

APPENDIX H – ENVIRONMENT AGENCY FLOOD MAPPING

John Bowstead
J.bowstead@mlmgroup.com

Our ref: CCN/2018/103601

Date: 29th October 2018

Dear John,

Provision of Flood Risk Information for Gadd's Lane, Wisbech.

Thank you for your request to use our flood risk information in the development of the Flood Risk Assessment (FRA) for the above site. The information is set out below and attached. It is important you read any contextual notes on the maps provided.

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.

Flood Map

The attached map includes the current Flood Map for your area. The Flood 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 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 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.

Historic Flood Extent Map

A copy of the Historic Flood Extent Map showing the extent of previous recorded flooding in your area is attached. This only covers information we hold and it is possible other flooding may have occurred which other organisations, such as the Local Authority or Internal Drainage Boards, may have records.

Tidal Flood Risk Information

Tidal Defence Information

The tidal defences protecting this site consist of earth embankments and concrete floodwalls. They are in fair condition and reduce the risk of flooding to a 0.67% (1 in 150) chance of occurring in any year. We inspect these defences routinely to ensure potential defects are identified.

Tidal Flood Levels

The attached table shows our current best estimate for extreme tide levels.

Levels for the Humber Estuary have an assessment date of 2014, with others having an assessment date of 2006, which should be used in any consideration of future increases due to climate change.

Modelled 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. Hazard mapping is also available for fluvial flood risk in Northampton, Lincoln, Brigg, Wainfleet and some isolated rural locations.

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

Hazard Mapping – Breaching

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.

- Year 2011 0.5% (1 in 200) chance
- Year 2011 0.1% (1 in 1000) chance
- Year 2115 0.5% (1 in 200) chance
- Year 2115 0.1% (1 in 1000) chance

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

Your site is not affected by overtopping of the defences for the present day (2011) scenarios.

Development Planning

If you have requested this information to help inform a development proposal, then you should note the information on GOV.UK on the use of our information for Flood Risk Assessments. We recommend that you undertake a formal pre-application enquiry using the form available from the website.

<https://www.gov.uk/planning-applications-assessing-flood-risk>

<https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion>

Climate change will increase flood risk due to overtopping of defences. Please note 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 February 2016. 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.

Supporting Information

Please see the Standard Notice or licence for details of permitted use. The Standard Notice can be found at the link below.

<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

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).

Further information on flood risk can be found on the GOV.UK website at:

<https://www.gov.uk/browse/environment-countryside/flooding-extreme-weather>

Other Flood Risk Management Authorities

The information provided with this letter relates to flood risk from main river or the sea. Additional information may be available from your Lead Local Flood Authority (ie county council or unitary authority) or, where they exist, the Internal Drainage Board.

Further Contact

I hope we have correctly interpreted your request. If you are not satisfied with our response to your request for information, you can contact us within two calendar months to ask for our decision to be reviewed.

If you have any queries or would like to discuss the content of this letter further please contact Emily Holroyd using the details below.

Yours sincerely,

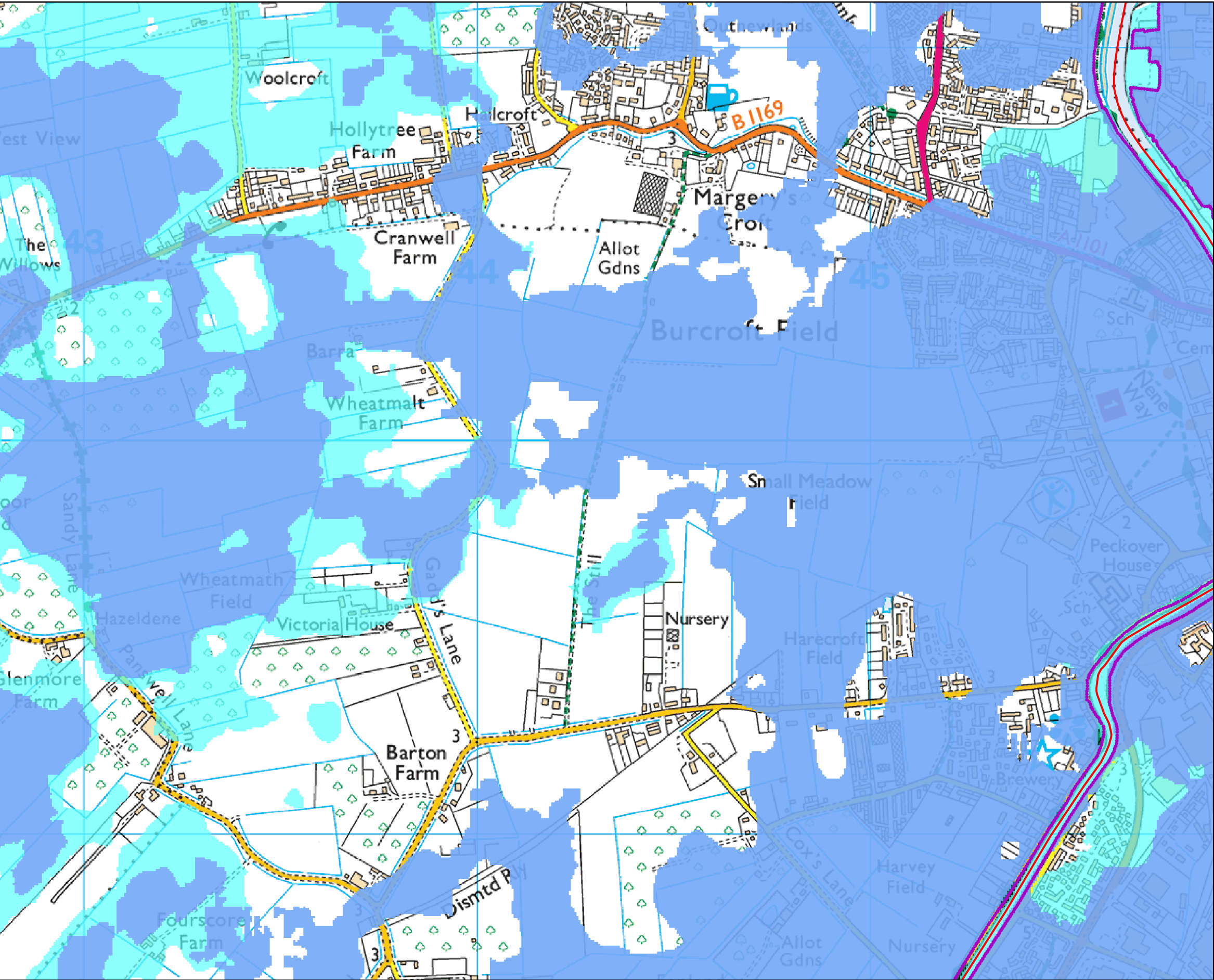


FOR Alastair Windler
Partnerships and Strategic Overview Team Leader - Welland and Nene

Direct dial 020 302 53535
Direct e-mail PSOWN@environment-agency.gov.uk

Enc.
Flood Map
Historic Flood Extent Map
Estimated Tide Levels
Tidal Breach Locations Map
Hazard Mapping – Breaching (4 maps)
Hazard Mapping – Overtopping (2 map)

Flood Map centred on TF44331 09871 - created October 2018 [Ref: CCN-2018-103601]



Scale 1:10,000



Legend

- Main River
- Raised Defences
- Flood Storage Areas
- Area at Risk of Flooding from Rivers or The 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:

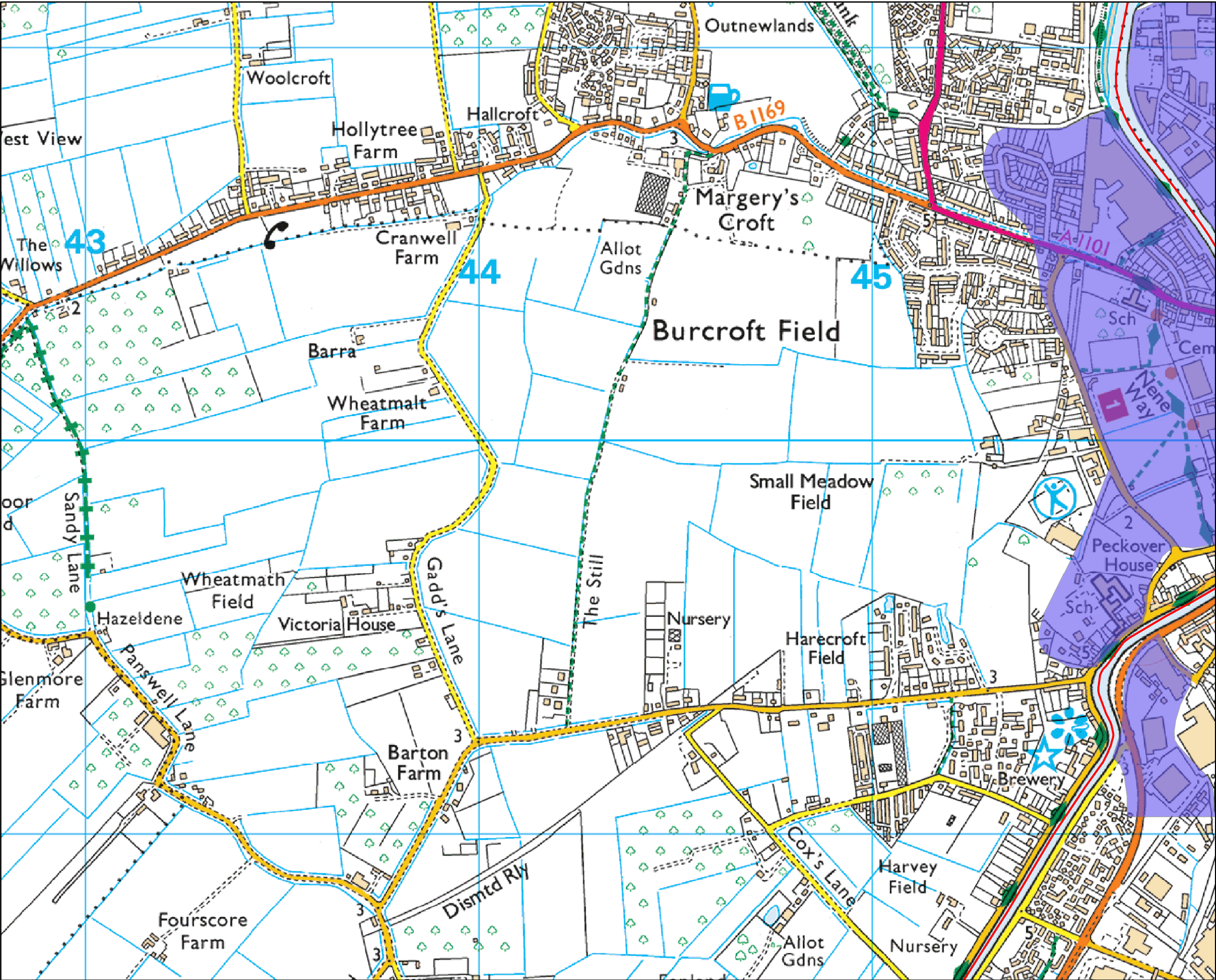
- from the sea by a flood that has a 0.5% (1 in 200) or greater chance of happening each year.
- or from a river by a flood that has a 1% (1 in 100) or greater chance of happening each year.


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.

Created by the Partnerships and Strategic Overview Team, Kettering

Flood Map centred on TF44331 09871 - created October 2018 [Ref: CCN-2018-103601]





Scale 1:10,000

N

Legend

- Main River
- January 1978 on River Nene Tidal

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.

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Created by the Partnerships and Strategic Overview Team, Kettering

Lincolnshire & Northamptonshire Area



Tidal Water Levels for the South Humber, East Coast and The Wash

The table below shows still water levels for locations, from the above location map, around the South Humber Estuary, East Coast and The Wash. It is important to note the following:

- The base date for the data is 2014 for the South Humber and 2006 for the East Coast and The Wash.
- The data 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.
- The water level quoted is the ‘Best Estimate’ water level. Depending on the use of the data it may be necessary to carry out sensitivity testing. Upper and Lower 95% confidence bandings are available upon request.
- Levels for other annual chance scenarios are available if required.

Ref	Location	Easting	Northing	Annual Chance (1 in x) of Tide Level					
				metres ODN					
				1	10	50	100	200	1000
HUMBER									
H030	Tetney	535420	403180	3.94	4.29	4.56	4.69	4.82	5.15
H050	Buck Beck	532700	406580	4.03	4.36	4.62	4.74	4.87	5.18
H060	Grimsby	527878	411346	4.10	4.43	4.70	4.82	4.95	5.27
H080	Haborough Marsh	520790	415740	4.26	4.61	4.88	5.01	5.14	5.47
H090	Immingham	519141	417449	4.26	4.61	4.88	5.01	5.14	5.47
H100	South Killingholme	518700	417120	4.41	4.77	5.05	5.18	5.32	5.66
H130	North Killingholme	516530	420000	4.51	4.87	5.15	5.28	5.42	5.77
H150	East Halton	514450	422870	4.59	4.96	5.25	5.39	5.53	5.89
H170	Goxhill	511970	425440	4.67	5.04	5.34	5.47	5.61	5.95
H200	New Holland	508020	424330	4.87	5.26	5.55	5.68	5.81	6.12
H210	Barrow Haven	506380	422620	4.92	5.31	5.60	5.73	5.86	6.17
H220	Ferriby	497550	421150	5.04	5.42	5.67	5.77	5.86	6.04
H230	Winterton	493420	422830	5.14	5.51	5.74	5.83	5.90	6.02
H250	Blacktoft	484247	424190	5.25	5.62	5.83	5.90	5.96	6.04
H270	Goole	474857	422960	5.46	5.85	6.07	6.15	6.21	6.29
East Coast									
~	Great Eau	545500	393800	3.80	4.19	4.46	4.57	4.69	4.96
~	Boygrift	553300	379800	3.84	4.24	4.53	4.65	4.77	5.05
~	Burgh Sluice	555190	358620	4.26	4.45	4.76	4.90	5.03	5.34
Wash									
~	Hobhole	536610	339940	4.82	5.30	5.64	5.78	5.93	6.27
~	Lawyers Sluice	540750	334550	4.84	5.32	5.66	5.80	5.95	6.29
~	West Lighthouse	549150	325750	4.88	5.37	5.71	5.86	6.01	6.35
~	Grand Sluice	532400	344500	4.88	5.33	5.65	5.78	5.93	~
~	Fosdyke Bridge	531700	332200	4.91	5.38	5.71	5.85	5.99	~
~	Marsh Road	526000	324000	5.04	5.44	5.73	5.85	5.98	~
~	Wisbech	546100	310000	4.83	5.25	5.53	5.66	5.78	~
~	Dog In Doublet	527300	299300	3.67	4.00	4.22	4.32	4.42	~



★ **Modelled Breach Locations**

0 0.5 1 2
Kilometres

This map indicates the location of where we have modelled the consequence of breaches in the defences along the coastline and tidal rivers. We have mapped the 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 Daytime calls cost 5p plus up to 6p per minute from BT Weekend Unlimited. Mobile and other providers' charges may vary

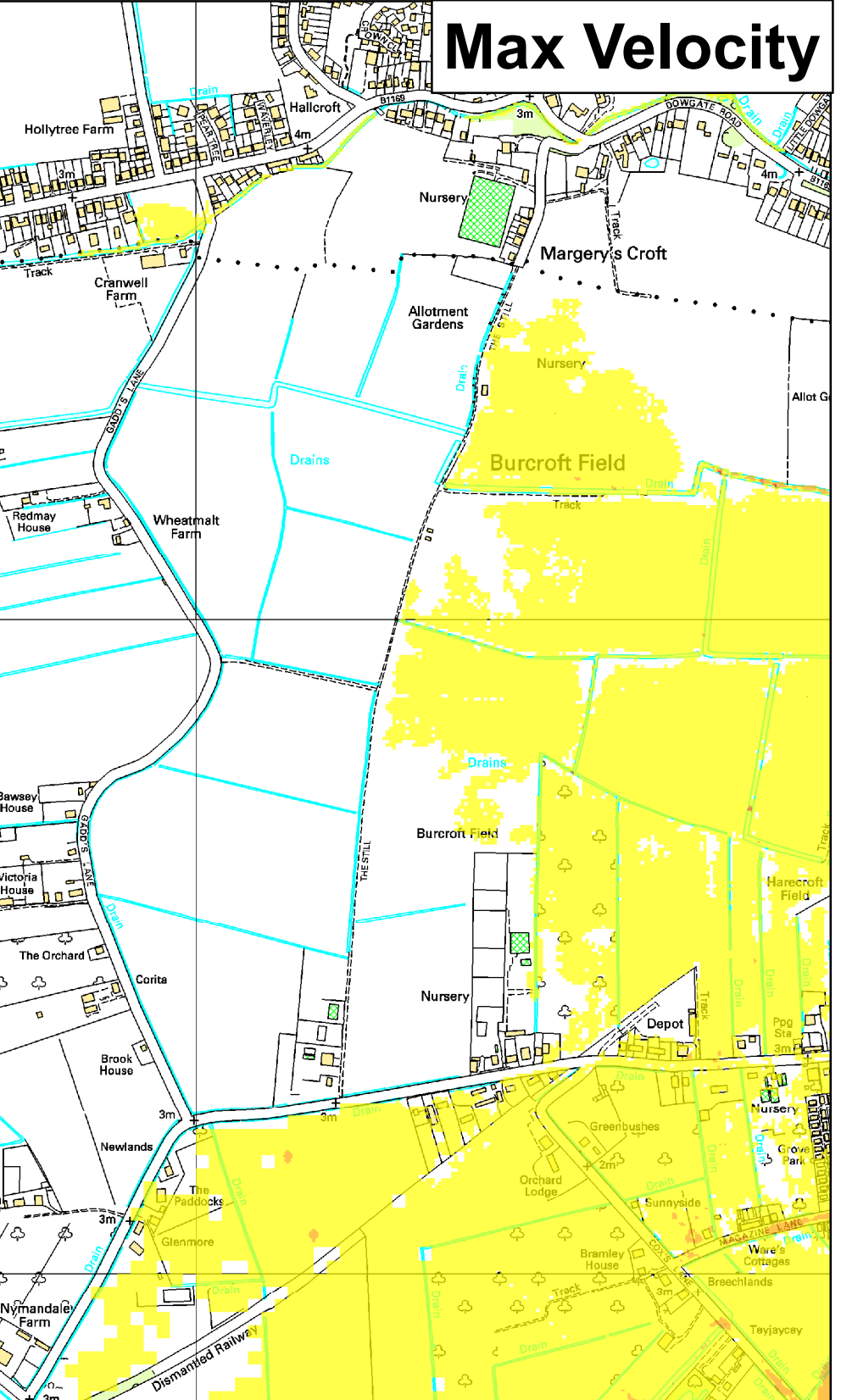
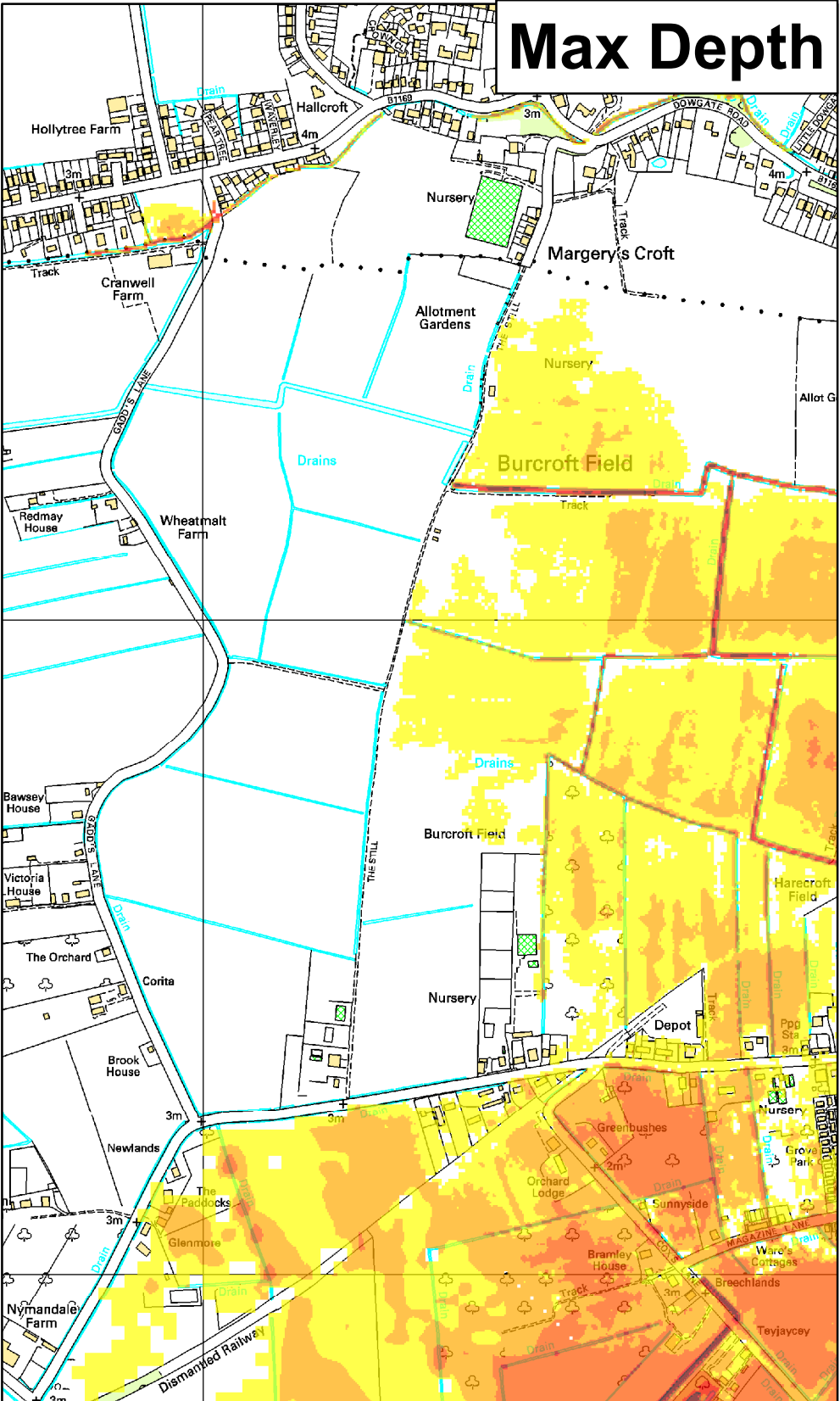
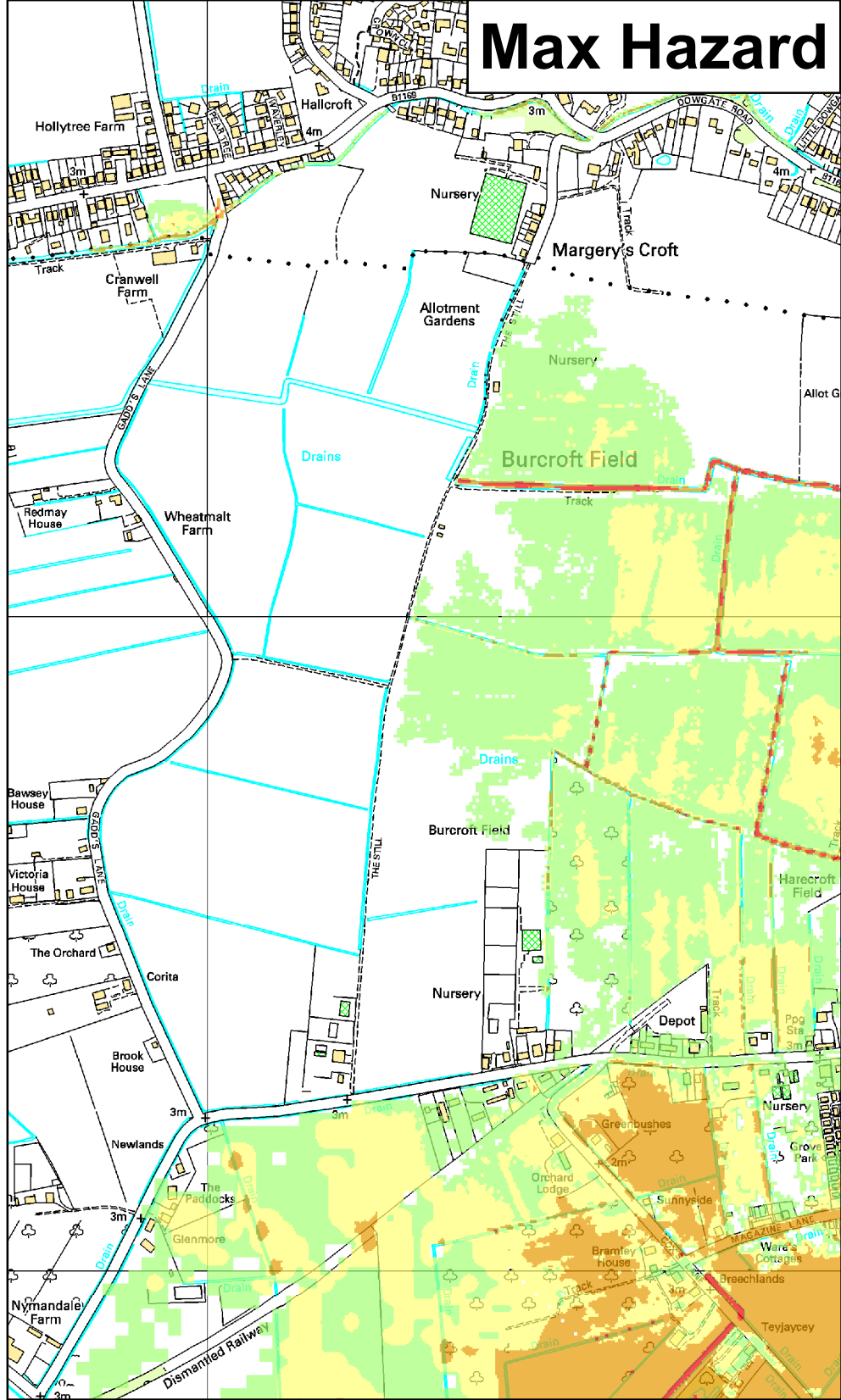


Produced by the Flood Risk Mapping & Data Management Team, Lincoln
General Enquiries No: 08708 506 506

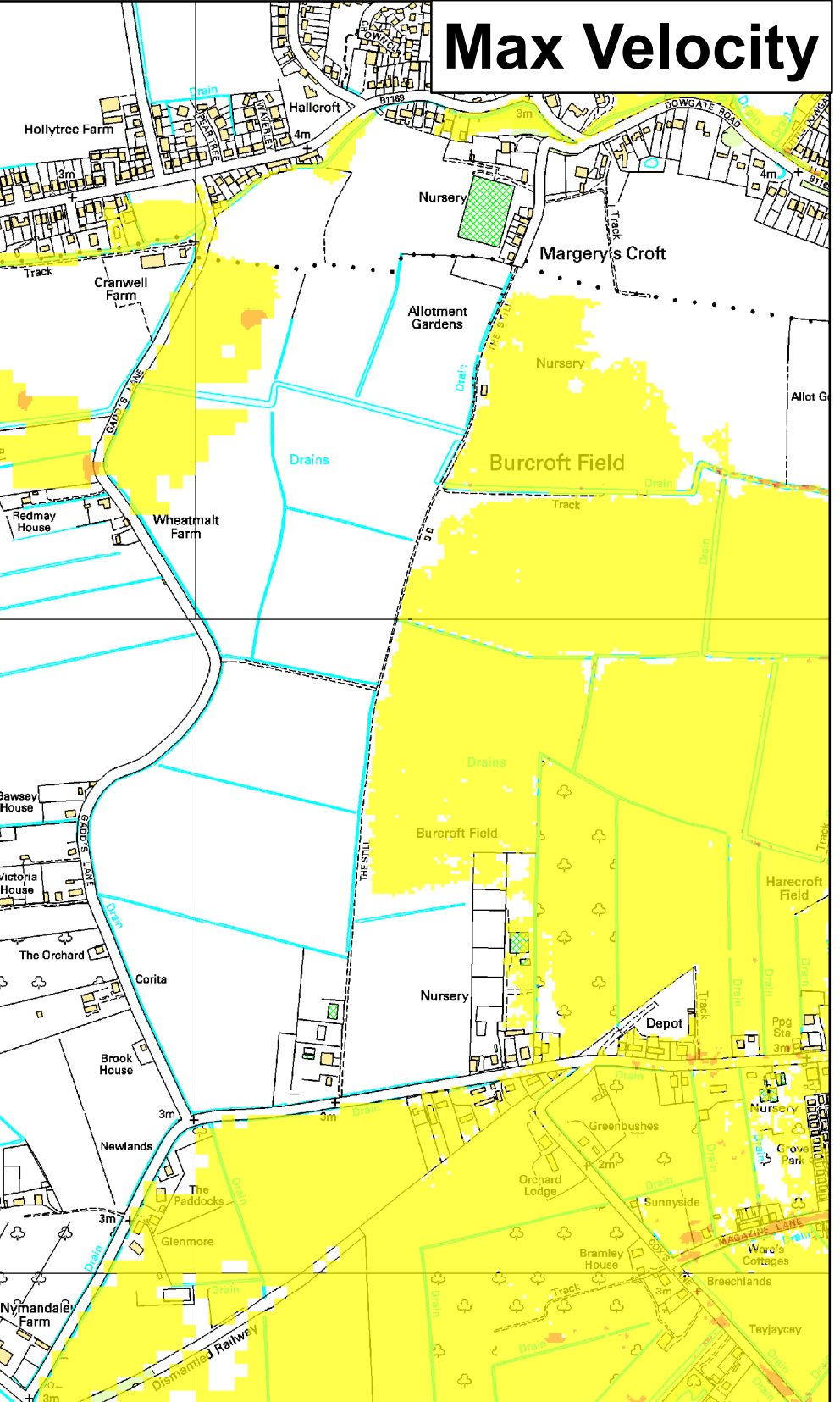
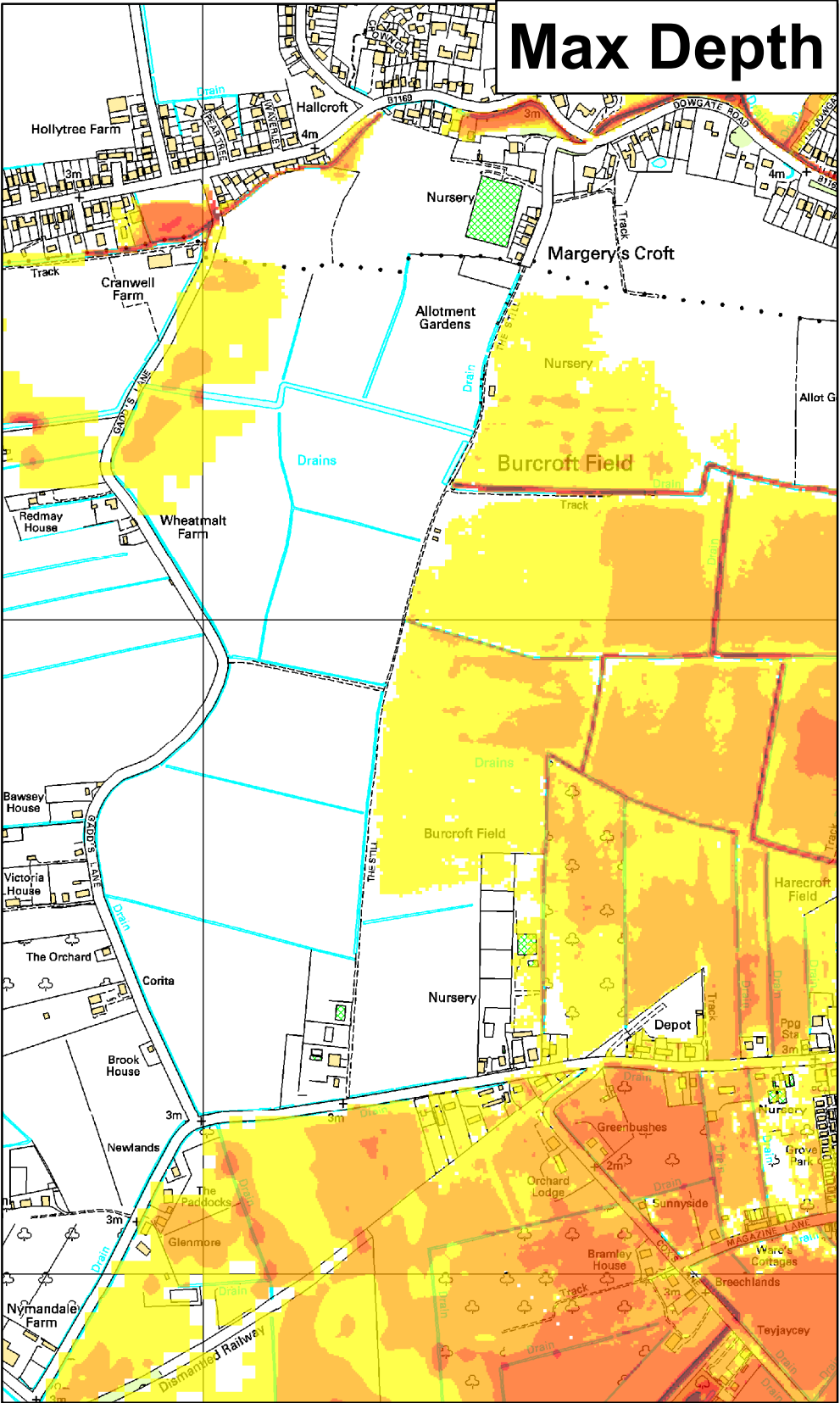
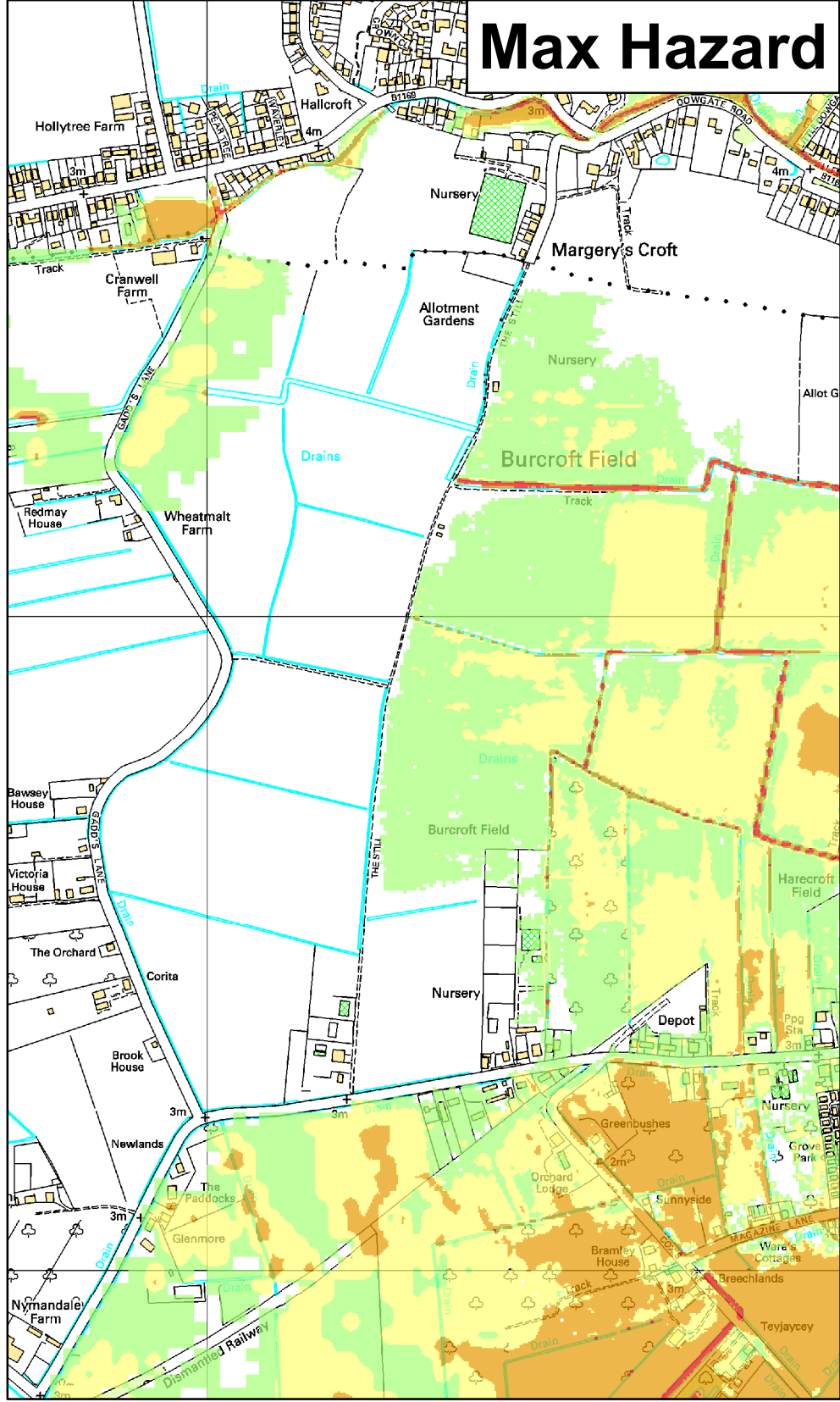
**Northern Area Tidal
Hazard Mapping**

Location of Modelled Breaches

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★ Modelled Breach Locations - see also the accompanying plan "Location of Modelled Breaches"							
Max Hazard (Flood Risk to People : FD2320)		Max Depth (m)		Max Velocity (m/s)		<p>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.</p> <p>The map is based on computer modelling of simulated breaches at specific locations. Each breach has been modelled individually and the results combined to create this map. Multiple breaches, other combinations of breaches, different sized tidal surges or flood flows may all give different results.</p> <p>The map only considers the consequences of a breach, it does not make any assumption about the likelihood of a breach occurring. The likelihood of a breach occurring will depend on a number of different factors, including the construction and condition of the defences in the area. A breach is less likely where defences are of a good standard, but a risk of breaching remains.</p>	
<div><div></div> Less than 0.75 (Low Hazard)</div> <div><div></div> Between 0.75 and 1.25 (Danger for Some)</div> <div><div></div> Between 1.25 and 2.0 (Danger for Most)</div> <div><div></div> Greater than 2.0 (Danger for All)</div>		<div><div></div> 0 - 0.25</div> <div><div></div> 0.25 - 0.50</div> <div><div></div> 0.50 - 1.0</div> <div><div></div> 1.0 - 1.6</div> <div><div></div> 1.6 +</div>		<div><div></div> 0 - 0.3</div> <div><div></div> 0.3 - 1.0</div> <div><div></div> 1.0 - 1.5</div> <div><div></div> 1.5 - 2.5</div> <div><div></div> 2.5 +</div>			
Date Printed	October 2018	Scenario year	2011	Scenario Annual Chance	0.5% (1 in 200)	CCN Number	CCN-2018-103601
<div><div></div><div>Lincolnshire and Northamptonshire Tidal Breaching Hazard Mapping</div><div>Map Centred on TF4433109871</div><div><small>This map is reproduced by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationary Office. Crown copyright. All rights reserved. Environment Agency 100026380, 2018. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.</small></div></div>							



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

Max Hazard	Max Depth (m)	Max Velocity (m/s)
(Flood Risk to People : FD2320)		
Less than 0.75 (Low Hazard)	0 - 0.25	0 - 0.3
Between 0.75 and 1.25 (Danger for Some)	0.25 - 0.50	0.3 - 1.0
Between 1.25 and 2.0 (Danger for Most)	0.50 - 1.0	1.0 - 1.5
Greater than 2.0 (Danger for All)	1.0 - 1.6	1.5 - 2.5
	1.6 +	2.5 +

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.

The map is based on computer modelling of simulated breaches at specific locations. Each breach has been modelled individually and the results combined to create this map. Multiple breaches, other combinations of breaches, different sized tidal surges or flood flows may all give different results.

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Date Printed October 2018

Scenario year 2011

Scenario Annual Chance 0.1% (1 in 1000)

CCN Number CCN-2018-103601

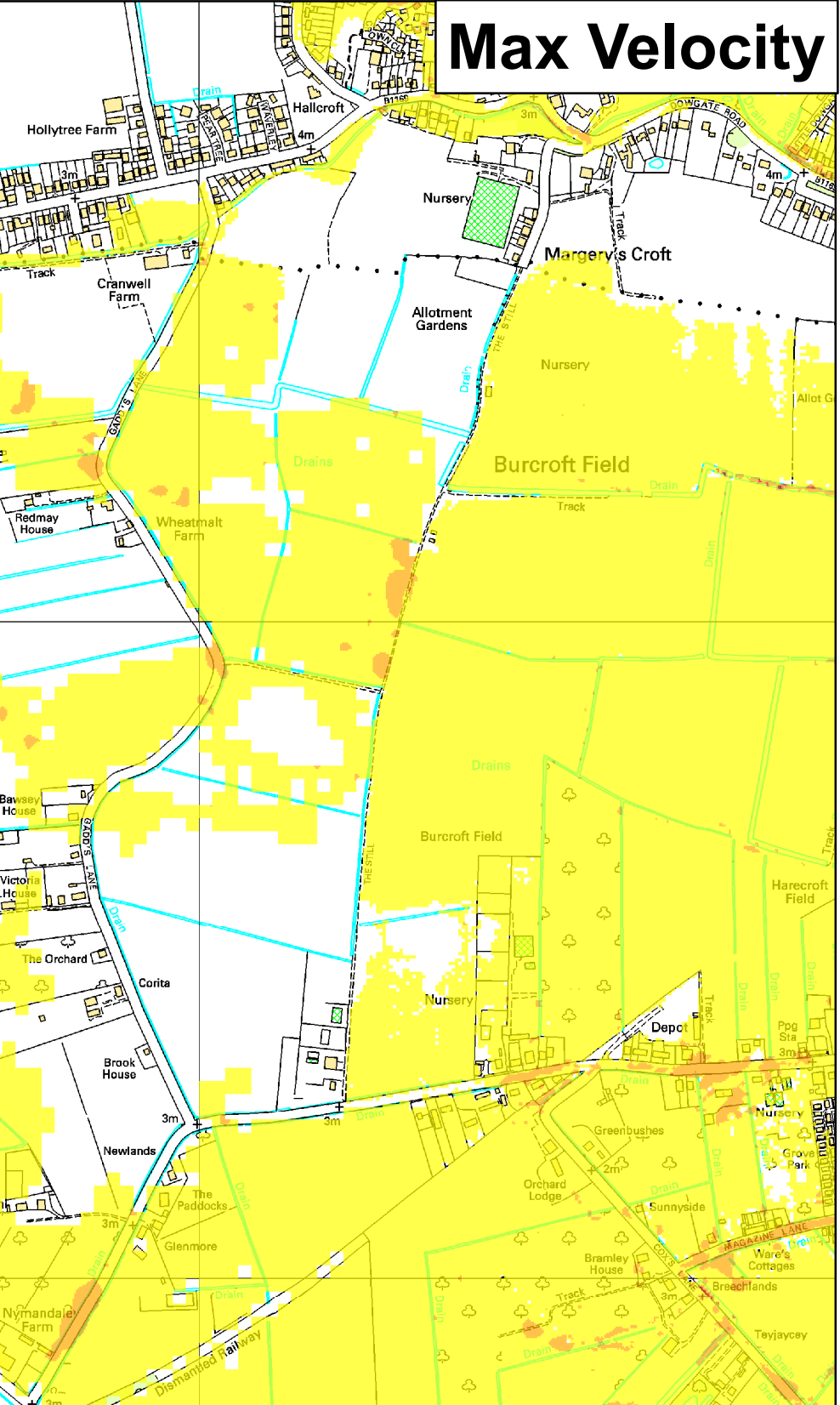
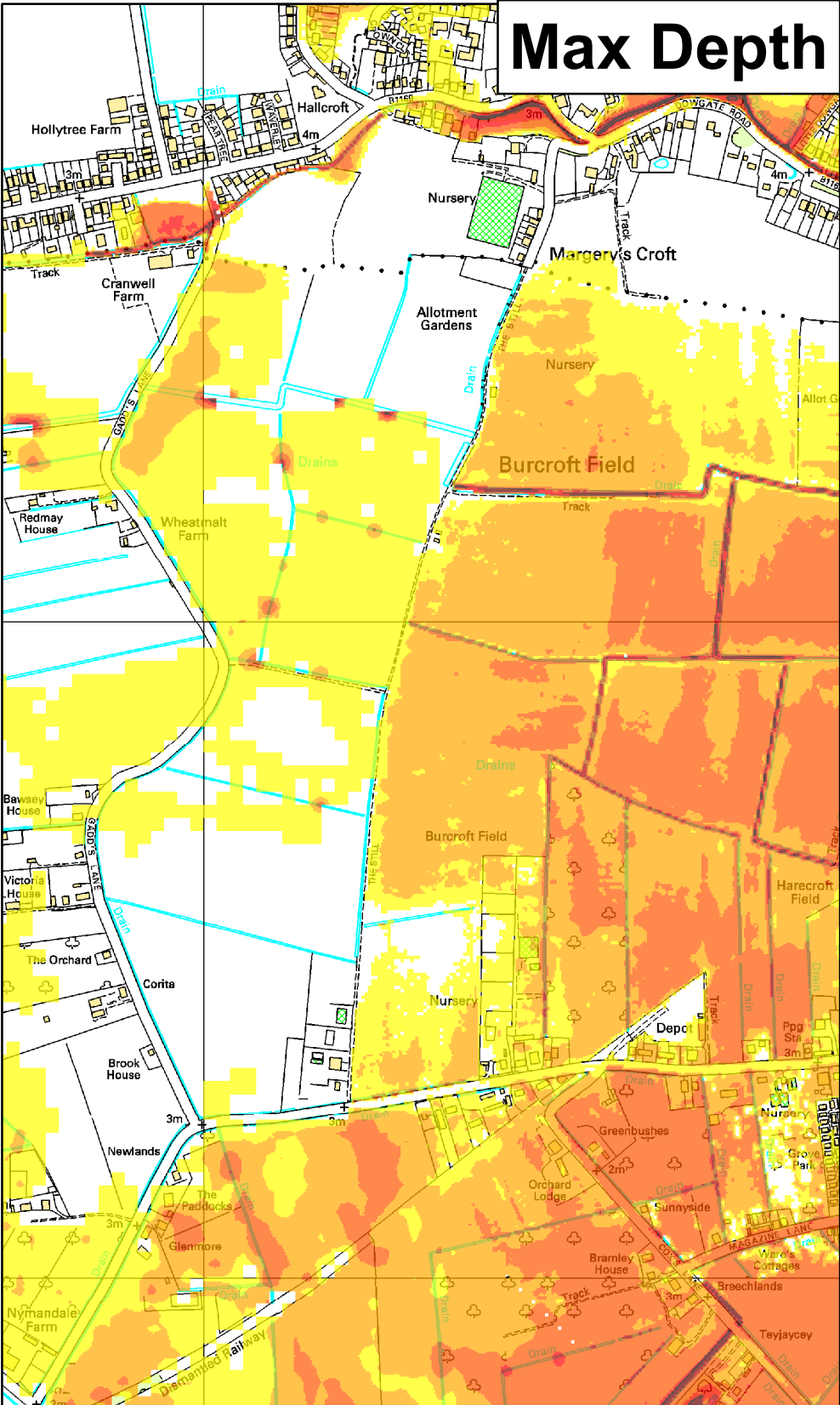
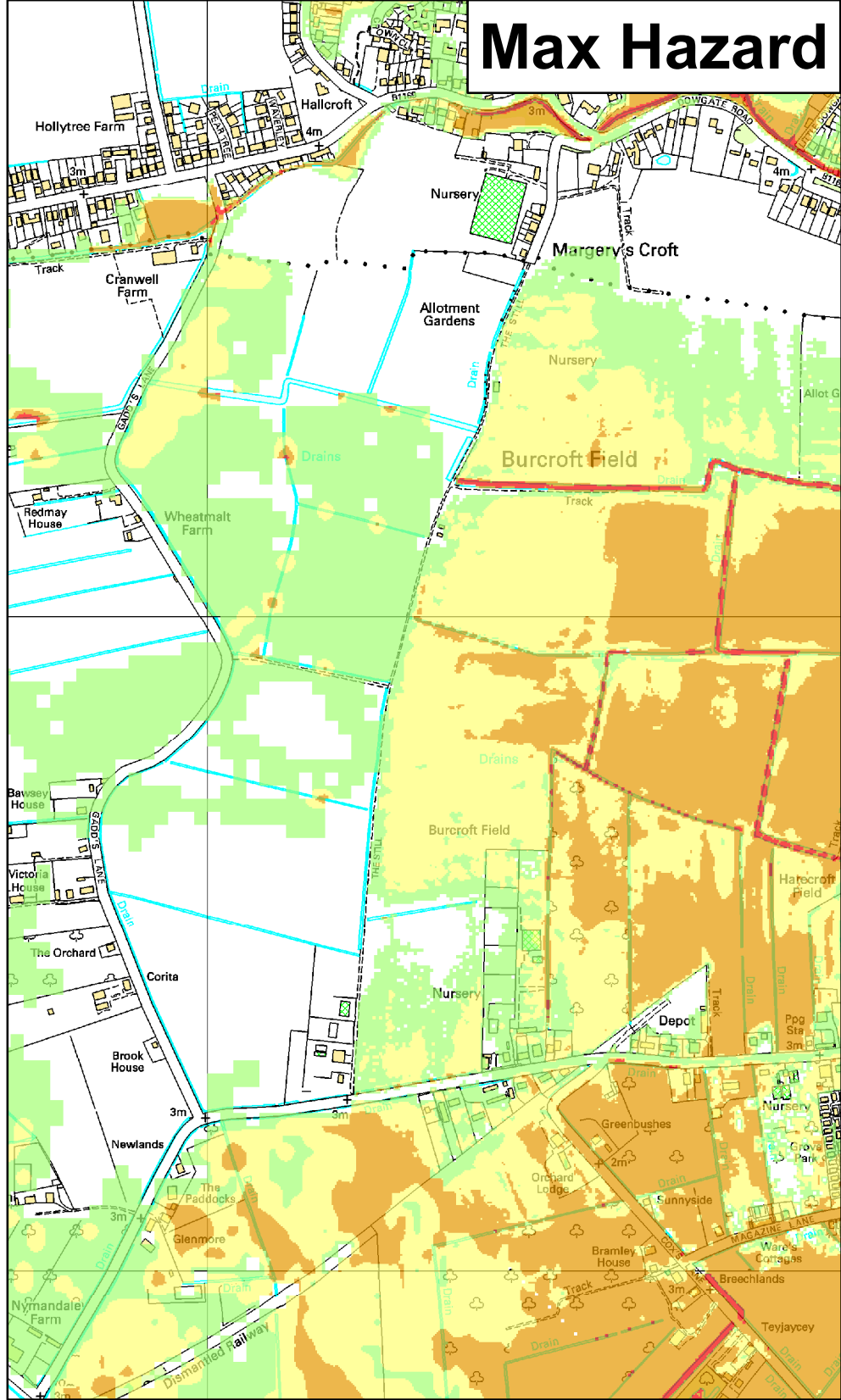
General Enquiries No: 03708 506 506. Weekday Daytime calls cost 5p plus up to 6p per minute from BT Weekend Unlimited. Mobile and other providers' charges may vary

Environment Agency

Lincolnshire and Northamptonshire Tidal Breaching Hazard Mapping

Map Centred on TF4433109871

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

Max Hazard	Max Depth (m)	Max Velocity (m/s)
(Flood Risk to People : FD2320)		
Less than 0.75 (Low Hazard)	0 - 0.25	0 - 0.3
Between 0.75 and 1.25 (Danger for Some)	0.25 - 0.50	0.3 - 1.0
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Environment Agency

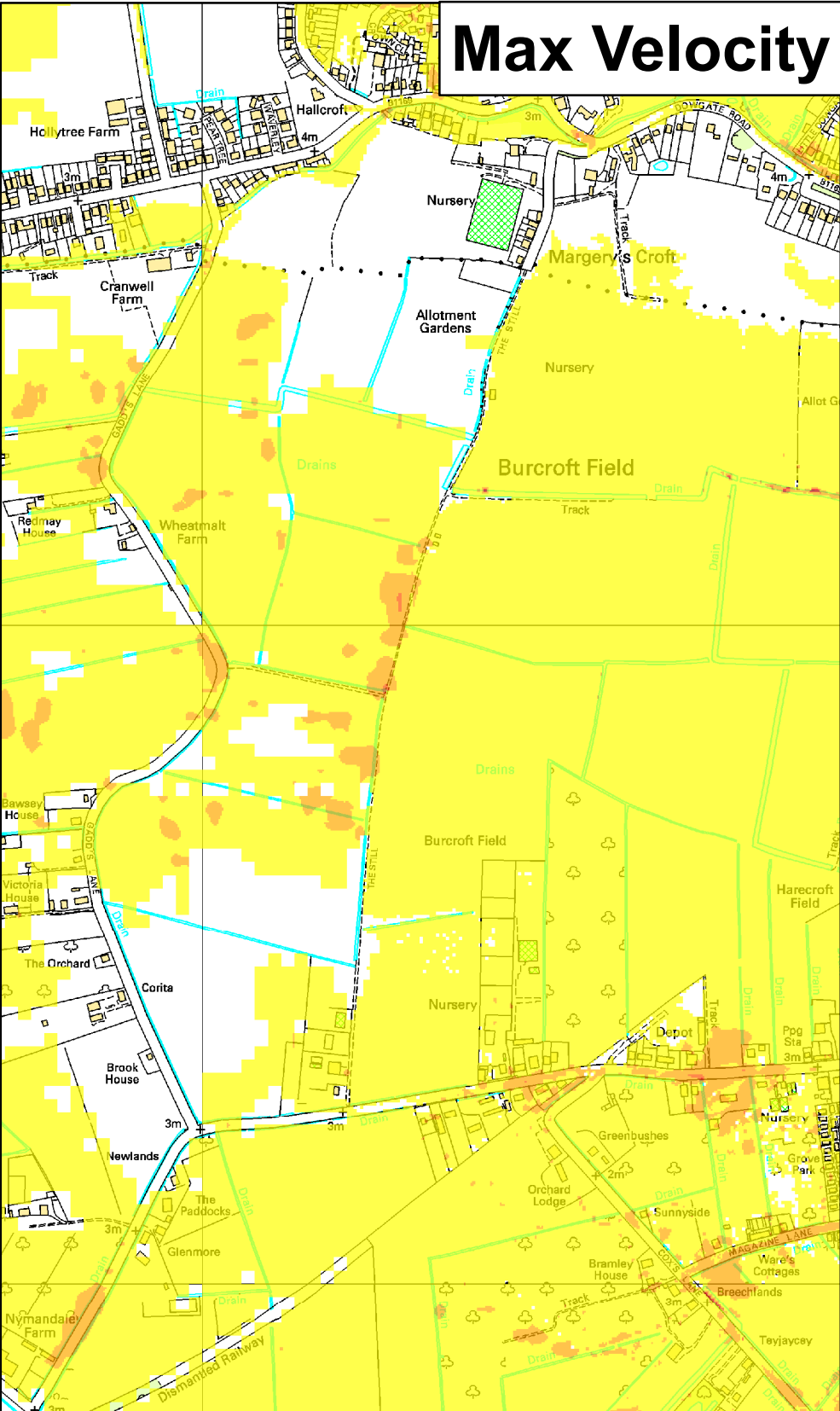
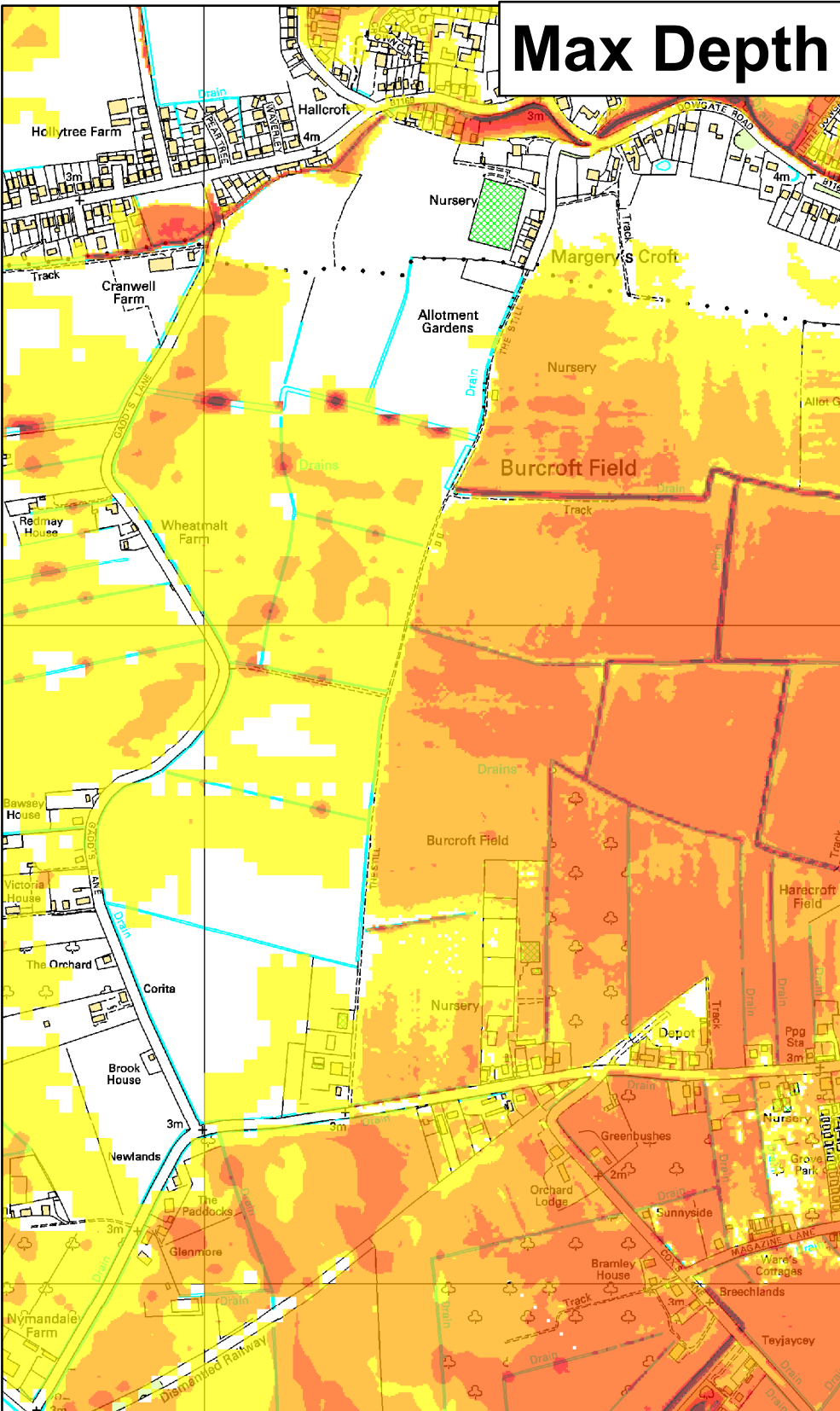
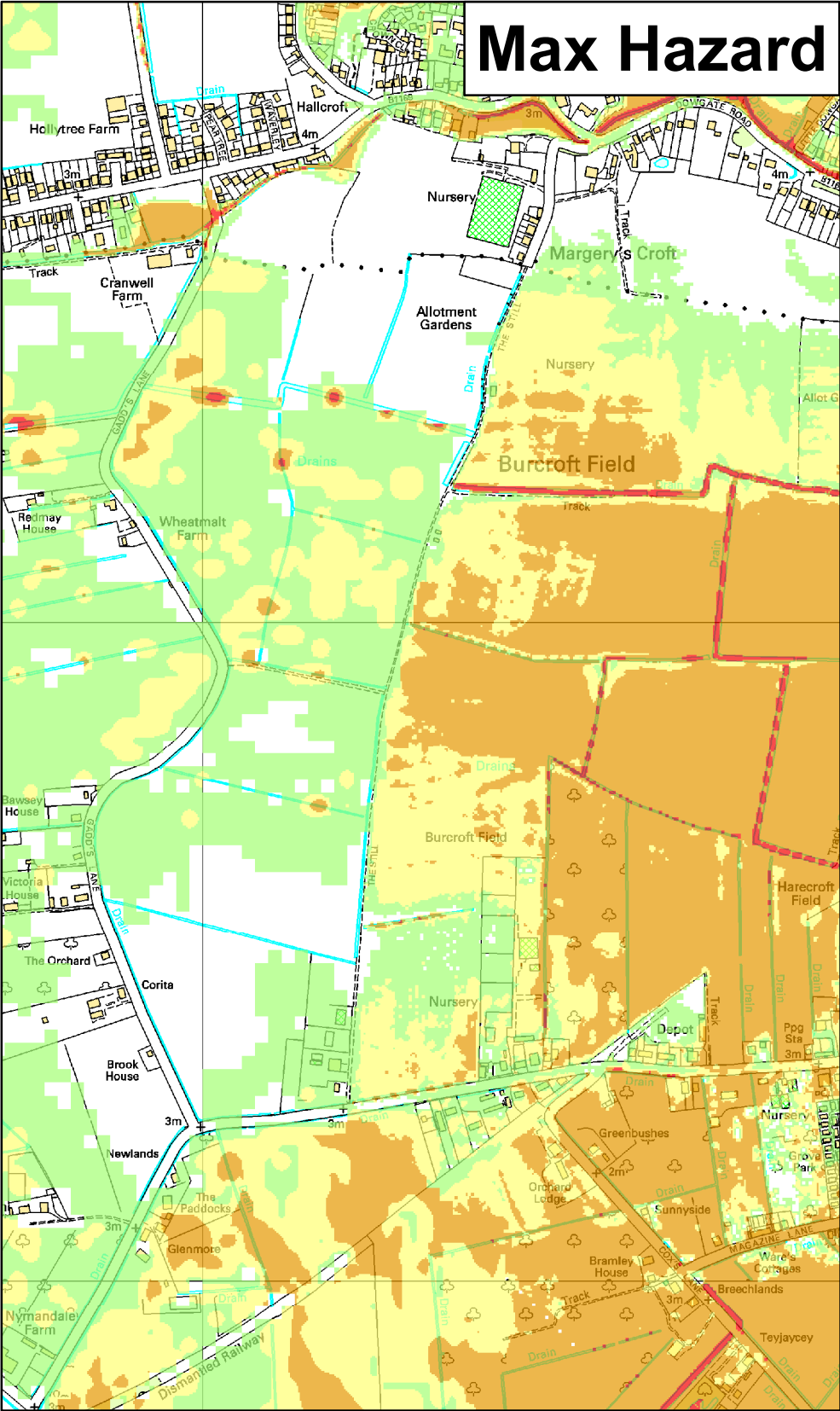
Lincolnshire and Northamptonshire Tidal Breaching Hazard Mapping

Map Centred on TF4433109871

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Date Printed	October 2018	Scenario year	2115	Scenario Annual Chance	0.5% (1 in 200)	CCN Number	CCN-2018-103601
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★ **Modelled Breach Locations** - see also the accompanying plan "Location of Modelled Breaches"

Max Hazard	Max Depth (m)	Max Velocity (m/s)
(Flood Risk to People : FD2320)		
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Environment Agency

Lincolnshire and Northamptonshire Tidal Breaching Hazard Mapping

Map Centred on TF4433109871

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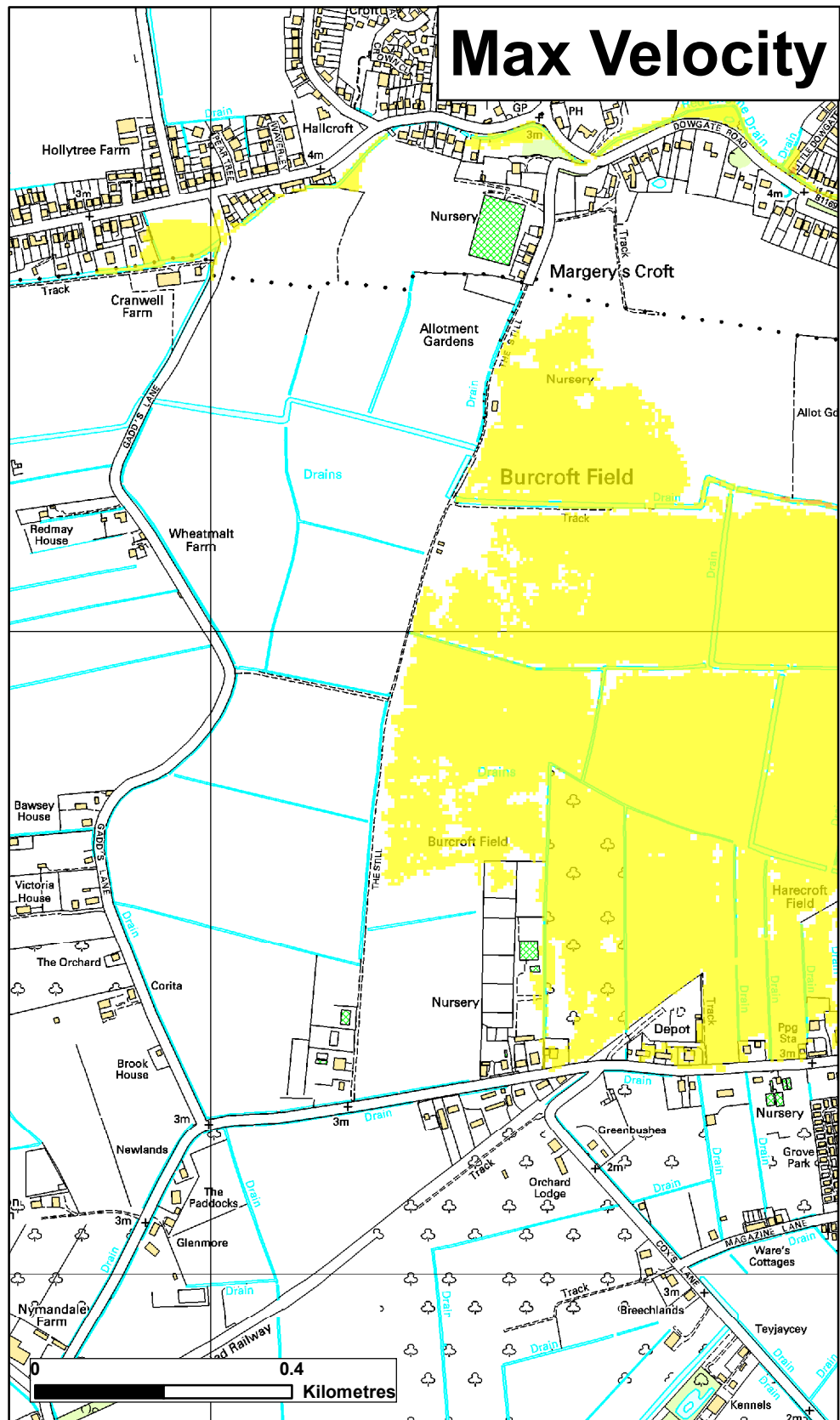
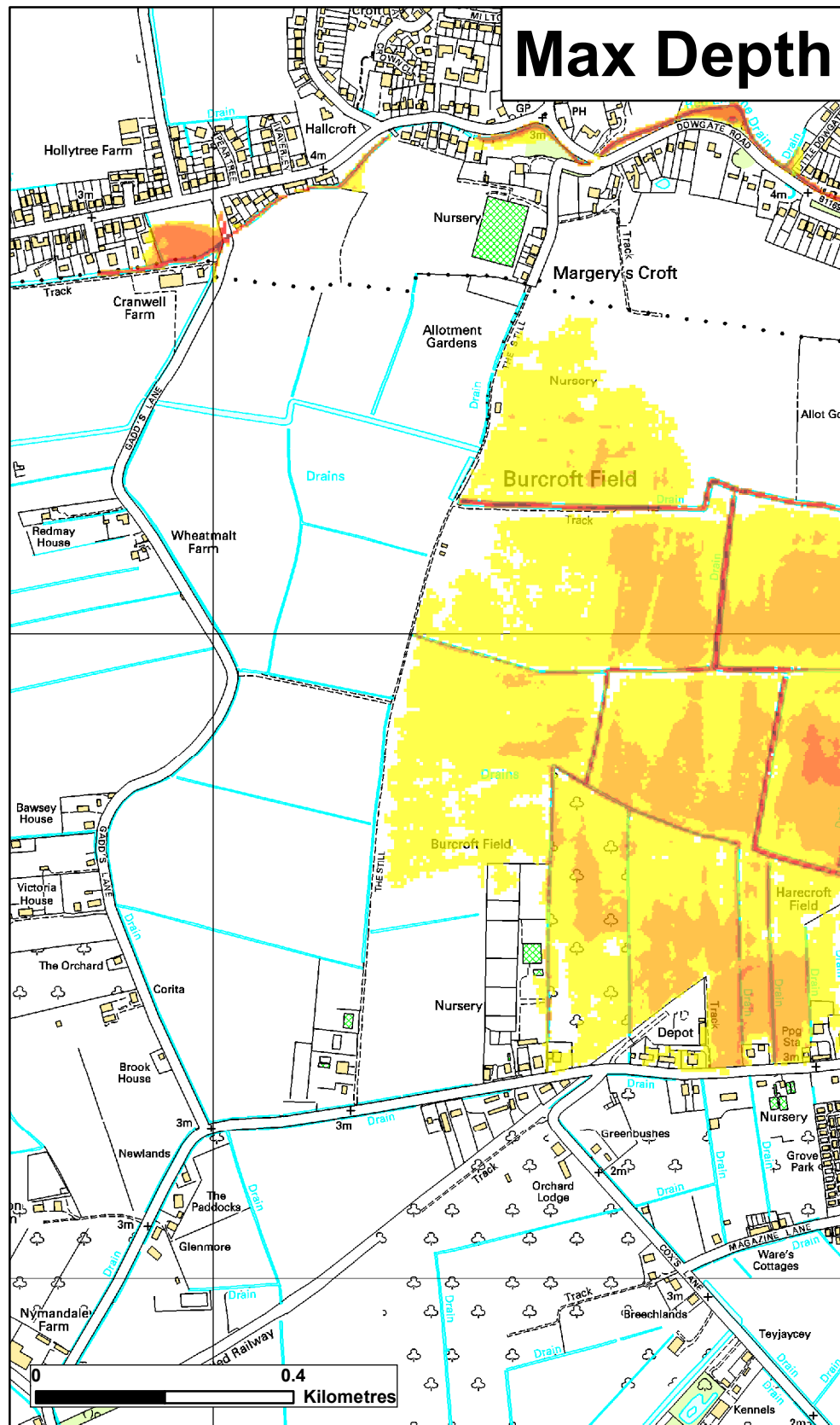
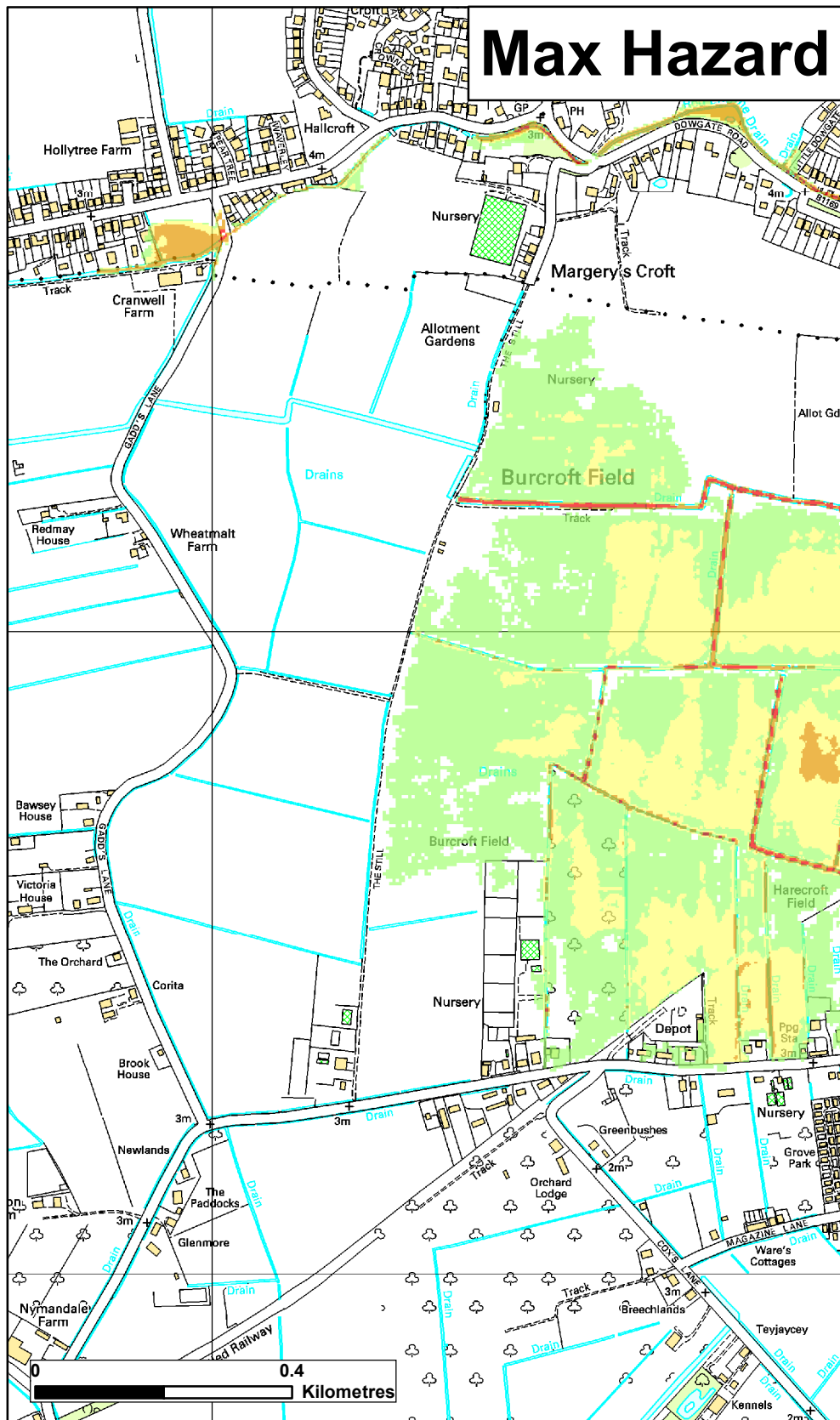
Date Printed October 2018

Scenario year 2115

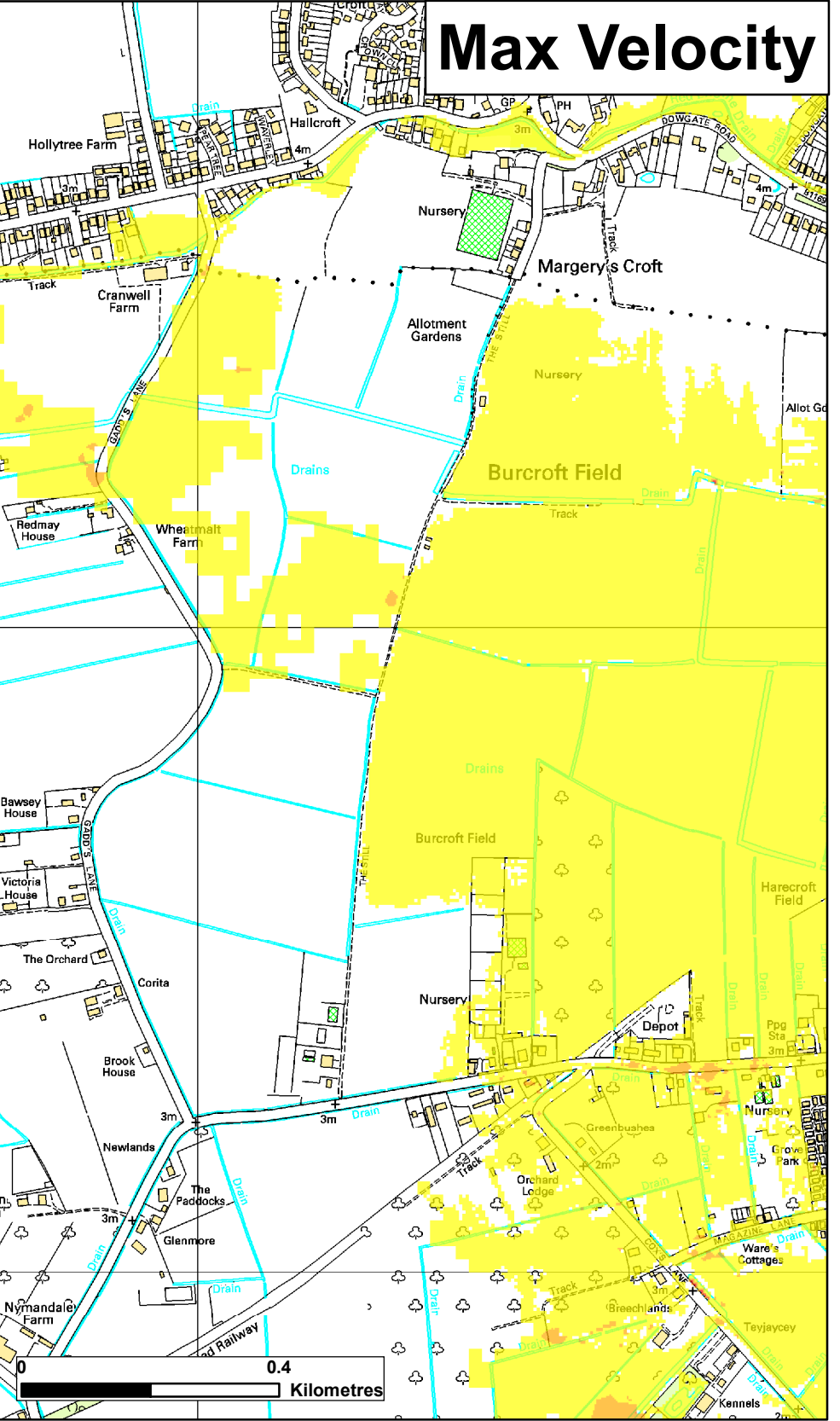
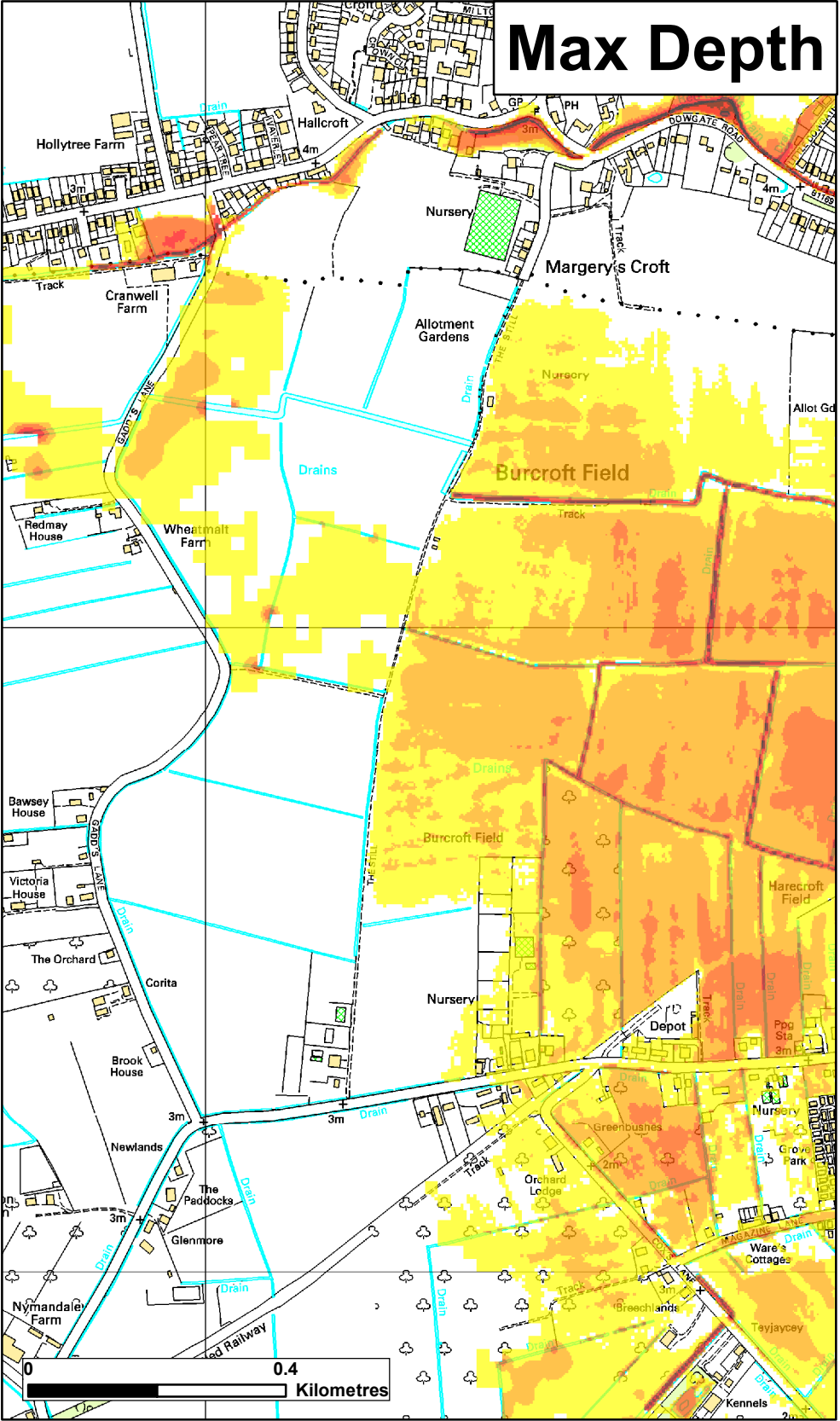
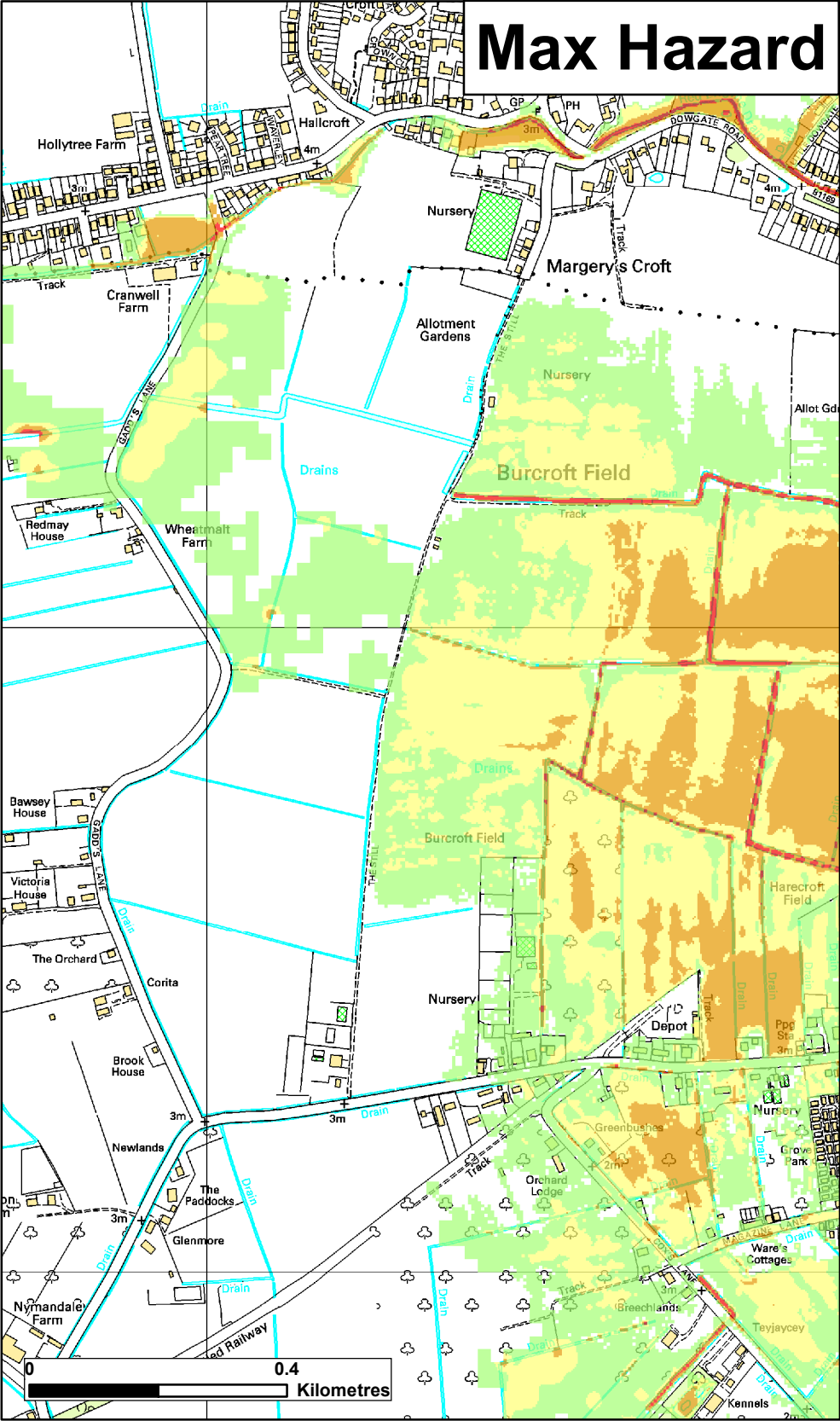
Scenario Annual Chance 0.1% (1 in 1000)

CCN Number CCN-2018-103601

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



Max Hazard (Flood Risk to People : FD2320)			Max Depth (m)			Max Velocity (m/s)			<p>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)</p> <p>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.</p> <p>For future climate change scenarios it is assumed that defences remain at 2006 heights.</p> <p>These maps do not replace the flood zone maps used in the National Planning Policy Framework (NPPF)</p> <p>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</p>			Lincolnshire and Northamptonshire Tidal Overtopping Hazard Mapping	
Date Printed	October 2018	Scenario year	2115	Scenario Annual Chance	0.5% (1 in 200)	CCN Number	CCN-2018-103601	Map Centred on TF 44331 09871					
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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	October 2018
Scenario year	2115
Scenario Annual Chance	0.1% (1 in 1000)
CCN Number	CCN-2018-103601

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

Lincolnshire and Northamptonshire
Tidal Overtopping Hazard
Mapping

Map Centred on TF 44331 09871

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APPENDIX I – NL IDB MAPPING



2018

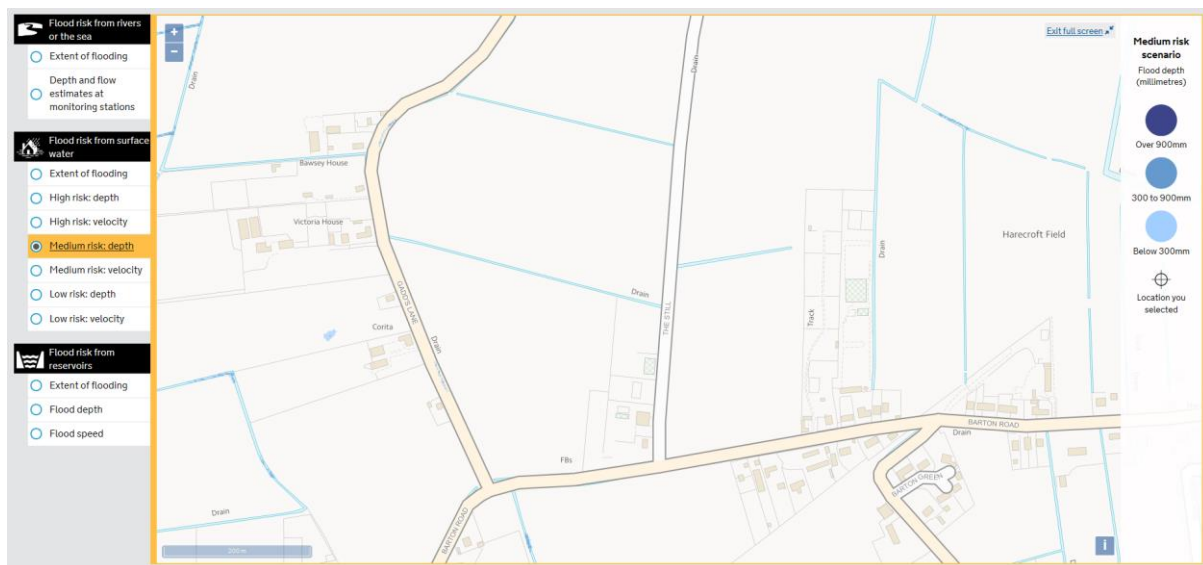
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APPENDIX J – EA SURFACE WATER FLOODING



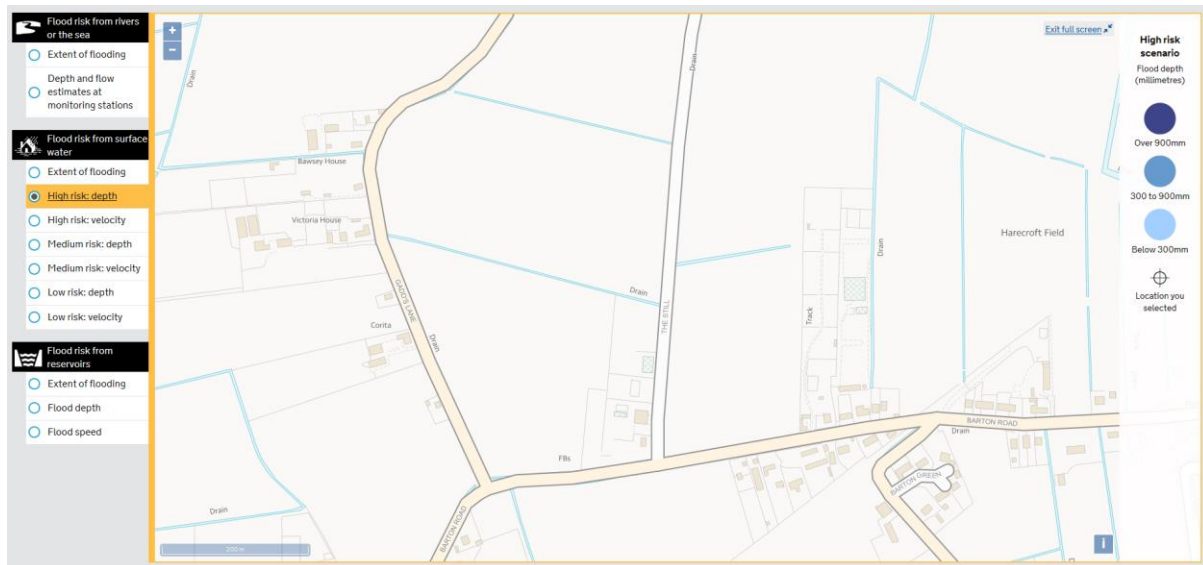
Flood Risk from Surface Water – Low Risk

Each year this area has a chance of flooding of between 0.1% and 1%



Flood Risk from Surface Water – Medium Risk

Each year this area has a chance of flooding of between 1% and 3.3%



Flood Risk from Surface Water – High Risk

Each year this area has a chance of flooding of greater than 3.3%

APPENDIX K – EA, NL IDB, LLFA CONSULTATION

John Bowstead

From: Simon Morris
Sent: 13 September 2021 08:49
To: John Bowstead
Subject: FW: 10-8394 - Fenland Education Campus - Various Sites - New Development

Morning John,

Email from the EA regarding the flood data still being valid is below.

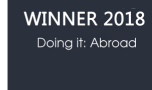
Cheers,

Simon

Simon Morris
Technician
s.morris@peterdann.com

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From: PSOWN <PSOWN@environment-agency.gov.uk>
Sent: 16 June 2021 13:29
To: Simon Morris <s.morris@peterdann.com>
Cc: John Bowstead <j.bowstead@peterdann.com>
Subject: RE: 10-8394 - Fenland Education Campus - Various Sites - New Development

Hello Simon

The flood data is still valid we have not updated our models in this area since it was provided in 2018

Regards
Rachael

Rachael Storey

Partnerships and Strategic Overview Officer | Lincolnshire and Northamptonshire | Welland and Nene
Environment Agency | Nene House, Pytchley Road Industrial Estate, Pytchley Lodge Road, Kettering, NN15 6JQ

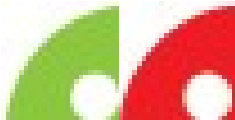
rachael.storey@environment-agency.gov.uk | psown@environment-agency.gov.uk

Direct Dial: 020 302 53515 | Team Dial: 020 302 53535

I work part time my non working day is Monday

We're committed to providing excellent customer service and would appreciate your feedback.

Were you happy with the service you received today?



From: Simon Morris [<mailto:s.morris@peterdann.com>]

Sent: 16 June 2021 11:55

To: PSOWN <PSOWN@environment-agency.gov.uk>

Cc: John Bowstead <j.bowstead@peterdann.com>

Subject: 10-8394 - Fenland Education Campus - Various Sites - New Development

Dear Sir/Madam,

You provided the attached flood risk information for a site at Gadd's Lane, Wisbech for my colleague John Bowstead in October 2018. This project was subsequently put on hold and has now started up again. It is advised in the attached that if this data is to be used more than twelve months from the date of the letter, we should contact again to check it is still valid. Would you please confirm whether this data is still valid for use in developing the Flood Risk Assessment for the proposed site?

Kind Regards,

Simon Morris

Technician

s.morris@peterdann.com

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John Bowstead

From: John Bowstead
Sent: 15 January 2019 15:00
To: Kirk, Emma; Paul Sharman
Cc: Mark Dockerill; Simon Morris; Mugova, Elizabeth
Subject: RE: Fenland Education Campus

Hi Emma,

Many thanks for your response, we are in the process of collating the FRA for the planning submission which I believe is due to be submitted in February.

Kind regards,

John

From: Kirk, Emma <emma.kirk@environment-agency.gov.uk>
Sent: 15 January 2019 09:30
To: John Bowstead <j.bowstead@peterdann.com>; Paul Sharman <pds@northlevelidb.org>
Cc: Mark Dockerill <m.dockerill@peterdann.com>; Simon Morris <s.morris@peterdann.com>; Mugova, Elizabeth <elizabeth.mugova@environment-agency.gov.uk>
Subject: RE: Fenland Education Campus

Morning John,

I can confirm that these proposed FFL's, (as follows), are acceptable;

- 300mm above existing ground levels for SEMH building at 3.125mAOD
- Secondary school at 2.850mAOD, (outside of haz mapping)

Apologies, remind me, are you updating the FRA to reflect this information?

Regards,



Emma Kirk
Partnerships and Strategic Overview Advisor
Lincolnshire and Northamptonshire
☎ External - +442030 256002
☎ Internal - 56002
Email - emma.kirk@environment-agency.gov.uk
www.gov.uk/environment-agency





From: John Bowstead [<mailto:j.bowstead@peterdann.com>]

Sent: 14 January 2019 20:52

To: Kirk, Emma <emma.kirk@environment-agency.gov.uk>; Paul Sharman <pds@northlevelidb.org>

Cc: Mark Dockerill <m.dockerill@peterdann.com>; Simon Morris <s.morris@peterdann.com>

Subject: RE: Fenland Education Campus

Hi Emma, Paul

Following on from previous email correspondence regarding proposed finished floor levels for the buildings on the Fenland Education Campus Wisbech, I have attached the proposed site plan incorporating existing topographic levels and the tidal breach mapping for the year 2115 for the 0.5% annual chance.

The 0.00m – 0.25m flood depth zone extends onto the site but sits just outside the footprint of the proposed **SEMH** building. At this location the existing site level is 2.824mAOD. Within the Wisbech Level 2 SFRA, section 7.6.3 recommendation is made that where suitable, FFL's should be set at or above the 1% plus climate change level (fluvial) and 0.5% plus climate change level (tidal) with a 300mm freeboard. With the proposed SEMH building positioned just outside the 0.00m-0.25m flood depth zone a FFL of 2.824m +0.300m=3.125mAOD is proposed.

The proposed **Secondary School** is located fully outside the breach flood zones, based on the existing topographic a FFL of 2.850mAOD is proposed.

Based on the proposed FFLs above, flood resilient construction **would not** need be recommended for either building.

It would be greatly appreciated if you could advise your comments on above.

Kind regards,

John

John Bowstead
Technical Director
j.bowstead@peterdann.com

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From: Kirk, Emma <emma.kirk@environment-agency.gov.uk>
Sent: 17 October 2018 09:48
To: John Bowstead <j.bowstead@peterdann.com>
Cc: Mugova, Elizabeth <elizabeth.mugova@environment-agency.gov.uk>
Subject: RE: Fenland Education Campus

Morning John,

Correct. The Flood Zones do not take into account defences. However, there are raised embankments in place along the Tidal Nene so the residual risk needs to be considered; this is illustrated in the breach mapping. If the proposed buildings are outside the hazard mapping extents, then finished floor levels do not need to be raised. I would still recommend safe access and egress/emergency routes are discussed with Fenland DC.

I hope this helps but please feel free to contact me if you have any further queries.

Regards,



Emma Kirk

Partnerships and Strategic Overview Advisor
Lincolnshire and Northamptonshire

📞 External - +442030 256002

📞 Internal - 56002

Email - emma.kirk@environment-agency.gov.uk

www.gov.uk/environment-agency



From: John Bowstead [<mailto:j.bowstead@peterdann.com>]
Sent: 16 October 2018 14:29
To: Kirk, Emma <emma.kirk@environment-agency.gov.uk>
Cc: Mugova, Elizabeth <elizabeth.mugova@environment-agency.gov.uk>
Subject: RE: Fenland Education Campus

Good afternoon Emma,

Hope all is well, it would be greatly appreciated if you could provide clarification on the following item that was discussed at our meeting:

- Although the proposed masterplan currently indicates all buildings to be in FZ1, the requirement for setting minimum proposed floor level should be based on the Tidal Nene Breach Depth Mapping for the 0.5% (1 in 200) AEP with no requirement for additional freeboard, I have reviewed the Wisbech Level 2 SFRA and cannot find where this is referenced.
- The breach depth mapping as attached, indicates the south-west corner of the site only to be within the 0.00-0.25m flood depth, if the proposed buildings are outside this zone is it correct to assume that finished floor levels do not need to be based on the breach depth mapping?

Kind regards,

John

John Bowstead

Technical Director

j.bowstead@peterdann.com

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From: Kirk, Emma <emma.kirk@environment-agency.gov.uk>

Sent: 10 October 2018 08:31

To: John Bowstead <j.bowstead@peterdann.com>

Cc: Mugova, Elizabeth <elizabeth.mugova@environment-agency.gov.uk>

Subject: RE: Fenland Education Campus

Morning John,

Apologies for not providing it sooner. Please make a formal enquiry to our Customers and Engagement Team at LNenquiries@environment-agency.gov.uk. Please request a Product 8 and make reference to our meeting in the request. The format will still be pdf but in 1:10000 resolution is likely to be better than the maps in the Wisbech SFRA.

Regards,

Emma

Emma Kirk

Partnerships and Strategic Overview Advisor
Lincolnshire and Northamptonshire

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Email - emma.kirk@environment-agency.gov.uk

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From: John Bowstead [<mailto:j.bowstead@peterdann.com>]
Sent: 09 October 2018 13:51
To: Kirk, Emma <emma.kirk@environment-agency.gov.uk>
Cc: Mugova, Elizabeth <elizabeth.mugova@environment-agency.gov.uk>
Subject: Fenland Education Campus

Good afternoon Emma,

Just following up from our meeting at the office of the North Level IDB regarding the proposed Fenland Education it would be greatly appreciated if you could provide contact for obtaining the Tidal Nene Breach Depth Mapping and Overtopping Mapping in a format that can be superimposed onto the site topographic survey.

Please do not hesitate to call should you wish to discuss the above.

Kind regards,

John

John Bowstead
Technical Director
j.bowstead@peterdann.com

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John Bowstead

From: Paul Sharman <pds@northlevelidb.org>
Sent: 13 December 2021 10:34
To: John Bowstead
Subject: RE: SEMH Building, Gadds Lane, Leverington

Good Morning John,

In principle I am fine with the increased discharge rate, however with the point of discharge now being the roadside drain, this section may require some improvement to receive the proposed flows.

Kind regards,
Paul

Paul Sharman | Chief Executive
North Level District Internal Drainage Board
Drainage Office, Station Road, Thorney, Peterborough, PE6 0QE
Tel 01733 270333 | Mobile 07730 309872 | Fax 01733 270231
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From: John Bowstead <j.bowstead@peterdann.com>
Sent: 10 December 2021 19:13
To: Paul Sharman <pds@northlevelidb.org>
Cc: Simon Morris <s.morris@peterdann.com>; Mark Dockerill <m.dockerill@peterdann.com>
Subject: RE: SEMH Building, Gadds Lane, Leverington

Hi Paul,

Following a design review of the below ground drainage for the proposed SEMH we have re-configured the system with a final outfall to the drainage ditch on the south boundary of the site. The on-site system has been split into three catchments with only the upper catchment requiring pumping which in turn connects to the lower catchment of the school site. To facilitate this we have adopted a slightly higher discharge rate to the off-site drainage ditch 4.5l/s (previously 3.0l/s. It would be greatly appreciated if you could confirm this is acceptable.

Look forward to hearing from you.

Kind regards,

John

John Bowstead
Technical Director
j.bowstead@peterdann.com

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From: Paul Sharman <pds@northlevelidb.org>
Sent: 22 October 2021 08:56
To: John Bowstead <j.bowstead@peterdann.com>
Subject: RE: SEMH Building, Gadds Lane, Leverington

Good Morning John,

From memory you are attenuating the flows to a very acceptable level, while it is not a requirement to consult others it is always a common courtesy I suggest to consult with neighbours.

The Highway Authority will not be interested I suggest, so it is more relevant to talk to downstream landowners.

Kind regards,
Paul

Paul Sharman | Chief Executive
North Level District Internal Drainage Board
Drainage Office, Station Road, Thorney, Peterborough, PE6 0QE
Tel 01733 270333 | Mobile 07730 309872 | Fax 01733 270231
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From: John Bowstead <j.bowstead@peterdann.com>
Sent: 21 October 2021 14:00
To: Paul Sharman <pds@northlevelidb.org>
Subject: RE: SEMH Building, Gadds Lane, Leverington

Good afternoon Paul,

We are due to commence the detailed design for SEMH scheme, we have currently indicated surface water connection to the drainage ditch to the west boundary of the site. We appreciate that we consulted with yourself re discharge rates etc, but will we also need to seek approval from the land owner / highways for this connection?

Kind regards,

John

John Bowstead
Technical Director
j.bowstead@peterdann.com

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From: Paul Sharman <pds@northlevelidb.org>
Sent: 05 August 2021 08:23
To: John Bowstead <j.bowstead@peterdann.com>
Subject: RE: SEMH Building, Gadds Lane, Leverington

Good Morning John,

You will be pleased to hear that it is a one-off payment.

Kind regards,

Paul

Paul Sharman | Chief Executive

North Level District Internal Drainage Board

Drainage Office, Station Road, Thorney, Peterborough, PE6 0QE

Tel 01733 270333 | Mobile 07730 309872 | Fax 01733 270231

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From: John Bowstead <j.bowstead@peterdann.com>

Sent: 04 August 2021 13:27

To: Paul Sharman <pds@northlevelidb.org>

Subject: RE: SEMH Building, Gadds Lane, Leverington

Thanks Paul,

Is this a one-off payment or annual payment?

Kind regards,

John

John Bowstead

Technical Director

j.bowstead@peterdann.com

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From: Paul Sharman <pds@northlevelidb.org>
Sent: 04 August 2021 13:20
To: John Bowstead <j.bowstead@peterdann.com>
Subject: RE: SEMH Building, Gadds Lane, Leverington

Hi John,

The development levy payable will be in line with your second bullet point, i.e. calculated at 10% of the contribution rate. If the impervious area of the site is 1.10Ha then the figure will be 1.10 X £122,452 x 10% so £13,469.72.

I can confirm that increasing the pumped discharge rate from 1.4 to 3.0 l/s would be acceptable and not affect the above contribution figure, should you ultimately stick with a pumped system.

Kind regards,
Paul

Paul Sharman | Chief Executive
North Level District Internal Drainage Board
Drainage Office, Station Road, Thorney, Peterborough, PE6 0QE
Tel 01733 270333 | Mobile 07730 309872 | Fax 01733 270231
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From: John Bowstead <j.bowstead@peterdann.com>
Sent: 04 August 2021 13:09
To: Paul Sharman <pds@northlevelidb.org>
Cc: Hollowell, Mark <Mark.Hollowell@kier.co.uk>; Simon Morris <s.morris@peterdann.com>
Subject: RE: SEMH Building, Gadds Lane, Leverington

Good Afternoon Paul,

Thank you for attending the meeting yesterday and providing the follow-up information.

It would be greatly appreciated if you could confirm whether we have interpreted the Development Levies guidance correctly:

- Given that we are undertaking flow regulation works as part of the scheme and it is a single property a Development Levy of £506.00 will be incurred, and this is a one off payment?
- SWDC rates – annual payment to the Board. Site Impermeable area – 1.10ha Band A1. Equivalent run off rate 1.4 to 5.0 l/s/ha. Apply 10% to the Contribution Rate £122,452.00 - £12,245.20?

We note your comments re the preference for a gravity system and will investigate this further.

As tabled at yesterday's meeting our current surface water strategy incorporates an attenuated discharge to the existing drainage ditch on the west site boundary at a rate of 1.40 l/s, given that this is currently a pumped discharge we would wish you to consider an increased rate of up to 3.0l/s and thus avoiding possible maintenance issues with the pumped system.

Kind regards,

John

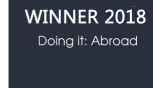
John Bowstead

Technical Director

j.bowstead@peterdann.com

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newton house | cambridge road | barton | cambridge | CB23 7WJ



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From: Paul Sharman <pds@northlevelidb.org>

Sent: 03 August 2021 13:11

To: John Bowstead <j.bowstead@peterdann.com>

Subject: SEMH Building, Gadds Lane, Leverington

Good Afternoon John,

Many thanks for organising this morning's catch-up meeting regarding the above site.

To clarify my points raised, firstly I am looking to see that the possibility of a gravity discharge has been fully investigated. I always prefer to avoid pumping if it is not absolutely essential, even if this means some quite extensive drainage improvement works are needed downstream of the site. I believe it was confirmed that Cambs County Council are the land owners right through to my Boards Still Drain.

Secondly, as mentioned my Board has updated our planning policy and a consent to discharge will be required together with payment of a development levy in accordance with the attached.

It is disappointing that we are only dealing with part of the overall site, however I understand why this is. Unfortunately it does somewhat skew the drainage costs regarding any downstream improvements if full costs have to be borne by this first build rather than the whole site.

Kind regards,
Paul

Paul Sharman | Chief Executive

North Level District Internal Drainage Board

Drainage Office, Station Road, Thorney, Peterborough, PE6 0QE

Tel 01733 270333 | Mobile 07730 309872 | Fax 01733 270231

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John Bowstead

From: Paul Sharman <pds@northlevelidb.org>
Sent: 10 December 2018 14:12
To: John Bowstead
Subject: RE: Fenland Education Campus

Hi John,

Further to our recent telephone conversation regarding the latest proposals, I make the following observations:

1. The use of pumps on an individual site is usually best avoided if at all possible and I do question the requirement for pumping.
2. The pump discharge rates are extremely low and two pumps discharging at 2.5 l/s would still not attract a development levy from my Board.
3. With no development levy payable it is unlikely that my Board would be prepared to take on the future maintenance of the receiving watercourse as previously discussed. With such a low discharge into the drainage network, I do not see any requirement for an increased level of maintenance for this receiving watercourse, which would remain in riparian ownership.
4. If in future the site was to be expanded then my Board could revisit the proposals regarding additional drain maintenance, if required.
5. It should be noted there is plenty of scope to lower drain levels to the site if adjoining land owners and occupiers are in agreement as bed levels in my Boards Still Drain to the north are approximately -0.30 ODN

Kind regards,
Paul

Paul Sharman | Chief Executive

North Level District Internal Drainage Board

Drainage Office, Station Road, Thorney, Peterborough, PE6 0QE

Tel 01733 270333 | Mobile 07730 309872 | Fax 01733 270231

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From: John Bowstead <j.bowstead@peterdann.com>
Sent: 07 December 2018 16:42
To: Paul Sharman <pds@northlevelidb.org>
Cc: Mark Dockerill <m.dockerill@peterdann.com>; Simon Morris <s.morris@peterdann.com>
Subject: RE: Fenland Education Campus

Hi Paul,

Further to our recent correspondence regarding the drainage strategy for the proposed Fenland Education Campus I have attached our preliminary proposal for the development. The scope for the development has reduced since we visited your offices and now includes:

- 60 place SEMH

- 4FE Secondary School & 4 FE Core facilities

Due to the two schools being operated by different sponsors the surface water drainage infrastructure has been separated.

- Sub-catchment 1 – Secondary School – 1.065ha (impermeable area)
- Sub-catchment 2 – SEMH – 0.782ha (impermeable area)

The principles for the surface water strategy for both catchments:

- External hard landscape areas to be constructed using permeable paving with a tanked voided sub-base.
- Access roads and car parking to be drained to filter drains (also tanked).
- Below ground attenuation with flow control restricted to green field run-off rate (1.4 l/s/ha).
- Discharge to the existing field drain on Gadds Lane. Due to site levels we have incorporated surface water pumping stations for both developments.

We have indicated on the plan a proposed maintenance strip which indicates the section of drain we would wish to offer for adoption to the North Level District IDB.

Please do not hesitate to call should you wish to discuss the above and we look forward to receiving your comments. We would be pleased to come to your offices to discuss our proposals.

Kind regards,

John

John Bowstead

Technical Director

j.bowstead@peterdann.com

01223 264688 | 07738 958 633

newton house | cambridge road | barton | cambridge | CB23 7WJ



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From: Paul Sharman <pds@northlevelidb.org>
Sent: 13 November 2018 15:53
To: John Bowstead <j.bowstead@peterdann.com>
Subject: RE: Fenland Education Campus

Hi John,

Apologies I missed that question re the maintenance strip.

For clarification I believe we need to take a few more levels because my understanding was to take the surface water in a northerly direction on the east side of Gadds Lane rather than along Barton Road. It would also be worth exploring any other potential routes from your site to the north into our Still Drain.

Should we subsequently agree on a route then I will need to take the proposals to the Board to adopt this additional length of watercourse, and seek other landowners approval as part of the process. Once we adopt a length of watercourse then our byelaws automatically apply to it and these byelaws give us the power to ensure we keep an clear access corridor adjacent to the watercourse.

I hope the above helps, if not please do not hesitate to call me.

Kind regards,
Paul

Paul Sharman | Chief Executive

North Level District Internal Drainage Board

Drainage Office, Station Road, Thorney, Peterborough, PE6 0QE

Tel 01733 270333 | Mobile 07730 309872 | Fax 01733 270231

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From: John Bowstead <j.bowstead@peterdann.com>

Sent: 13 November 2018 14:54

To: Paul Sharman <pds@northlevelidb.org>

Subject: FW: Fenland Education Campus

Good afternoon Paul,

Hope all is well, just wondering whether you have had an opportunity review our query below in our email of the 09th October 2018?

With regards to the adoption of the maintenance strip, our client is keen to pursue this arrangement with the North Level District Internal Drainage Board, it would be greatly appreciated if you could advise the steps that need to be taken to achieve this. We have currently assumed the maintenance strip will extend for our site boundary with Gadds Lane and then return along Barton Road up to the proposed highways junction with The Still?

Please do not hesitate to call should you wish to discuss the above.

Kind regards,

John

John Bowstead
Technical Director
j.bowstead@peterdann.com

01223 264688 | 07738 958 633

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Please consider the environment before printing this email

From: John Bowstead
Sent: 09 October 2018 13:10
To: 'Paul Sharman' <pds@northlevelidb.org>
Subject: RE: Fenland Education Campus

Good afternoon Paul,

Many thanks for the attached and your email below, I was wondering whether you have hydraulic data for the The Still Drain where it intersects Gadds Lane?

Kind regards,

John

From: Paul Sharman <pds@northlevelidb.org>
Sent: 05 October 2018 09:05
To: John Bowstead <j.bowstead@peterdann.com>
Subject: Fenland Education Campus

Good Morning John,

Apologies for the delay in following up from our meeting last week.

Please find attached site plan showing the Boards drains and direction of flow. I have marked the Max Design Water Level in our White Engine Drain at Nettle Bank of 0.00 ODN, although I should caveat that this level is exceeded at times as it is the design for land drainage outfalls based on a 12mm rainfall in 24 hours scenario. The 1 in 100 year plus climate change indicates a Max Design Water Level of +1.51m ODN at this point.

We also agreed that as your proposed discharge is at the very top end of the catchment that all surface water will need to be attenuated to greenfield run-off rate of 1.4l/s/Ha or as close to that figure as is practicable.

I can also confirm that I would be willing to put to my Board that we adopt the length of drain from our current White Engine Drain down to the site, to guarantee its future maintenance.

If you have any further questions, please do not hesitate to contact me.

Regards,
Paul

Paul Sharman | Chief Executive

North Level District Internal Drainage Board

Drainage Office, Station Road, Thorney, Peterborough, PE6 0QE

Tel 01733 270333 | Mobile 07730 309872 | Fax 01733 270231

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John Bowstead

From: Paul Sharman <pds@northlevelidb.org>
Sent: 05 October 2018 09:05
To: John Bowstead
Subject: Fenland Education Campus
Attachments: White Engine + Nettle Bank.pdf

Good Morning John,

Apologies for the delay in following up from our meeting last week.

Please find attached site plan showing the Boards drains and direction of flow. I have marked the Max Design Water Level in our White Engine Drain at Nettle Bank of 0.00 ODN, although I should caveat that this level is exceeded at times as it is the design for land drainage outfalls based on a 12mm rainfall in 24 hours scenario. The 1 in 100 year plus climate change indicates a Max Design Water Level of +1.51m ODN at this point.

We also agreed that as your proposed discharge is at the very top end of the catchment that all surface water will need to be attenuated to greenfield run-off rate of 1.4l/s/Ha or as close to that figure as is practicable.

I can also confirm that I would be willing to put to my Board that we adopt the length of drain from our current White Engine Drain down to the site, to guarantee its future maintenance.

If you have any further questions, please do not hesitate to contact me.

Regards,
Paul

Paul Sharman | Chief Executive

North Level District Internal Drainage Board

Drainage Office, Station Road, Thorney, Peterborough, PE6 0QE

Tel 01733 270333 | Mobile 07730 309872 | Fax 01733 270231

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John Bowstead

From: Hollowell, Mark <Mark.Hollowell@kier.co.uk>
Sent: 21 April 2022 07:34
To: John Bowstead; Simon Morris
Cc: Tommy Hodgson; KCE FenlandCampus
Subject: 10005223 - Fenland Education Campus – SW Drainage for LLFA (Condition 19)
Attachments: RE: 10005223 - Fenland Education Campus – SW Drainage for LLFA (Condition 19) - URGENT

Importance: High

John Bowstead / Simon Morris
Peter Dann

Dear John / Simon

10005223 - Fenland Education Campus – SW Drainage for LLFA (Condition 19)

Please see email below from Capita (Daniel Packman) on behalf of CCC LLFA team, the comments have now been addressed.

Can you please confirm, the pack of drawings issued in the attached email dated 14th April 2022, is this the full set of documents to be issued for Condition 19?

If you can come back **ASAP** we can get this Condition 19 issued to planning for Discharge

In the meantime should you have any queries please contact the team or me

Best regards

Mark



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Mark Hollowell
Bid Manager / Senior Design Manager

Kier Construction | Eastern & Midlands

T: 01223 205900
M: 07791570015
E: mark.hollowell@kier.co.uk

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CB25 9PD

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From: Hollowell, Mark
Sent: 21 April 2022 07:24
To: Packman, Daniel (Capita) <Daniel.Packman@capita.com>
Cc: Eden, Jamie (Capita) <Jamie.Eden@capita.com>; FR.Planning@cambridgeshire.gov.uk; KCE FenlandCampus

<KCEFenlandCampus@kier.co.uk>

Subject: RE: 10005223 - Fenland Education Campus – SW Drainage for LLFA (Condition 19) - URGENT

Daniel Packman / Harry Pickford
Capita / CCC

Dear Daniel / Harry

10005223 - Fenland Education Campus – SW Drainage for LLFA (Condition 19)

Daniel – Thank you for your email dated 20th April 2022, appreciate you coming back and all comments have now been addressed.

Harry – We will now issue the pack of drawings / documents over to our Planning Consultant and get these issued to Kirsty Carmichael CCC Planning Department, you should receive a notification from her, for the Condition 19 to be signed off, we look forward to this condition being discharged

In the meantime should you have any queries please contact the team or me

Best regards

Mark



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Mark Hollowell
Bid Manager / Senior Design Manager

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From: Packman, Daniel (Capita) <Daniel.Packman@capita.com>

Sent: 20 April 2022 16:18

To: Hollowell, Mark <Mark.Hollowell@kier.co.uk>

Cc: Eden, Jamie (Capita) <Jamie.Eden@capita.com>; FR.Planning@cambridgeshire.gov.uk; KCE FenlandCampus <KCEFenlandCampus@kier.co.uk>

Subject: RE: 10005223 - Fenland Education Campus – SW Drainage for LLFA (Condition 19) - URGENT

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Good afternoon Mark,

Thank you for sending across the revised information.

I have reviewed the most recent drawings and calculations provided and I believe our remaining comments have now been addressed.

Best regards,

Daniel

Daniel Packman

Capita Real Estate & Infrastructure

Capita (Real Estate & Infrastructure) Limited | Registered in England and Wales | Registration no 12475960
Registered office: 65 Gresham Street, London, England, EC2V 7NQ

CAPITA | Real estate and infrastructure

From: Hollowell, Mark <Mark.Hollowell@kier.co.uk>

Sent: 19 April 2022 07:21

To: Packman, Daniel (Capita) <Daniel.Packman@capita.com>

Cc: Eden, Jamie (Capita) <Jamie.Eden@capita.com>; FR.Planning@cambridgeshire.gov.uk; KCE FenlandCampus <KCEFenlandCampus@kier.co.uk>

Subject: FW: 10005223 - Fenland Education Campus – SW Drainage for LLFA (Condition 19) - URGENT

****EXTERNAL****

Daniel Packman / Harry Pickford
Capita / CCC

Dear Daniel / Harry

10005223 - Fenland Education Campus – SW Drainage for LLFA (Condition 19)

Further to your email dated 30th March & 7th April 2022, please see email dated 14th April 2022 from Peter Dann, please note the comments (in green) have been noted in your email dated 30th April 2022, we have also attached the drawings & documents updated to reflect.

Please confirm the outstanding comments meet with your approval, to allow us issue Planning Condition 19 to be signed off.

In the meantime should you have any queries please contact the team or me

Best regards

Mark



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Mark Hollowell

Bid Manager / Senior Design Manager

Kier Construction | Eastern & Midlands

T: 01223 205900

M: 07791570015

E: mark.hollowell@kier.co.uk

Building 3000, Cambridge Research Park, Waterbeach, Cambridge,
CB25 9PD

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Registered office: 2nd Floor, Optimum House, Clippers Quay, Salford, M50 3XP

From: John Bowstead <j.bowstead@peterdann.com>

Sent: 14 April 2022 16:59

To: Hollowell, Mark <Mark.Hollowell@kier.co.uk>; Simon Morris <s.morris@peterdann.com>

Cc: Tommy Hodgson <t.hodgson@peterdann.com>; KCE FenlandCampus <KCEFenlandCampus@kier.co.uk>

Subject: RE: 10005223 - Fenland Education Campus – SW Drainage for LLFA (Condition 19) - URGENT

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Good afternoon Mark,

Please see below our responses in green to the further comments raised by Capita, please also see attached the required updates to the drawings and calculations.

Kind regards,

John

John Bowstead

Technical Director

j.bowstead@peterdann.com

01223 264688 | 07738 958 633

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From: Packman, Daniel (Capita) <Daniel.Packman@capita.com>

Sent: 07 April 2022 15:14

To: Hollowell, Mark <Mark.Hollowell@kier.co.uk>

Cc: Eden, Jamie (Capita) <Jamie.Eden@capita.com>; FR.Planning@cambridgeshire.gov.uk;

harry.pickford@cambridgeshire.gov.uk; KCE FenlandCampus <KCEFenlandCampus@kier.co.uk>

Subject: RE: 10005223 - Fenland Education Campus – SW Drainage for LLFA (Condition 19)

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Good afternoon Mark,

In response to your email that has just come through please find below our last email to yourself dated 30th March.

Best regards,

Daniel

Daniel Packman

Capita Real Estate & Infrastructure

Capita (Real Estate & Infrastructure) Limited | Registered in England and Wales | Registration no 12475960
Registered office: 65 Gresham Street, London, England, EC2V 7NQ

CAPITA | Real estate and infrastructure

From: Packman, Daniel (Capita)
Sent: 30 March 2022 10:31
To: Hollowell, Mark <Mark.Hollowell@kier.co.uk>
Cc: Eden, Jamie (Capita) <Jamie.Eden@capita.com>; FR.Planning@cambridgeshire.gov.uk;
harry.pickford@cambridgeshire.gov.uk; KCE FenlandCampus <KCEFenlandCampus@kier.co.uk>
Subject: RE: 10005223 - Fenland Education Campus – SW Drainage for LLFA (Condition 19)

Good morning Mark,

Thank you for providing the additional information. We have reviewed the documents along with the previous ones and unfortunately the points previously raised still stand.

It is agreed that the lateral perforated pipes aren't required within the model but the nodes that they discharge to are required. As it stands within the example provided below in the model there is a single pipe with flows entering in an upstream node and discharging in a downstream node. Where as in the proposed design there are 4 nodes along the run as well as a junction. The hydraulic behaviour of these two situations is significantly different and thus can't be representative of each other. There are several locations across the site where this has occurred, typically in locations where the pipe IDs start to include several letter iterations within in the proposed design. **All manhole nodes have now been added to the model, pipe references have been adjusted suit.**

It is important that the proposed design and model align so the hydraulic performance is accurately modelled but also it allows for a direct comparison. At the moment it is difficult to verify the model against the design as the pipe labels differ too much. For example pipe 17.005 within the model has a pipe velocity of 0.09m/s, well below self-cleansing velocity, but 17.005 is not labelled within the proposed design so it is not possible to verify the situation. **All manhole nodes have now been added to the model, pipe references have been adjusted suit. Note previous reference S17.005 is now S17.008, this is a rising main and has a negative fall across it as it is rising from the pumping station to the "downstream" manhole.**

I hope the above is of use and if you have any questions please feel free to get in touch.

Best regards,

Daniel

Daniel Packman

Capita Real Estate & Infrastructure

Capita (Real Estate & Infrastructure) Limited | Registered in England and Wales | Registration no 12475960
Registered office: 65 Gresham Street, London, England, EC2V 7NQ

CAPITA | Real estate and infrastructure

From: Hollowell, Mark <Mark.Hollowell@kier.co.uk>
Sent: 29 March 2022 08:26
To: Packman, Daniel (Capita) <Daniel.Packman@capita.com>
Cc: Eden, Jamie (Capita) <Jamie.Eden@capita.com>; FR.Planning@cambridgeshire.gov.uk;
harry.pickford@cambridgeshire.gov.uk; KCE FenlandCampus <KCEFenlandCampus@kier.co.uk>
Subject: RE: 10005223 - Fenland Education Campus – SW Drainage for LLFA (Condition 19)
Importance: High

****EXTERNAL****

Daniel Packman / Harry Pickford
Capita / CCC

Dear Daniel / Harry
10005223 - Fenland Education Campus – SW Drainage for LLFA (Condition 19)

Further to email dated 22nd March 2022, please see comments noted below in your email dated 22nd March 2022 relating to items 1 / 2 / 4, & attachments included

If you could please look at the attached information and get back to us ASAP, we would like to get this agreed with yourselves, then make the required application for the discharge of the condition 19 detailed within the approval notice CCC/21/215/FUL

In the meantime should you have any queries please contact the team or me

Best regards

Mark



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Mark Hollowell
Bid Manager / Senior Design Manager

Kier Construction | Eastern & Midlands

T: 01223 205900
M: 07791570015
E: mark.hollowell@kier.co.uk

Building 3000, Cambridge Research Park, Waterbeach, Cambridge,
CB25 9PD

I will next be on leave on:

Kier Construction Limited | Registered in England No. 2099533
Registered office: 2nd Floor, Optimum House, Clippers Quay, Salford, M50 3XP

From: Packman, Daniel (Capita) <Daniel.Packman@capita.com>
Sent: 22 March 2022 10:11
To: Hollowell, Mark <Mark.Hollowell@kier.co.uk>
Cc: Eden, Jamie (Capita) <Jamie.Eden@capita.com>; FR.Planning@cambridgeshire.gov.uk;
harry.pickford@cambridgeshire.gov.uk
Subject: 10005223 - Fenland Education Campus – SW Drainage for LLFA (Condition 19)

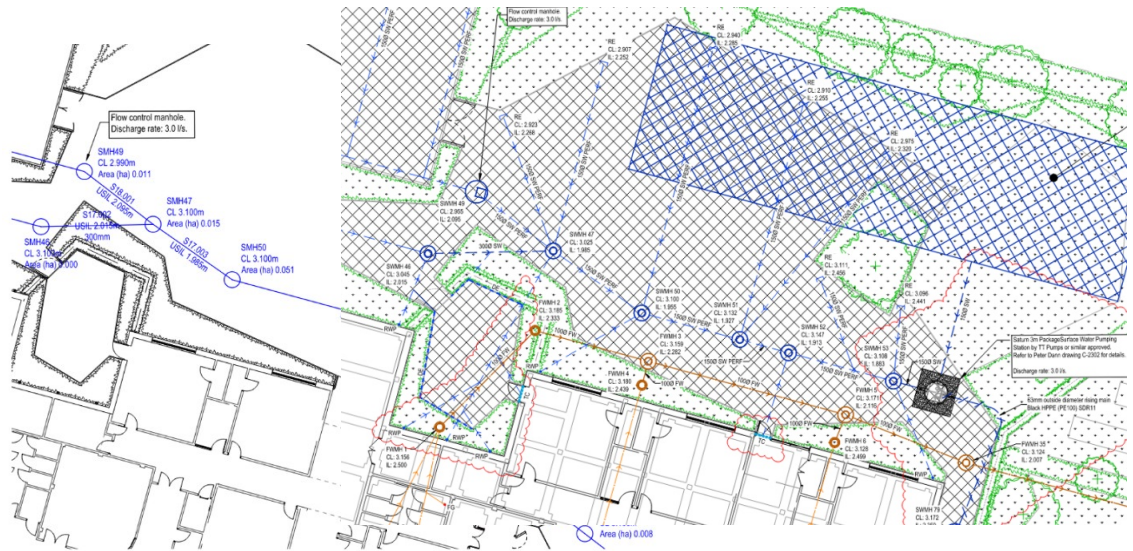
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Good afternoon Mark,

Thank you for passing on the comments from Peter Dan. To prevent things getting messy below I have numbered the comments from Peter Dan and have provided my responses directly in this email.

- 1) Our previous comment wasn't specifically referencing the filter drains and it understood that their exclusion wouldn't have a significant impact on the hydraulic characteristics of the site. The comment was more directed at some of the primary pipe runs having differences that would create different scenarios between the modelled and the proposed. Below are two screenshots of one example:

KCE 29.03.22 – Peter Dann Comment - The example screenshot highlights secondary perforated pipes with rodding eyes and secondary runs from threshold channels and the associated manholes that have not been included in the Micro-Drainage model which is also the case in a couple of situations on the site/model. These runs and manholes have not been modelled in Micro-Drainage as they are not primary runs and will not have a significant impact on the hydraulic performance of the system. If there are primary elements of the system that you believe are not modelled please can you highlight.



- 2) The screenshot below indicates Cambridgeshire's requirements for pipe labels:

KCE 29.03.22 – Peter Dann Comment - Updated drawings attached with additional labelling.

5.13 Detailed Drainage Layout Plan

- 5.13.1 A detailed drainage layout plan should be fully labelled and show details (e.g. pipe numbers, gra diameters, locations and manhole details) of every element of the proposed drainage system (in SuDS and pipes).

- 3) We have reviewed the provided drawings and agree that this comment has been resolved.
- 4) Multiple pipes are below 0.75m/s, it appears that some of these pipes are located within SuDS features and so this would be expected but several pipes are located along major runs. From the MicroDrainage calculations it appears that several pipe runs are below minimum gradient.

KCE 29.03.22 – Peter Dann Comment - Having reviewed the model/calculations we cannot find any pipes that are below 0.75m/s other than those located within SUDs features, please advise otherwise.

- 5) Tank has been updated within MicroDrainage model to match proposed layout and so this comment has been resolved.
- 6) Agreed, this comment is considered resolved.

If you have any further queries please get in contact.

Best regards,

Daniel

From: Hollowell, Mark <Mark.Hollowell@kier.co.uk>

Sent: 21 March 2022 08:11

To: Packman, Daniel (Capita) <Daniel.Packman@capita.com>

Cc: Eden, Jamie (Capita) <Jamie.Eden@capita.com>; harry.pickford@cambridgeshire.gov.uk;

****EXTERNAL****

Daniel Packman
Capita

Dear Daniel

10005223 - Fenland Education Campus – SW Drainage for LLFA (Condition 19)

Further your email dated 10th March 2022, please see below comment from our consultant Peter Dann, on the queries raised by yourselves:-

1. *The DrawNet model and proposed drainage drawings are now more aligned but there are still discrepancies that would affect the hydraulic performance of the surface water network. The DrawNet model does not contain the same number of manholes as shown in the drawing meaning runoff enters the system in different locations in the model to the real world situation. This is important as flows entering a manhole from two different upstream pipe runs on a junction will behave differently to the same quantity of water entering from a single upstream pipe run;*

KCEM 21.03.22 – Peter Dann Comments: We have attached mark-ups which indicate those pipe runs that have been omitted from the micro-drainage model, these are secondary drainage runs (filter drains), the drained areas have been included within the catchment of the connecting primary manhole. This adequately represent the real world situation and will not be to the detriment of the system.

2. *Pipe labels have been added to the drawing but the labels do not contain the pipe IDs or gradients;*

KCEM 21.03.22 – Peter Dann Comments: We assume pipe IDs you are referring to Micro-drainage model references – as standard we would not show this on the detailed drawings. At the construction phase the contractor will establish pipe gradients from manhole invert levels etc.....

3. *The report states that the SW network has been designed to allow for no surcharging in the 1 in 1 year storm event but the calculations provided indicate that surcharging does occur in the 1 in 1 year storm event;*

KCEM 21.03.22 – Peter Dann Comments: Updated drawings and calculations have been attached. Extracts from the drawings have also been attached which show the 3no. pipes within the system that still surcharge for 1 in 1 year event, given their function within the system and the level of surcharge we believe this acceptable.

4. *Several pipes are below self-cleansing velocities;*

KCEM 21.03.22 – Peter Dann Comments: A self-cleansing velocity of 0.75 m/s which accords with BS EN 16933-2:2017 Drain and sewer systems outside buildings – Design. We have adopted this minimum value to keep the drainage system as high as reasonably possible due to the high water table on the site.

5. *There are significant differences between the parameters of STank02 in the calcs and what is shown in the drainage strategy drawing;*

STank02	MicroDrainage	Drainage drawing
IL	1.970	1.575
Plan Area	676m2	340m2
Depth	0.4m	0.8m

6. *Half drain down times are still in excess of 24 hours. The report provides calculations indicating that if the volume within all the pipes, manholes and tanks were to be totalled up then there is sufficient capacity to contain the 1 in 100 year+CC and a subsequent 1 in 10 year event. This approach assumes that the capacity is readily available across the entire network, which may not be the case due to hydraulic restrictions during surcharged conditions. Due to the drain down time of STank02 being 2400mins a significant portion of the lower network would be inundated and unable to accept additional runoff while the network upstream of the SW pumping station would be empty but inaccessible.*

KCEM 21.03.22 – Peter Dann Comments: The extract below is taken from the CCC Surface Water Planning Guidance which confirms that the discharge from full to half full should be within a reasonable time (24 hours for anything up to 1% AEP event). An allowance for climate change is not required. Our 1 in 100year calculations satisfies this criteria.

- Discharge from full to half full should be within a reasonable time (24 hours for anything up to the 1% AEP event) so the risk of it not being able to manage a subsequent rainfall event is minimised. Where it is not possible to achieve a half drain time of 24 hours, it must be demonstrated that the system has capacity to accommodate an immediate and subsequent 10% AEP (1 in 10 year) rainfall event

If you could please look at the attached information and get back to us ASAP, as we would like to get this agreed with yourselves, then make the required application for the discharge of the condition 19 detailed within the approval notice CCC/21/215/FUL

In the meantime should you have any queries please contact the team or me

Best regards

Mark



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Mark Hollowell
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I will next be on leave on:

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From: Packman, Daniel (Capita) <Daniel.Packman@capita.com>

Sent: 10 March 2022 10:01

To: Hollowell, Mark <Mark.Hollowell@kier.co.uk>

Cc: Eden, Jamie (Capita) <Jamie.Eden@capita.com>; harry.pickford@cambridgeshire.gov.uk;
FR.Planning@cambridgeshire.gov.uk

Subject: 10005223 - Fenland Education Campus – SW Drainage for LLFA (Condition 19)

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Good afternoon Mark,

Following on from the revised drainage information provided on 11th February 2022 we have reviewed the updated information and have the following comments:

7. The DrawNet model and proposed drainage drawings are now more aligned but there are still discrepancies that would affect the hydraulic performance of the surface water network. The DrawNet model does not contain the same number of manholes as shown in the drawing meaning runoff enters the system in different locations in the model to the real world situation. This is important as flows entering a manhole from two different upstream pipe runs on a junction will behave differently to the same quantity of water entering from a single upstream pipe run;
8. Pipe labels have been added to the drawing but the labels do not contain the pipe IDs or gradients;
9. The report states that the SW network has been designed to allow for no surcharging in the 1 in 1 year storm event but the calculations provided indicate that surcharging does occur in the 1 in 1 year storm event;
10. Several pipes are below self-cleansing velocities;
11. There are significant differences between the parameters of STank02 in the calcs and what is shown in the drainage strategy drawing;

STank02	MicroDrainage	Drainage drawing
IL	1.970	1.575
Plan Area	676m2	340m2
Depth	0.4m	0.8m

12. Half drain down times are still in excess of 24 hours. The report provides calculations indicating that if the volume within all the pipes, manholes and tanks were to be totalled up then there is sufficient capacity to contain the 1 in 100 year+CC and a subsequent 1 in 10 year event. This approach assumes that the capacity is readily available across the entire network, which may not be the case due to hydraulic restrictions during surcharged conditions. Due to the drain down time of STank02 being 2400mins a significant portion of the lower network would be inundated and unable to accept additional runoff while the network upstream of the SW pumping station would be empty but inaccessible.

For further information on the requirements for discharge of conditions applications relating to drainage please refer to the Cambridgeshire County Council Surface Water Planning Guidance, which can found here:

<https://www.cambridgeshire.gov.uk/asset-library/Surface-Water-Planning-Guidance-June-2021.pdf>

If you have any questions related to the above comments or would like to discuss things further please feel free to get in contact.

Best regards,

Daniel

Daniel Packman

Capita Real Estate & Infrastructure

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