



Formby Waste Recycling
Centre, Altcar Road,
Formby

Flood Risk Assessment

For Four Architects

Date: 18 September 2020

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1. INTRODUCTION

This report has been prepared by Hydrock Consultants Limited on behalf of Four Architects in support of a Planning Application to be submitted to Sefton Metropolitan Borough Council for a proposed extension to the existing Formby Waste Recycling Centre, Altcar Road, Formby.

The site is located within Flood Zone 3 and in line with the National Planning Policy Framework (NPPF) a Flood Risk Assessment (FRA) is required.

This FRA has been prepared to address the requirements of the NPPF, through;

- Assessing whether the site is likely to be affected by flooding.
- Assessing whether the proposed development is appropriate in the suggested location.
- Presenting any flood risk mitigation measures necessary to ensure that the proposed development and occupants will be safe, whilst ensuring flood risk is not increased elsewhere.

The report considers the requirements for undertaking a FRA as detailed in the NPPF.

2. SITE INFORMATION

2.1 Location and Setting

The site currently comprises undeveloped land and includes a gravelled car parking area, a number of storage containers and grassed areas. The site is located on the eastern outskirts of Formby and at the south-eastern edge of Formby Business Park. The site is bound to the immediate north by Altcar Road with commercial/industrial developments beyond. To the west of the site is the existing Formby Waste Recycling Centre, with Formby Football Club forming the eastern site boundary. To the south of the site is undeveloped grassed fields.

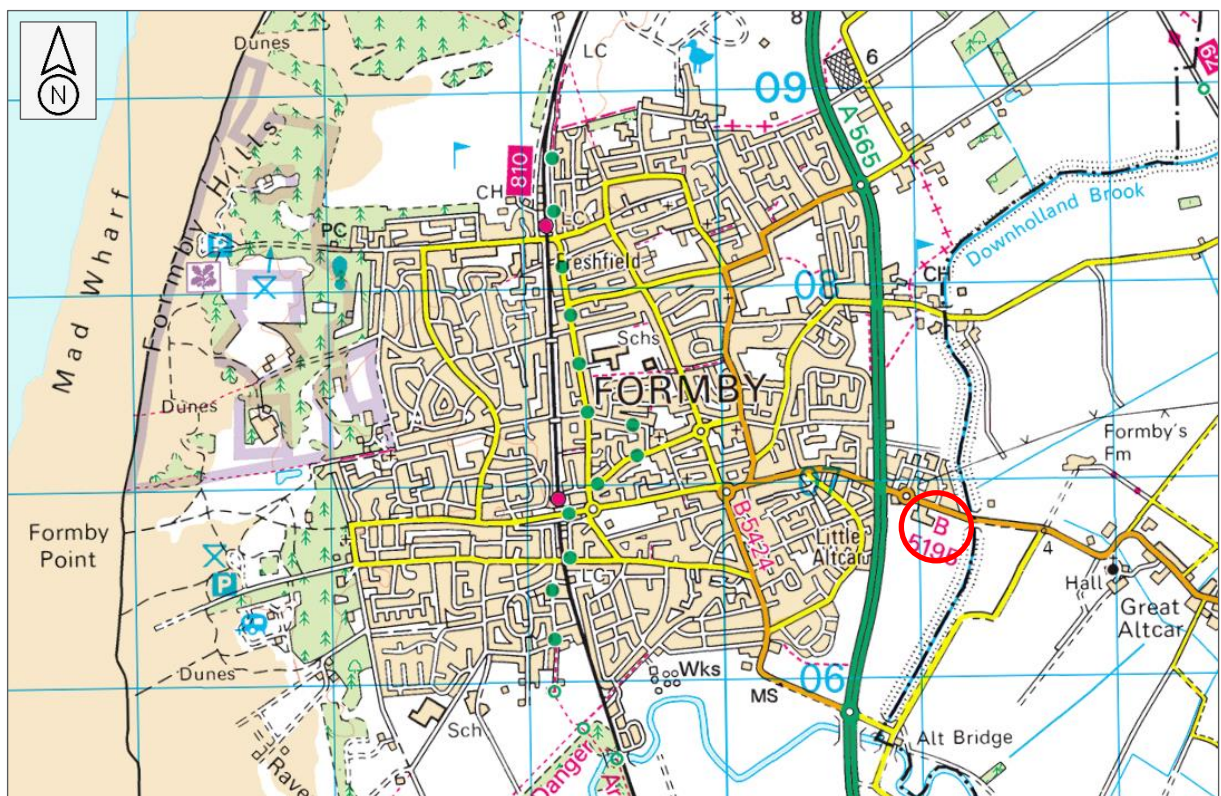
Vehicular access is currently provided via the northern site boundary off Altcar Road.

A summary of the site referencing information is provided in Table 1, and the site's location is shown in Figure 1.

Table 1: Site Referencing Information

Site Address	Formby Waste Recycling Centre, Altcar Road, Formby, Liverpool, L37 8DL
Grid Reference	SD311067
X (Easting), Y (Northing)	331143, 406797

Figure 1: Site Location Plan



2.2 Topography

In the absence of a site-specific Topographical Survey, Ordnance Survey contour mapping has been used to inform existing levels for the site and surrounding area. These show that the site and surrounding area are relatively level, lying at around 4m AOD.

This has been confirmed with LiDAR data, which shows existing ground levels to fall across the site in a south-easterly direction, with ground levels falling from a high of around 4.33m AOD on Altcar Road adjacent to the site, to a low of around 3.98m AOD within the south-eastern corner of the site.

2.3 Proposed Development

Planning approval is being sought for an additional area (which is a permeable and gravelled surface) to be used for vehicle storage and processing of waste material. The proposals also include for the construction of a small office.

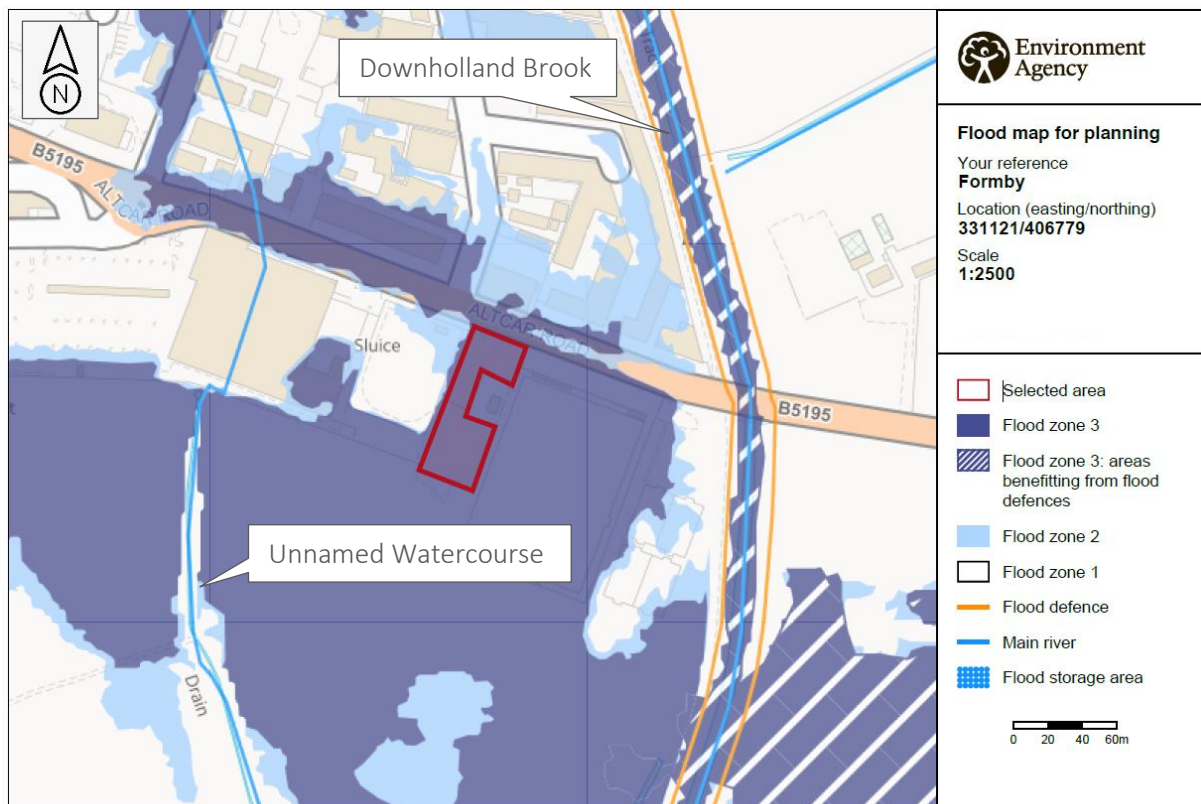
Proposed layout drawings have been included with the Planning Application submission.

3. ASSESSMENT OF FLOOD RISK

3.1 Fluvial & Tidal Flooding

The entirety of the site and some surrounding areas are shown to be within Flood Zone 3, as shown in Figure 2. This is land assessed as having a $\geq 1\%$ Annual Exceedance Probability (AEP) of fluvial or $\geq 0.5\%$ AEP of tidal flooding in any given year, equivalent to the 1 in ≤ 100 or ≤ 200 year return period flood event respectively, and is concluded as being the 'high risk' Flood Zone.

Figure 2: Flood Map for Planning - Site



The site is located in between two watercourses (shown on Figure 2), with the Downholland Brook located approximately 100m to the east of the site, and an Unnamed Watercourse located around 120m to the west of the site. The Unnamed Watercourse is a tributary of the Downholland Brook, with the confluence around 300m to the south of the site. Both of these watercourse flow in a generally southerly direction and ultimately join the River Alt before discharging into the Irish Sea. The River Alt is afforded some protection from tidal flooding by flood gates located at Altcar, approximately 4.6km downstream of the site.

Flood risk modelling data provided by the Environment Agency (EA) for the area (included in Appendix A) includes predicted flood levels for a range of fluvial and tidal flood events, for both the defended (i.e. taking account of existing flood defences) and undefended (i.e. assuming existing flood defences are not present) scenarios, with predicted levels provided for 'in channel' water levels, and 'floodplain' water levels at two locations within the site boundary. Owing to the site-specific nature of the provided 'floodplain' flood levels, these have been used in determining the level of flood risk at the site. All provided 'floodplain' flood levels are included within Table 2.

Table 2: Modelled Flood Levels

Flood Event	Flood Levels (m AOD)	Predicted Flood Depths at Site (based on existing lowest site ground level of 3.98m AOD)
Tidal undefended 0.5% AEP	3.37m AOD	No Flooding
Tidal undefended 0.1% AEP	3.41m AOD	No Flooding
Tidal undefended 0.5% AEP + CC	3.47m AOD	No Flooding
Fluvial undefended 1% AEP	4.02m AOD	0.04m
Fluvial undefended 1% AEP + CC	4.04m AOD	0.06m
Fluvial undefended 0.1% AEP	4.09m AOD	0.11m
Fluvial defended 1% AEP	4.16m AOD	0.16m
Tidal defended 1% AEP + CC	4.20m AOD	0.22m
Fluvial defended 0.1% AEP	4.28m AOD	0.30m

CC = climate change.

A comparison of predicted flood levels with existing site ground levels indicates that the site is at risk of flooding in all flood events assessed, other than in the tidal undefended 0.5% AEP, 0.1% AEP and 0.5% AEP + climate change flood events. Potential on-site flood depths in all other flood events are shown to range from 0.04m to 0.30m.

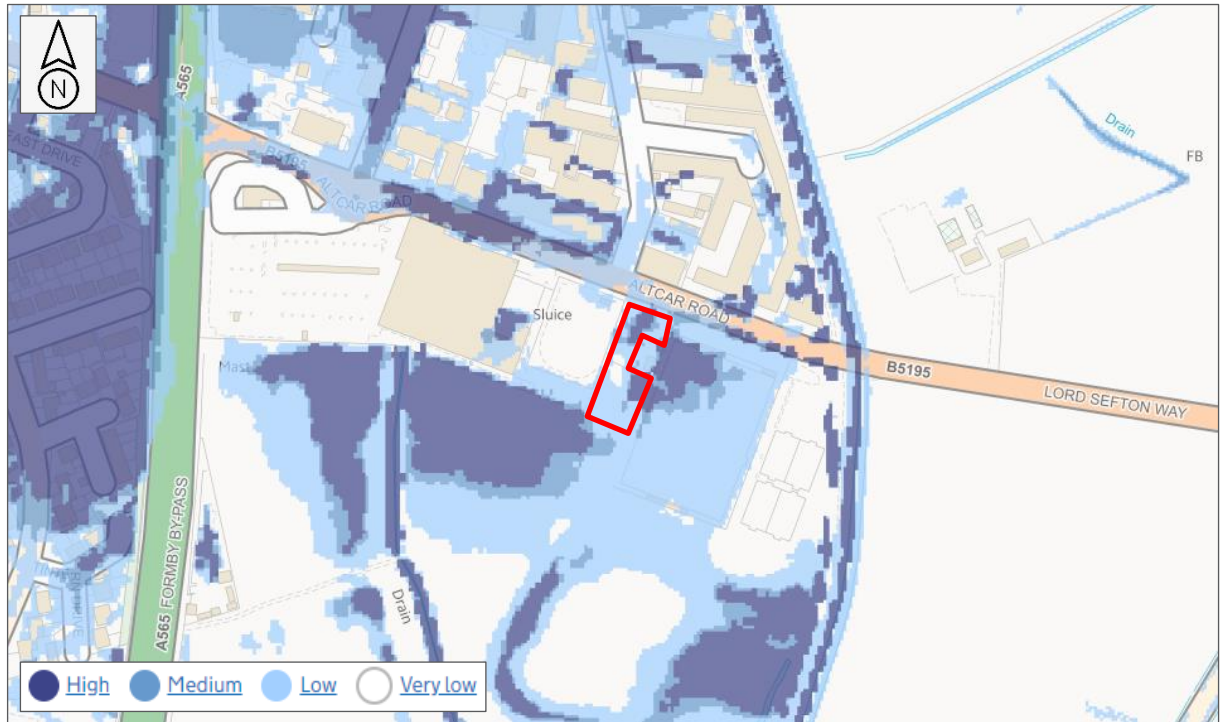
It is noted that the flood risk model data provided adopts a 20% allowance for climate change. However, this allowance has subsequently been superseded by 2016 EA guidance, with a 35% climate change allowance now being applicable for the site. In the absence of modelled flood levels which adopt a 35% climate change allowance, the provided 'in-channel' fluvial flood flows have been reviewed, and it has been identified that the calculated 1% AEP + 35% flood flow (26.68m³/s - based on multiplying the 1% AEP defended scenario flood flow of 19.76m³/s, at node 'DOW01_1212' adjacent to the site, by 1.35) is broadly equivalent to the provided 0.1% AEP flood flow at the same node (26.30m³/s). As such, the 0.1% AEP flood levels are considered as being representative of both the 'critical' and 'worst case' flood event at the site.

The flood levels presented within Table 2 indicates that the flood risk at the site is fluvially dominated, and confirms that the site is not afforded adequate protection by existing flood defences. As such, the site is concluded as being at risk of fluvial and tidal flooding, and within Flood Zone 3, with a maximum predicted flood level of 4.28m AOD predicted within the site, equating to a maximum potential flood depth of 0.30m, in the 'critical' / 'worst case' flood event at the site.

3.2 Surface Water Flooding

The EA's Flood Risk from Surface Water mapping (Figure 3) shows the majority of the site to be at 'low' risk of surface water flooding. However, areas within the east and north of the site are shown as being at 'medium' and 'high' risk of surface water flooding.

Figure 3: Flood Risk from Surface Water Mapping - Extents



However, the potential surface water flooding indicated across the site appears to be primarily associated with the surrounding watercourses, and as such is considered representative of fluvial flooding as opposed to purely surface water flooding, recognising that the surface water floodplain indicated (Figure 3) is shown to connect with both the Downholland Brook and Unnamed Watercourse, and present a similar floodplain extent to that of the Flood Map for Planning (Figure 2).

Given the existing generally level topography of the site and surrounding area, any rainfall unable to infiltrate is unlikely to be preferentially directed in any specific direction, but rather dispersed over a relatively large area and therefore be restricted to relatively shallow depths. However, it is acknowledged that greater depths of surface water 'ponding' could occur within localised lower-lying portions of the site and surrounding area.

This analysis is supported by the EA's Flood Risk from Surface Water mapping, as shown in Figure 3, which shows that in the 'worst-case' 'low' risk surface water flood event, that the majority of the site and surrounding area are at risk of flooding to a depth <0.3m, with localised areas at greater depth of flooding of between 0.3-0.9m.

As such, the site is concluded to be at risk of surface water flooding, though generally to relatively shallow depths <0.3m.

3.3 Groundwater Flooding

British Geological Survey mapping shows that the site is underlain by the Singleton Mudstone Member Formation with superficial deposits of Alluvium.

A review of LandIS Soilsapes mapping indicates that existing ground conditions comprise “naturally wet ... sandy and loamy soils” with a high groundwater.

Noting this geological sequence, it is considered likely that a ‘perched’ groundwater table is present within the superficial deposits, with groundwater levels relatively reactive to rainstorm events. Accordingly, as indicated by the Soilscales mapping, groundwater is expected to be near-surface.

Given the relatively level nature of the area, and proximity to the Downholland Brook and Unnamed Watercourse, it is considered likely that the groundwater table beneath the site is in hydraulic-connectivity with channel water levels, i.e. fluctuating groundwater table related to channel water levels. As such, the fluvial/tidal flood risk indicated at the site (as assessed in section 3.1) is considered to be representative of the ‘worst-case’ groundwater flooding scenario at the site.

Accordingly, noting the assessed risk of fluvial/tidal flooding at the site, with flood depths generally up to around 0.30m, the site is likewise concluded to be at risk of groundwater flooding, to a similar maximum depth, in a ‘worst-case’ groundwater flooding scenario.

3.4 Infrastructure Failure Flooding

Sefton Metropolitan Borough Council’s Strategic Flood Risk Assessment (SFRA) includes records of previous flooding incidents (including sewer flooding) within the general Formby area. However, no previous flooding incidents are recorded within the site or Formby Business Park area.

Sewer asset mapping has not been made available for the site. However, owing to the developed nature of the surrounding area it is considered likely that an engineered sewer network will serve the general area. Whilst there have been no recorded incidents of flooding, a ‘residual’ risk could remain in the unlikely event of a blockage or failure of existing infrastructure.

In such a scenario, given the existing generally level topography of the site and surrounding area, any such surcharged flows are unlikely to be preferentially directed in any specific direction, but rather dispersed over a relatively large area and therefore be restricted to relatively shallow depths.

As such, whilst the site is concluded to be at potential ‘residual’ risk of sewer flooding (i.e. in the scenario that the existing sewers were to surcharge / fail), given existing site and surrounding ground levels, any such flows will likely comprise only relatively shallow flood depths.

3.5 Artificial Source Flooding

The EA’s Flooding from Reservoir mapping shows that the site is not located with an area shown to be at risk of flooding in the event of an upstream reservoir failure. In addition, following a review of Ordnance Survey mapping, no significant artificial waterbodies such as reservoirs or canals were identified within the immediate vicinity or upstream of the site.

As such, the site is concluded to be at negligible risk of artificial source flooding.

4. LOCAL PLANNING POLICY REQUIREMENTS

4.1 Formby and Little Altcar Neighbourhood Plan 2012 - 2030 (November, 2019)

The Neighbourhood Plan includes two policies in relation to flood risk, as highlighted below:

- Policy F1 - Avoiding Increasing Flooding and Flood Risk.
- Policy F2 - Flood Risk Assessments and Scheme Design.

The requirements of both of these policies closely matches that of the NPPF, with Policy F1 requiring proposals to not result in an increase in flooding or increased flood risk on either the application site or elsewhere within the Plan area; and, where possible, measures should be implemented to reduce flood risk.

Policy F2 requires any development in areas at risk of flooding to be supported by a site-specific FRA to demonstrate how all sources of flooding will be managed both in the present day and when making an allowance for climate change.

It is considered that both of these policies are addressed within Section 3 of this report and through the adoption of the measures detailed within Section 5.2.1.

4.2 Sefton Local Plan (April 2017)

As with the Neighbourhood Plan, the Local Plan includes policies specific to flood risk. As part of initial discussions with the Local Authority, they have requested confirmation as to how Policy EQ8 Flood Risk and Surface Water has been satisfied.

This policy is split into two parts with the first being for ‘flood risk generally’ and the second being for ‘surface water management’. This report focuses on the flood risk elements only, with surface water management being addressed by others.

In respect to flood risk, the policy sets out requirements for the management of flood risk with specific reference to finished floor levels needing to be set “a minimum of 600mm above the 1 in 100 annual probability fluvial flood level or the 1 in 200 annual probability tidal flood level with an allowance for climate change”. In addition, Policy EQ8 also requires that finished floor levels be set “a minimum of 300mm above the surface water flood level with allowance for climate change”.

As with the Neighbourhood Plan polices, those relevant to the scope of this report have been addressed within the recommendations under Section 5.2.1.

5. NPPF REQUIREMENTS

5.1 Sequential Test

The proposed residential development falls under the category of 'less vulnerable' development in accordance with Paragraph 066 of the NPPF planning practice guidance. Table 8 shows the flood risk vulnerability / Flood Zone compatibility matrix from Paragraph 067 of planning practice guidance. All development / access routes of this use are proposed within Flood Zone 3 and areas of 'high' risk. Therefore, the proposed development is considered to be appropriately located and the Exception Test will not explicitly need to be applied.

Table 3: Flood Risk Vulnerability and Flood Zone 'Compatibility'

Flood Risk Vulnerability Classification	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone 1	✓	✓	✓	✓	✓
Flood Zone 2	✓	✓	Exception Test required	✓	✓
Flood Zone 3a	Exception Test required	✓	X	Exception Test required	✓
Flood Zone 3b	Exception Test required	✓	X	X	X

Where ✓ means development is appropriate and X means development should not be permitted

Accordingly, it is argued that the site-based 'sequential approach' adopted adheres to the requirements of the Sequential Test, as advocated within the NPPF.

5.2 Exception Test

This assessment has demonstrated that the site is on land designated as Flood Zone 3 by the EA's Flood Map for Planning.

Whilst an Exception Test is not explicitly required under the PPG, the following section details any measures necessary to mitigate the flood risks identified, to ensure that the proposed development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, akin to the requirements of section 'b' of the Exception Test, as outlined in the NPPF.

5.2.1 Resistance and Resilience Measures

Modelled flood levels have been provided and the defended 0.1% AEP fluvial flood level has been used to determine the 'worst-case' flood risk at the site. Owing to the similarity in peak flow values for the 0.1% AEP and (unmodelled) 1% AEP + 35% flood events, the levels from the former are considered representative of both flood events, and accordingly a 'design' flood level of 4.28m AOD has been adopted for the site.

In order to meet the requirements of both national and local flood risk planning policy, the approach adopted at this stage is for the finished floor level of the proposed office to be set a minimum of 600mm above the 0.1% AEP flood level, i.e. at 4.88m AOD. Elevating the proposed building to this level would also provide in excess of the required 300mm above potential surface water flood depths. It is

understood that this is a temporary structure (i.e. portacabin) and, as such, would include void spacing underneath so as to ensure any loss of floodplain storage is minimised.

Noting that the main use of the site is to be for the storage of vehicles and processing of waste material, such uses are considered to have a 'low' vulnerability of flooding, and as such no further flood resistance or resilience measures are considered necessary. It should be noted that this report doesn't make any assessment as to potential contamination issues (discharge entering groundwater/surrounding watercourses) and these are covered within other supporting environmental reports.

5.2.2 Safe Access and Egress

The proposed access to the site is currently shown to pass through an area designated as Flood Zone 3. However, a comparison of the provided flood levels with existing highway levels along Altcar Road indicates that flood depths are predicted to reach a maximum of 0.25m, which, in-line with current guidance, is considered to provide 'safe' access and egress from the site.

However, noting the indicative potential depths of flooding at the site, it would be recommended for the site to be accompanied by a Flood Evacuation and Management Plan. This document should be adopted by all permanent users of the site and outline what measures are to be undertaken in the event of a flood (i.e. evacuation routes etc).

5.2.3 Floodplain Storage

The only proposed structure is to be a 'temporary' small office building. As such, to avoid any loss of floodplain storage, it would be recommended for the finished floor level be set to a minimum of 4.88m AOD (600mm above the 'design' flood level and in-line with Policy EQ8) with void space underneath. This would allow the free movement of any flood flows and minimise any loss of floodplain storage.

5.2.4 Surface Water Drainage Strategy

A separate Surface Water Drainage Strategy has been prepared and submitted in support of the Planning Application for the site, and accordingly this should be consulted in reference to the existing and proposed means of surface water drainage at the site.

6. CONCLUSIONS

This report has considered the flood risk posed to the proposal site from all sources of flooding.

The entirety of the site and some surrounding areas are shown to be within Flood Zone 3 with a maximum potential fluvial/tidal flood depth of 0.30m within the site.

Potential surface water, groundwater and 'residual' sewer flood risks have also been identified, though generally to relatively shallow depths <0.3m.

Owing to the classification of the site and intended land use being acceptable ('less vulnerable' within Flood Zone 3) this adheres to the requirements of the Sequential Test. Furthermore, the application of the Exception Test is concluded to not be required in this instance, based on PPG criteria – however mitigation measures have been proposed. The approaches adopted are also considered to meet the requirements of Policies F1 and F2 of the Neighbourhood Plan and the flood risk relevant sections of Policy EQ8 within the Sefton Local Plan.

Based on the predicted flood levels provided, it is recommended for the proposed office building to be set a minimum of 600mm above the 0.1% AEP flood level, i.e. at 4.88m AOD. This is considered as adopting a conservative approach whilst also making an allowance for the impacts of climate. Elevating the proposed building to this level would also provide in excess of the required 300mm above potential surface water flood depths.

A comparison of the provided flood levels with existing highway levels along Altcar Road indicates that flood depths are predicted to reach a maximum of 0.25m, which, in-line with current guidance, is considered to provide 'safe' access and egress from the site. However, noting the indicative potential depths of flooding at the site, it would be recommended for the site to be accompanied by a Flood Evacuation and Management Plan.

In summary, and based on the recommendation made, this report demonstrates that the proposed development of the site:

- Is suitable in the location proposed.
- Will be appropriately flood resistant and resilient.
- Will not place additional persons at risk of flooding, and will offer a means of flood warning and evacuation.
- Will not increase flood risk elsewhere as a result of the proposed development through the loss of floodplain storage or impedance of flood flows.

As such, the Application is concluded to meet the flood risk requirements of the NPPF.





Hydrock Consultants Limited

Appendix - EA Data

**Flood Zones Map:
Formby Waste Recycling Centre,
Altcar Road, Formby, L37 8DL**

Produced: 14 August 2020
Our Ref: CL178630
NGR: 331078, 406813

Key:

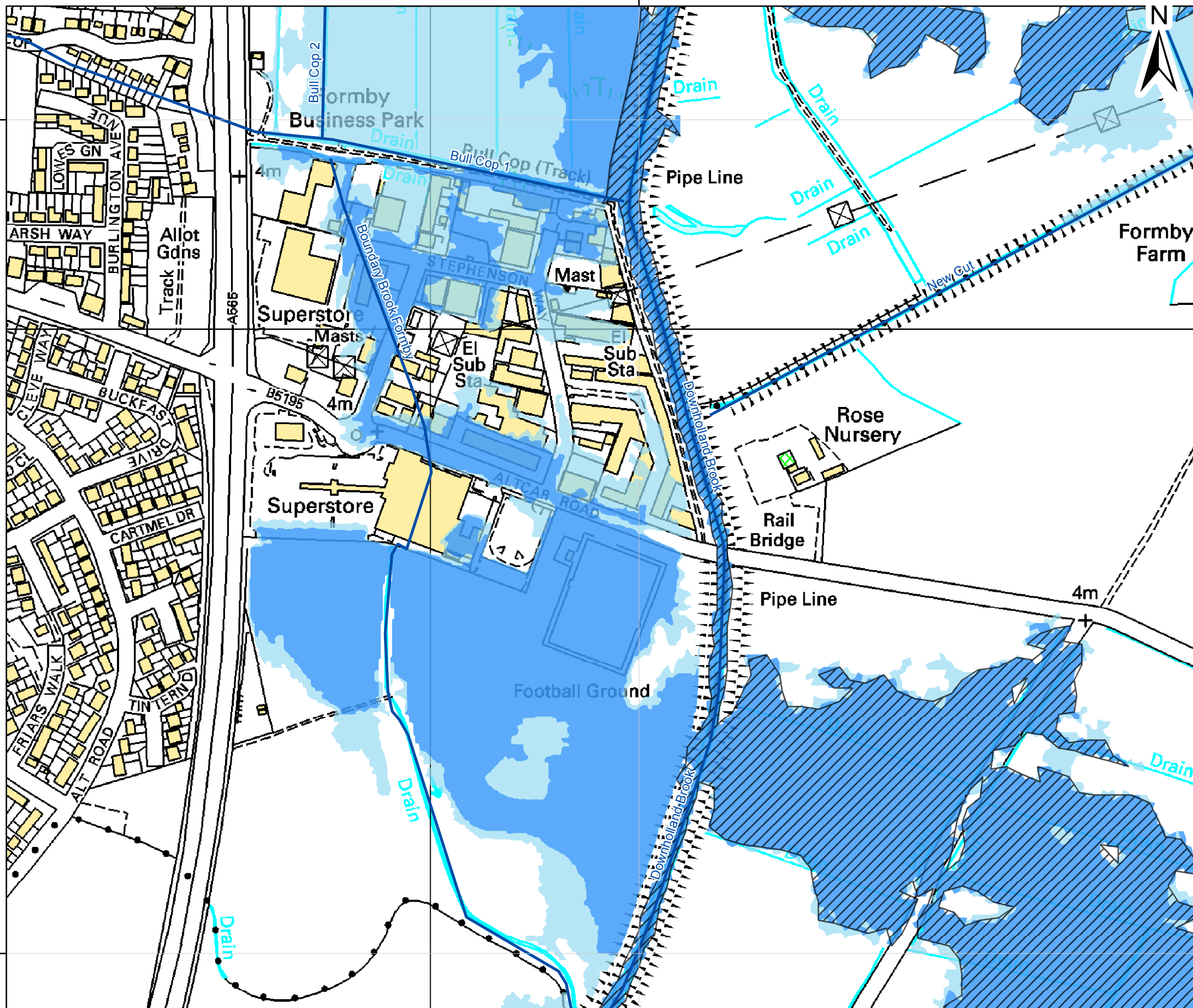
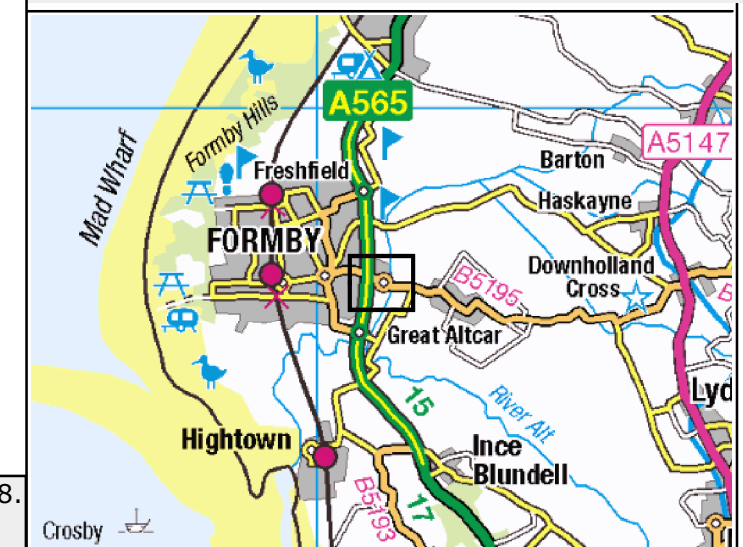
-  Main River
-  Areas Benefiting from Defences
-  Flood Zone 3
-  Flood Zone 2

Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.

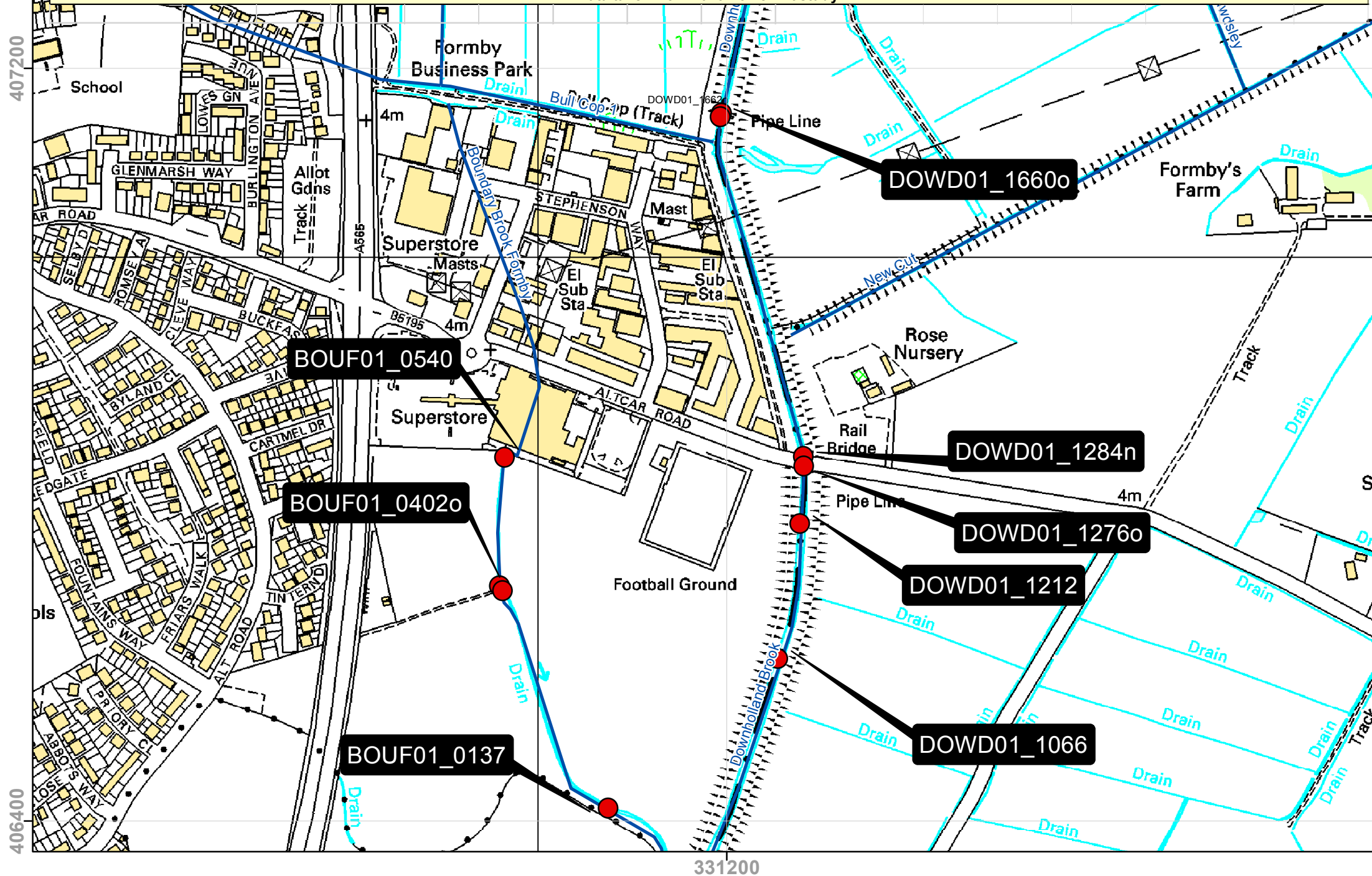


Fluvial Levels Map: Formby Waste Recycling Centre, Altcar Road, Formby, L37 8DL

Produced: 14 August 2020
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Node Point	Flood Flow (m ³ s ⁻¹) and Level (mAOD) data for a range of annual probability of flooding															
	0.1%				1%+Climate Change (+20%)				1.0%				4.0%			
	Defended		Undefended		Defended		Undefended		Defended		Undefended		Defended		Undefended	
Map ID	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow
DOWD01_1660o	4.28	26.32	3.24	5.26	4.13	22.38	3.25	4.76	4.00	19.74	3.23	4.79	3.76	16.46	3.23	4.80
DOWD01_1284n	4.15	26.31	3.36	5.38	4.01	22.30	3.39	4.77	3.89	19.76	3.35	4.80	3.67	16.49	3.35	4.82
DOWD01_1276o	4.15	26.31	3.36	5.38	4.01	22.30	3.39	4.77	3.89	19.76	3.35	4.80	3.67	16.49	3.35	4.82
DOWD01_1212	4.15	26.30	3.39	5.44	4.01	22.32	3.42	4.80	3.89	19.76	3.38	4.80	3.66	16.49	3.37	4.82
DOWD01_1066	4.12	26.30	3.41	5.63	3.98	22.31	3.45	5.00	3.86	19.76	3.40	4.80	3.64	16.51	3.40	4.83
BOUF01_0540	4.30	2.92	4.09	2.92	4.21	1.74	4.04	1.74	4.17	1.45	4.02	1.45	4.04	1.14	4.00	1.14
BOUF01_0402o	4.27	1.02	3.91	0.67	4.19	0.67	3.90	0.63	4.14	0.68	3.88	0.63	3.92	0.68	3.86	0.64
BOUF01_0137	4.26	1.03	3.91	0.64	4.19	0.60	3.90	0.63	4.14	0.60	3.87	0.64	3.92	0.59	3.86	0.64

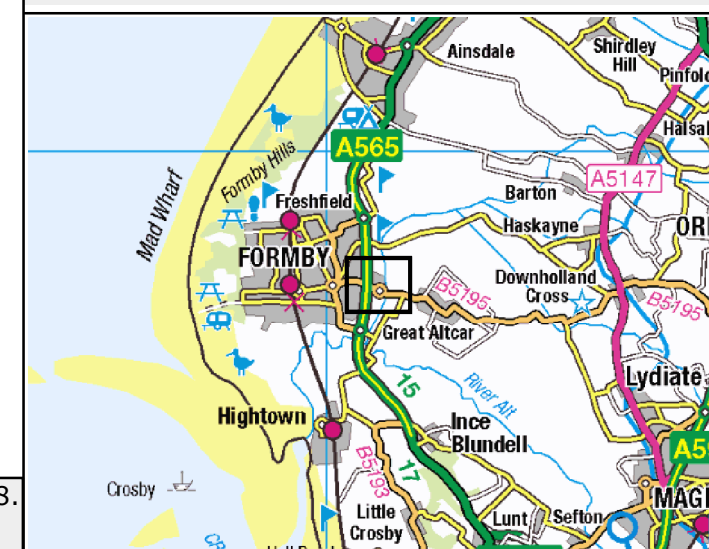
Level data in mAOD (metres above ordnance datum). Flow data in m³ per second
Data taken from 2010 Lower Alt study



Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



**Fluvial Flood Levels Map:
Formby Waste Recycling Centre,
Altcar Road, Formby, L37 8DL**

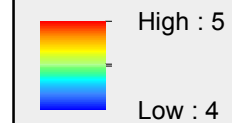
Produced: 14 August 2020
Our Ref: CL178630
NGR: 331078, 406813

Key:

 Main River

Fluvial Defended 1% annual probability of flooding

mAOD

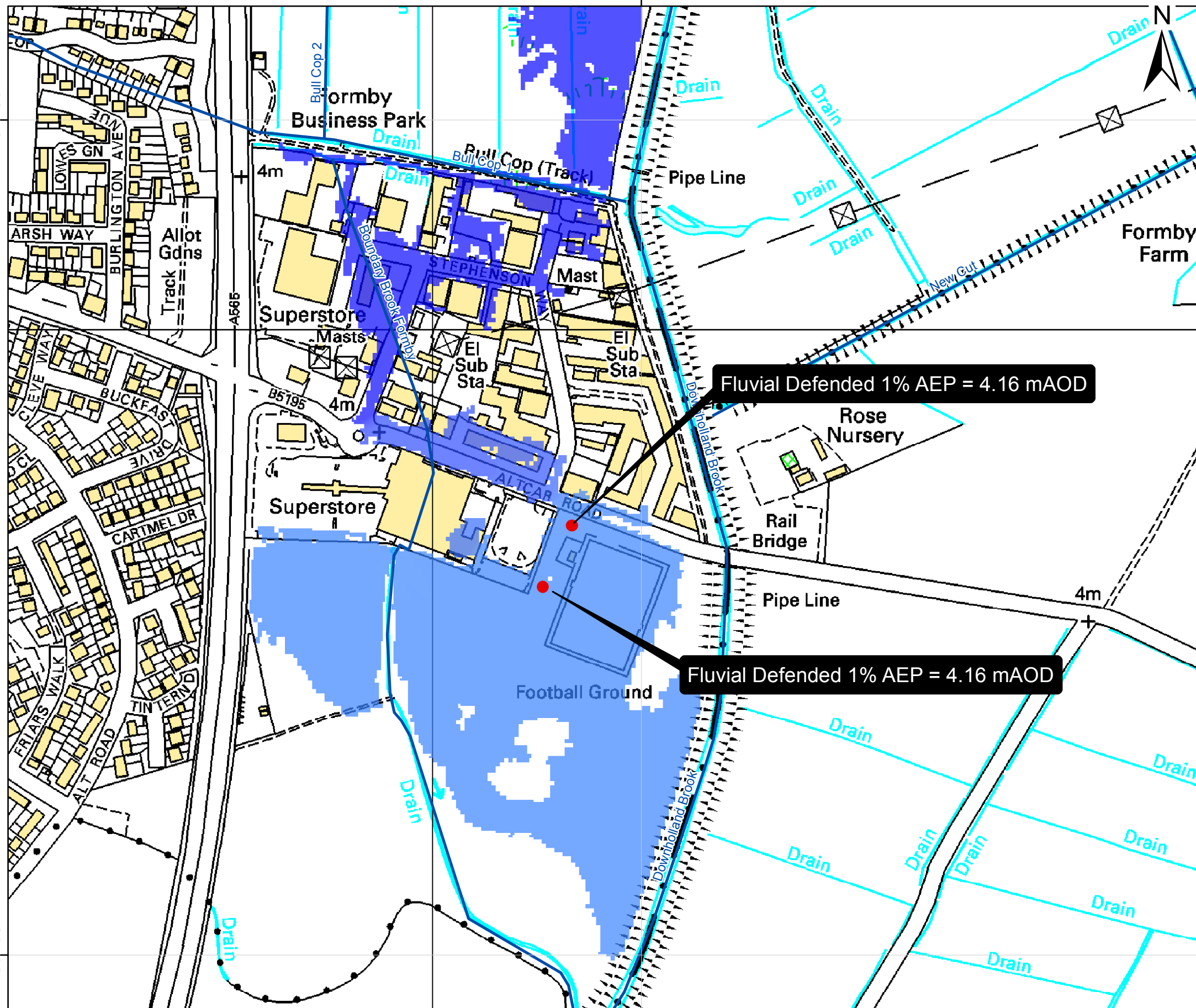
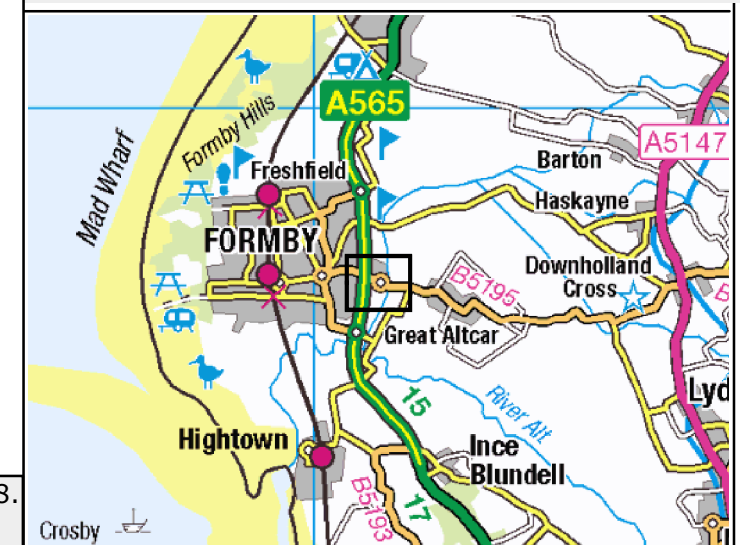


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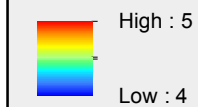
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Key:

 Main River

Fluvial Defended 1% annual probability of flooding + Climate Change

mAOD

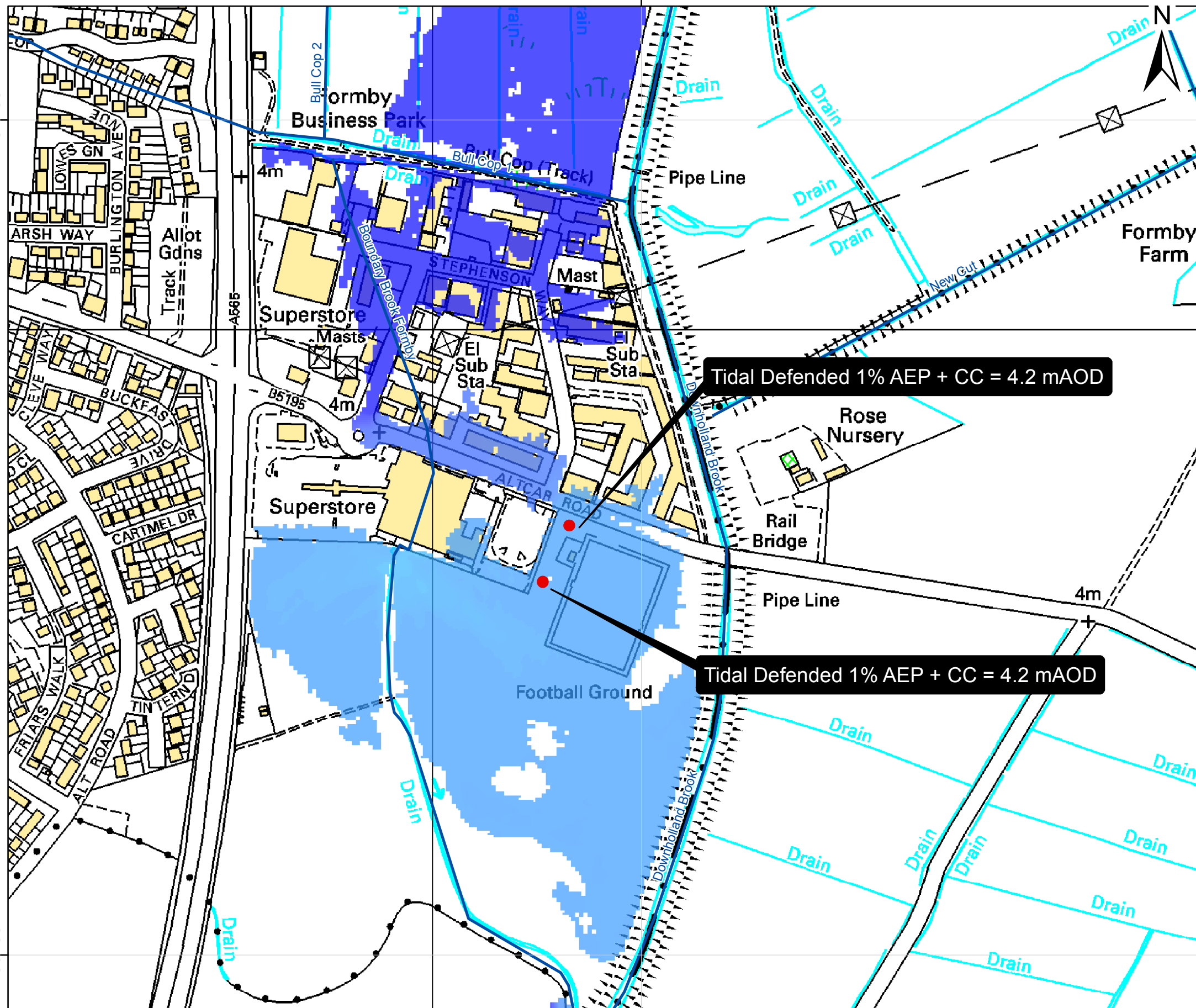
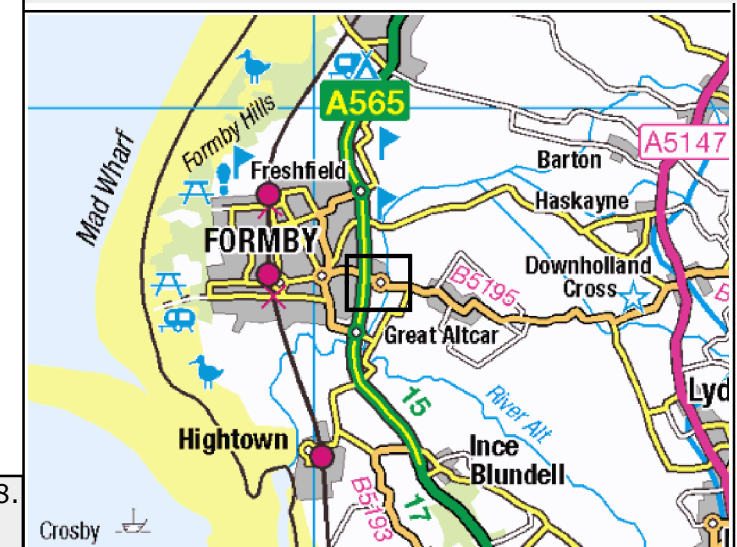


Flood Zone 3 shows the area that could be affected by flooding:

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ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



**Fluvial Flood Levels Map:
Formby Waste Recycling Centre,
Altcar Road, Formby, L37 8DL**

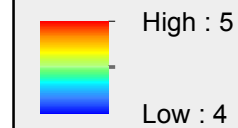
Produced: 14 August 2020
Our Ref: CL178630
NGR: 331078, 406813

Key:

 Main River

Fluvial Defended 0.1% annual probability of flooding

mAOD

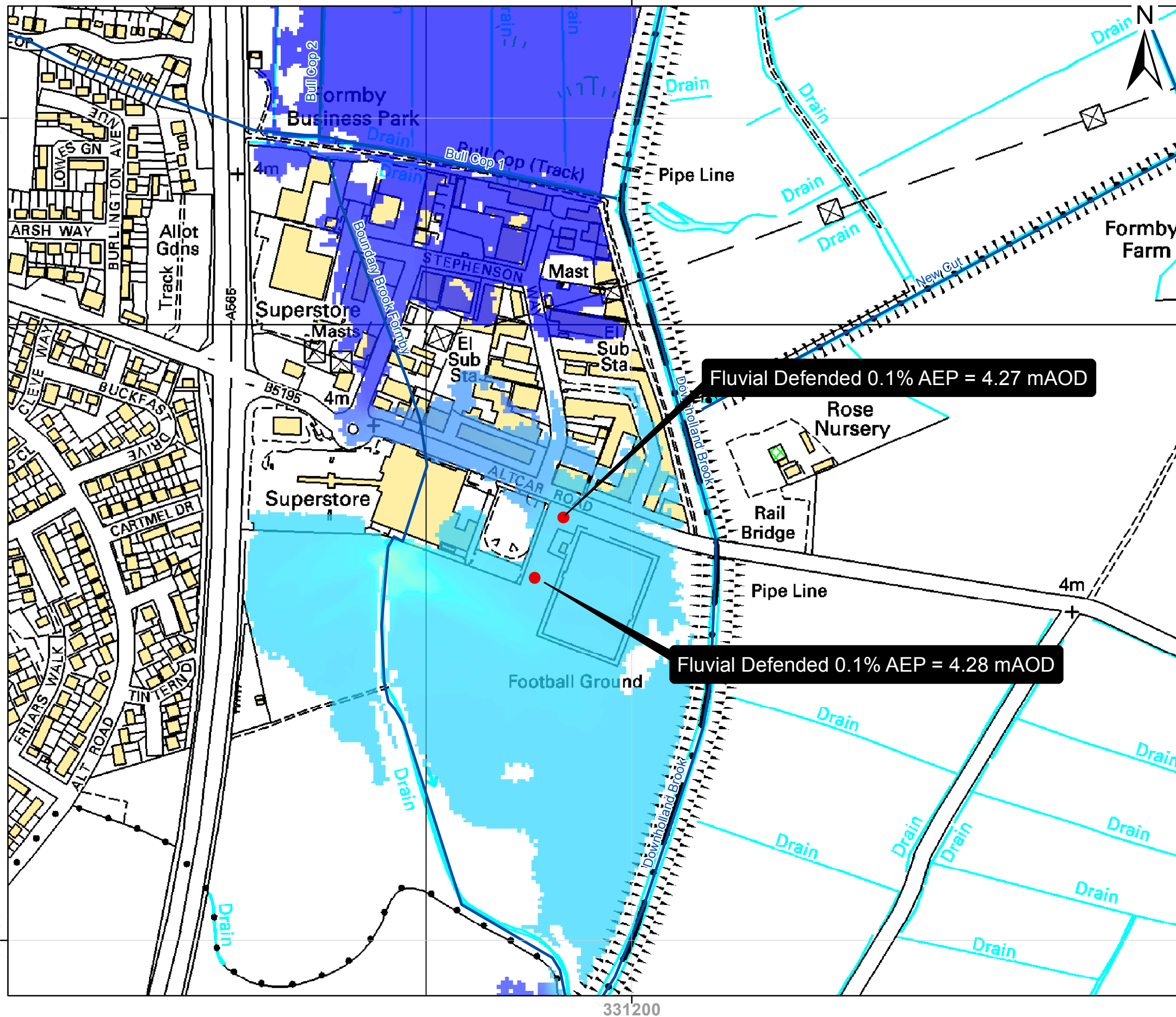
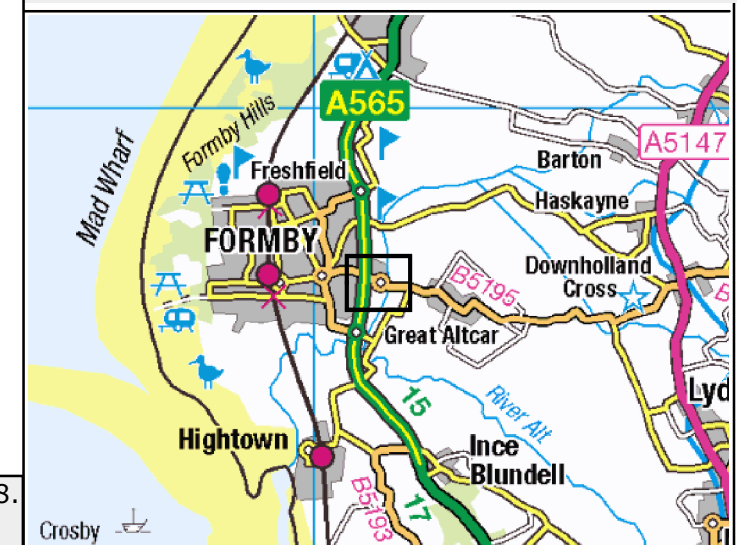


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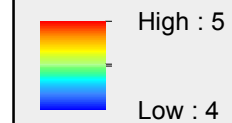
Produced: 14 August 2020
Our Ref: CL178630
NGR: 331078, 406813

Key:

 Main River

Fluvial Undefended 1% annual probability of flooding

mAOD

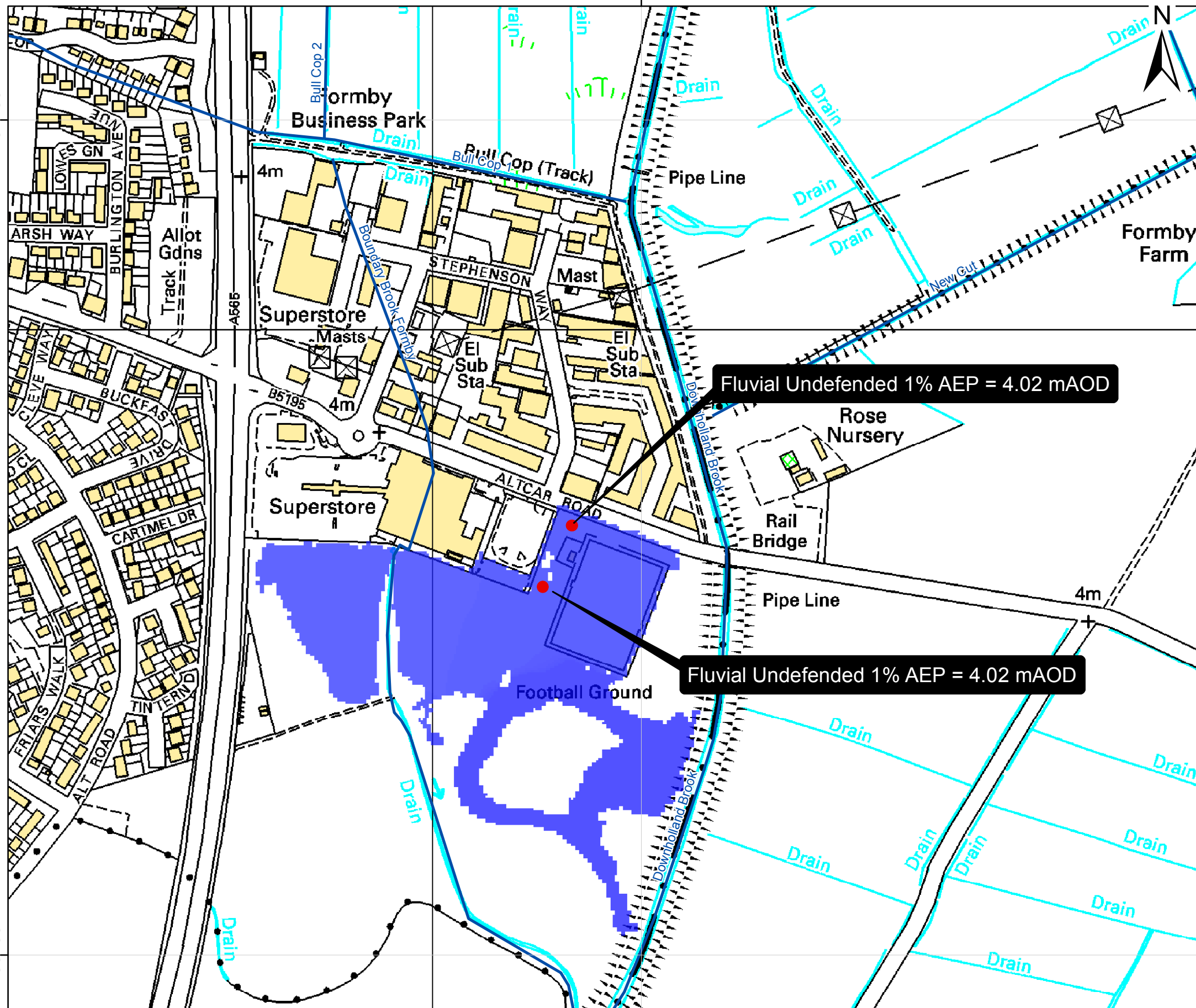
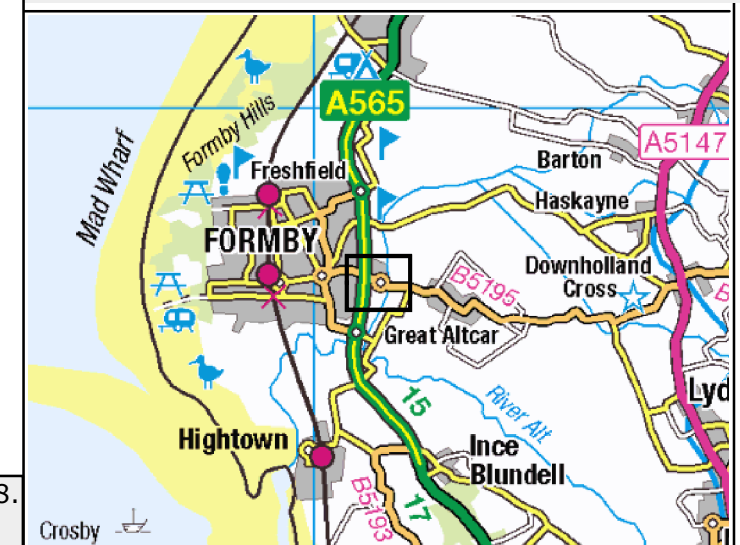


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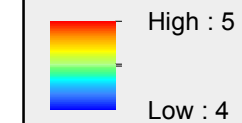
Produced: 14 August 2020
Our Ref: CL178630
NGR: 331078, 406813

Key:

 Main River

Fluvial Undefended 1% annual probability of flooding + Climate change

mAOD

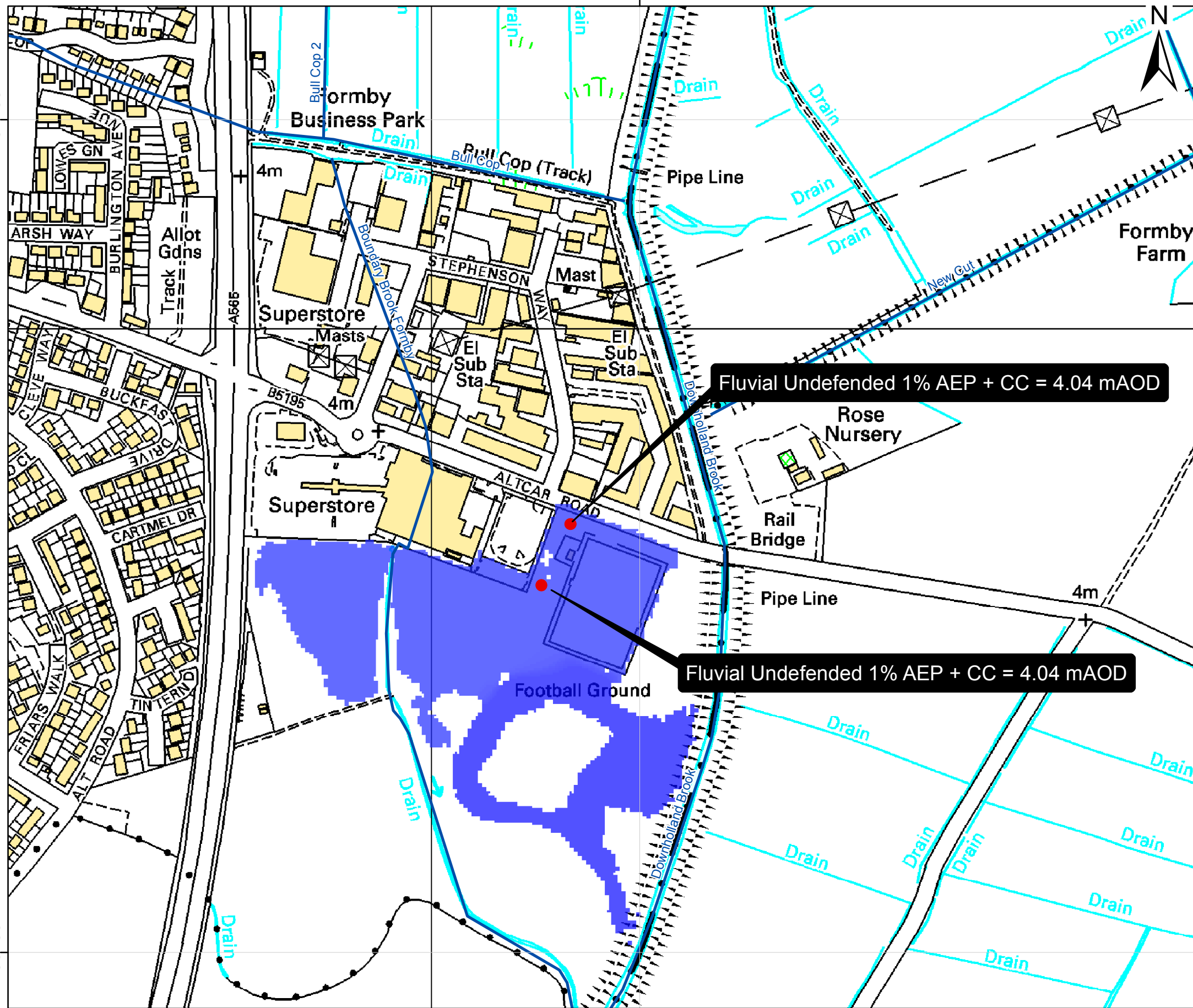
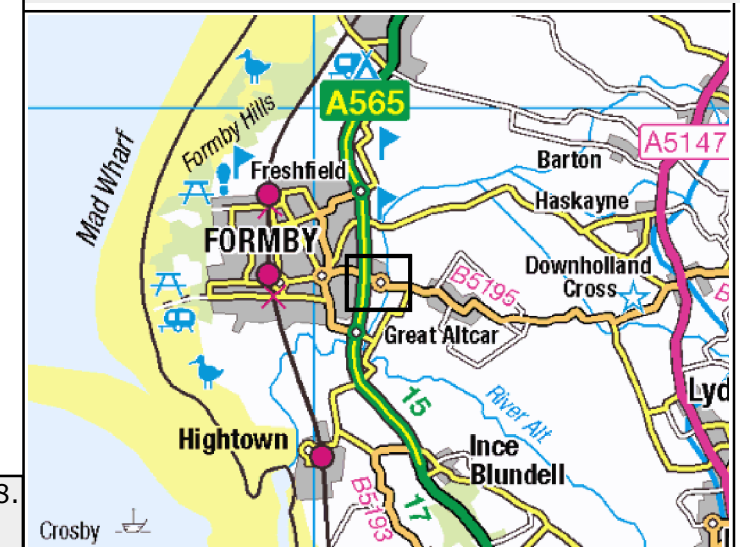


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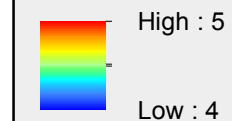
Produced: 14 August 2020
Our Ref: CL178630
NGR: 331078, 406813

Key:

 Main River

Fluvial Undefended 0.1% annual probability of flooding

mAOD

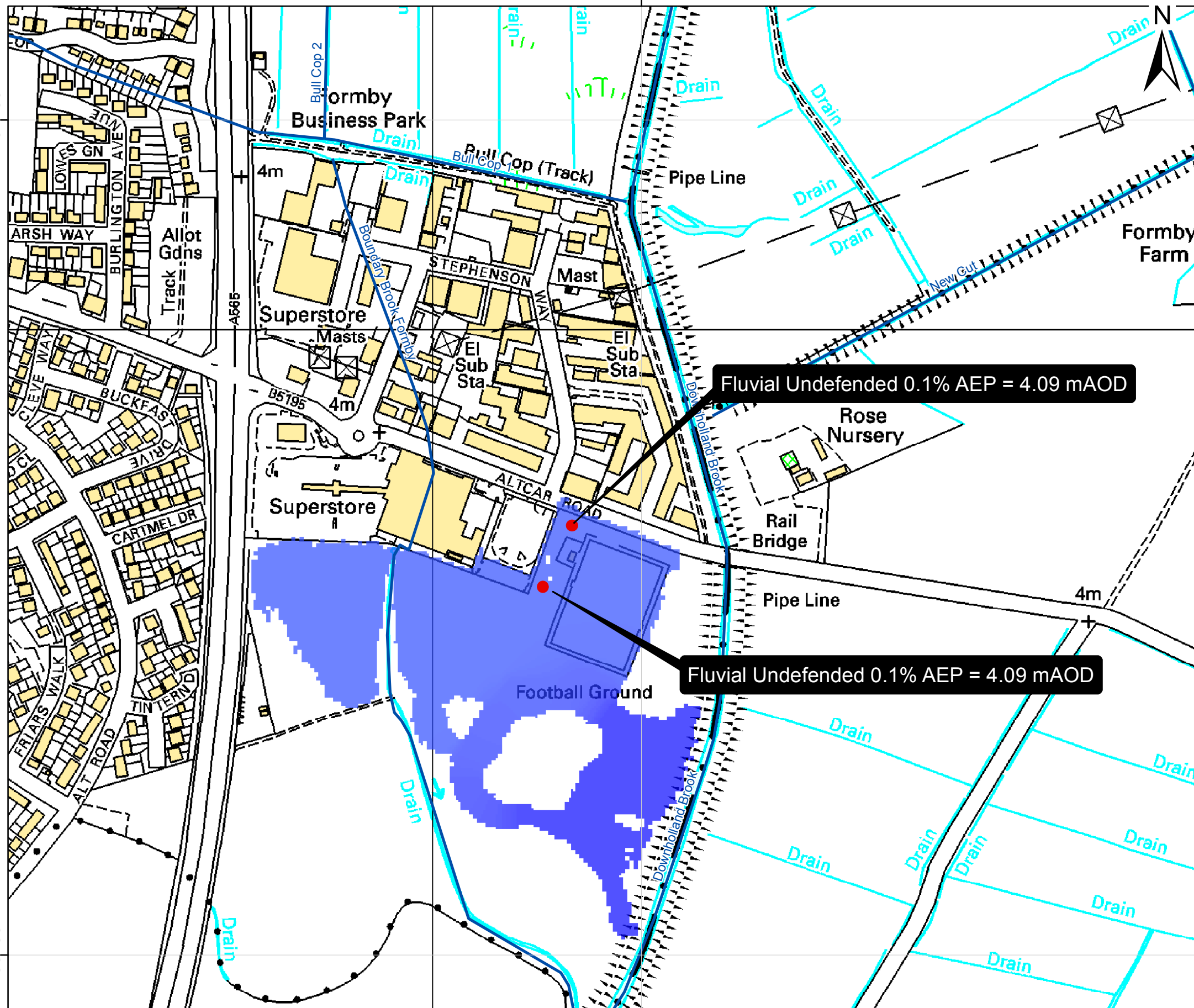
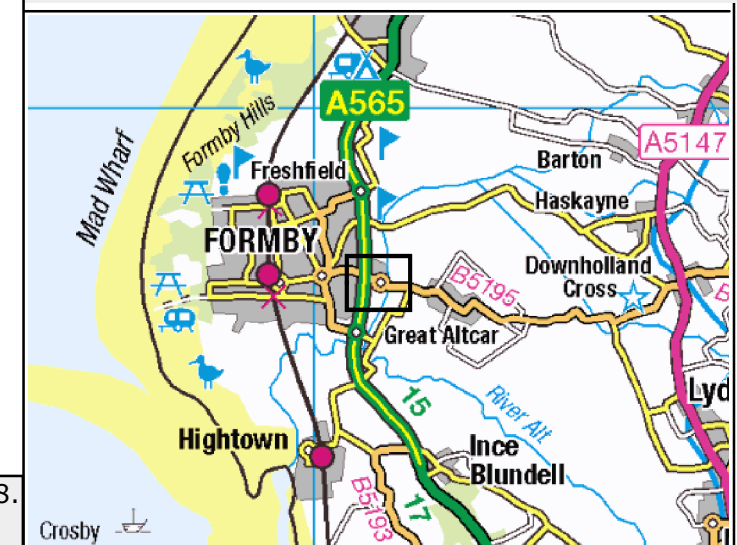


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**Tidal Flood Levels Map:
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Altcar Road, Formby, L37 8DL**

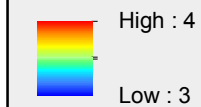
Produced: 14 August 2020
Our Ref: CL178630
NGR: 331078, 406813

Key:

 Main River

Tidal undefended 0.5% annual probability of flooding

mAOD

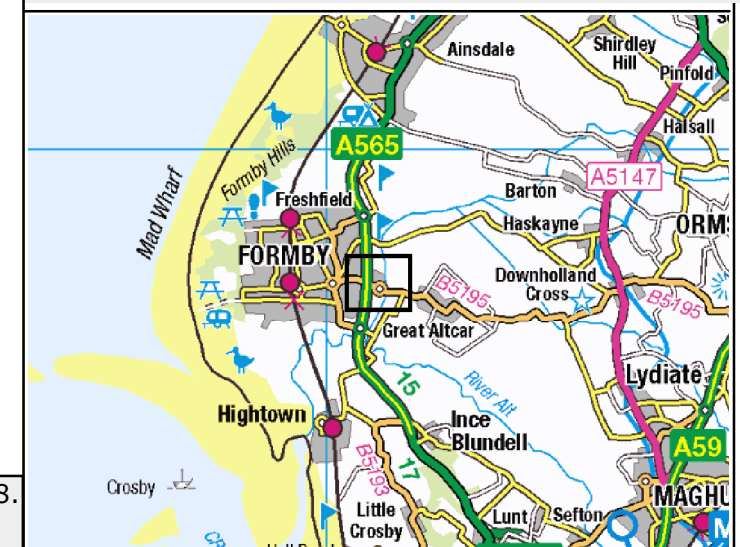
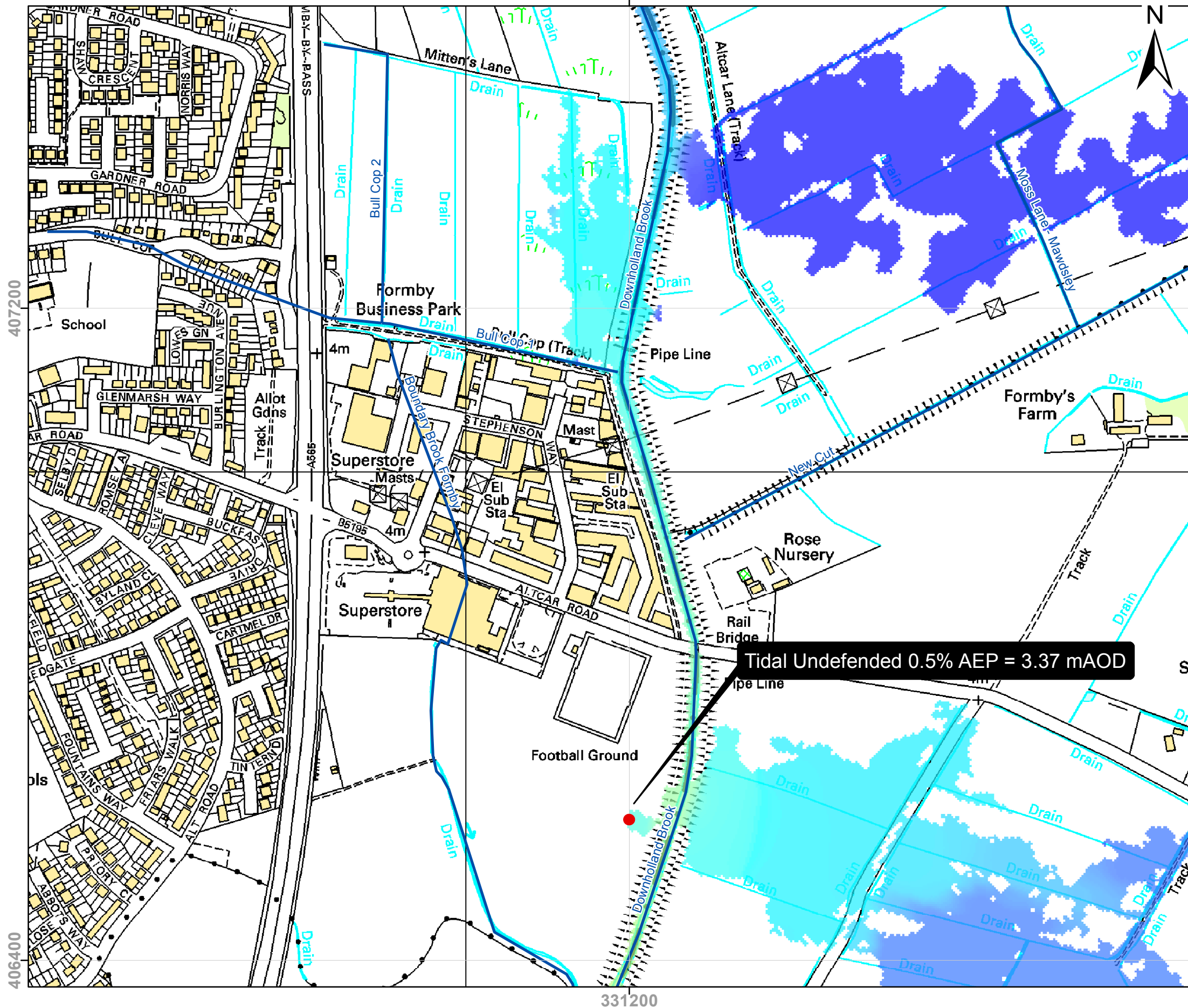


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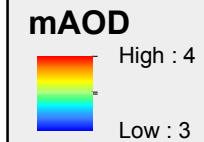
**Tidal Flood Levels Map:
Formby Waste Recycling Centre,
Altcar Road, Formby, L37 8DL**

Produced: 14 August 2020
Our Ref: CL178630
NGR: 331078, 406813

Key:

 Main River

Tidal undefended 0.5% annual probability of flooding + Climate change mAOD

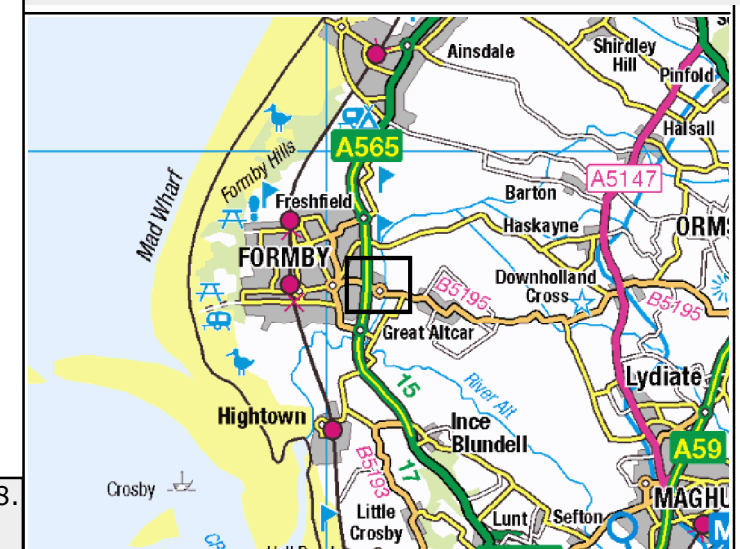
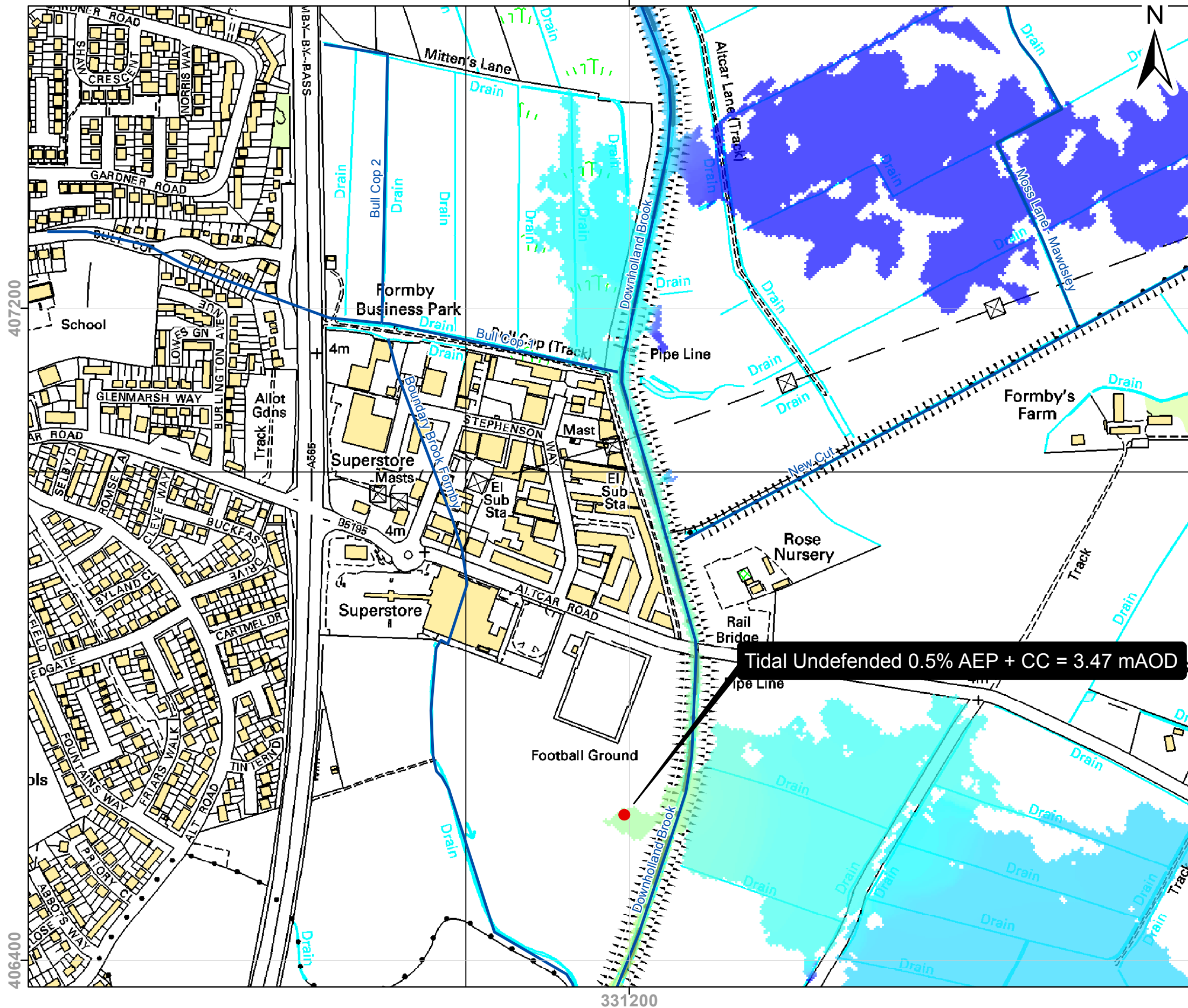


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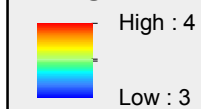
Produced: 14 August 2020
Our Ref: CL178630
NGR: 331078, 406813

Key:

 Main River

Tidal undefended 0.1% annual probability of flooding

mAOD

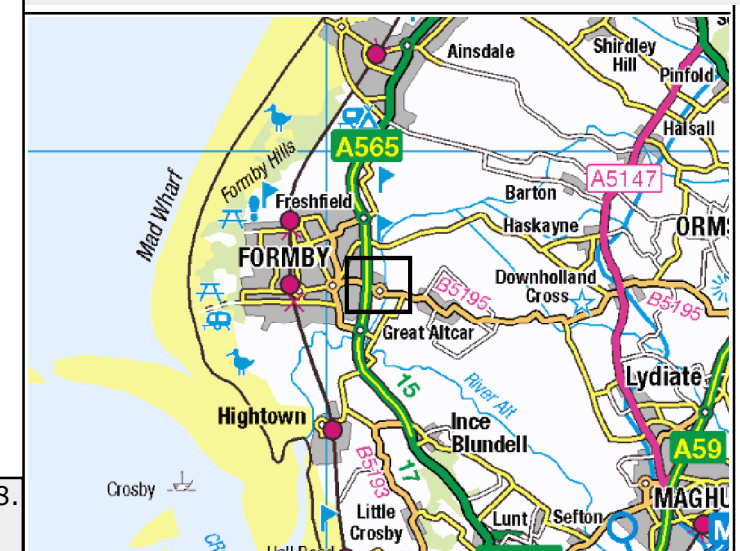
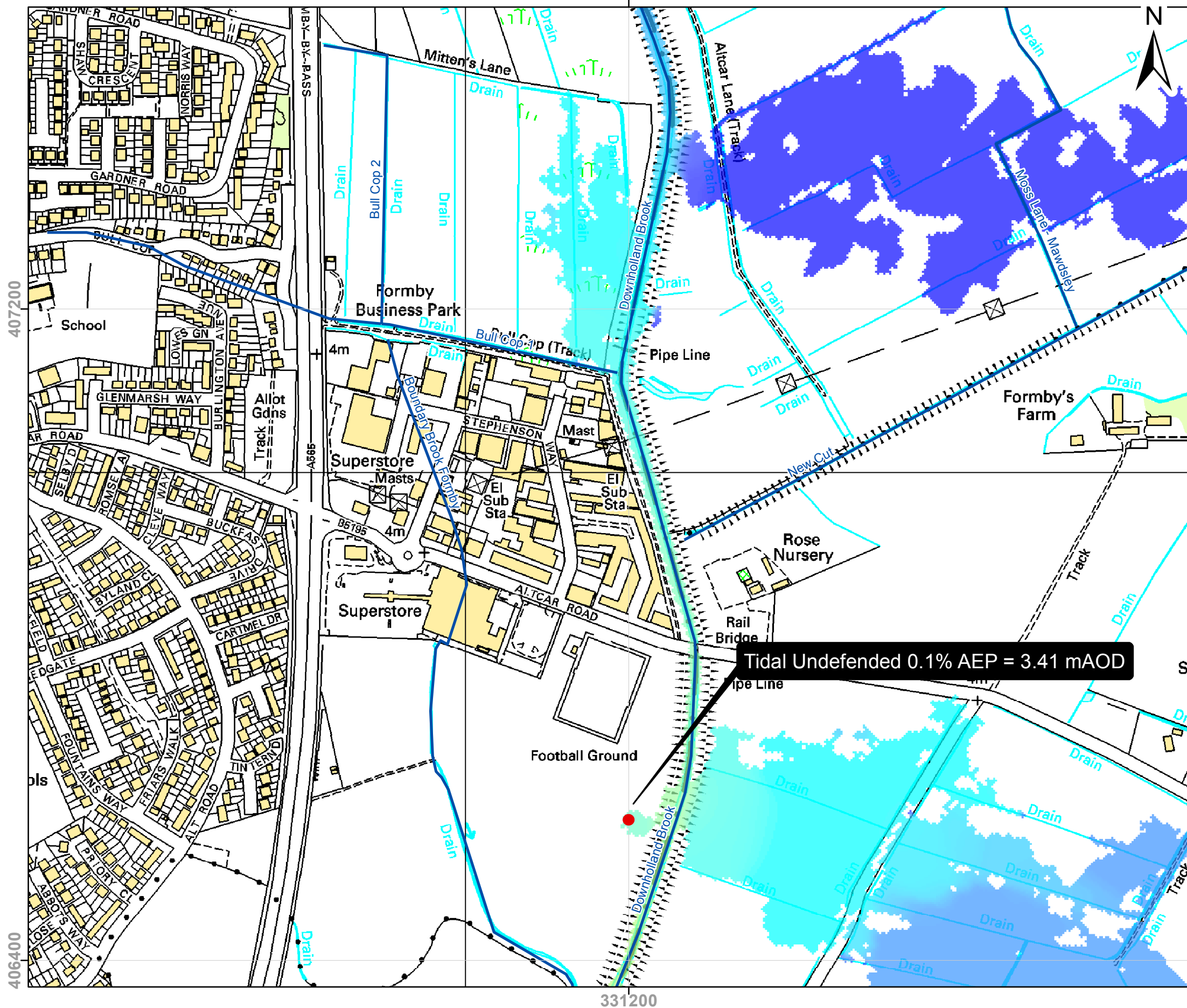


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Site Location	Waste Recycling Centre, Formby	CL178630
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Fluvial Defences

Asset ID	National Grid Reference	Asset Type	Protection Type	Location	Maintained By	Design Standard (Return Period)	Overall Condition Grade (Excellent 1- 5 Very Poor)	Effective Crest Level (m)		E.C.L Data Quality (Reliable 1-4 Unreliable)	Length (m)	Height (m)
								UCL (mAOD)	DCL (mAOD)			
93338	SD 30809 05735	Embankment	Fluvial	Abraham's Bridge to Altcar Road	Environment Agency	100	3	5.97	5.81	2	1169.92	7.5
93337	SD 31272 06783	Embankment	Fluvial	Altcar Road to Downholland Moss Lane	Environment Agency	100	3	4.39	6.17	1	1072.07	5

The Environmental Permitting (England and Wales) Regulations 2016 require a permit to be obtained for any activities which will take place:

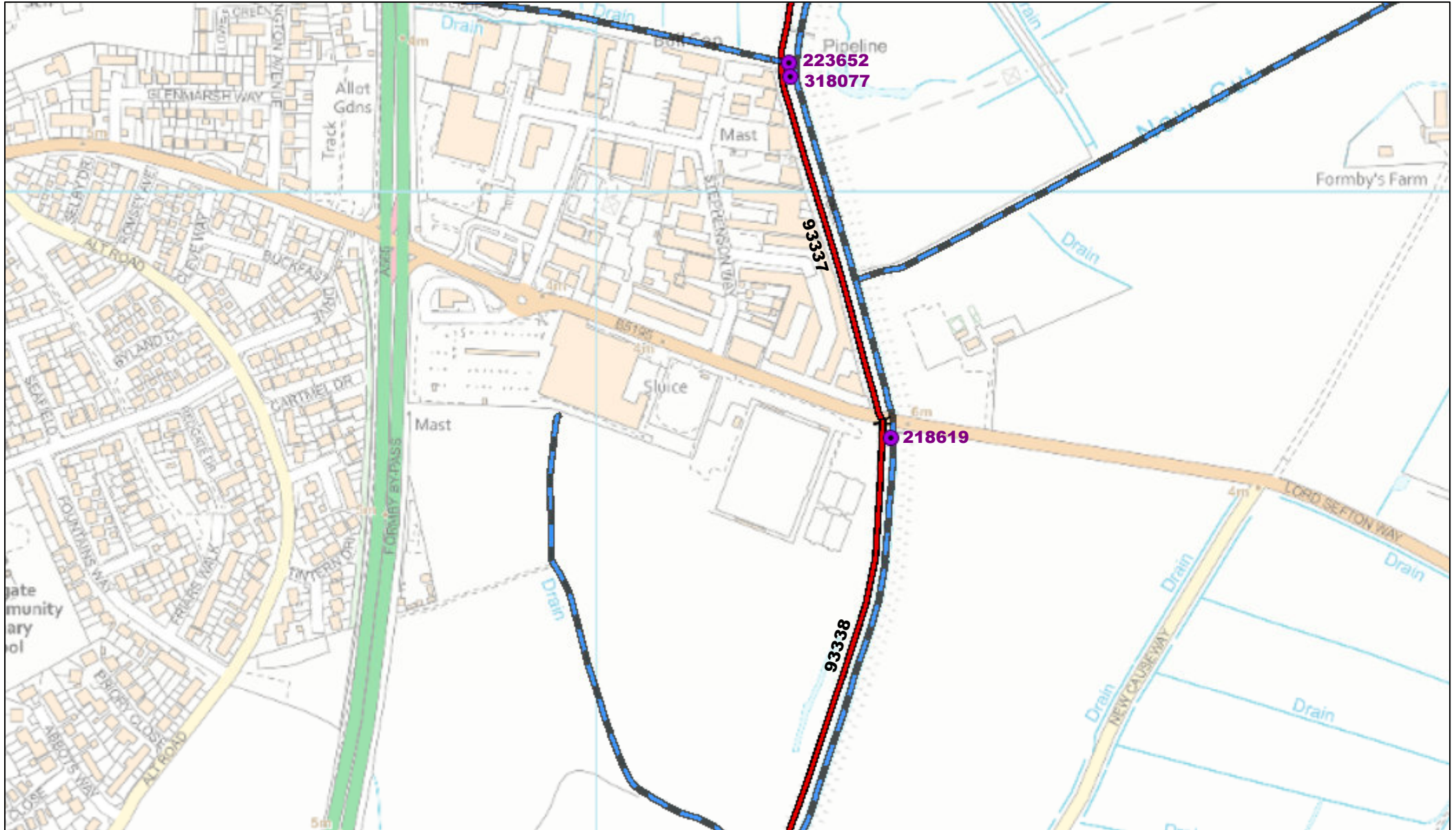
- **on or within 8 metres of a flood defence structure or culvert (16 metres if tidal)**
- **on or within 16 metres of a sea defence**

Site Location	Waste Recycling Centre, Formby	CL178630
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Fluvial Structures

Asset ID	National Grid Reference	Asset Type	Protection Type	Location	Maintained By	Design Standard (Return Period)	Overall Condition Grade (Excellent 1- 5 Very Poor)	Width (m)	Height (m)
218619	SD 31280 06767	Outfall	Fluvial	Downstream of Altcar Road	Local Authority	-	3	-	0.75
318077	SD 31185 07110	Outfall	Fluvial	Downstream of Bull Cop Track	Unknown	-	3	-	-
223652	SD 31184 07123	Outfall	Fluvial	Bull Cop 1 Outfall	Environment Agency	-	3	-	2

CL178630 Waste Recycling Centre, Formby



July 27, 2020

- Structures
- Channels
- Defences

OS Traditional Maps

