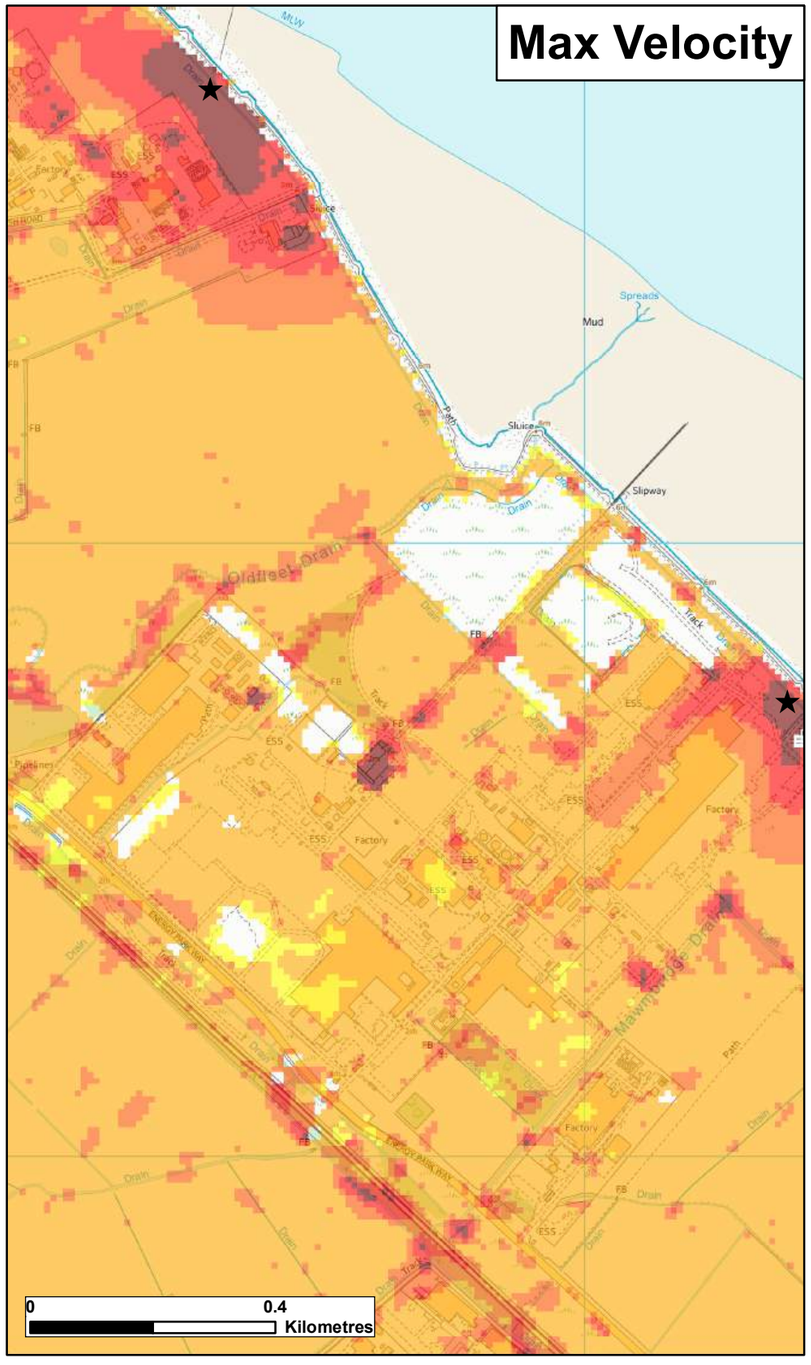

★ **Modelled Breach Locations** - see also the accompanying plan "Location of Modelled Breaches"

Max Hazard
(Flood Risk to People : FD2320)

- Less than 0.75 (Low Hazard)
- Between 0.75 and 1.25 (Danger for Some)
- Between 1.25 and 2.0 (Danger for Most)
- Greater than 2.0 (Danger for All)

Max Depth (m)

- 0 - 0.25
- 0.25 - 0.50
- 0.50 - 1.0
- 1.0 - 1.6
- 1.6 +

Max Velocity (m/s)

- 0 - 0.3
- 0.3 - 1.0
- 1.0 - 1.5
- 1.5 - 2.5
- 2.5 +

Date Printed	February 2024	**Scenario year**	2006	**Scenario Annual Chance**	0.5% (1 in 200)	**CCN Number**	CCN-2024-344760

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Lincolnshire and Northamptonshire Breach Hazard Mapping

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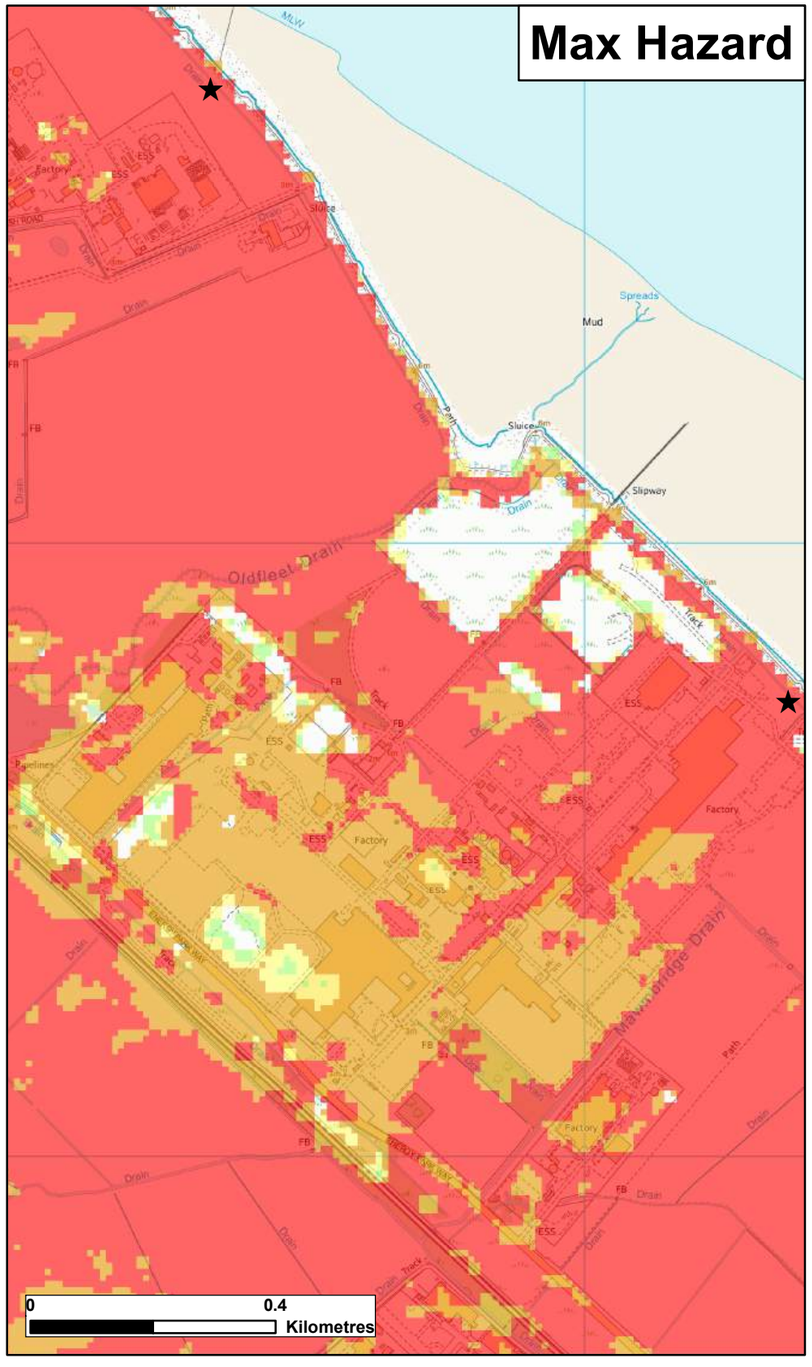

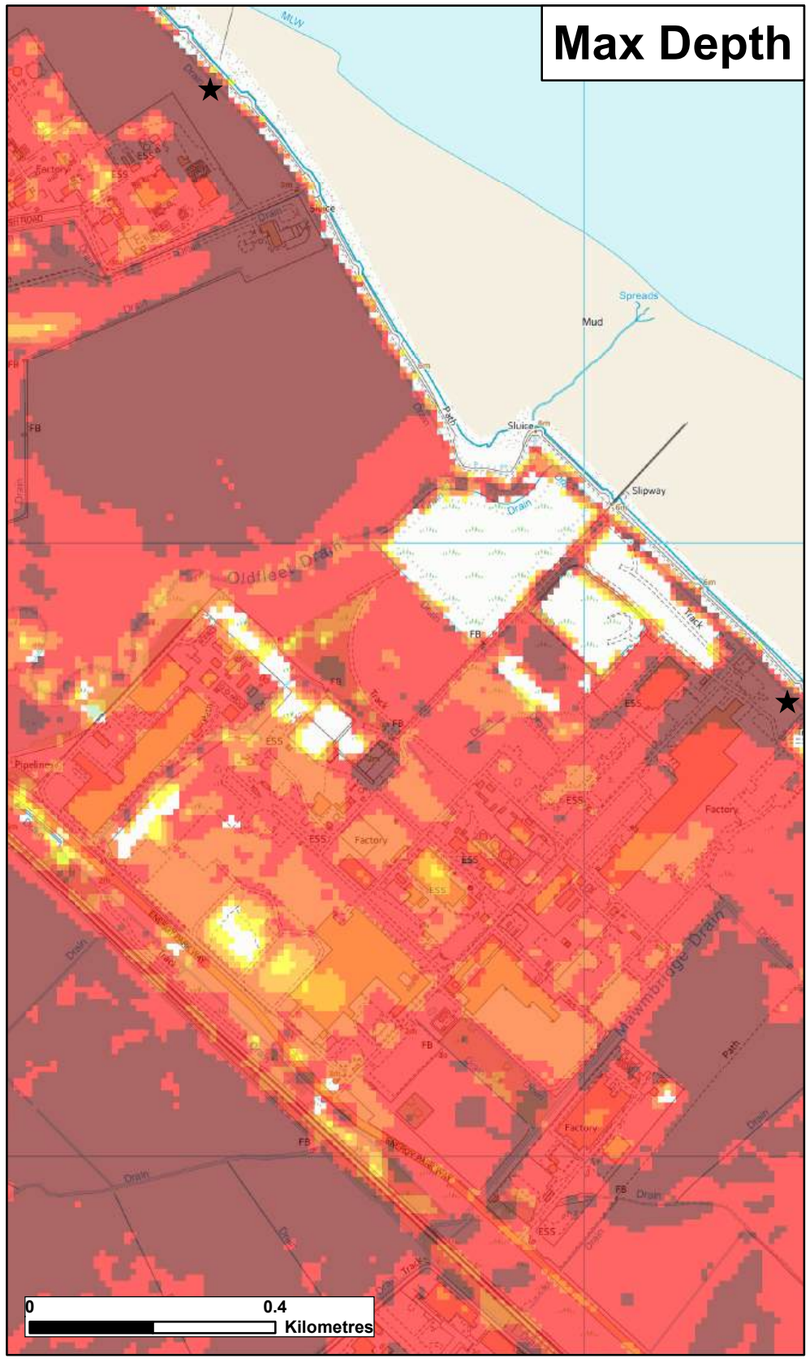

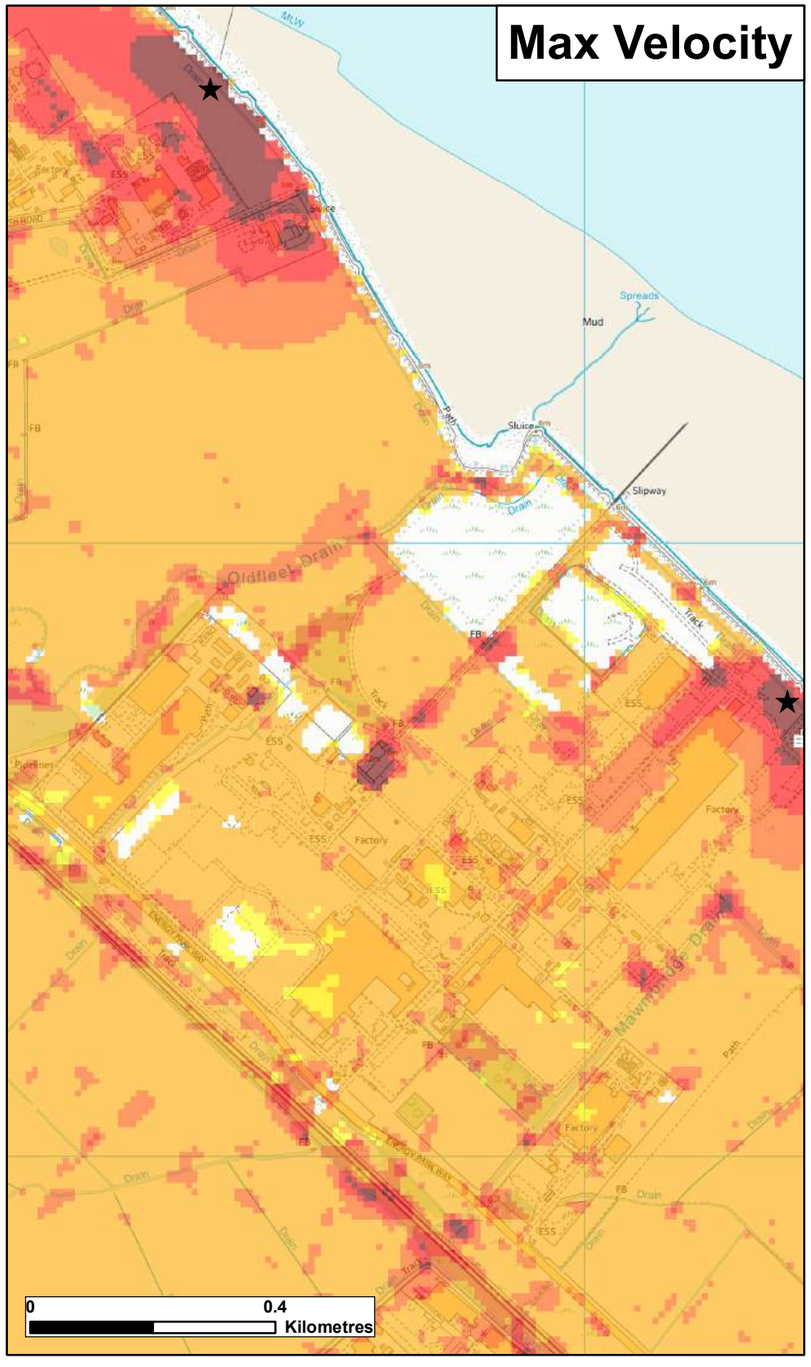

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- Greater than 2.0 (Danger for All)

Max Depth (m)

- 0 - 0.25
- 0.25 - 0.50
- 0.50 - 1.0
- 1.0 - 1.6
- 1.6 +

Max Velocity (m/s)

- 0 - 0.3
- 0.3 - 1.0
- 1.0 - 1.5
- 1.5 - 2.5
- 2.5 +

Date Printed	February 2024	**Scenario year**	2006	**Scenario Annual Chance**	0.1% (1 in 1000)	**CCN Number**	CCN-2024-344760

This map shows the level of flood hazard to people (called a hazard rating) if our flood defences are breached at certain locations, for a range of scenarios. The hazard rating depends on the depth and velocity of floodwater, and maximum values of these are also mapped.

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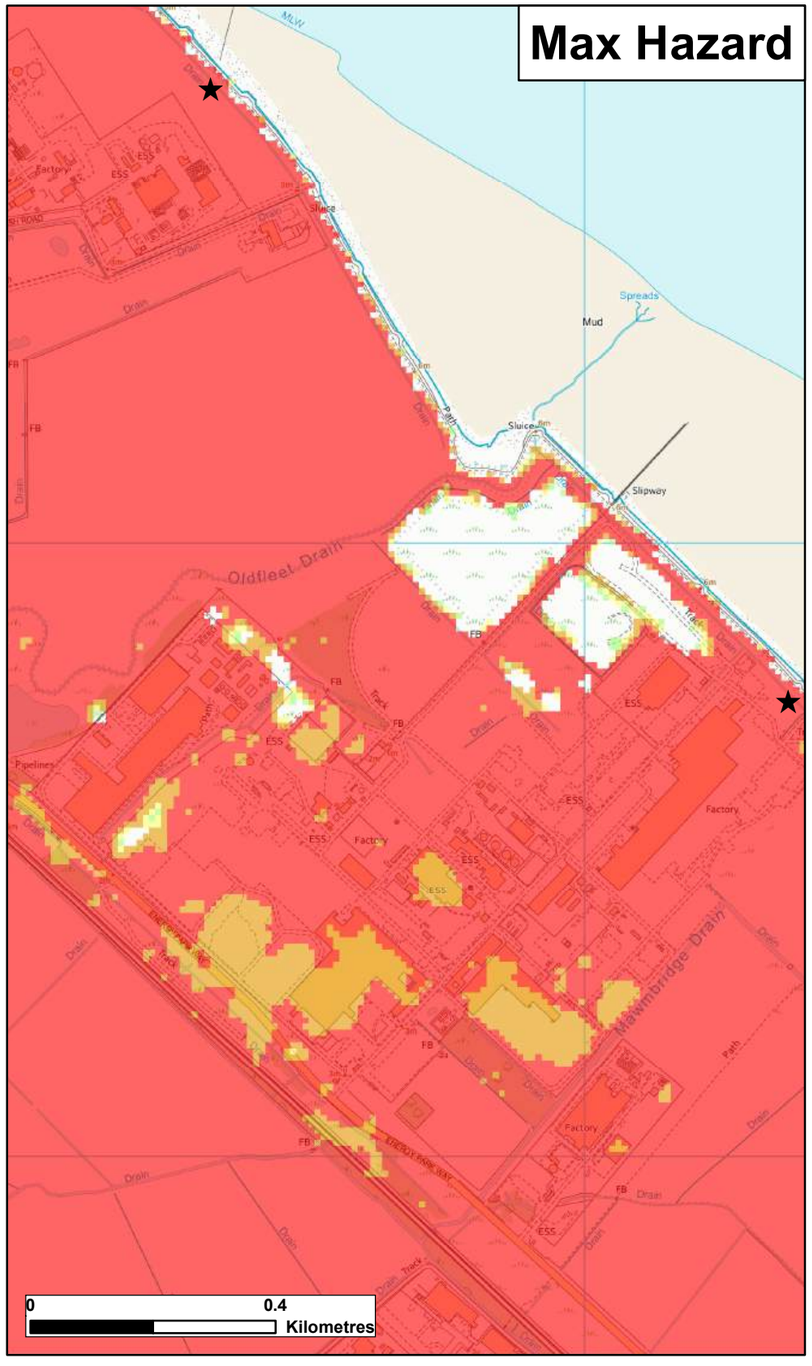

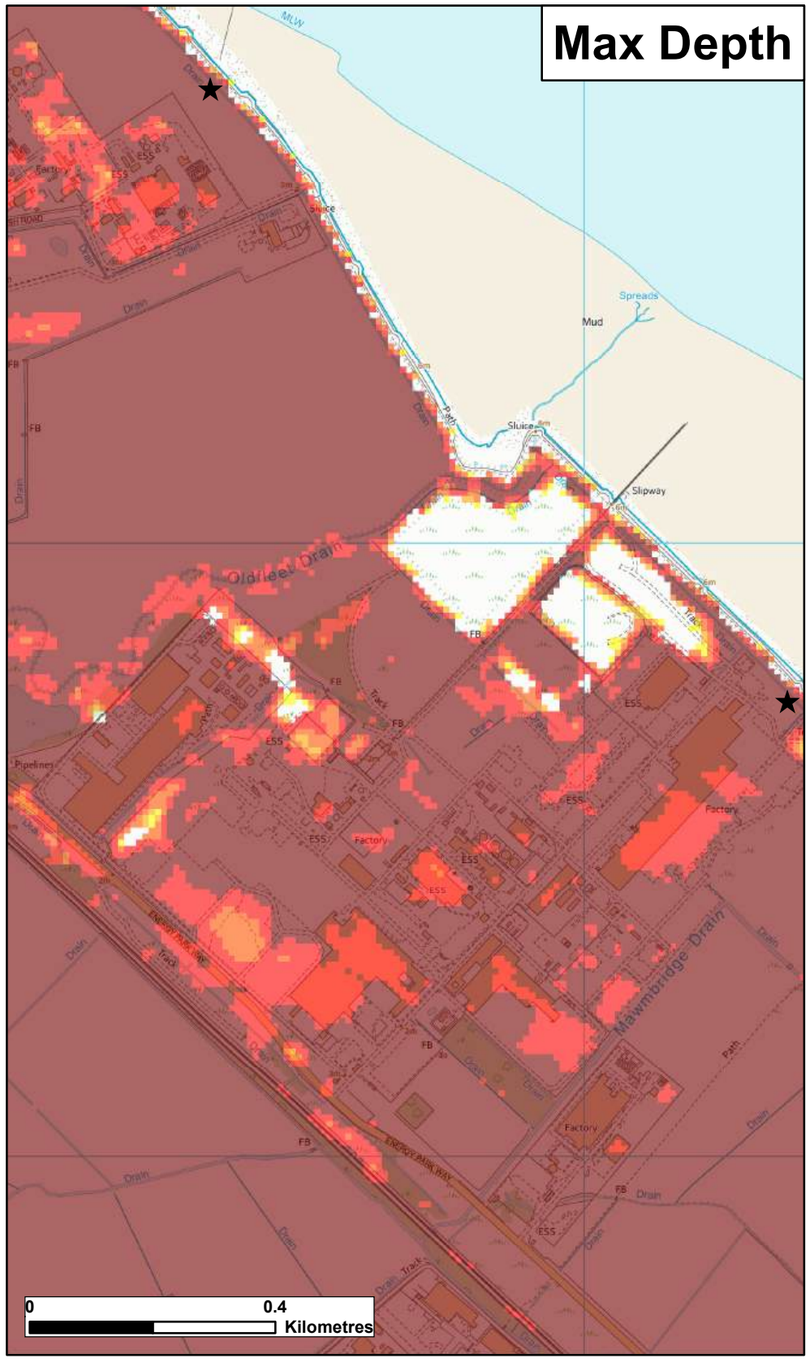

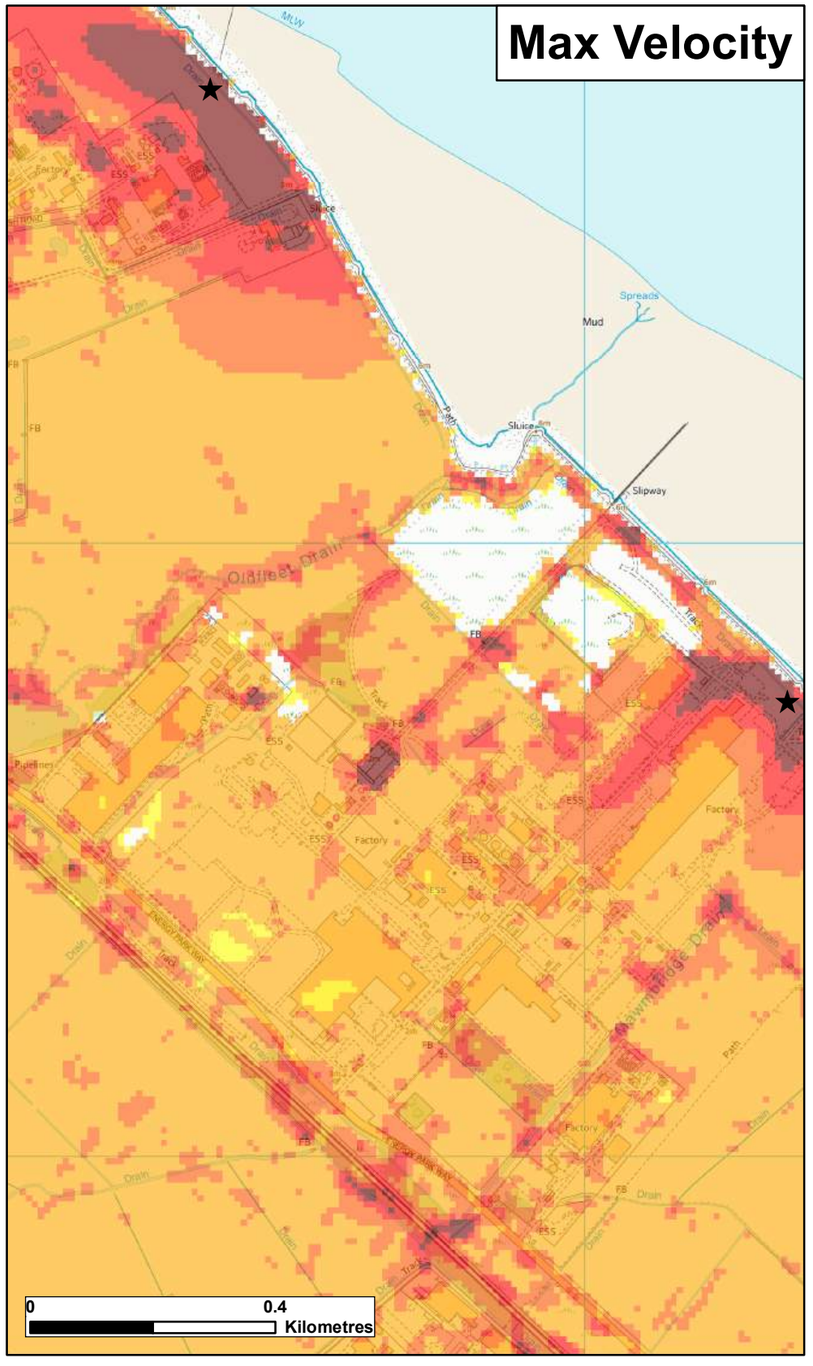

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- Between 1.25 and 2.0 (Danger for Most)
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Max Depth (m)

- 0 - 0.25
- 0.25 - 0.50
- 0.50 - 1.0
- 1.0 - 1.6
- 1.6 +

Max Velocity (m/s)

- 0 - 0.3
- 0.3 - 1.0
- 1.0 - 1.5
- 1.5 - 2.5
- 2.5 +

Date Printed	February 2024	Scenario year	2115	Scenario Annual Chance	0.5% (1 in 200)	CCN Number	CCN-2024-344760

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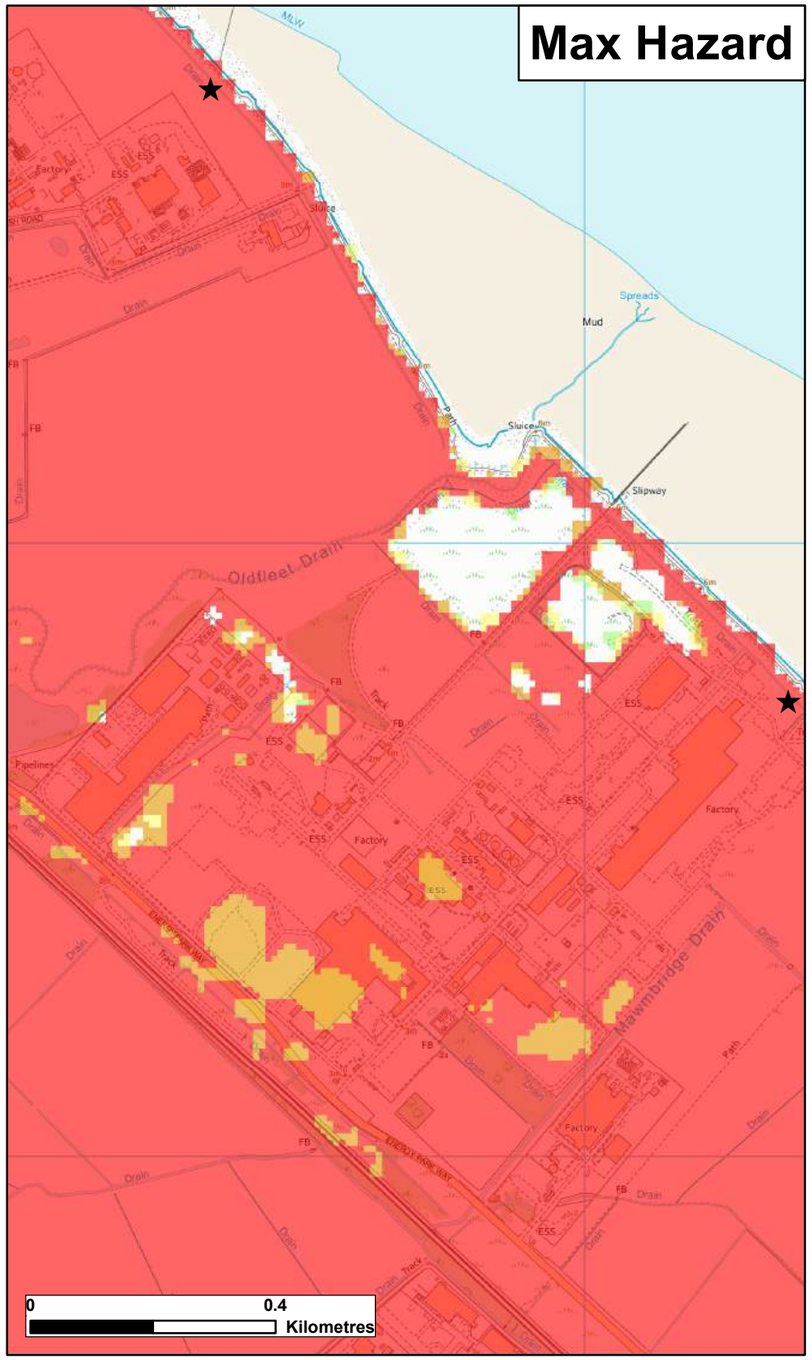

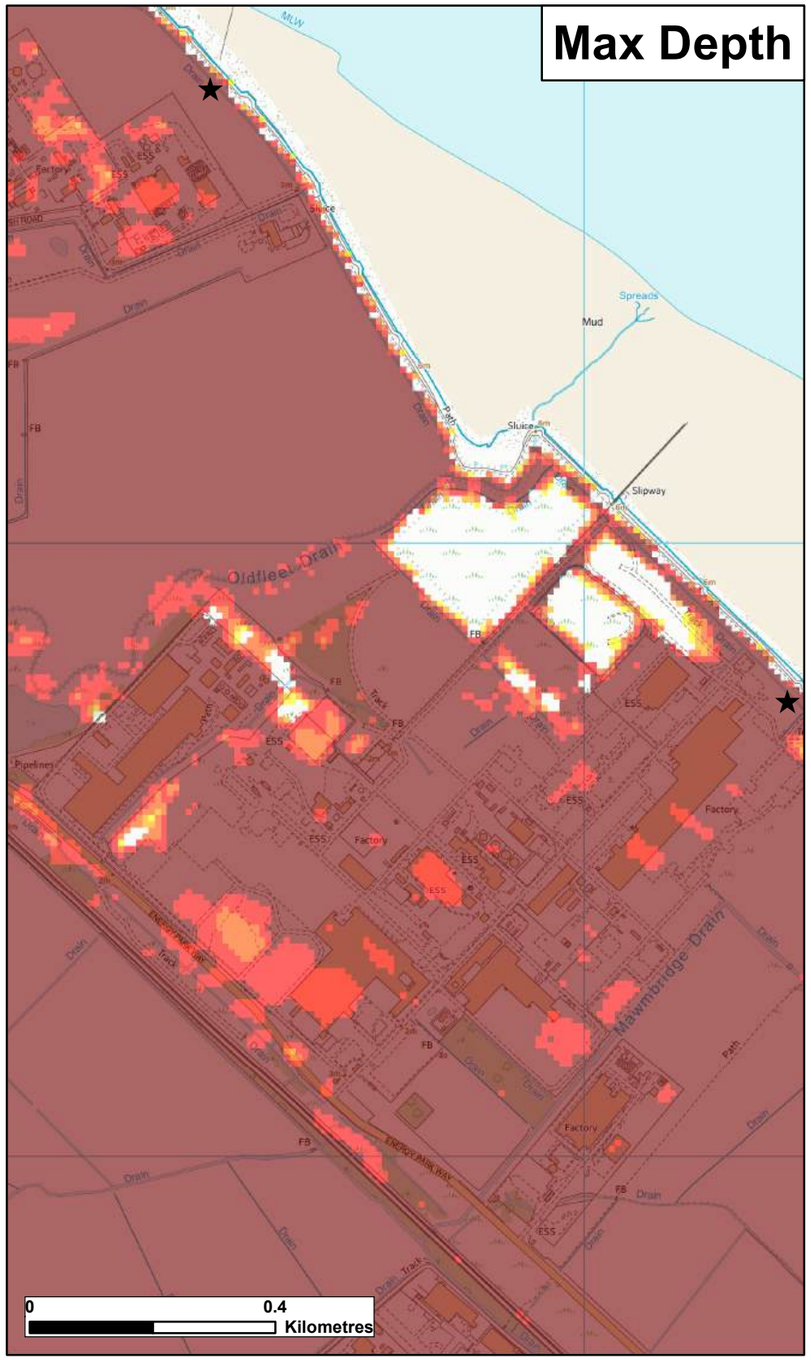

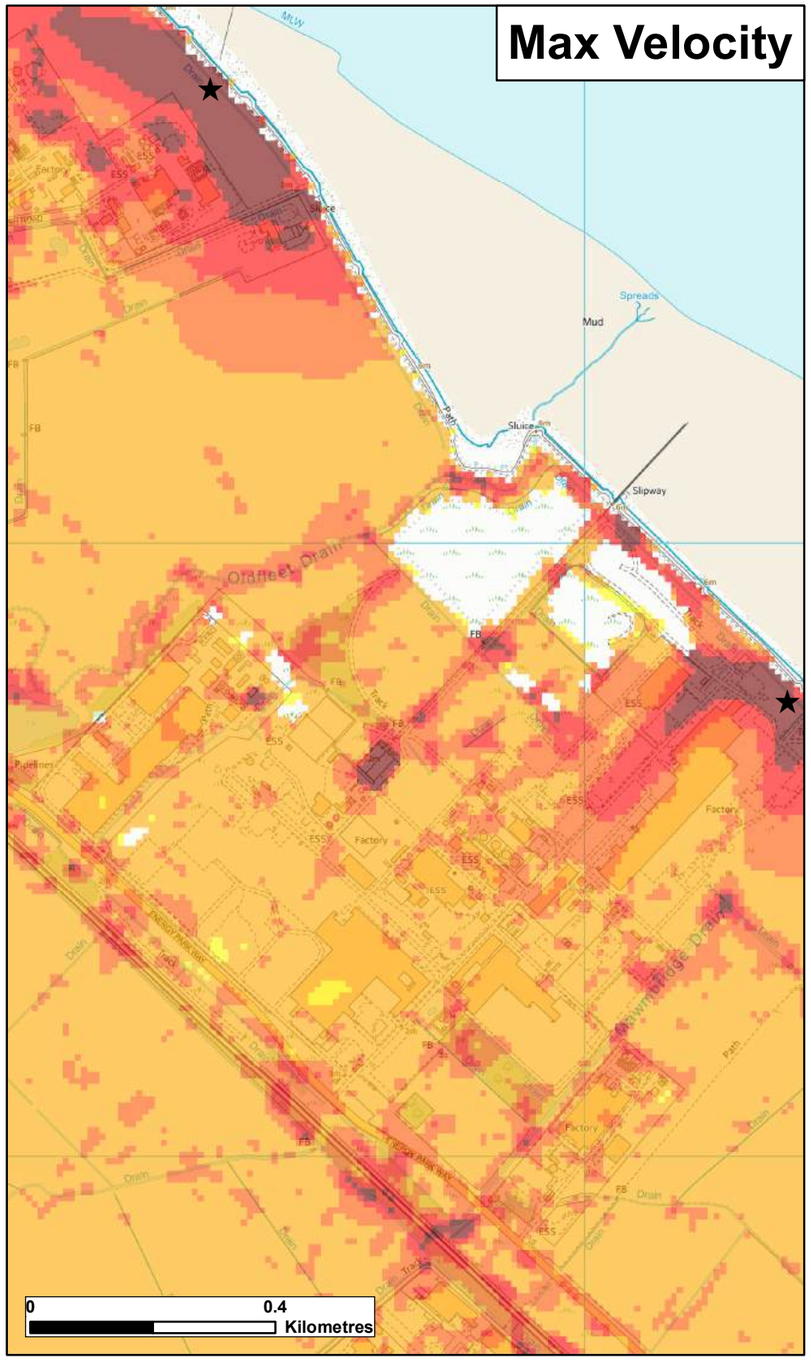

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Max Depth (m)

- 0 - 0.25
- 0.25 - 0.50
- 0.50 - 1.0
- 1.0 - 1.6
- 1.6 +

Max Velocity (m/s)

- 0 - 0.3
- 0.3 - 1.0
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Date Printed	February 2024	**Scenario year**	2115	**Scenario Annual Chance**	0.1% (1 in 1000)	**CCN Number**	CCN-2024-344760

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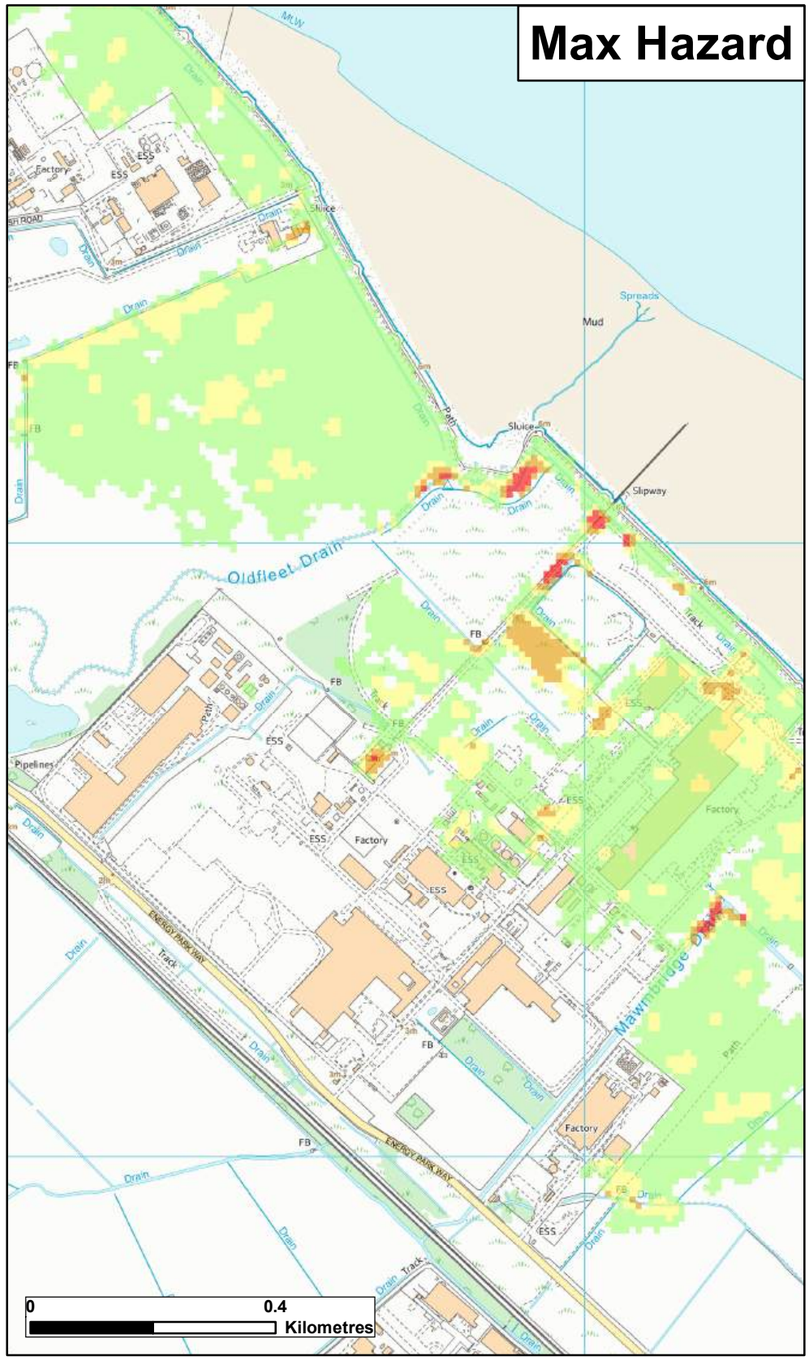

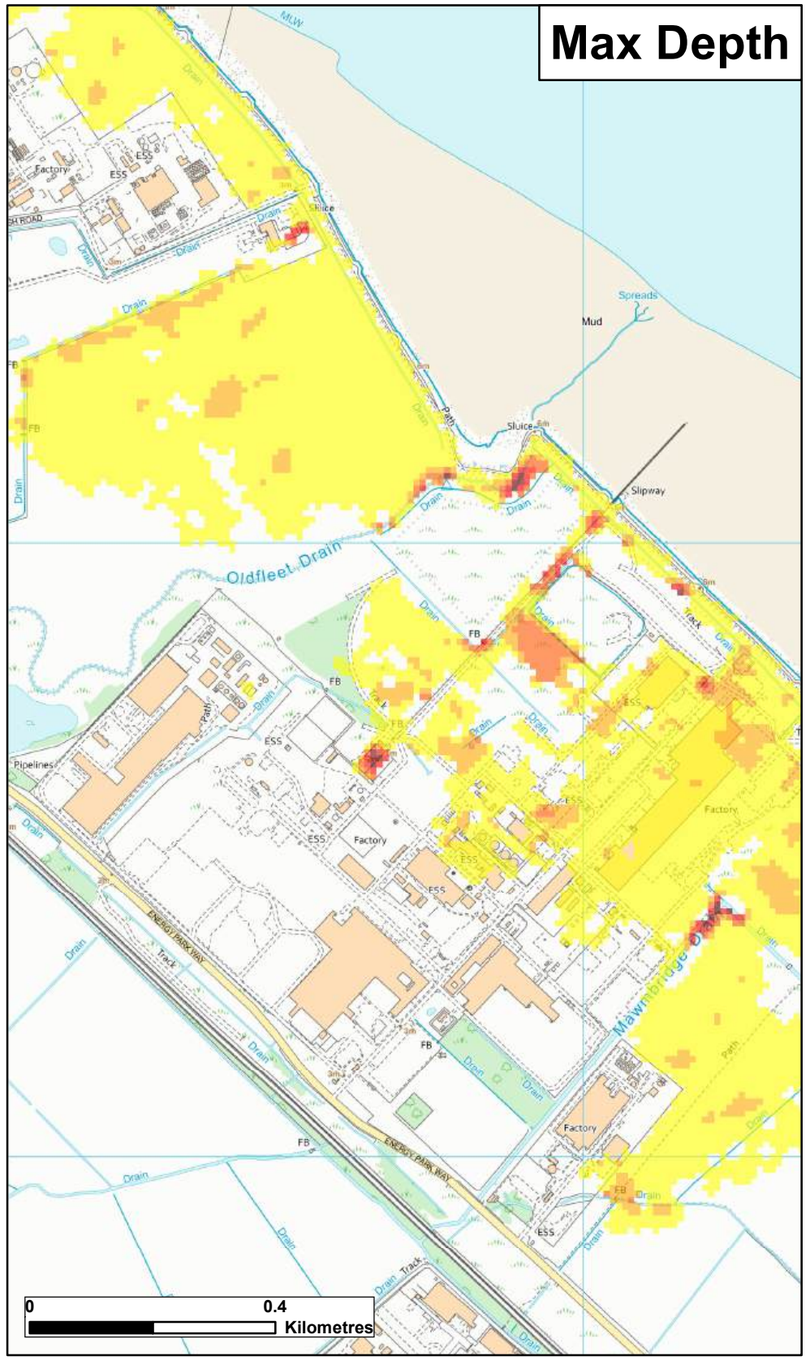

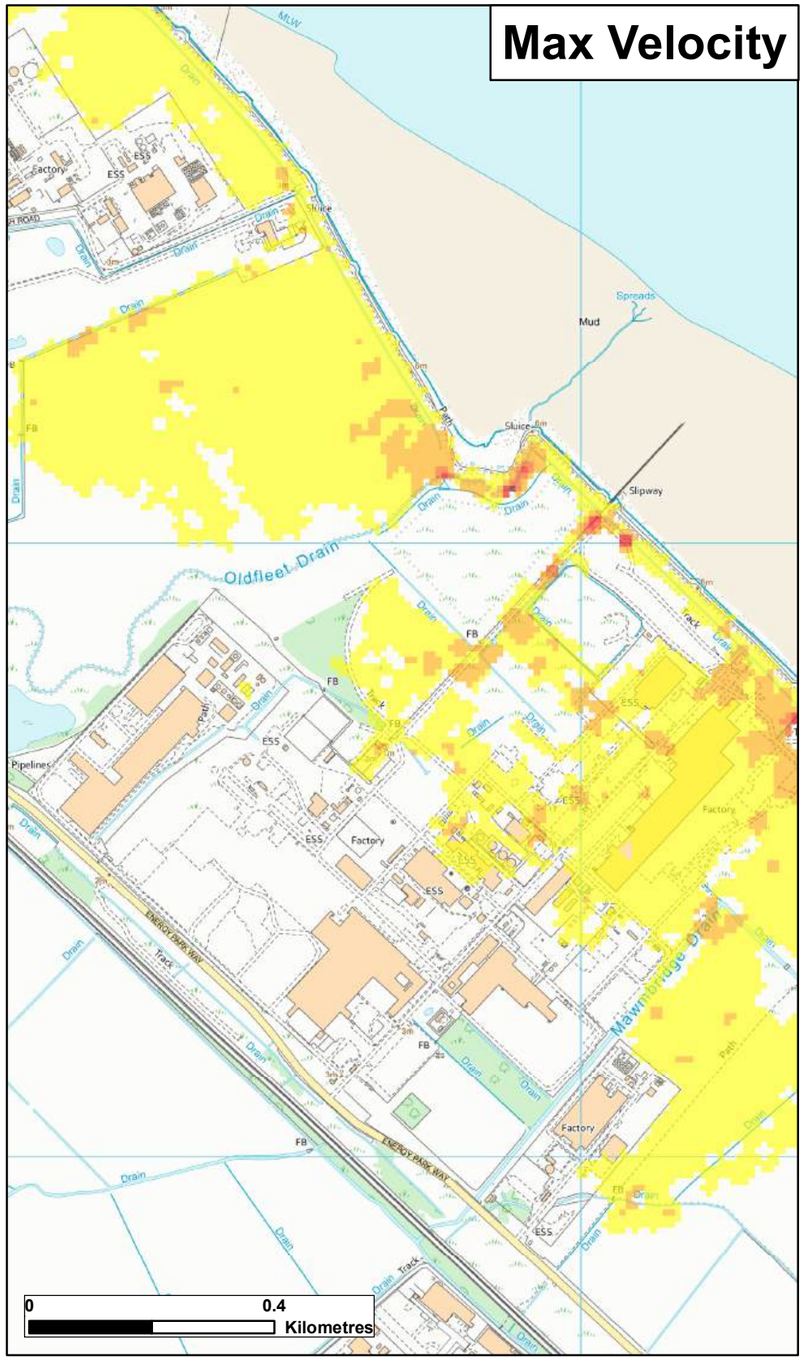

Max Hazard
(Flood Risk to People : FD2320)

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Max Velocity (m/s)

- 0 - 0.3
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Date Printed	February 2024	**Scenario year**	2006	**Scenario Annual Chance**	0.5% (1 in 200)	**CCN Number**	CCN-2024-344760

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For future climate change scenarios it is assumed that defences remain at 2006 heights.

These maps do not replace the flood zone maps used in the National Planning Policy Framework (NPPF)

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Lincolnshire and Northamptonshire Overtopping Hazard Mapping

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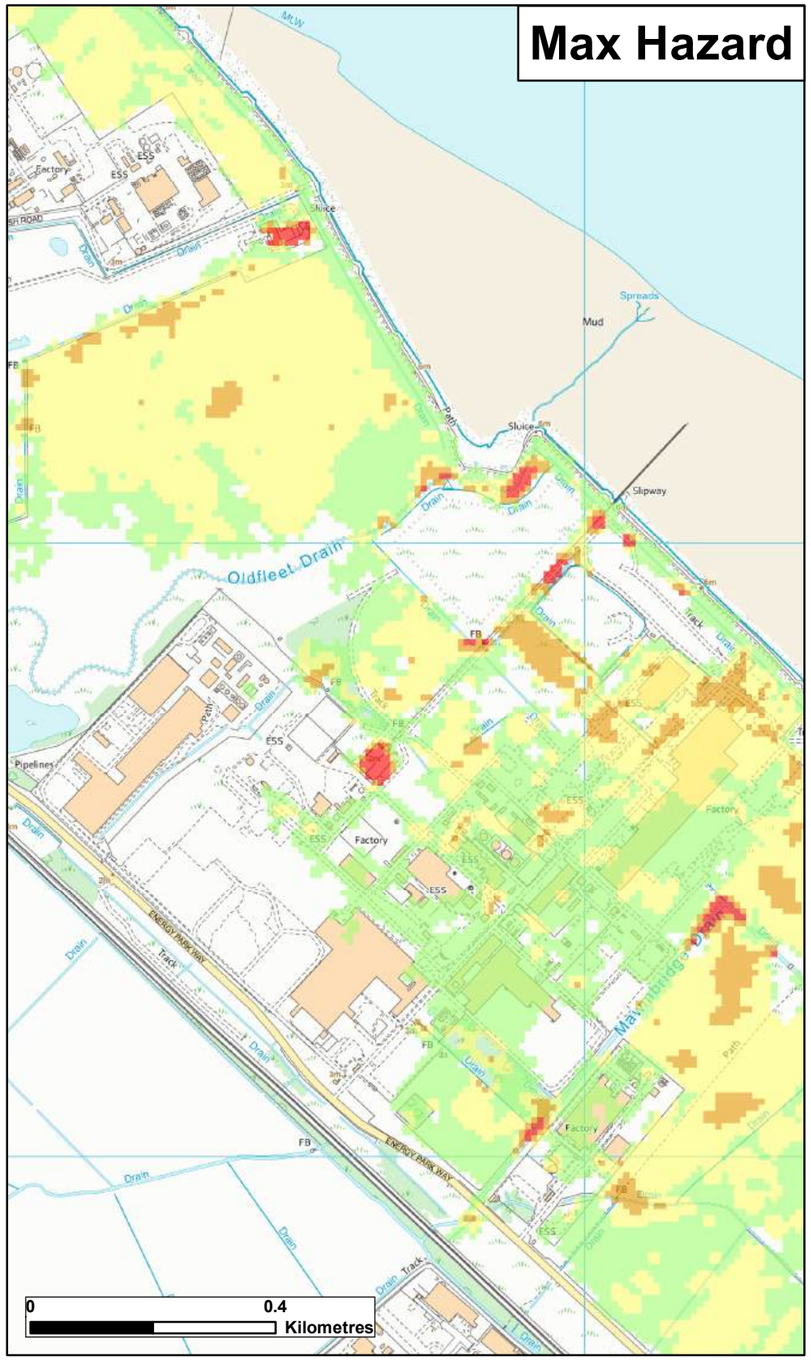

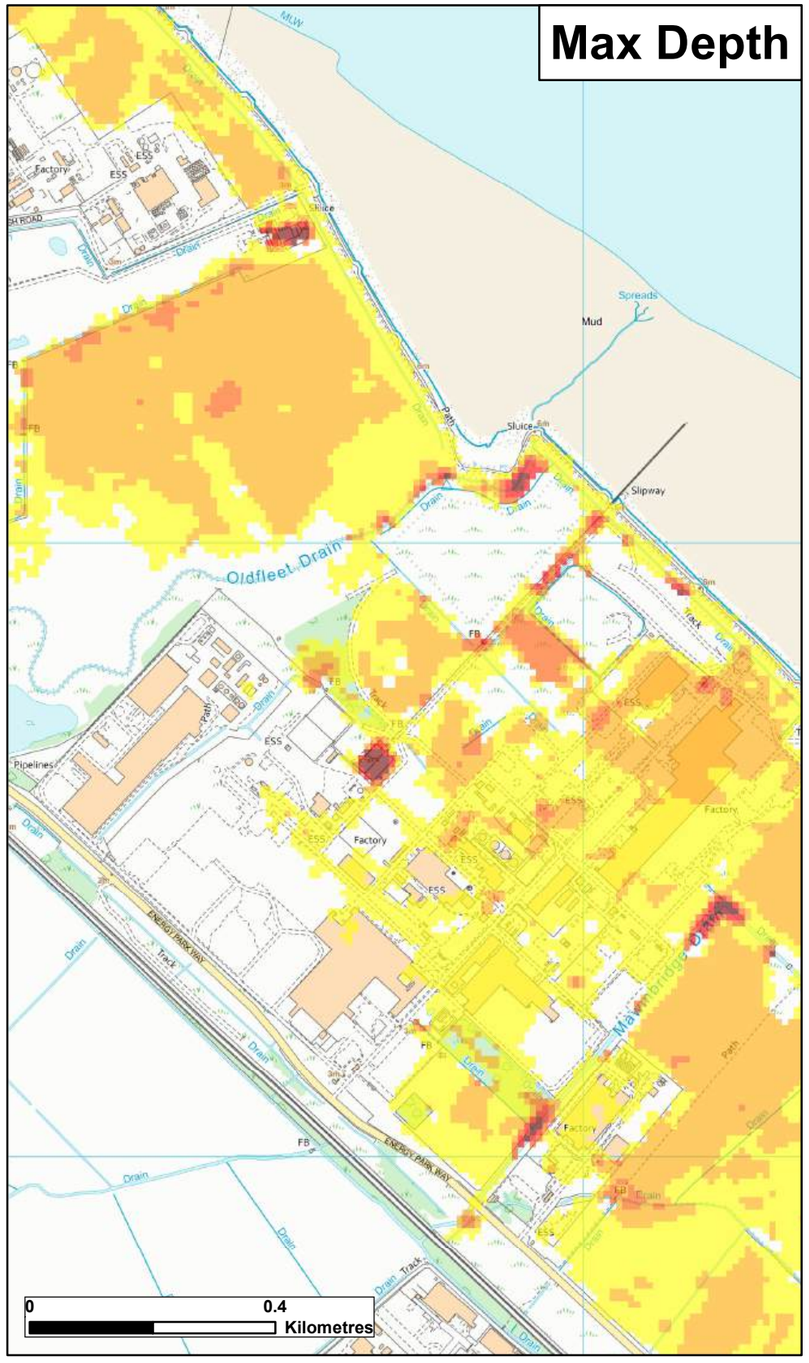

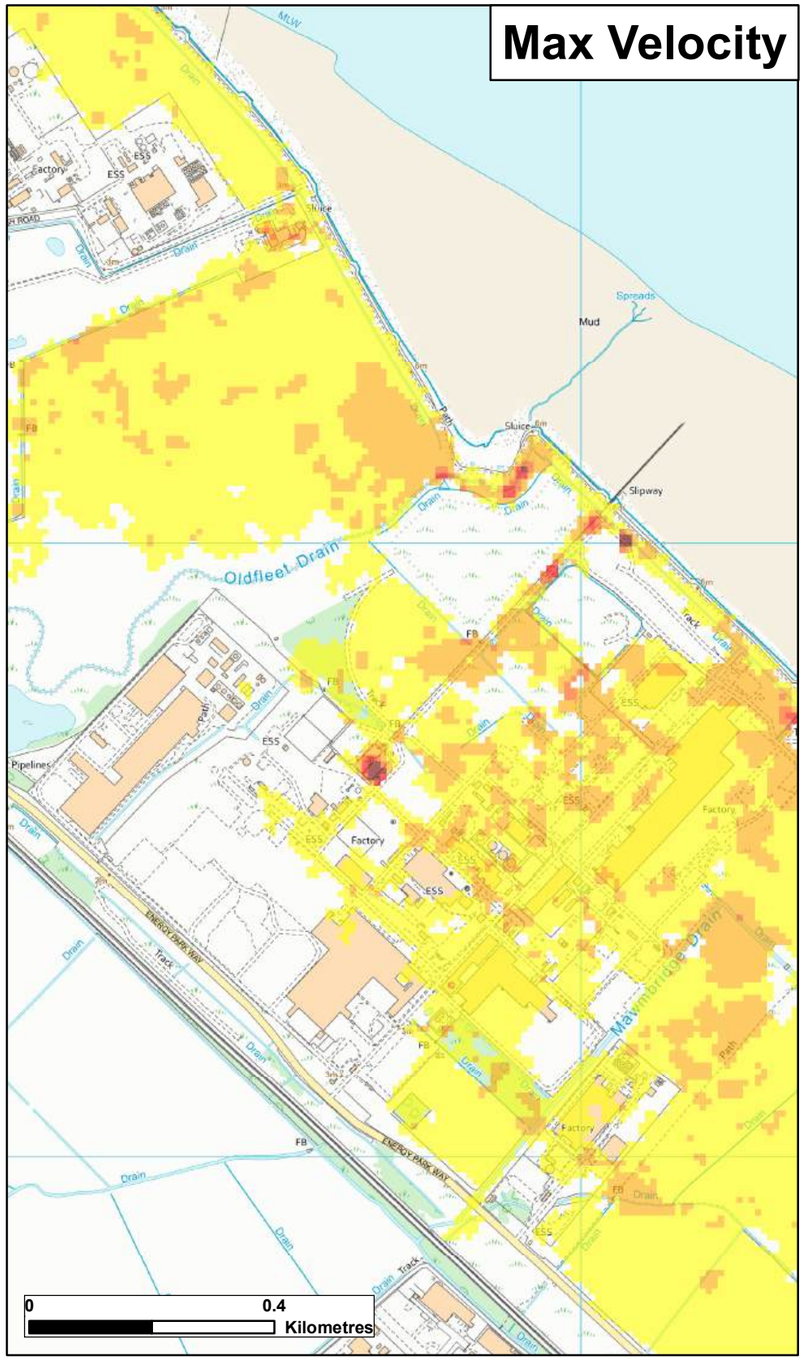

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Date Printed	February 2024	Scenario year	2006	Scenario Annual Chance	0.1% (1 in 1000)	CCN Number	CCN-2024-344760

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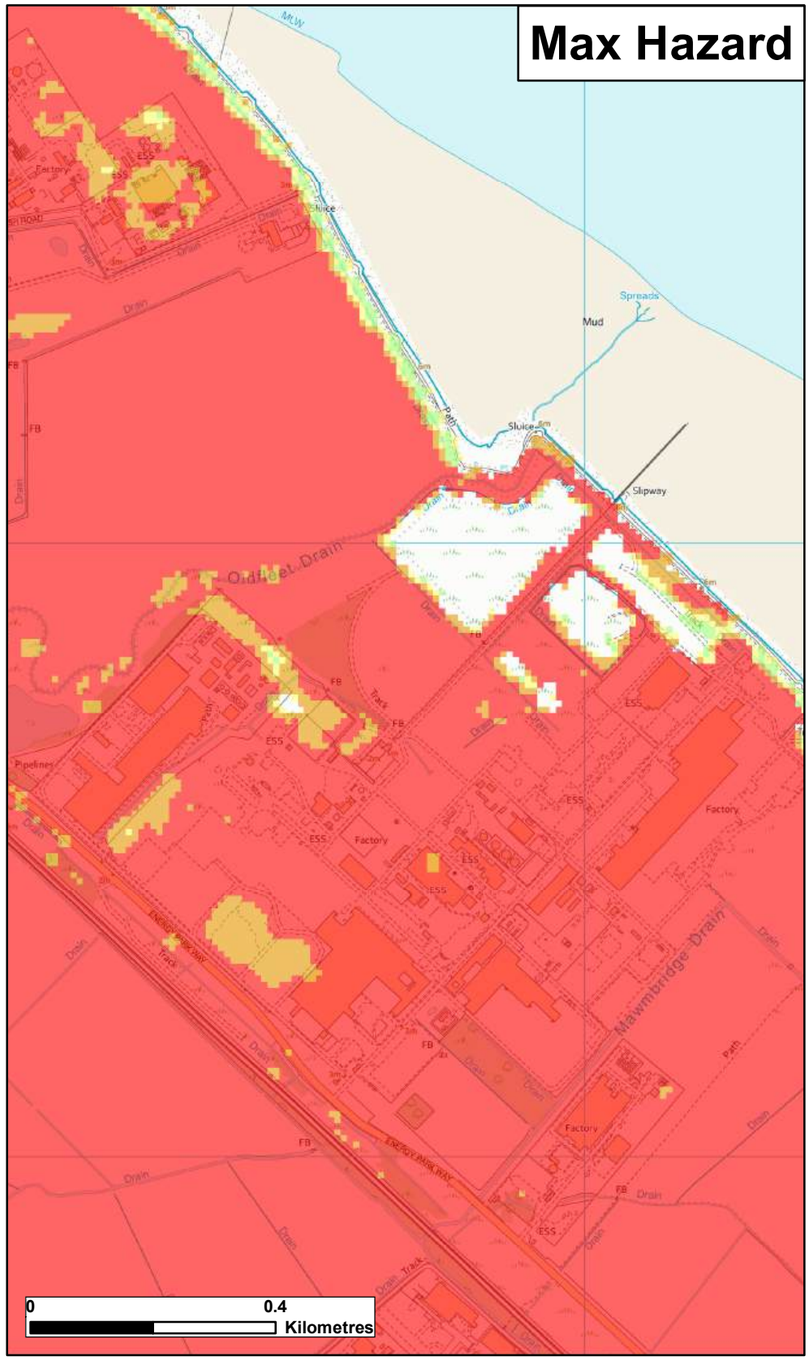

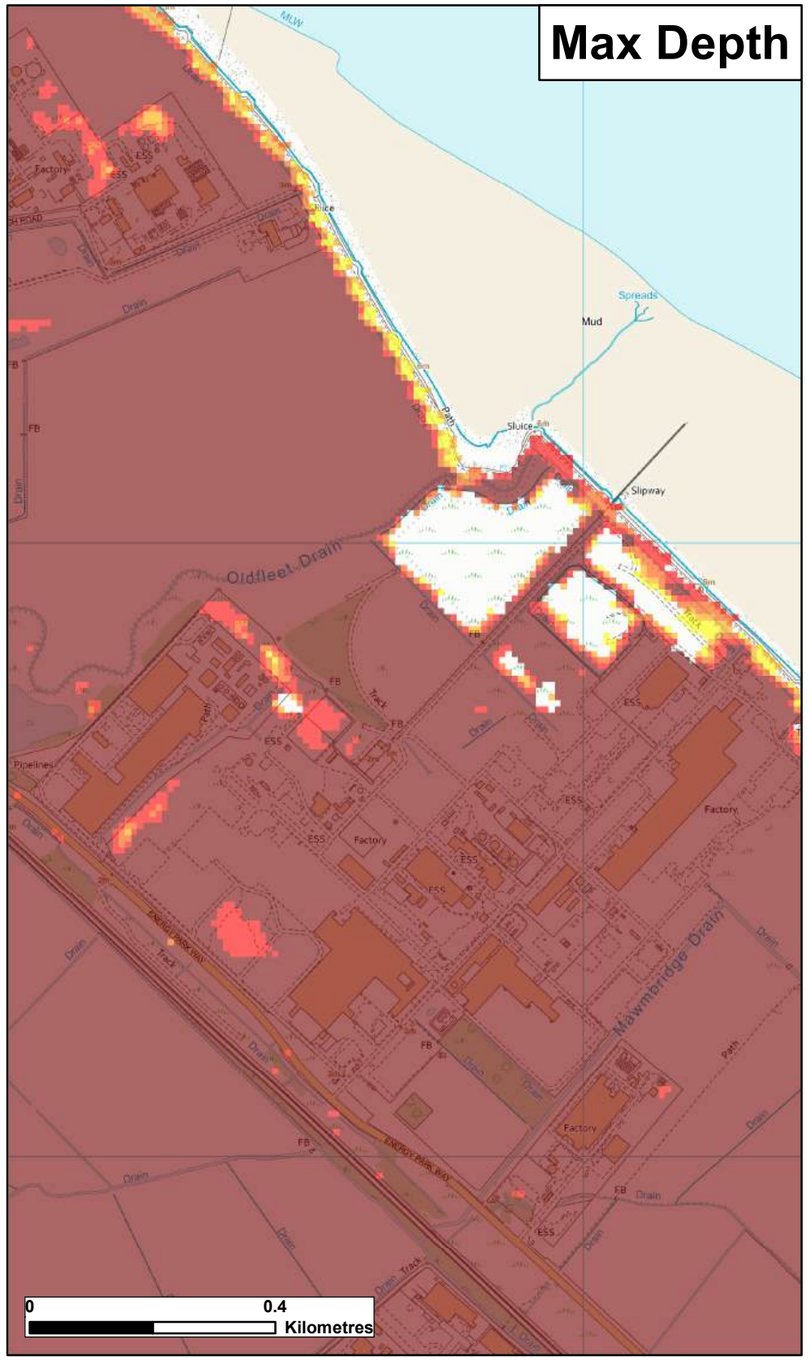

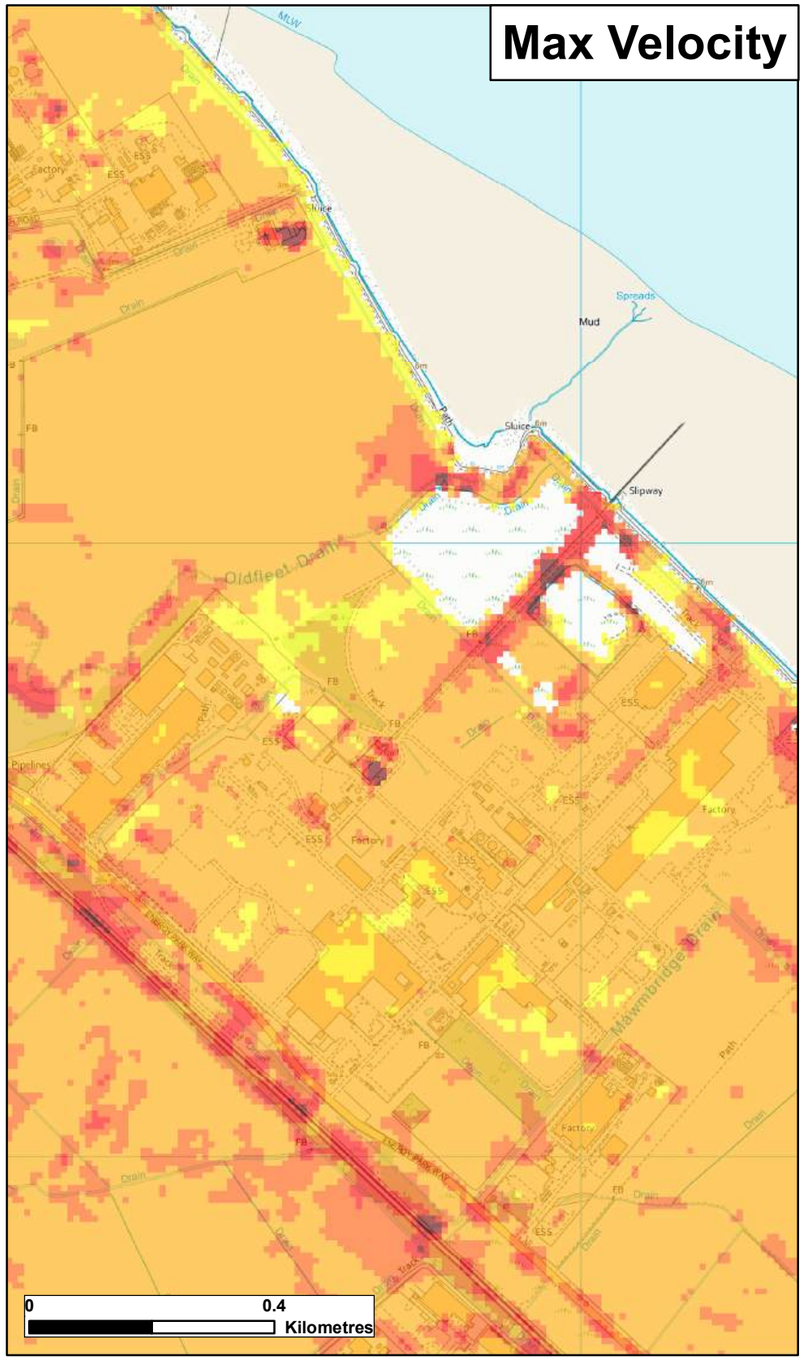

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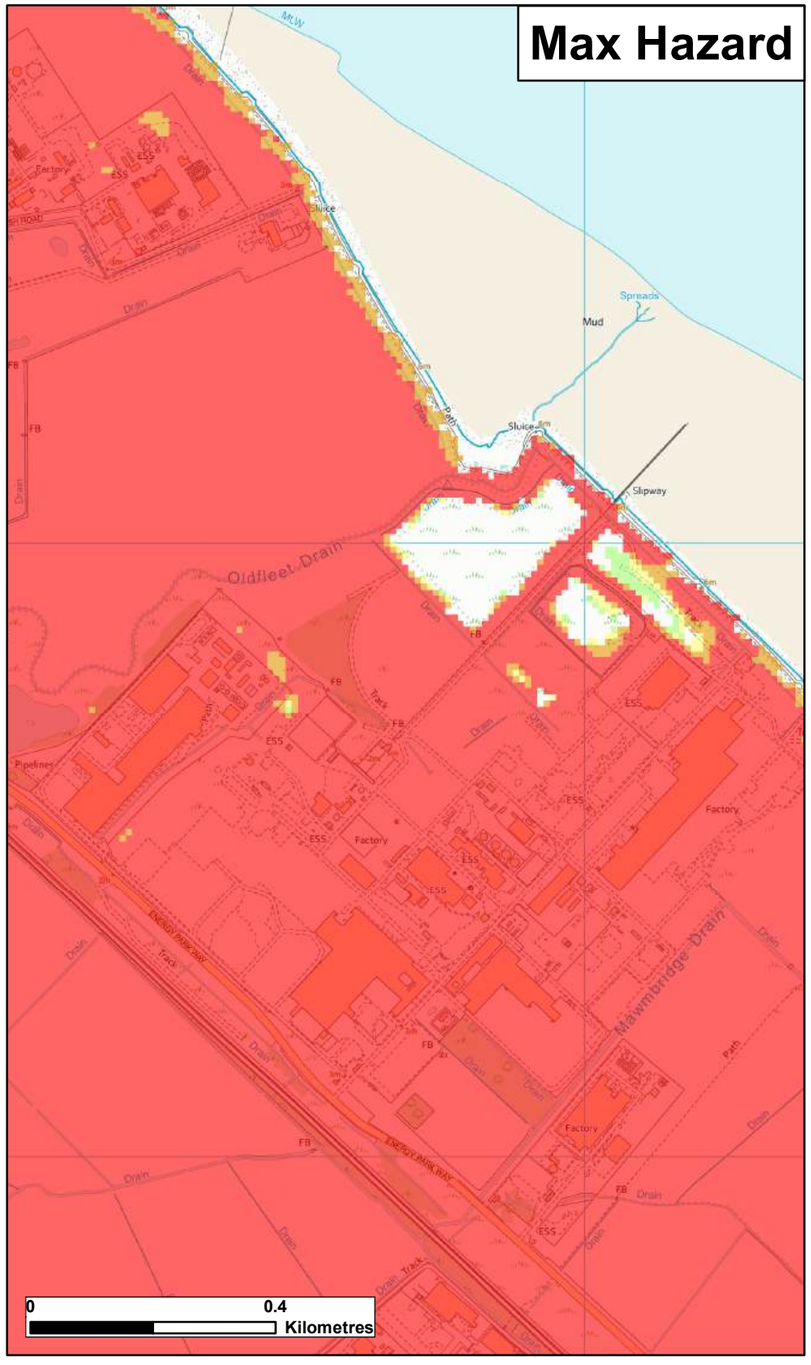

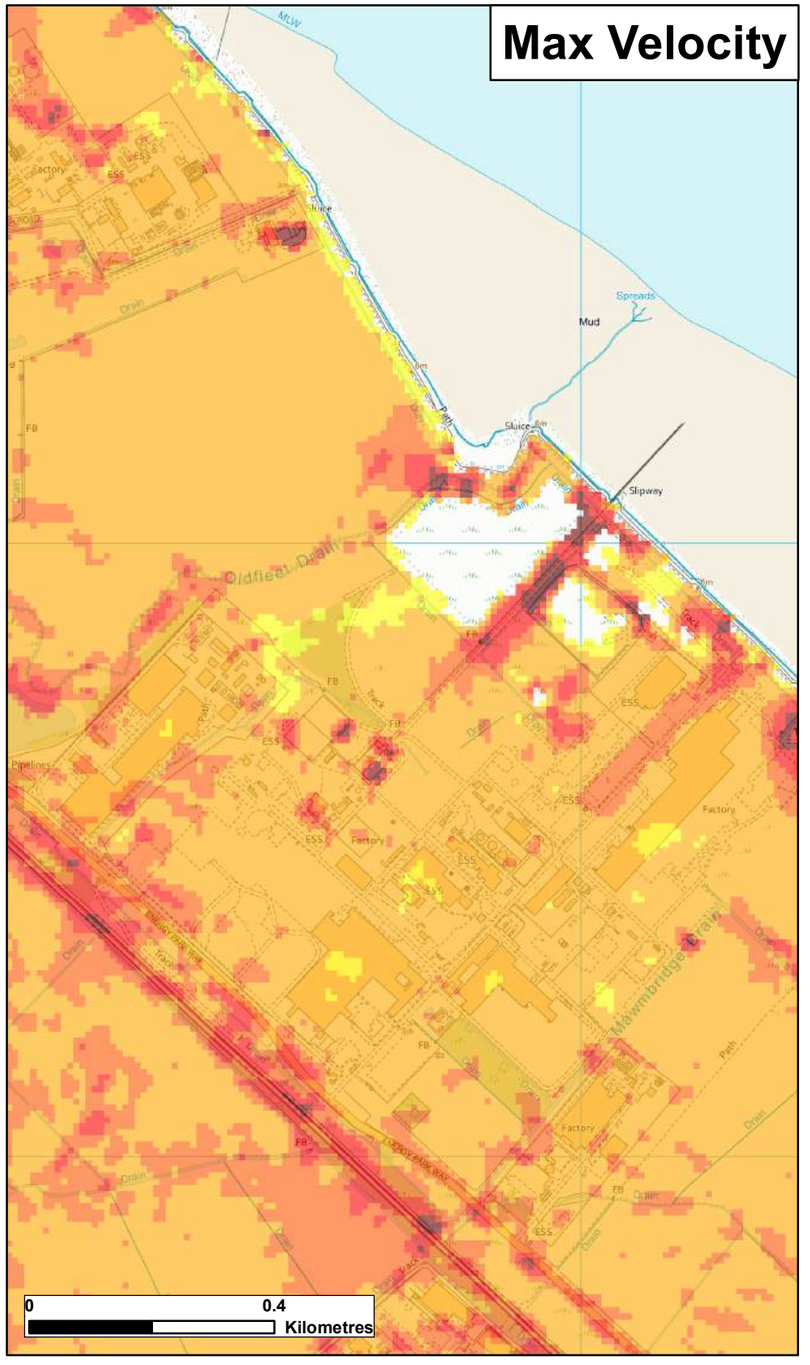

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- 0.25 - 0.50
- 0.50 - 1.0
- 1.0 - 1.6
- 1.6 +

Max Velocity (m/s)

- 0 - 0.3
- 0.3 - 1.0
- 1.0 - 1.5
- 1.5 - 2.5
- 2.5 +

Date Printed	February 2024	Scenario year	2115	Scenario Annual Chance	0.1% (1 in 1000)	CCN Number	CCN-2024-344760

The map is based on computer modelling of simulated overtopping of the main coastal defences for specific tidal scenarios. It does not include overtopping along the following tidal rivers which are currently being investigated: Witham Haven (upstream of Hobhole), and Welland (upstream of Fosdyke Bridge)

The map only considers the consequences of overtopping of the defences, and does not show the possible consequences of breaches of the tidal defences. Separate maps of the flood extent from just breaching of the defences are available.

For future climate change scenarios it is assumed that defences remain at 2006 heights.

These maps do not replace the flood zone maps used in the National Planning Policy Framework (NPPF)

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

Environment Agency

Lincolnshire and Northamptonshire Overtopping Hazard Mapping

Map Centred on TA 23710 12777

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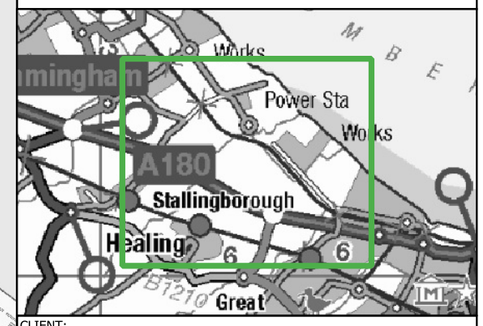
Appendix F Fluvial Modelled Outputs

Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Plot I
- Plot C
- Permitted New Road Extension and Bridge Link
- Flood Extent



0 300 600 900 1,200 m

CLIENT:
Humber Resources Group Ltd

www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Stallingborough & Oldfleet
1% AEP + 20% CC Extent
Baseline Defended Scenario

PLOT STATUS:	DATE:
FINAL	09-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	AW	MW	1:15000

PLOT NAME:	REVISION:
15887_Oldfleet_Q100_20CC	-

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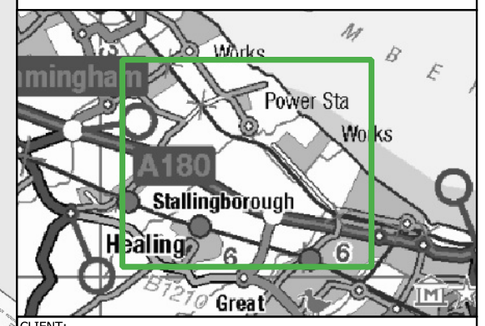
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Plot I
- Plot C
- Permitted New Road Extension and Bridge Link
- Flood Extent



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Stallingborough & Oldfleet
0.1% AEP + 20% CC Extent
Baseline Defended Scenario

PLOT STATUS:	DATE:
FINAL	09-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	AW	MW	1:15000

PLOT NAME:	REVISION:
15887_Oldfleet_Q1000_20CC	-

0 300 600 900 1,200 m

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Appendix G Hydraulic Modelling Results – Humber Estuary

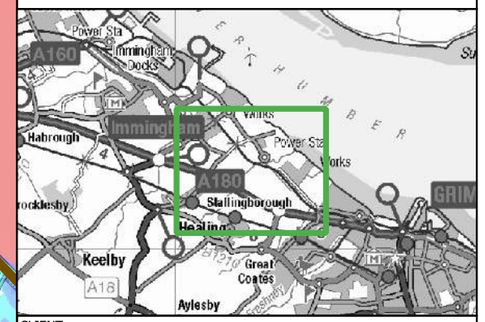
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Existing EA Defences

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.5% AEP Tidal Event (2024)
Existing Site Layout
Normal Conditions - Defended (Existing Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2024_95CI_EXG_DEF_NC_010_d_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

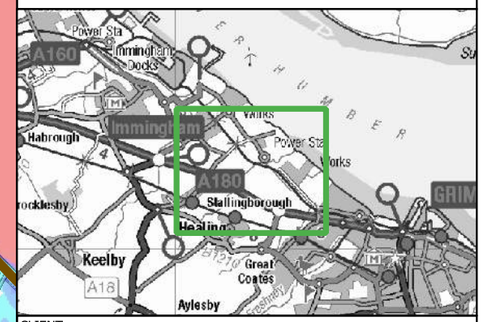
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Existing EA Defences

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Depth
0.5% AEP Tidal Event (2024)
Proposed Development Layout
Normal Conditions - Defended (Existing Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2024_95CI_DEV_DEF_NC_010_d_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

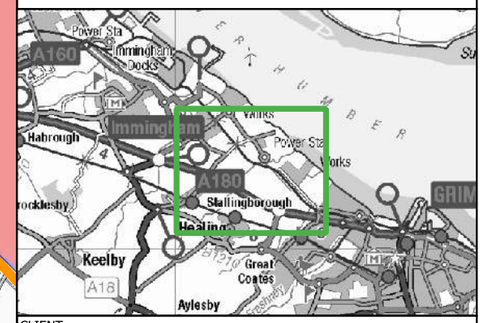
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.5% AEP Tidal Event (2024)
Existing Site Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:			DATE:
FINAL			08-05-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T200UE_2024_95CI_EXG_BR1_011_d_Max

REVISION: -

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

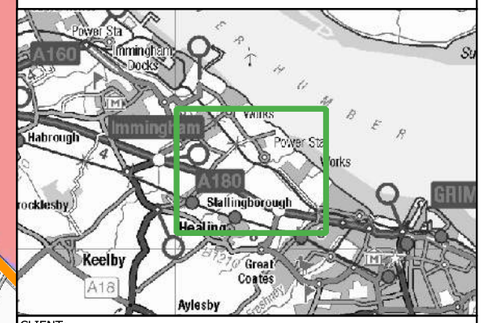
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.5% AEP Tidal Event (2024)
Proposed Development Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:		DATE:
FINAL		08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2024_95CI_DEV_BR1_011_d_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

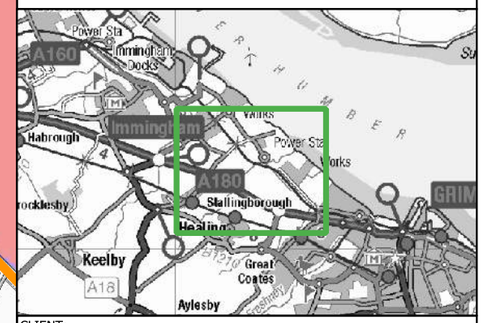
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.5% AEP Tidal Event (2024)
Existing Site Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2024_95CI_EXG_BR2_011_d_Max	-

0 200 400 600 800 1,000 m

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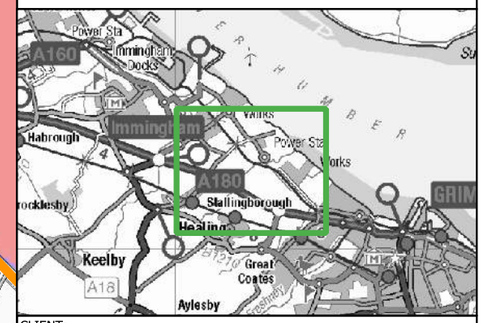
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



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SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.5% AEP Tidal Event (2024)
Proposed Development Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2024_95CI_DEV_BR2_011_d_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

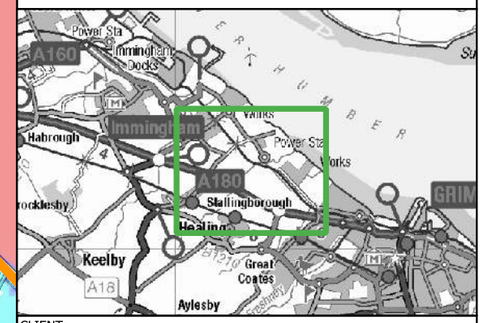
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:
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SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Depth
0.5% AEP Tidal Event (2099)
Existing Site Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2099_95CI_EXG_BR1_011_d_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

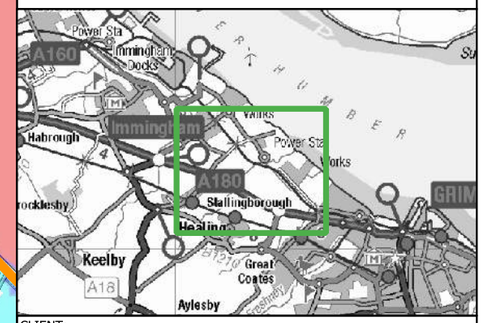
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:

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SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.5% AEP Tidal Event (2099)
Proposed Development Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2099_95CI_DEV_BR1_011_d_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

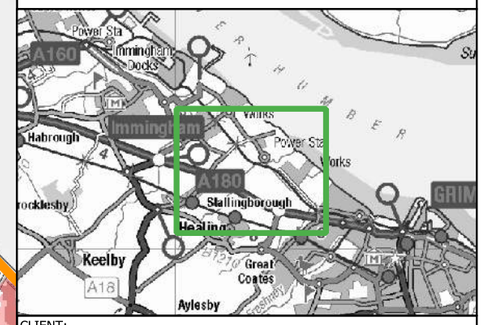
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Depth Difference

- > -100mm
- -50mm to -100mm
- -20mm to -50mm
- No Change (+/- 20mm)
- +20mm to +50mm
- +50mm to +100mm
- > +100mm



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Depth Difference
0.5% AEP Tidal Event (2099)
DEV vs EXG
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2099_95CI_DEV-EXG_BR1_011_d-Diff	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

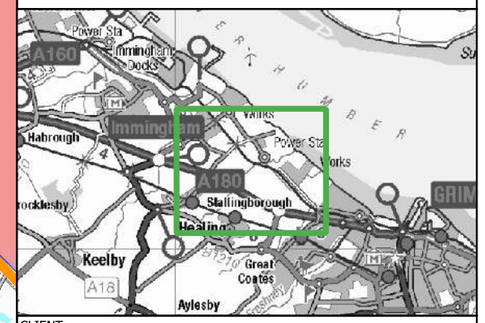
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.5% AEP Tidal Event (2099)
Existing Site Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2099_95CI_EXG_BR2_011_d_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

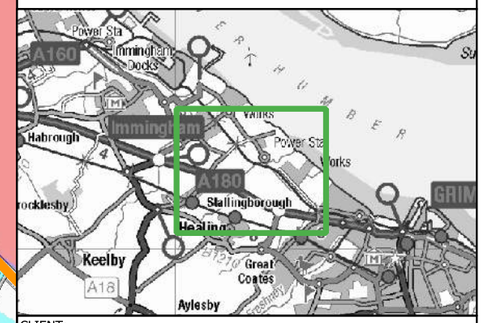
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.5% AEP Tidal Event (2099)
Proposed Development Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2099_95CI_DEV_BR2_011_d_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

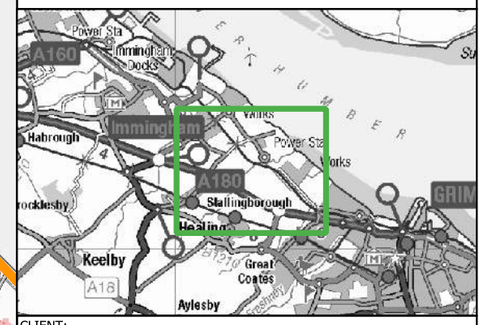
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Depth Difference

- > -100mm
- -50mm to -100mm
- -20mm to -50mm
- No Change (+/- 20mm)
- +20mm to +50mm
- +50mm to +100mm
- > +100mm



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Depth Difference
0.5% AEP Tidal Event (2099)
DEV vs EXG
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2099_95CI_DEV-EXG_BR2_011_d-Diff	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

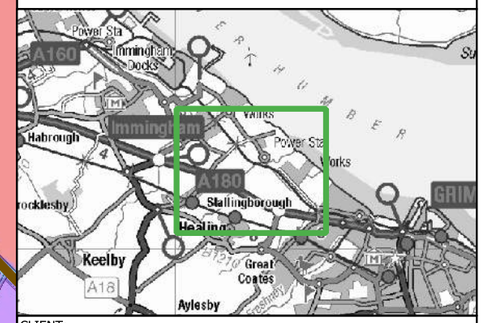
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Existing EA Defences

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.1% AEP Tidal Event (2024)
Existing Site Layout
Normal Conditions - Defended (Existing Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2024_95CI_EXG_DEF_NC_010_d_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

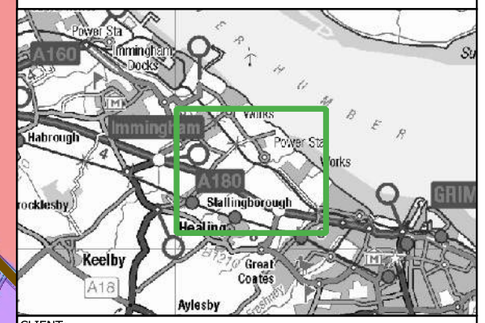
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

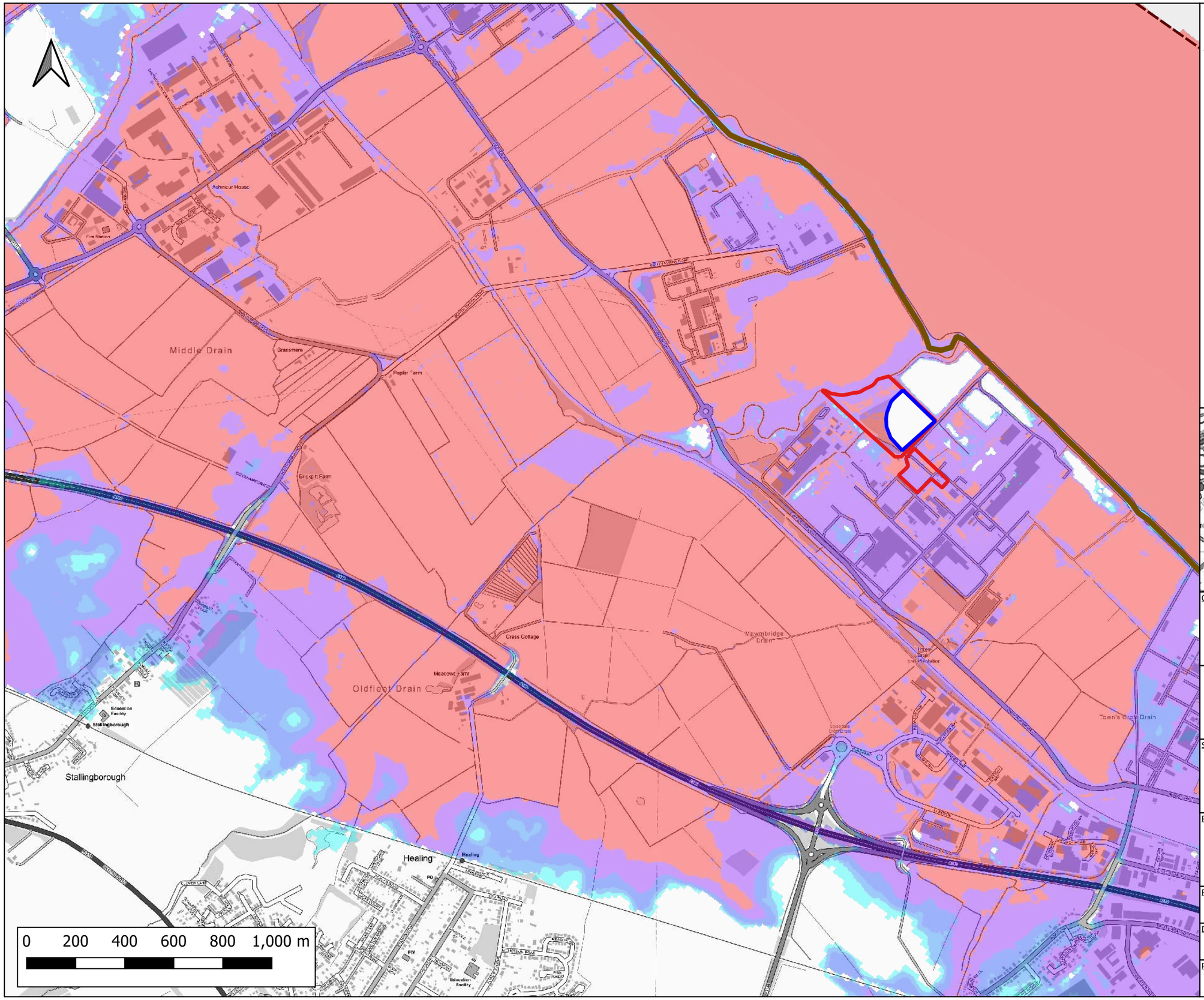
LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Existing EA Defences

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m





CONTAINS OS DATA © CROWN COPYRIGHT (2025)

CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.1% AEP Tidal Event (2024)
Proposed Development Layout
Normal Conditions - Defended (Existing Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2024_95CI_DEV_DEF_NC_010_d_Max	-

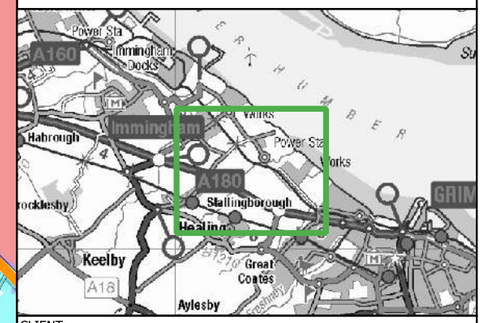
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.1% AEP Tidal Event (2024)
Existing Site Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2024_95CI_EXG_BR1_011_d_Max	-

0 200 400 600 800 1,000 m

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Notes:
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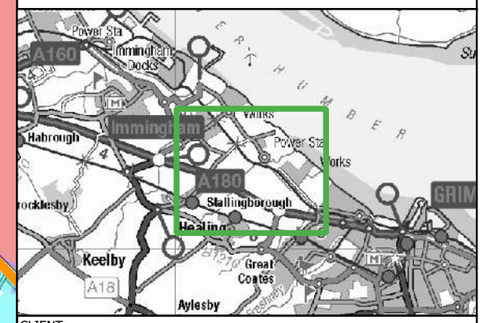
LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.1% AEP Tidal Event (2024)
Proposed Development Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2024_95CI_DEV_BR1_011_d_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

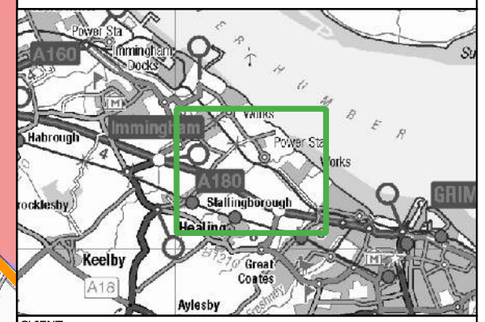
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:

Humber Resources Group Ltd

waterco

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SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.1% AEP Tidal Event (2024)
Existing Site Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2024_95CI_EXG_BR2_011_d_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

Notes:
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LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
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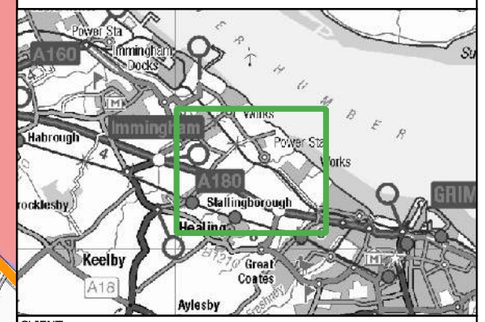

CLIENT:

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SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.1% AEP Tidal Event (2024)
Proposed Development Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2024_95CI_DEV_BR2_011_d_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

Notes:
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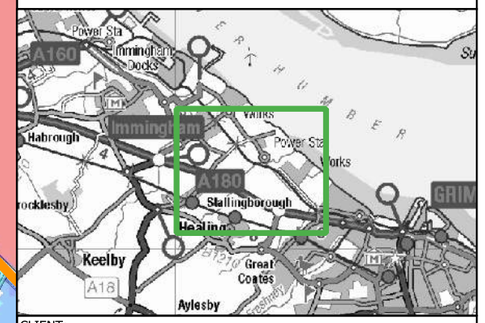
LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.1% AEP Tidal Event (2099)
Existing Site Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2099_95CI_EXG_BR1_011_d_Max	-

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Notes:
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LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Depth (m)

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- 0.6m - 1.2m
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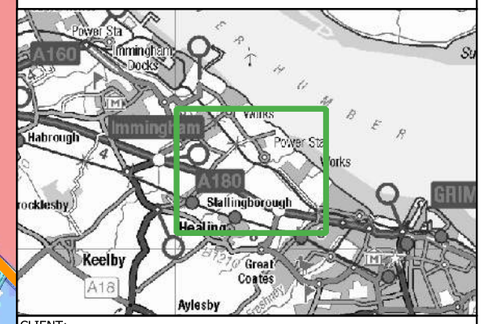
- > 2.4m



CLIENT:

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www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.1% AEP Tidal Event (2099)
Proposed Development Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2099_95CI_DEV_BR1_011_d_Max	-

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Notes:
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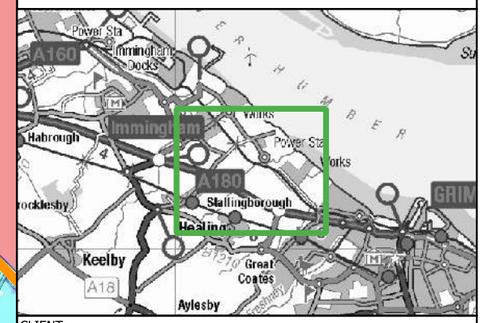
LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:
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www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Depth
0.1% AEP Tidal Event (2099)
Existing Site Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2099_95CI_EXG_BR2_011_d_Max	-

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

Notes:
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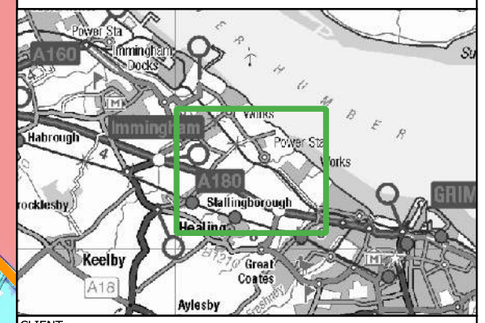
LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Depth (m)

- <- 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



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SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Depth
0.1% AEP Tidal Event (2099)
Proposed Development Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2099_95CI_DEV_BR2_011_d_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

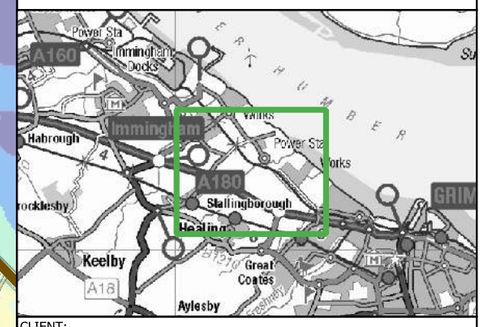
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Existing EA Defences

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



0 200 400 600 800 1,000 m

CLIENT:
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SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Velocity
0.5% AEP Tidal Event (2024)
Existing Site Layout
Normal Conditions - Defended (Existing Defences)

PLOT STATUS:			DATE:
FINAL			08-05-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T200UE_2024_95CI_EXG_DEF_NC_010_V_Max

REVISION: -

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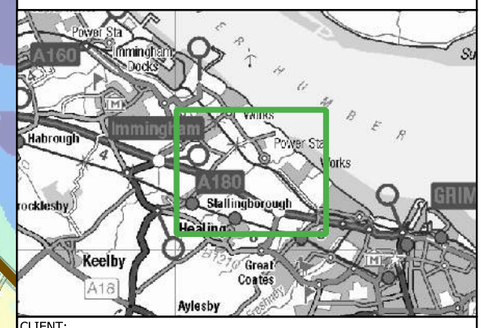
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Existing EA Defences

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Velocity
0.5% AEP Tidal Event (2024)
Proposed Development Layout
Normal Conditions - Defended (Existing Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2024_95CI_DEV_DEF_NC_010_V_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

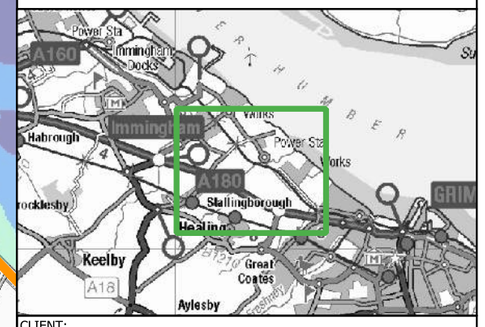
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:
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waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Velocity
0.5% AEP Tidal Event (2024)
Existing Site Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2024_95CI_EXG_BR1_011_V_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

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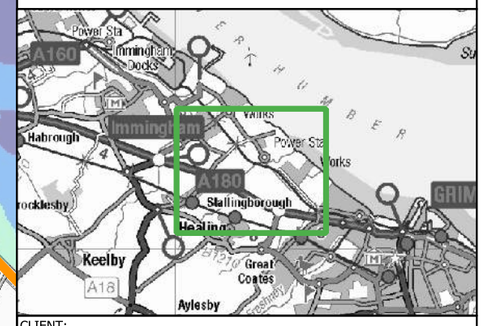

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SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Velocity
0.5% AEP Tidal Event (2024)
Proposed Development Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2024_95CI_DEV_BR1_011_V_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

Notes:
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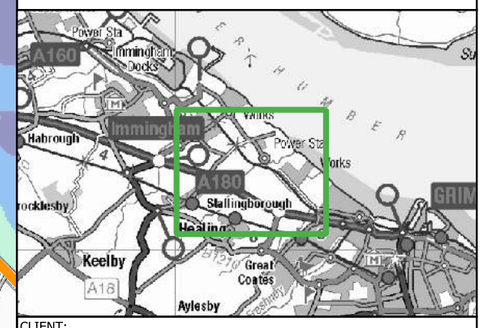
LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Velocity
0.5% AEP Tidal Event (2024)
Existing Site Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2024_95CI_EXG_BR2_011_V_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

Notes:
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LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

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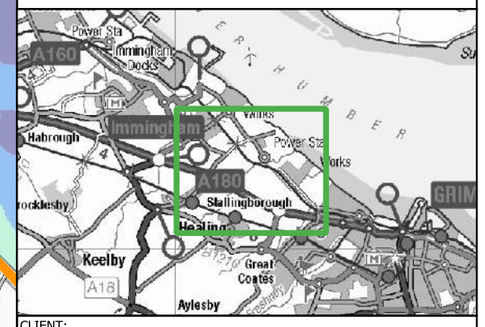

CLIENT:
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SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Velocity
0.5% AEP Tidal Event (2024)
Proposed Development Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2024_95CI_DEV_BR2_011_V_Max	-

0 200 400 600 800 1,000 m

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Notes:
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LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
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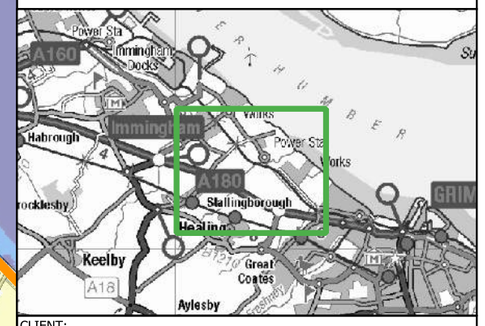

0 200 400 600 800 1,000 m

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SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Velocity
0.5% AEP Tidal Event (2099)
Existing Site Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2099_95CI_EXG_BR1_011_V_Max	-

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- Model Extent
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- 0.3 - 0.6
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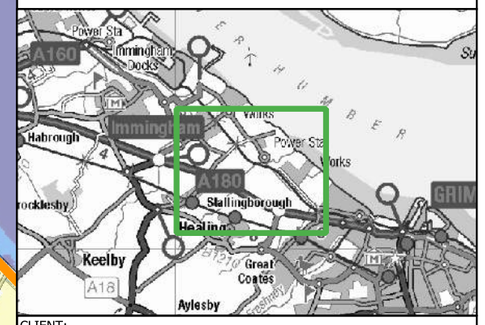

0 200 400 600 800 1,000 m

CLIENT:
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waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Velocity
0.5% AEP Tidal Event (2099)
Proposed Development Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2099_95CI_DEV_BR1_011_V_Max	-

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Notes:
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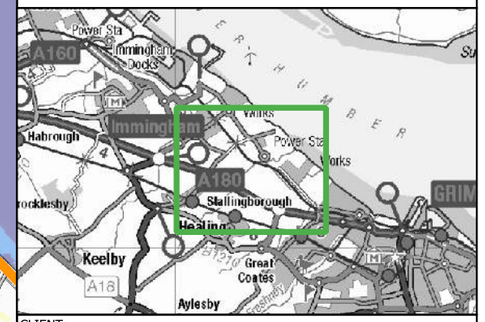
LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



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SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Velocity
0.5% AEP Tidal Event (2099)
Existing Site Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2099_95CI_EXG_BR2_011_V_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

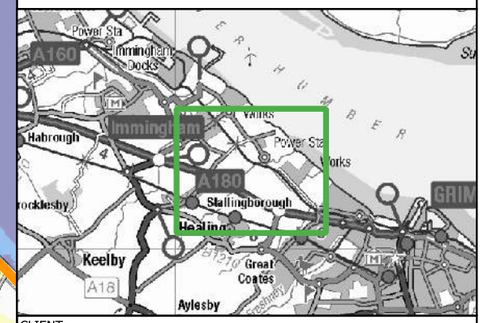
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Velocity
0.5% AEP Tidal Event (2099)
Proposed Development Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2099_95CI_DEV_BR2_011_V_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

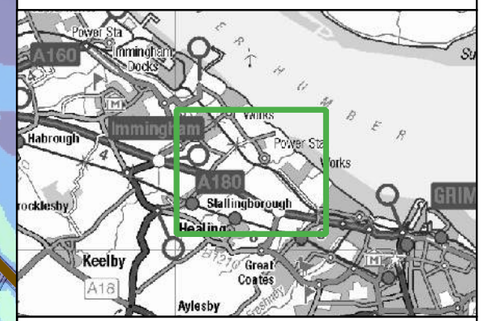
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Existing EA Defences

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



0 200 400 600 800 1,000 m

CLIENT:
Humber Resources Group Ltd

www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Velocity
0.1% AEP Tidal Event (2024)
Existing Site Layout
Normal Conditions - Defended (Existing Defences)

PLOT STATUS:			DATE:
FINAL			08-05-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T1000UE_2024_95CI_EXG_DEF_NC_010_V_Max

REVISION: -

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

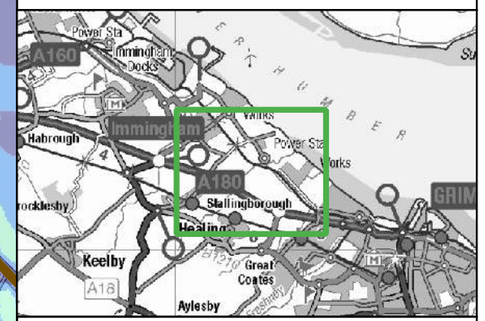
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Existing EA Defences

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



0 200 400 600 800 1,000 m

CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Velocity
0.1% AEP Tidal Event (2024)
Proposed Development Layout
Normal Conditions - Defended (Existing Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2024_95CI_DEV_DEF_NC_010_V_Max	-

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

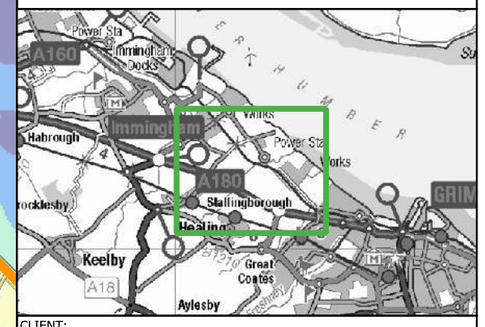
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



0 200 400 600 800 1,000 m

CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Velocity
0.1% AEP Tidal Event (2024)
Existing Site Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2024_95CI_EXG_BR1_011_V_Max	-

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

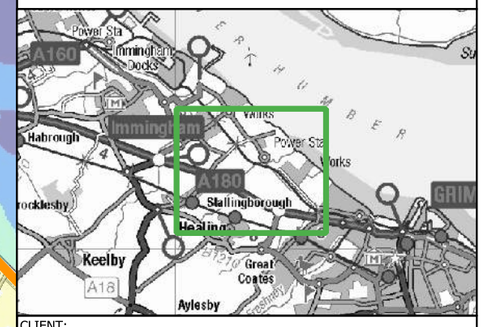
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Velocity
0.1% AEP Tidal Event (2024)
Proposed Development Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:			DATE:
FINAL			08-05-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T1000UE_2024_95CI_DEV_BR1_011_V_Max

REVISION: -

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

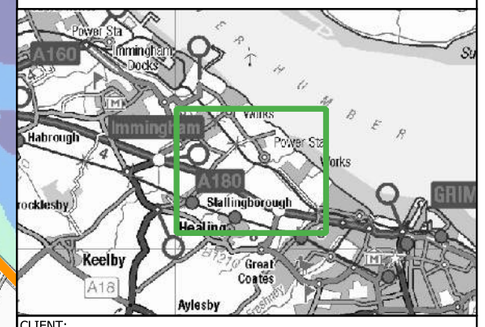
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Velocity
0.1% AEP Tidal Event (2024)
Existing Site Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2024_95CI_EXG_BR2_011_V_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

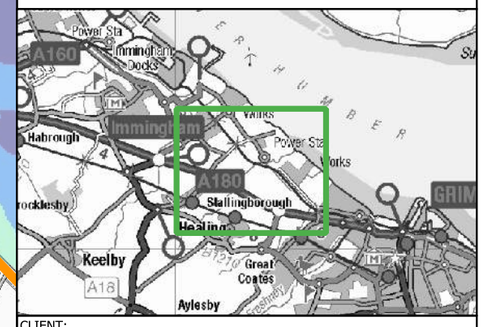
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Velocity
0.1% AEP Tidal Event (2024)
Proposed Development Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2024_95CI_DEV_BR2_011_V_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

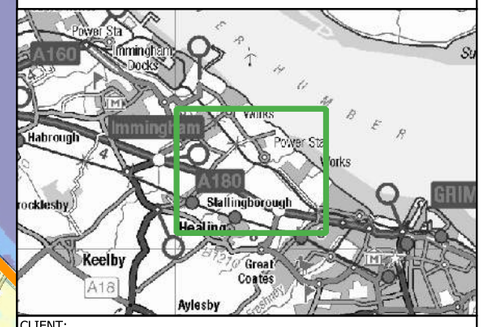
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



0 200 400 600 800 1,000 m

CLIENT:
Humber Resources Group Ltd

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www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Velocity
0.1% AEP Tidal Event (2099)
Existing Site Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2099_95CI_EXG_BR1_011_V_Max	-

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

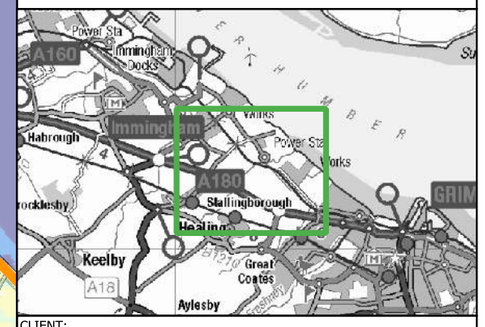
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Velocity
0.1% AEP Tidal Event (2099)
Proposed Development Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:			DATE:
FINAL			08-05-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T1000UE_2099_95CI_DEV_BR1_011_V_Max

REVISION: -

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

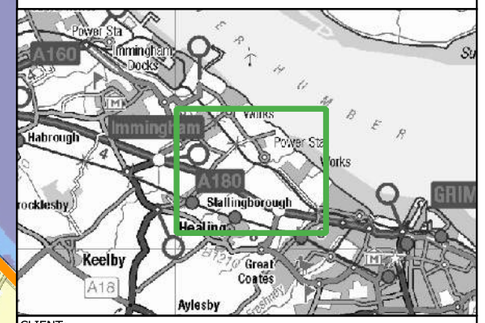
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

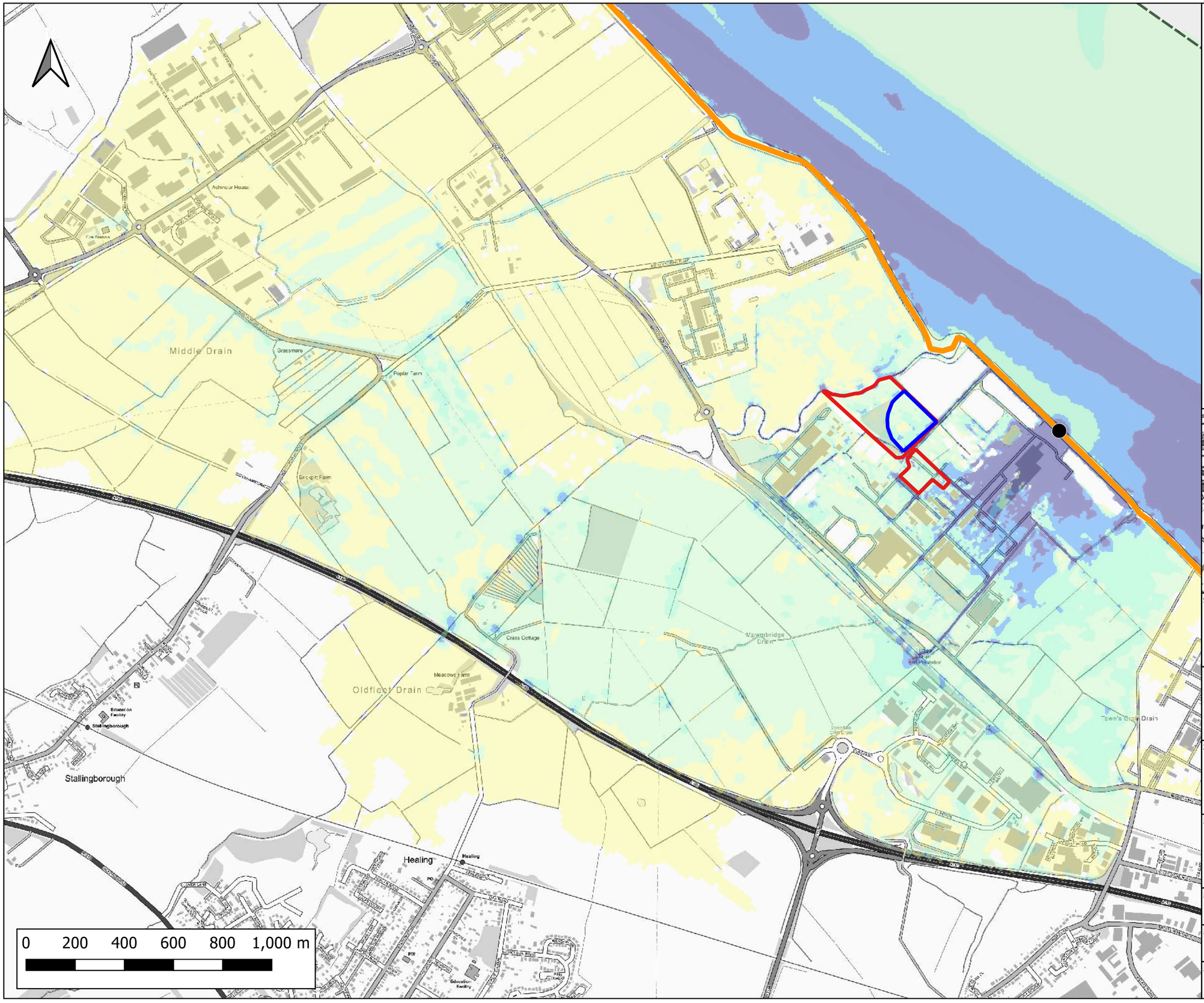
LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2





CONTAINS OS DATA © CROWN COPYRIGHT (2025)

CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Velocity
0.1% AEP Tidal Event (2099)
Existing Site Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2099_95CI_EXG_BR2_011_V_Max	-

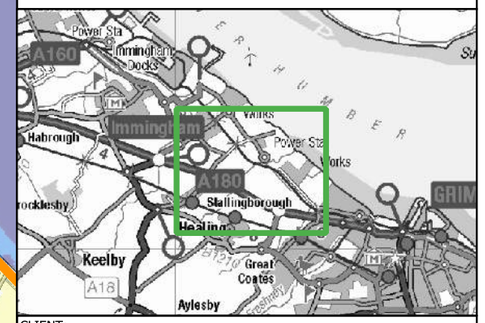
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Velocity (m/s)

- 0.0 - 0.3
- 0.3 - 0.6
- 0.6 - 0.9
- 0.9 - 1.2
- > 1.2



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Velocity
0.1% AEP Tidal Event (2099)
Proposed Development Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2099_95CI_DEV_BR2_011_V_Max	-

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

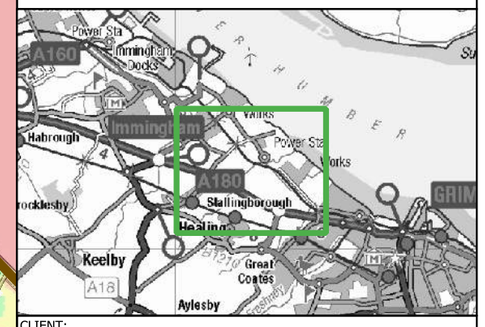
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Existing EA Defences

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Hazard Rating
0.5% AEP Tidal Event (2024)
Existing Site Layout
Normal Conditions - Defended (Existing Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2024_95CI_EXG_DEF_NC_010_ZUK2_Max	-

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

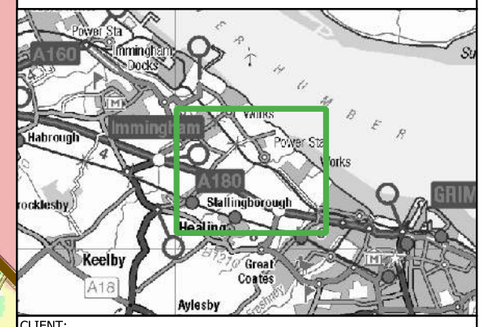
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Existing EA Defences

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Hazard Rating
0.5% AEP Tidal Event (2024)
Proposed Development Layout
Normal Conditions - Defended (Existing Defences)

PLOT STATUS:			DATE:
FINAL			08-05-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T200UE_2024_95CI_DEV_DEF_NC_010_ZUK2_Max

REVISION: -

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

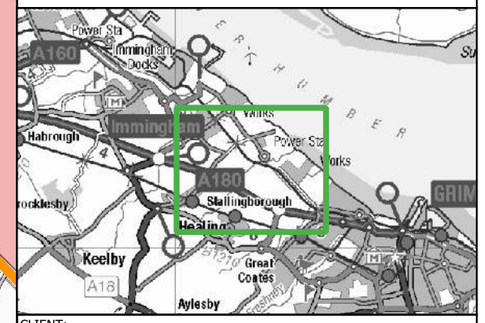
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Hazard Rating
0.5% AEP Tidal Event (2024)
Existing Site Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T200UE_2024_95CI_EXG_BR1_011_ZUK2_Max

REVISION: -

0 200 400 600 800 1,000 m

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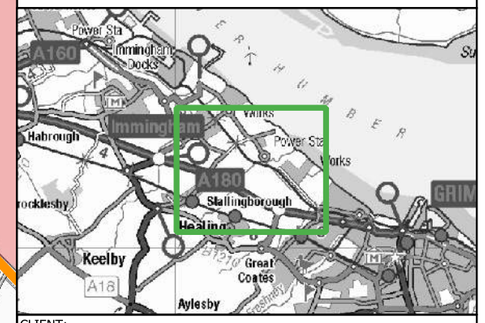
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Hazard Rating
0.5% AEP Tidal Event (2024)
Proposed Development Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T200UE_2024_95CI_DEV_BR1_011_ZUK2_Max

REVISION: -

0 200 400 600 800 1,000 m

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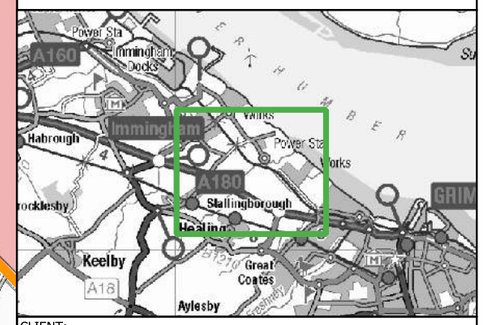
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:
Humber Resources Group Ltd

www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Hazard Rating
0.5% AEP Tidal Event (2024)
Existing Site Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2024_95CI_EXG_BR2_011_ZUK2_Max	-

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

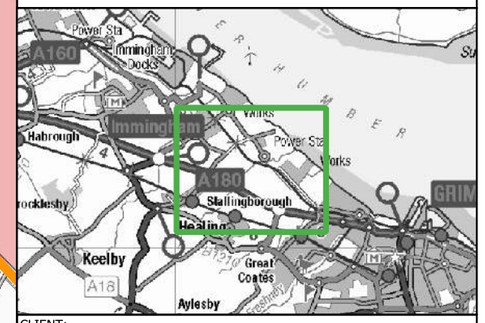
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Hazard Rating
0.5% AEP Tidal Event (2024)
Proposed Development Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T200UE_2024_95CI_DEV_BR2_011_ZUK2_Max

REVISION: -

0 200 400 600 800 1,000 m

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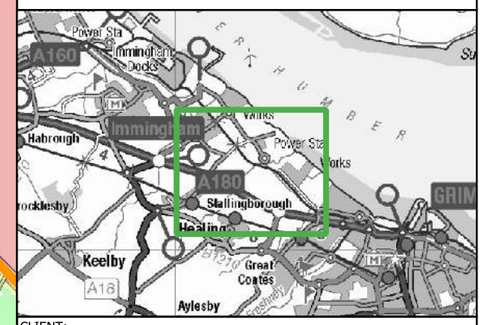
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Hazard Rating
0.5% AEP Tidal Event (2099)
Existing Site Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2099_95CI_EXG_BR1_011_ZUK2_Max	-

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

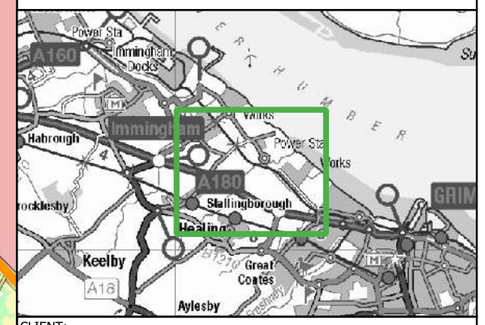
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Hazard Rating
0.5% AEP Tidal Event (2099)
Proposed Development Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2099_95CI_DEV_BR1_011_ZUK2_Max	-

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

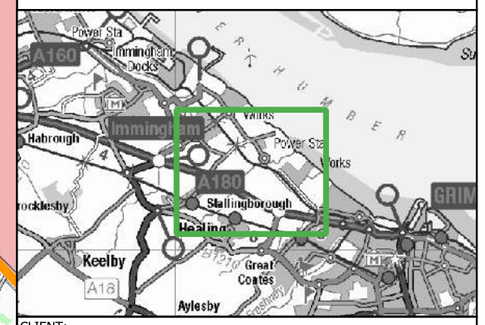
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Hazard Rating
0.5% AEP Tidal Event (2099)
Existing Site Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T200UE_2099_95CI_EXG_BR2_011_ZUK2_Max

REVISION: -

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

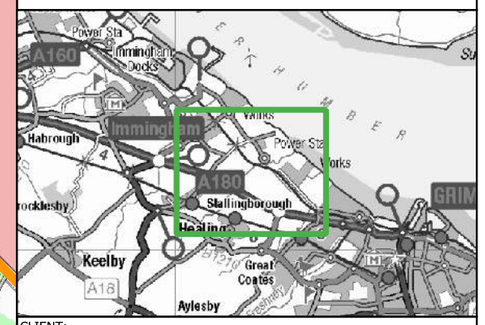
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:

Humber Resources Group Ltd

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Hazard Rating
0.5% AEP Tidal Event (2099)
Proposed Development Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T200UE_2099_95CI_DEV_BR2_011_ZUK2_Max

REVISION: -

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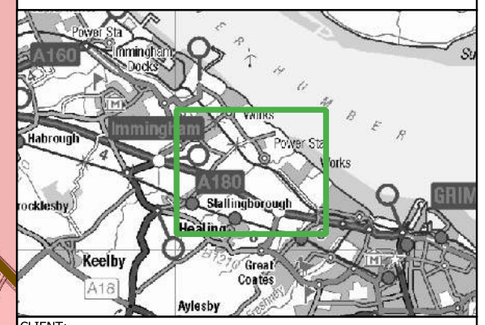
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Existing EA Defences

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Hazard Rating
0.1% AEP Tidal Event (2024)
Existing Site Layout
Normal Conditions - Defended (Existing Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2024_95CI_EXG_DEF_NC_010_ZUK2_Max	-

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

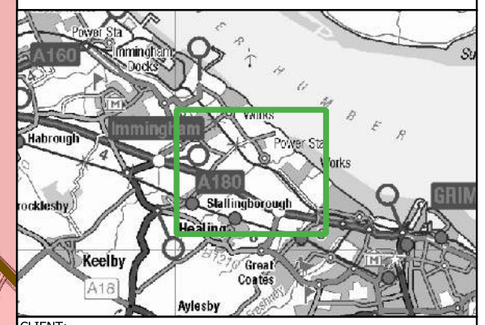
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Existing EA Defences

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Hazard Rating
0.1% AEP Tidal Event (2024)
Proposed Development Layout
Normal Conditions - Defended (Existing Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2024_95CI_DEV_DEF_NC_010_ZUK2_Max	-

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

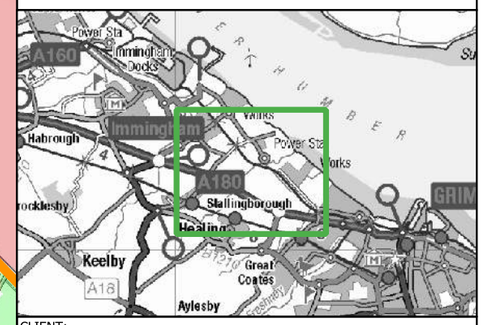
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Hazard Rating
0.1% AEP Tidal Event (2024)
Existing Site Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2024_95CI_EXG_BR1_011_ZUK2_Max	-

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

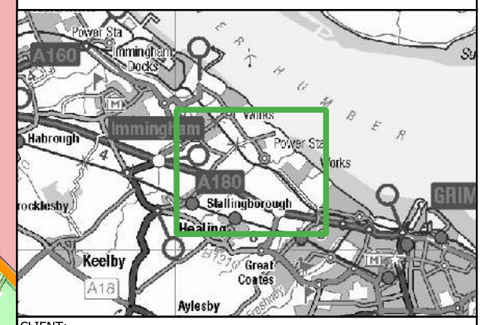
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Hazard Rating
0.1% AEP Tidal Event (2024)
Proposed Development Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T1000UE_2024_95CI_DEV_BR1_011_ZUK2_Max

REVISION: -

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

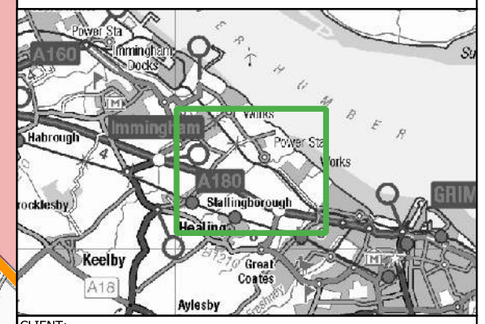
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Hazard Rating
0.1% AEP Tidal Event (2024)
Existing Site Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T1000UE_2024_95CI_EXG_BR2_011_ZUK2_Max

REVISION: -

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

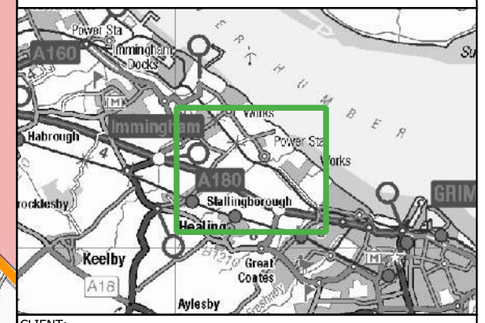
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Hazard Rating
0.1% AEP Tidal Event (2024)
Proposed Development Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:			DATE:
FINAL			08-05-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T1000UE_2024_95CI_DEV_BR2_011_ZUK2_Max

REVISION: -

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

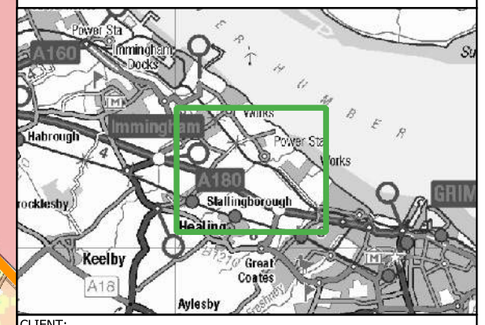
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Maximum Flood Hazard Rating
0.1% AEP Tidal Event (2099)
Existing Site Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:			DATE:
FINAL			08-05-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T1000UE_2099_95CI_EXG_BR1_011_ZUK2_Max

REVISION: -

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

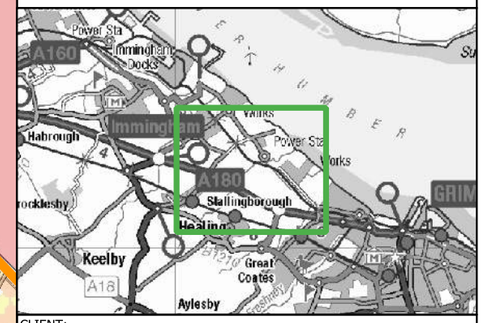
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



0 200 400 600 800 1,000 m

CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Hazard Rating
0.1% AEP Tidal Event (2099)
Proposed Development Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME:	REVISION:
15887_HUM_T1000UE_2099_95CI_DEV_BR1_011_ZUK2_Max	-

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

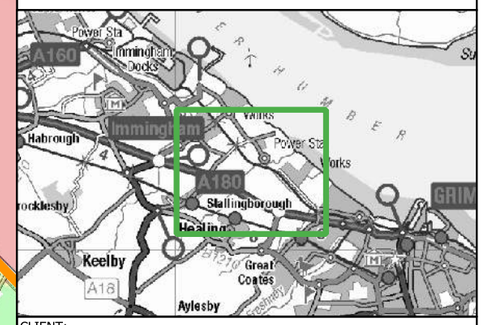
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Hazard Rating
0.1% AEP Tidal Event (2099)
Existing Site Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T1000UE_2099_95CI_EXG_BR2_011_ZUK2_Max

REVISION: -

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

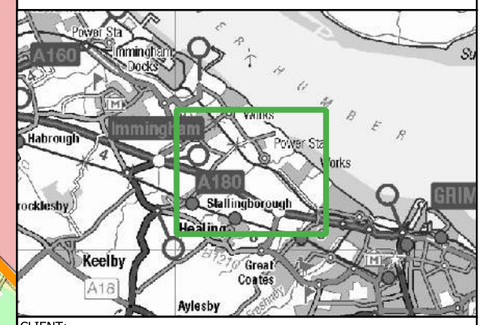
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation

Maximum Flood Hazard Rating (FD2320)

- Caution
- Danger for Some
- Danger for Most
- Danger for All



CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Flood Hazard Rating
0.1% AEP Tidal Event (2099)
Proposed Development Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	LS	1:15000

PLOT NAME: 15887_HUM_T1000UE_2099_95CI_DEV_BR2_011_ZUK2_Max

REVISION: -

0 200 400 600 800 1,000 m

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

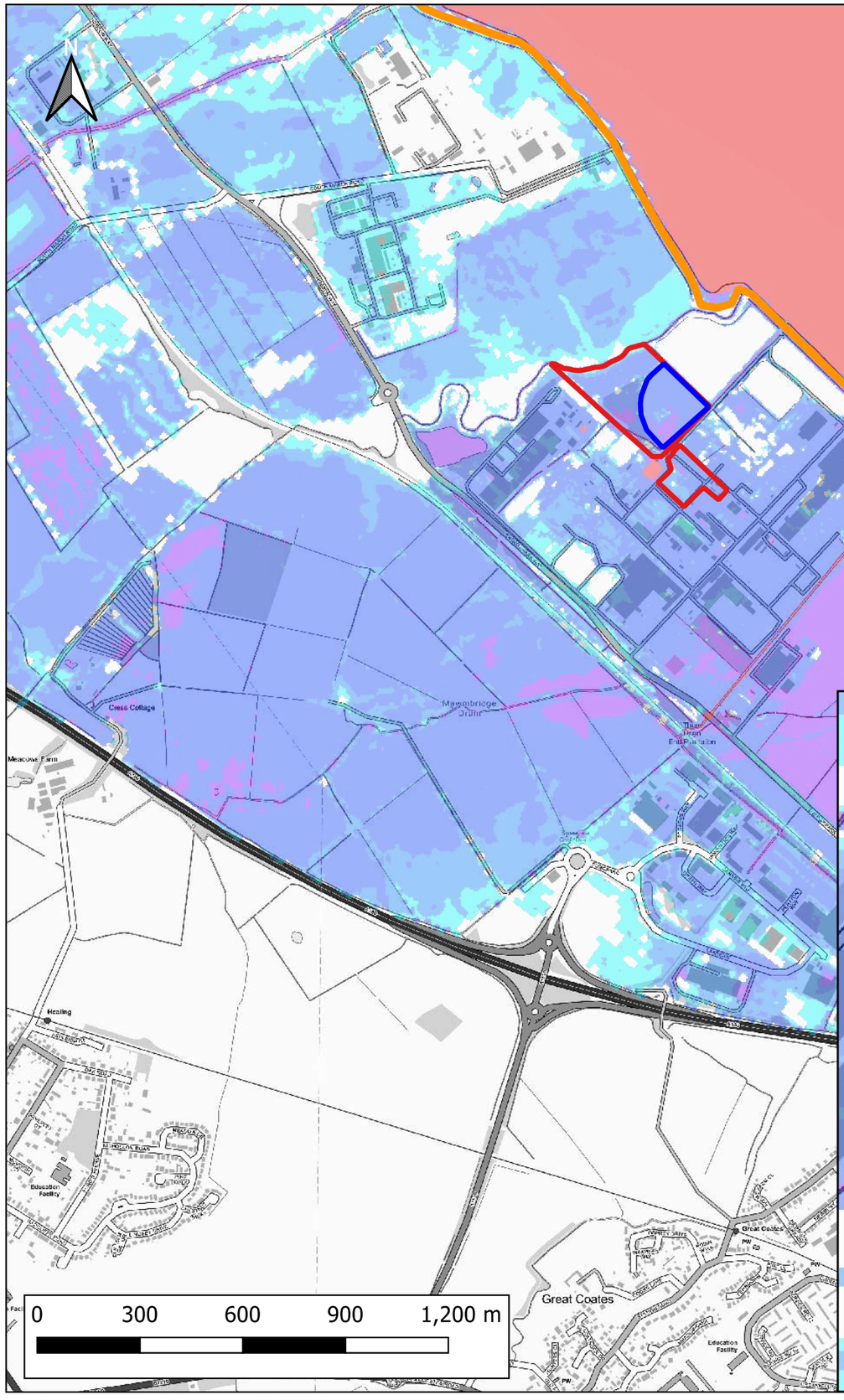
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise.

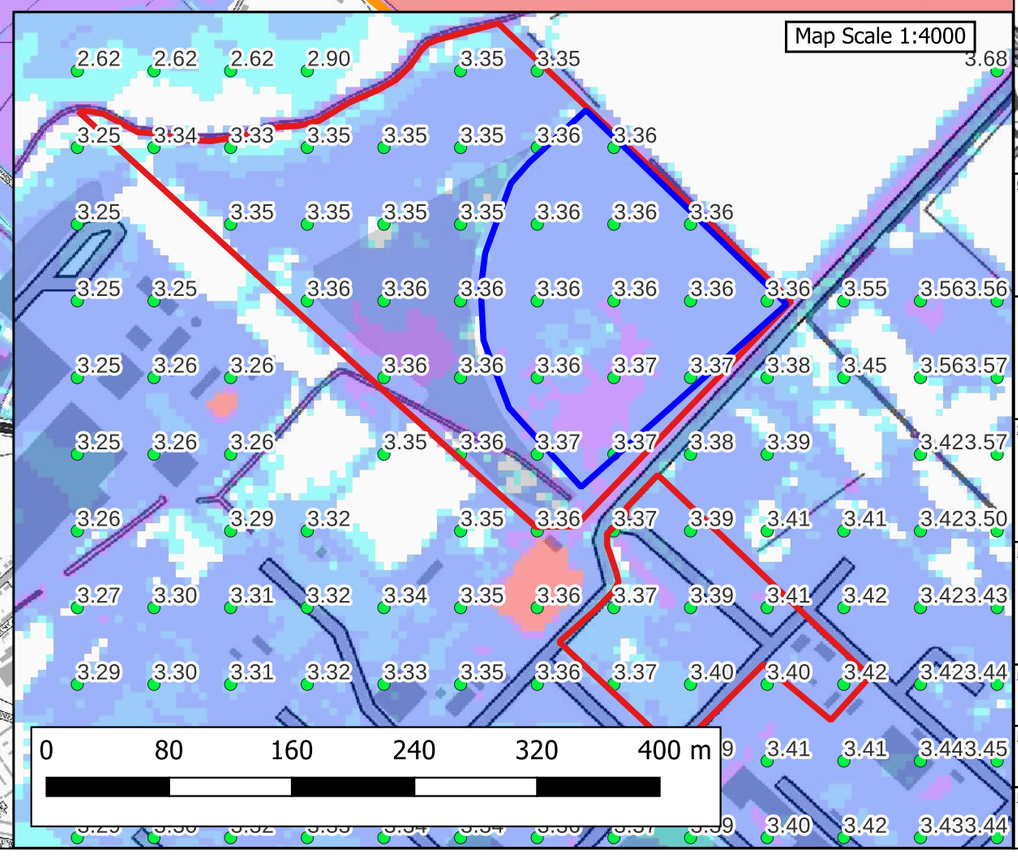
LEGEND

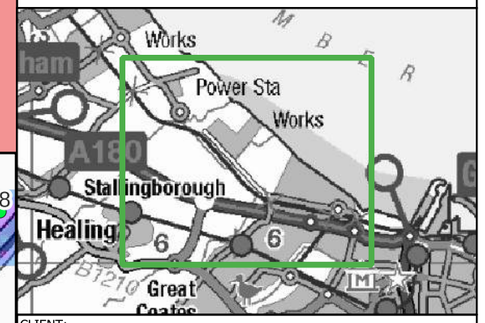
- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation
- Maximum Water Level Nodes (m AOD)

Maximum Flood Depth (m)

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m







CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Water Level
0.5% AEP Tidal Event (2024)
Existing Site Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	AW	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2024_95CI_EXG_BR1_011_h_Max	-

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

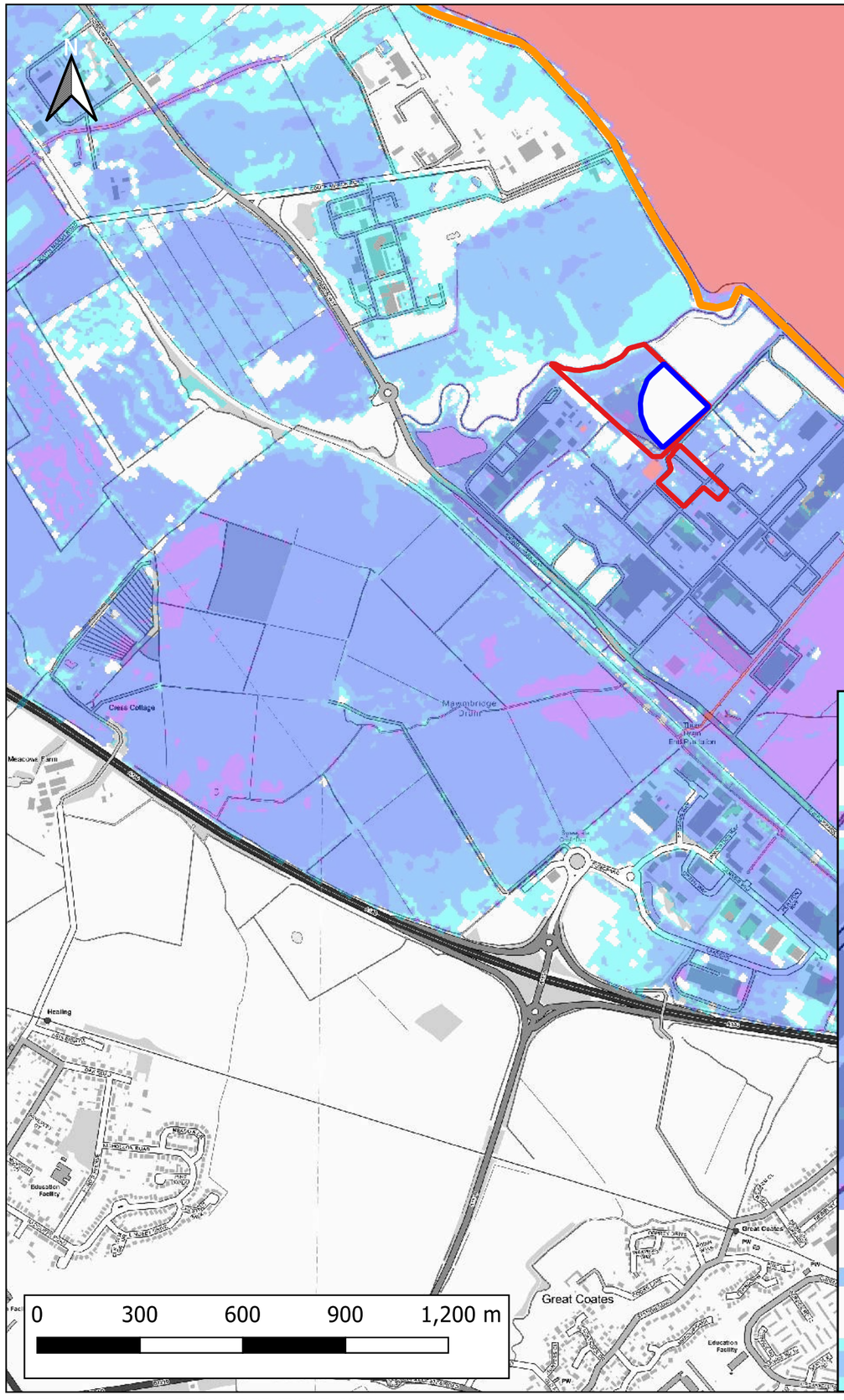
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise.

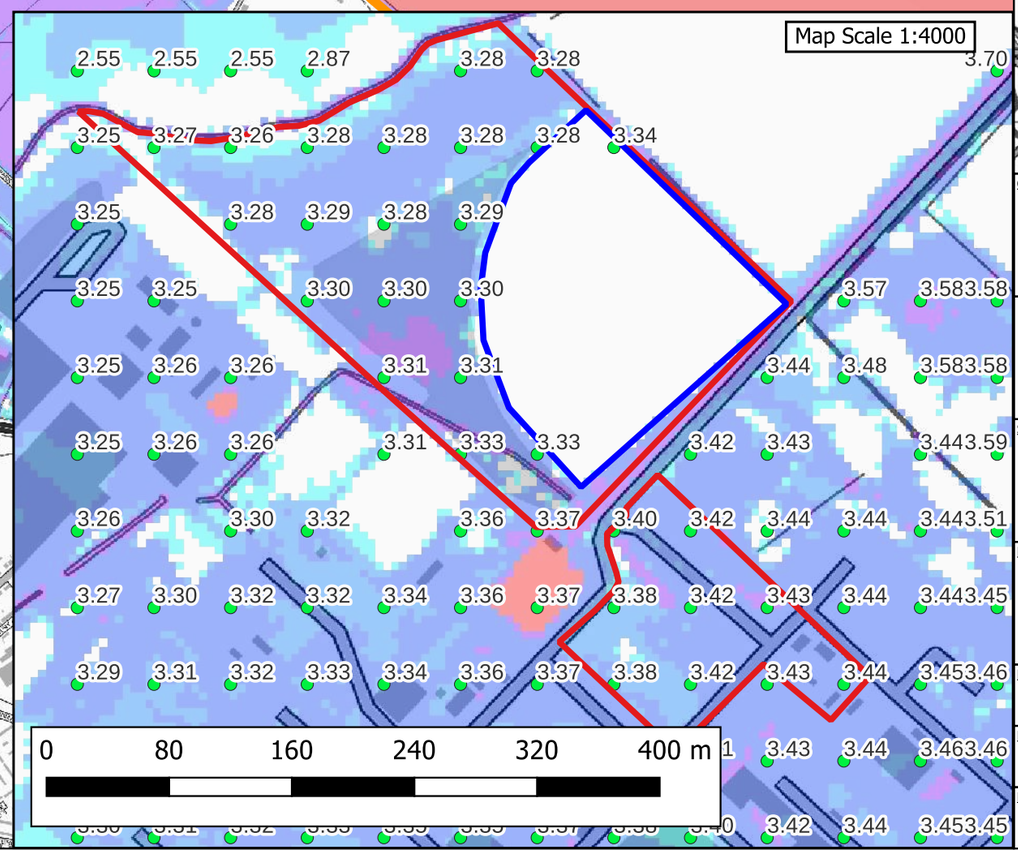
LEGEND

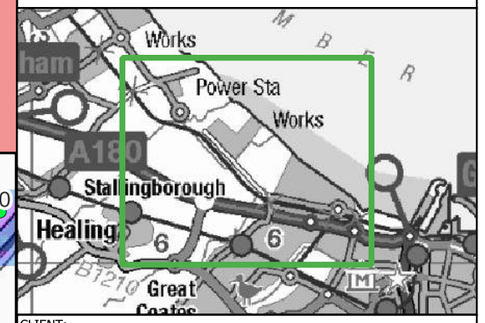
- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation
- Maximum Water Level Nodes (m AOD)

Maximum Flood Depth (m)

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m







CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Water Level
0.5% AEP Tidal Event (2024)
Proposed Development Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	AW	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2024_95CI_DEV_BR1_011_h_Max	-

CONTAINS OS DATA © CROWN COPYRIGHT (2025)

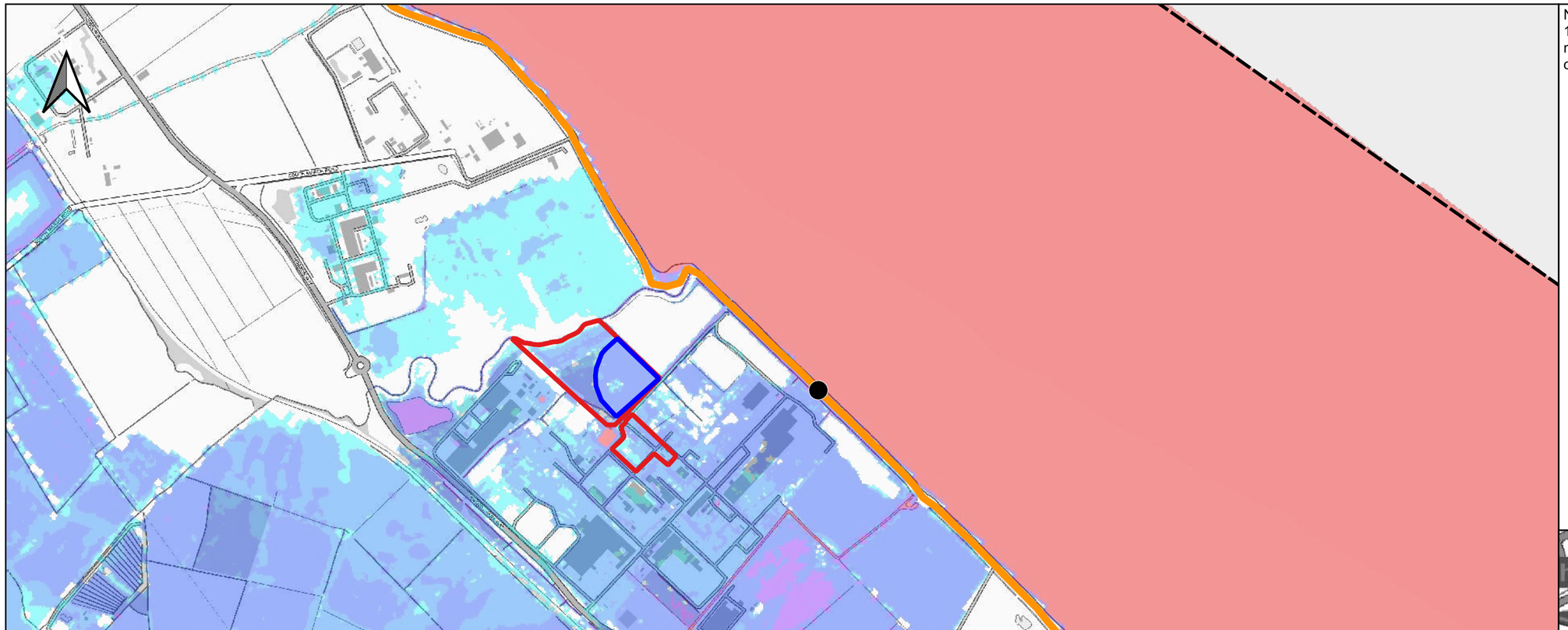
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise.

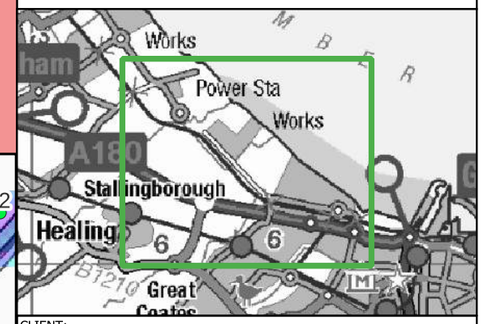
LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation
- Maximum Water Level Nodes (m AOD)

Maximum Flood Depth (m)

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m





CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Water Level
0.5% AEP Tidal Event (2024)
Existing Site Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	AW	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2024_95CI_EXG_BR2_011_h_Max	-

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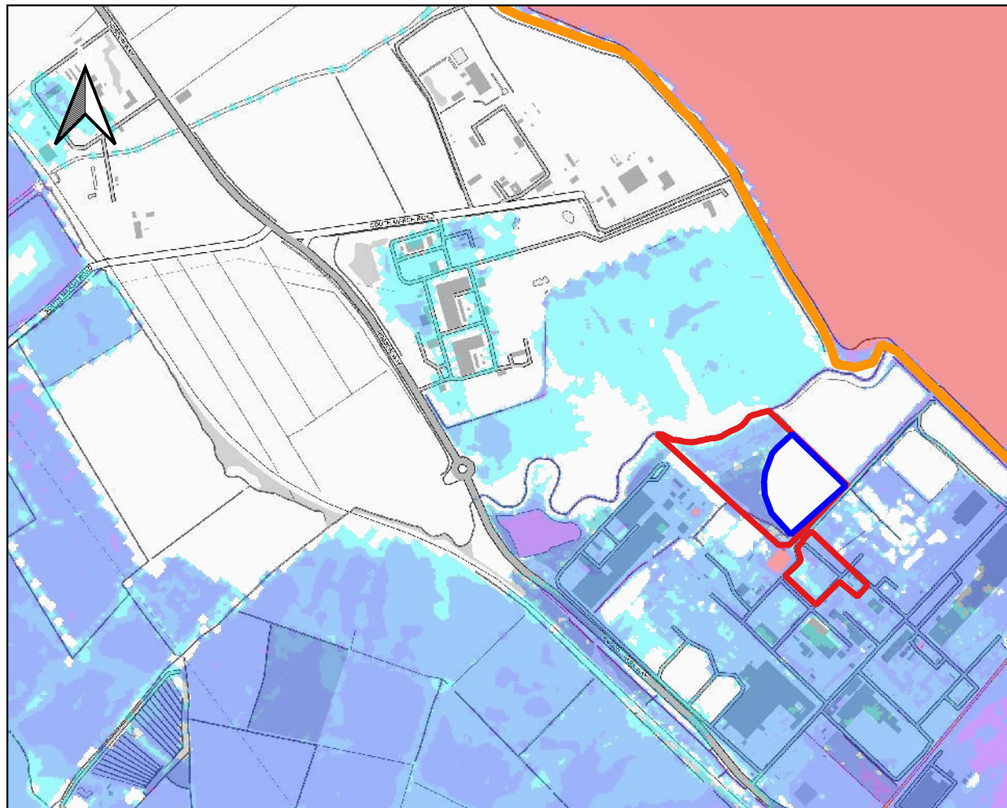
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise.

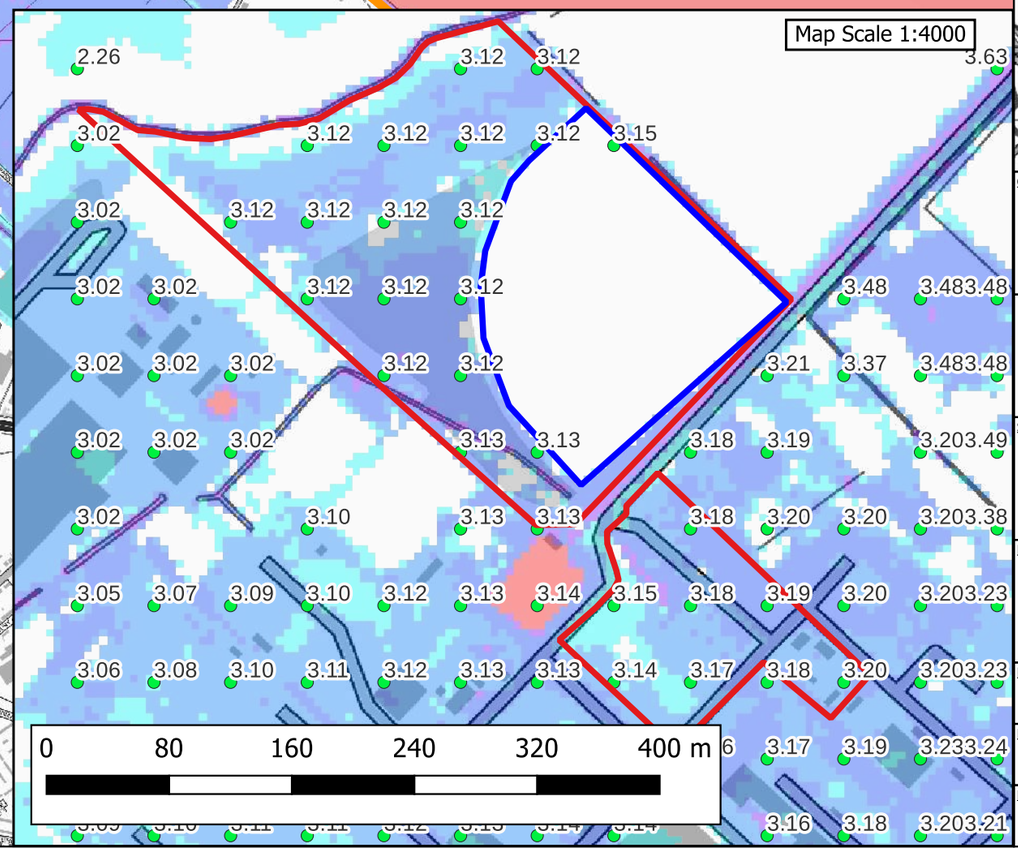
LEGEND

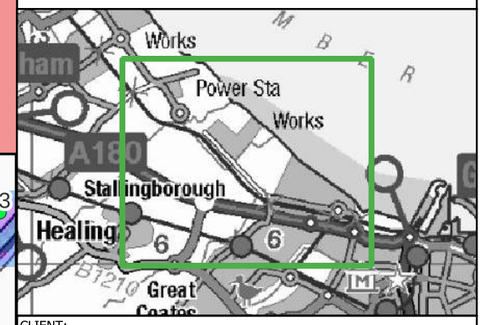
- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation
- Maximum Water Level Nodes (m AOD)

Maximum Flood Depth (m)

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m







CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Water Level
0.5% AEP Tidal Event (2024)
Proposed Development Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	AW	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2024_95CI_DEV_BR2_011_h_Max	-

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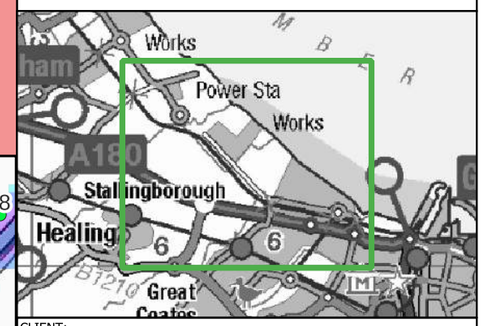
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise.

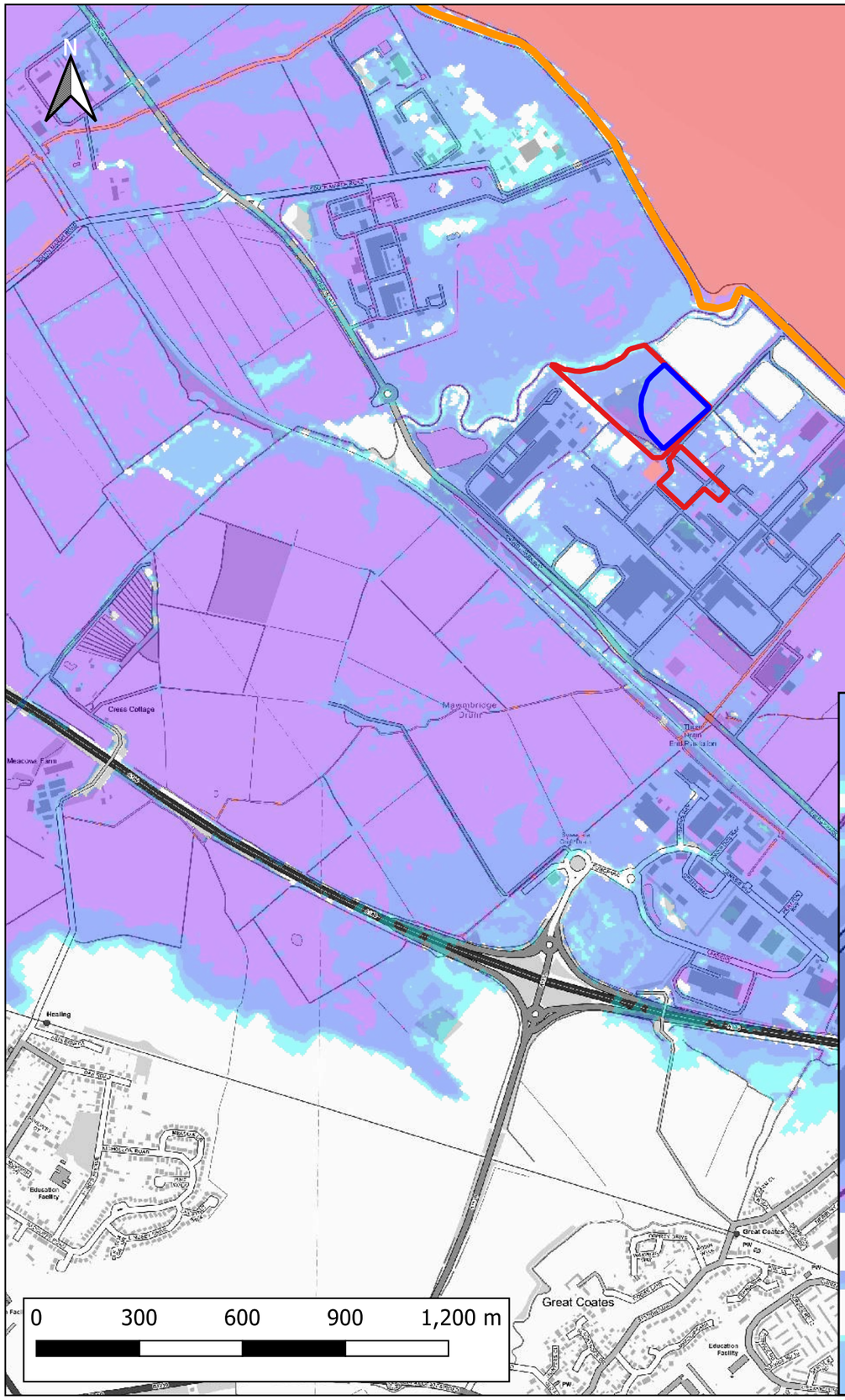
LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation
- Maximum Water Level Nodes (m AOD)

Maximum Flood Depth (m)

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m





CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Water Level
0.5% AEP Tidal Event (2099)
Existing Site Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	AW	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2099_95CI_EXG_BR1_011_h_Max	-

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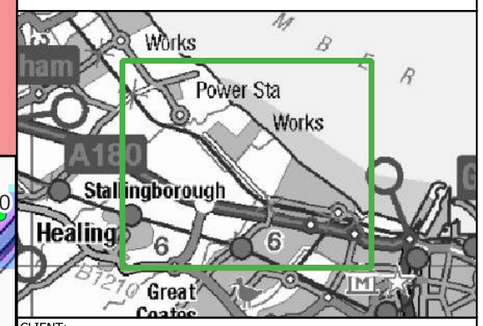
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise.

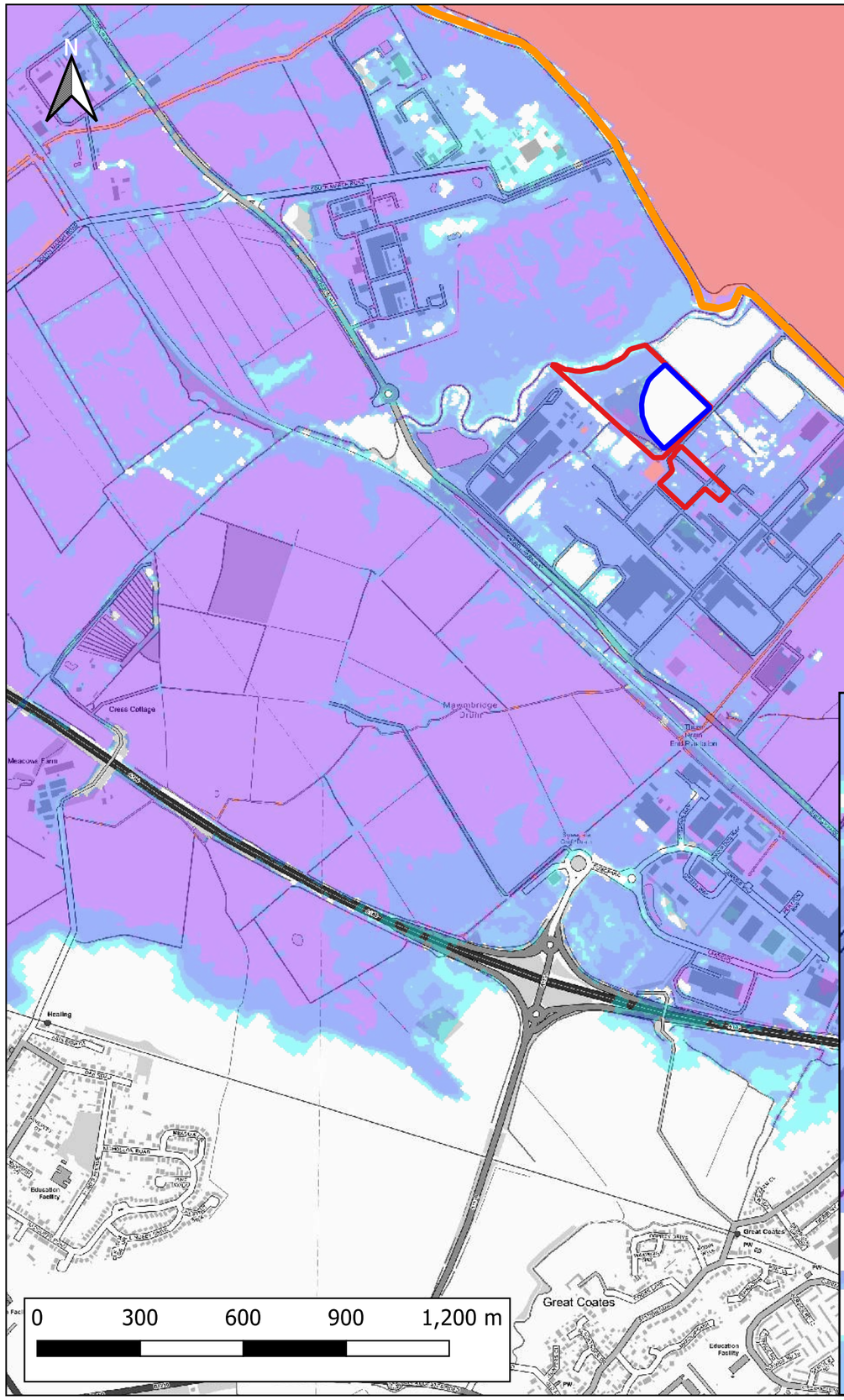
LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR1 - Breach during whole simulation
- Maximum Water Level Nodes (m AOD)

Maximum Flood Depth (m)

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m





CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Water Level
0.5% AEP Tidal Event (2099)
Proposed Development Layout
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	AW	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2099_95CI_DEV_BR1_011_h_Max	-

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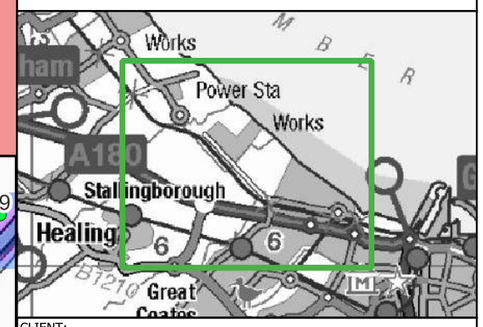
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise.

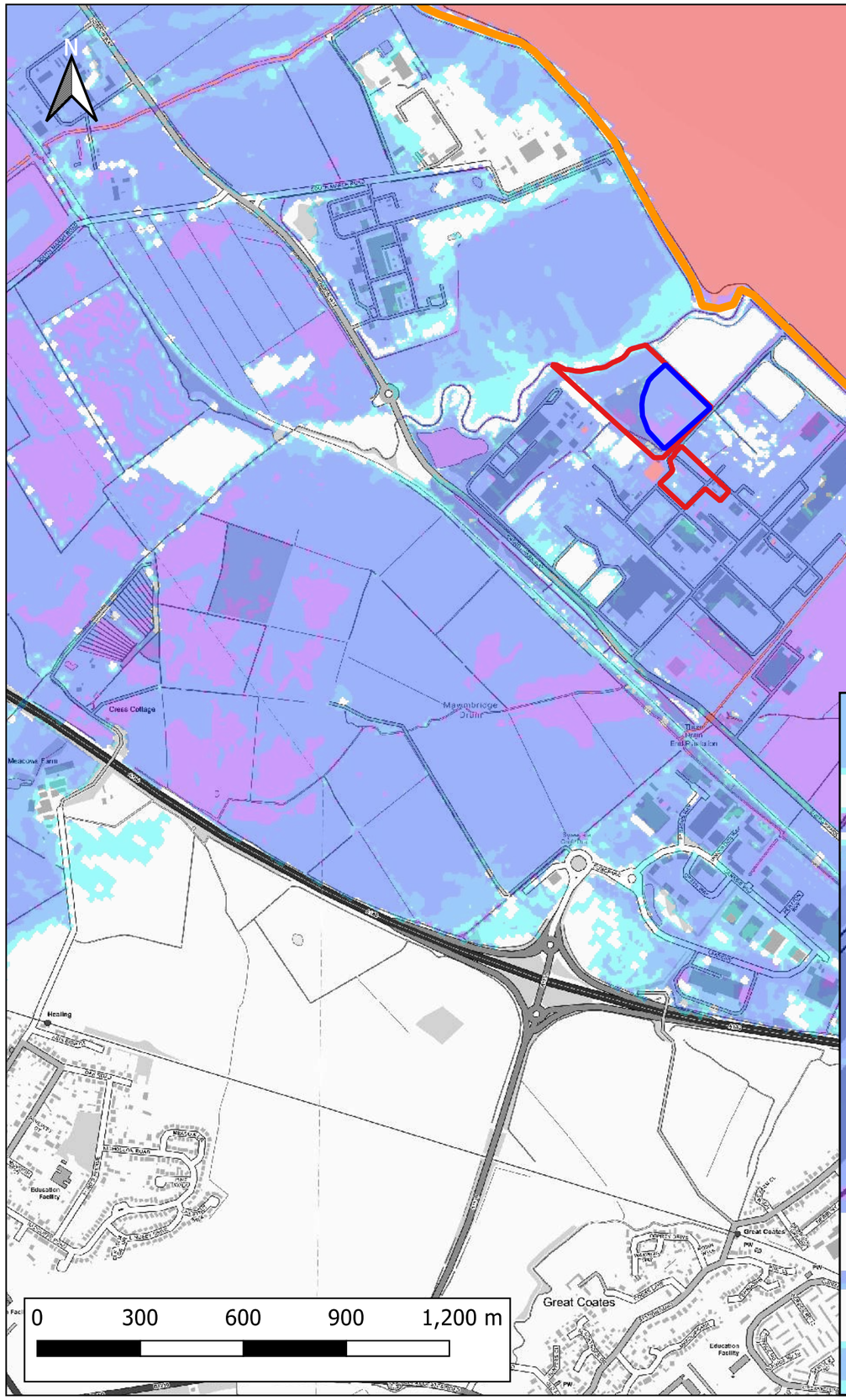
LEGEND

- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation
- Maximum Water Level Nodes (m AOD)

Maximum Flood Depth (m)

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m





CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Water Level
0.5% AEP Tidal Event (2099)
Existing Site Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	AW	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2099_95CI_EXG_BR2_011_h_Max	-

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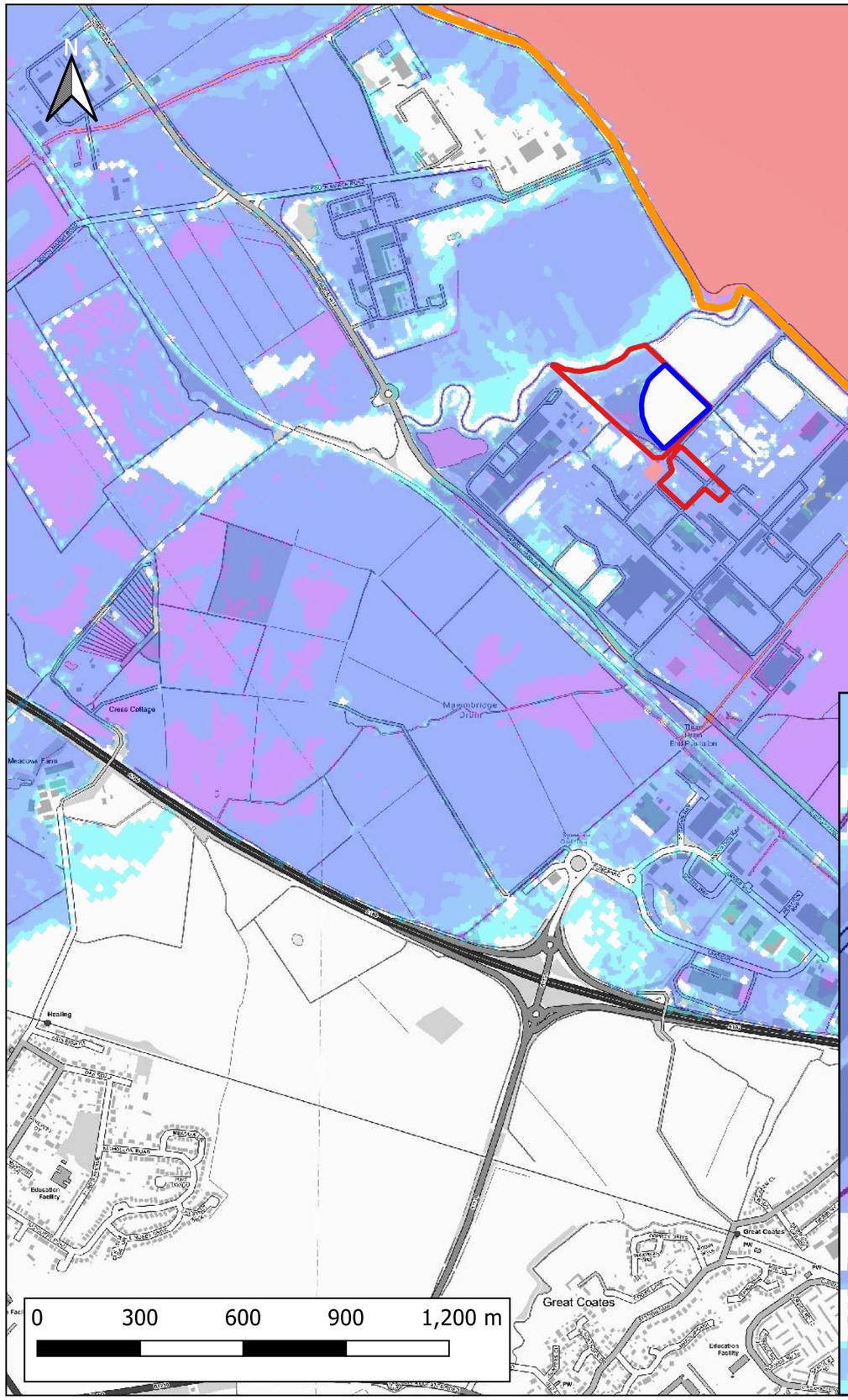
Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise.

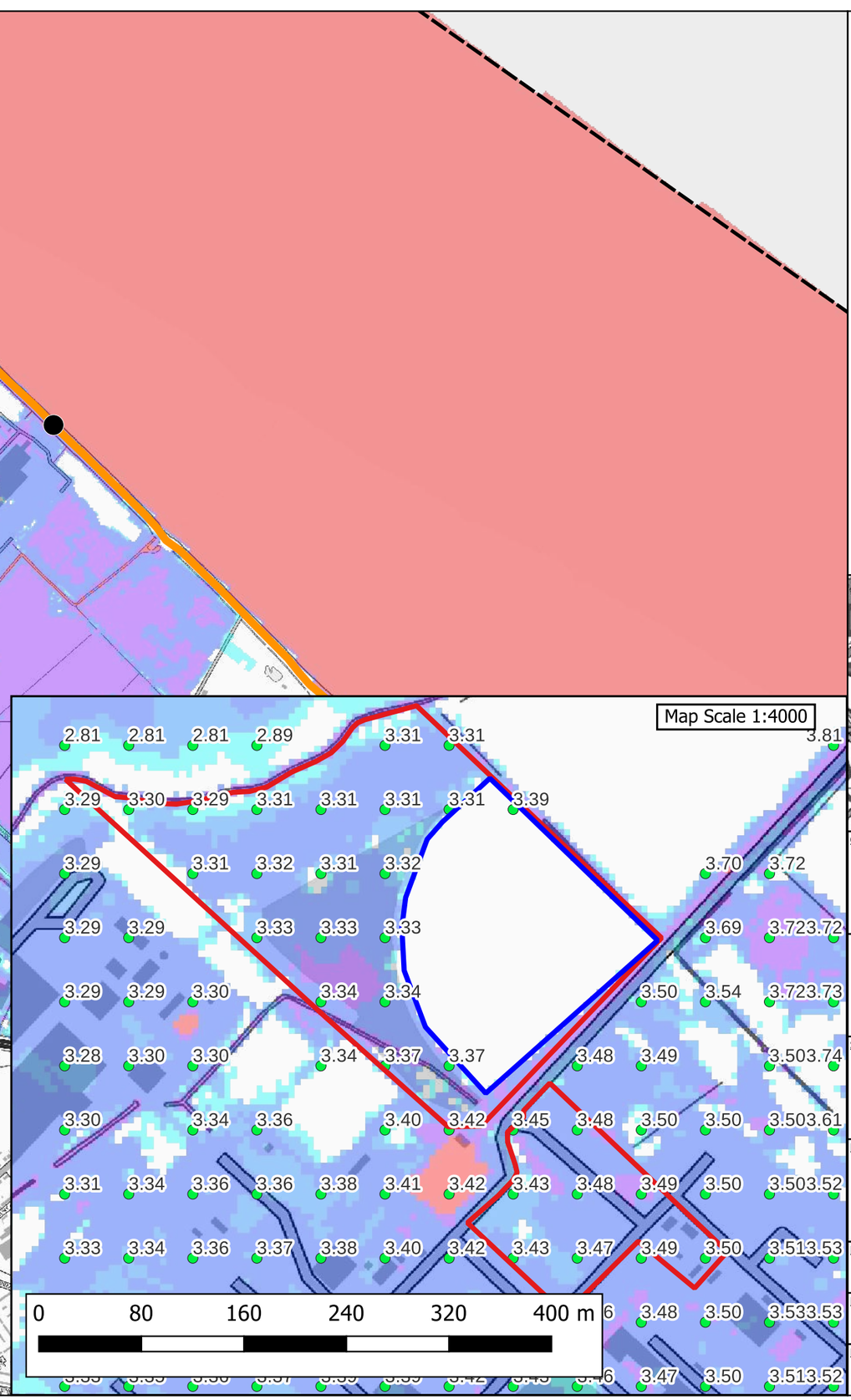
LEGEND

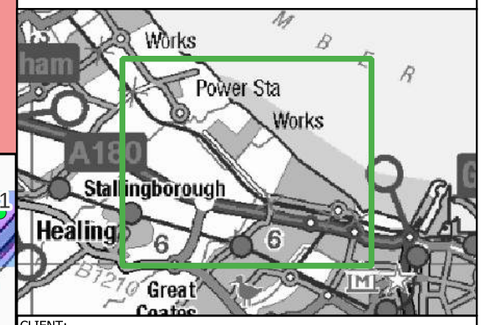
- Site Boundary
- Proposed Development Boundary
- Model Extent
- Future Raised Defences
- BR2 - Breach at peak of simulation
- Maximum Water Level Nodes (m AOD)

Maximum Flood Depth (m)

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m







CLIENT:
Humber Resources Group Ltd

waterco
www.waterco.co.uk

SCHEME:
Humber Gate, Grimsby

PLOT TITLE:
Maximum Water Level
0.5% AEP Tidal Event (2099)
Proposed Development Layout
Breach Scenario 2 (Future Raised Defences)

PLOT STATUS:	DATE:
FINAL	08-05-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
MH	AA	AW	1:15000

PLOT NAME:	REVISION:
15887_HUM_T200UE_2099_95CI_DEV_BR2_011_h_Max	-

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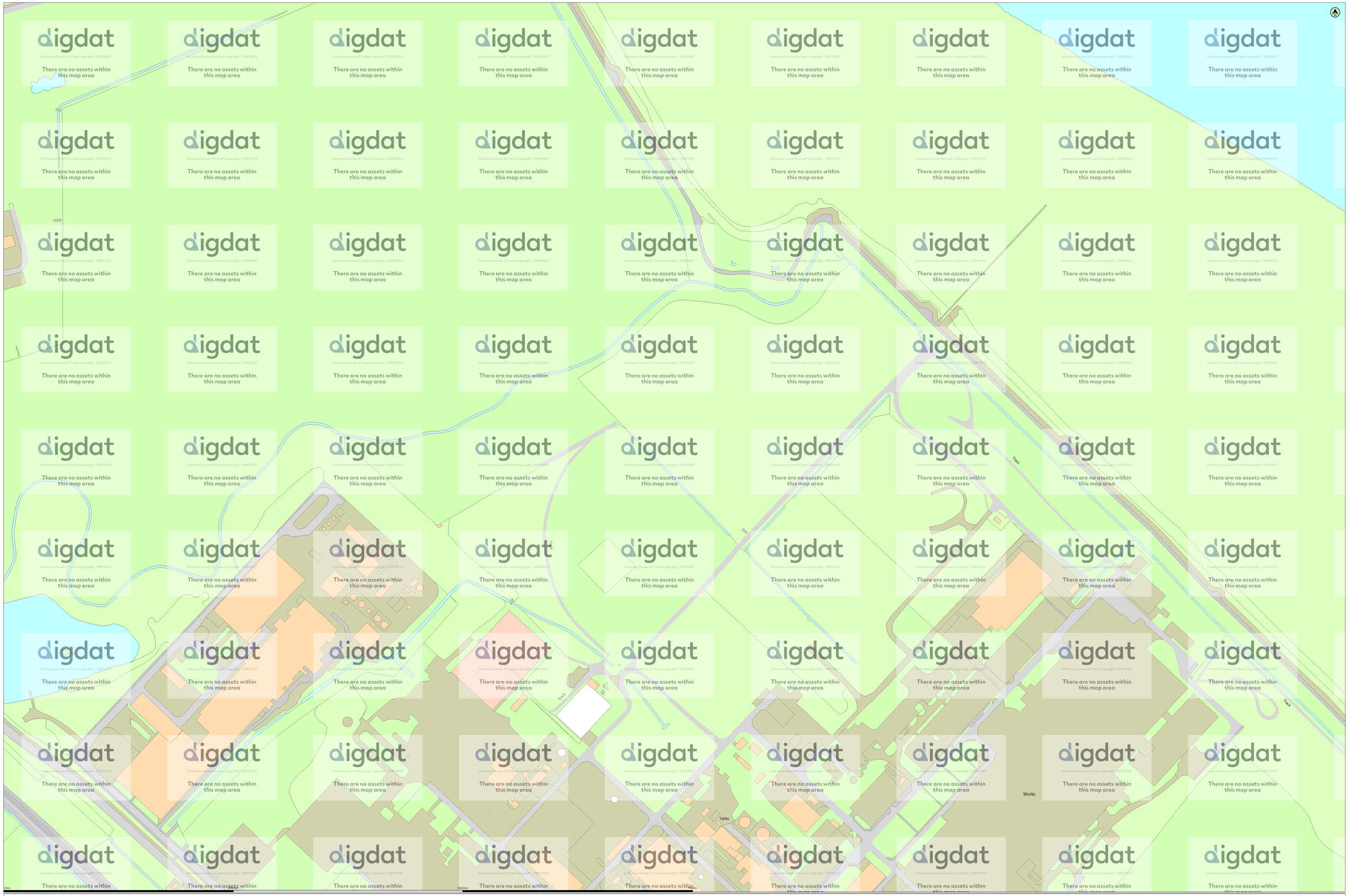
Appendix H Anglian Water Sewer Records



digdat
Ordnance Survey © Crown Copyright, 100018507
There are no assets within this map area

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Date: 14/05/24

Scale: 1:1250

Map Centre: 523760,412930

Data updated: 30/04/24

Our Ref: 1469019 - 1

Wastewater Plan A0

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

Foul Sewer
Surface Sewer
Combined Sewer
Final Effluent
Rising Main*
Private Sewer*
Decommissioned Sewer*

Outfall*
Inlet*
Manhole*

Sewage Treatment Works
Public Pumping Station
Decommissioned Pumping Station

*(Colour denotes effluent type)

aled.williams@waterco.co.uk
15887

love every drop
anglianwater

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

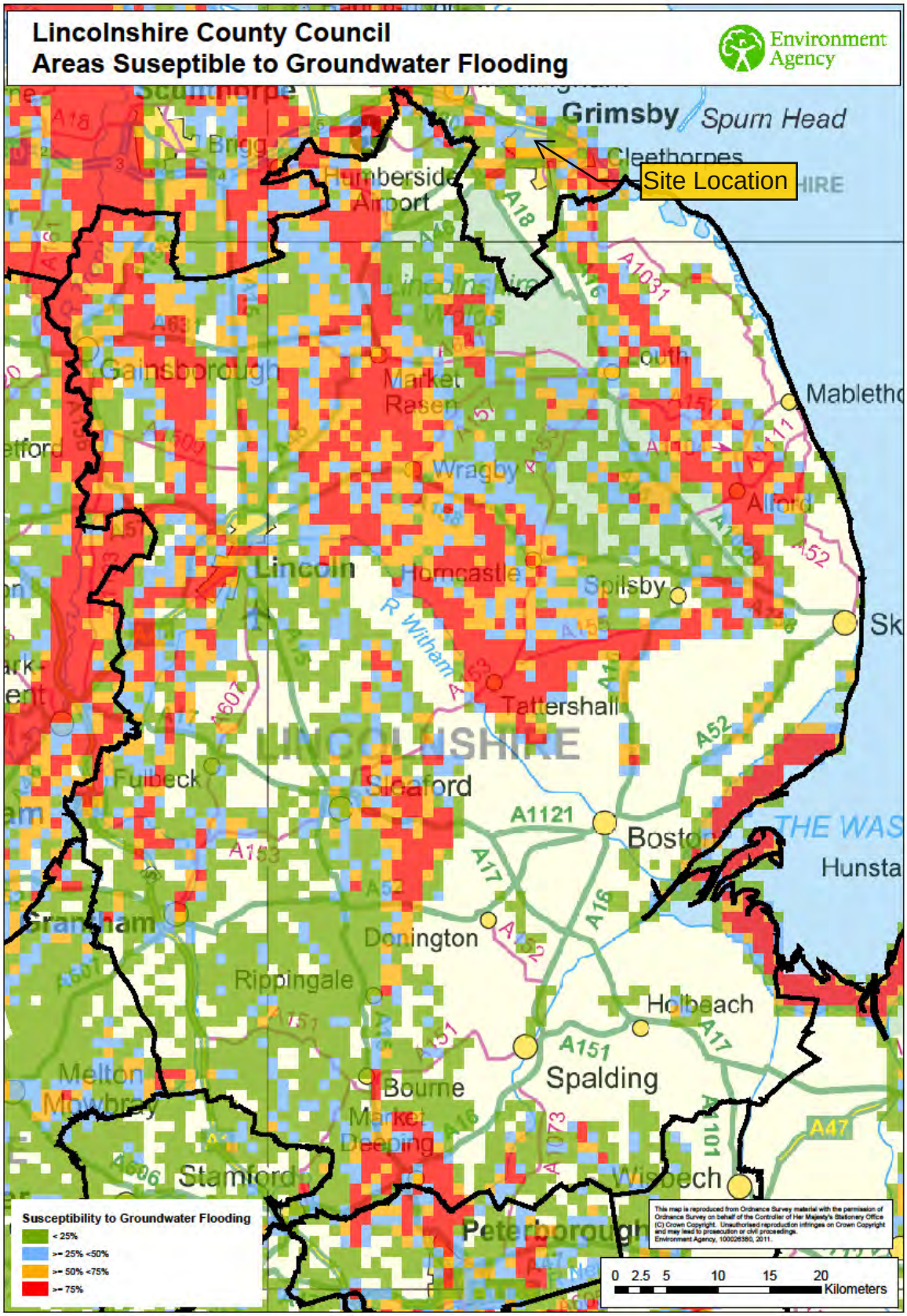
Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Appendix I PFRA Groundwater Susceptibility Map


Lincolnshire County Council
Areas Suseptible to Groundwater Flooding
Environment Agency
Site Location
Grimsby
Spurn Head
Cleethorpes
Humberside Airport
Brigg
Gainsborough
Market Rasen
Wragby
Lincoln
Horncastle
Spilsby
Tattershall
Sleaford
Boston
Alford
Mablethorpe
Skegness
Hunstanton
Fulbeck
Grantham
Donington
Rippingale
Holbeach
Spalding
Bourne
Market Deeping
Stamford
Melton Mowbray
Wisbech
Peterborough
R Witham
A18
A1031
A52
A1121
A17
A16
A151
A47
A153
A607
Susceptibility to Groundwater Flooding
< 25%
>= 25% <50%
>= 50% <75%
>= 75%
0 2.5 5 10 15 20
Kilometers

Appendix J Flood Evacuation Route Plan

N

0 300 600 900 1,200 m

Oldfleet Drain

Mawmbridge Drain

Town's Grd Drain

Pyewipe

Healing

Cross Cottage

Meadow Farm

Snipe Pit Farm

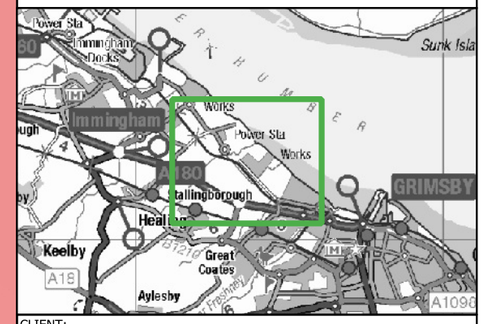
Poplar Farm

LEGEND

- Plot I
- Plot C
- Evacuation Route
- Area of Proposed Ground Raising
- Permitted New Road Extension and Bridge Link
- Future Raised Defences
- BR1 and BR2 Location
- Model Extent

Maximum Flood Depth

- <= 0.3m
- 0.3m - 0.6m
- 0.6m - 1.2m
- 1.2m - 2.4m
- > 2.4m



CLIENT:

Humber Resources Group Ltd

waterco

www.waterco.co.uk

SCHEME:

Humber Gate, Grimsby

PLOT TITLE:

Flood Evacuation Route Plan
0.5% AEP Tidal Event (2099)
Proposed Development Scenario
Breach Scenario 1 (Future Raised Defences)

PLOT STATUS:			DATE:
FINAL			13-05-2025
DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
JP	AW	MW	1:15000

PLOT NAME:	REVISION:
15887_Flood_Evacuation_Plan	-

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