

Flood Risk Assessment

Land Adjacent to 84 Roman Bank, Long Sutton, Spalding, PE12 9LB



Figure 1 – Location of Land adjacent to 84 Roman Bank, Long Sutton.

Introduction

The development site is a patch of undeveloped land located adjacent to 84 Roman Bank, Long Sutton, Spalding, PE12 9LB. The site is set back from the footpath by approximately a meter in order to create a visibility splay that complies with highway regulations. It is currently bounded by mature conifer hedging approximately 1.8 meters high, this hedging is to be removed entirely to allow the proposal to proceed.

Currently the site is undeveloped land which forms an extension to the front garden of 84 Roman Bank, and overshadows the allotment on 2 Woad Lane. Between 84 Roman bank and the proposed site is a gravel access road that services the rear gardens and parking land for the properties on the South side of Woad Lane. The site covers an area of 0.04 acres (approximately 150 square meters)

The site sits within Flood Zone C (as identified on the Environment Agency Flood Map) – grid reference TF 43751 23115 (Six Figure reference TF437231).

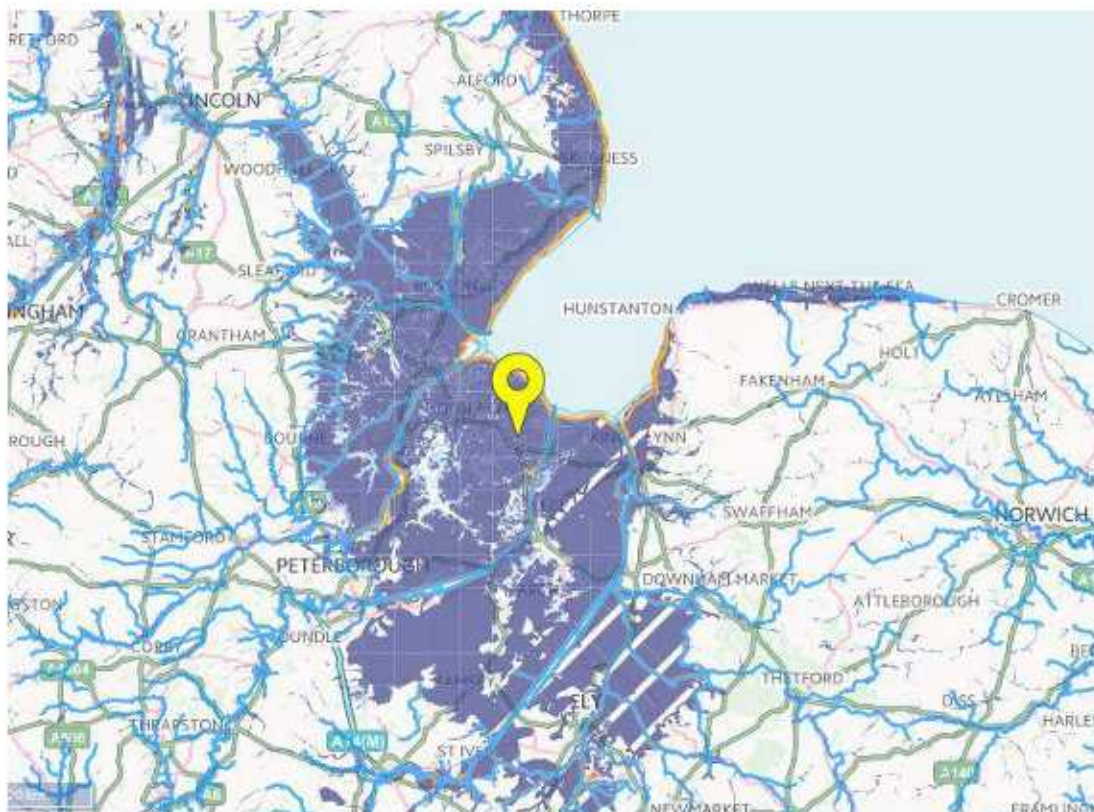
Proposed Site Information

There are no existing floor levels, however the topography of the site is slightly higher than that, of 84 Roman Bank. As a result, the house is proposed to be 150mm (two brick courses) above the current ground level. It is understood that the surrounding roadway – which is approximately 100mm lower than the site – sits approximately 4.6m AOD as shown on the Location plan (part of drawing number: MF18/012/101).

Excess surface water which would have fallen onto the undeveloped plot of land is now proposed to be disposed of using a soakaway in the small rear garden/parking area. By controlling the release of the surface water, it will help mitigate the impact caused through developing site. Refraining from using hard landscaping materials, and maximising the amount of vegetation and using gravel for parking areas, will allow surface water and rainfall to percolate through the ground preventing water from settling on the surface.

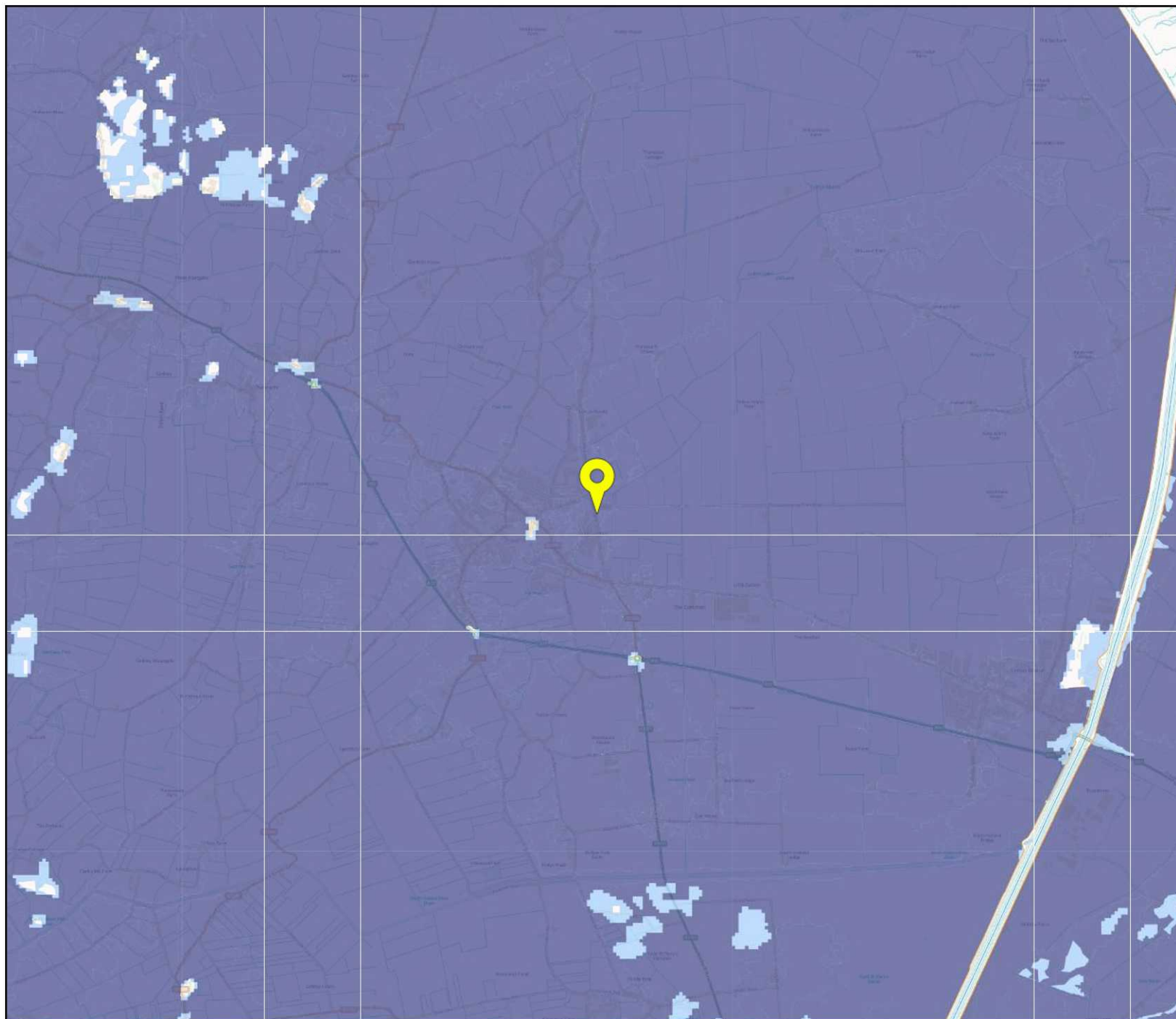
A three bedroomed house in Long Sutton Would be expected to have a lifespan of a minimum of 50 years, as shown by the other houses in the area being 30 years already with minimal changes from their original appearance. Many houses in the area have decreased the risks of flooding through being above the ground level. This is commonly a minimum of 150mm, which correlates to 2 brick courses. The houses have very little hard landscaping, which helps prevent surface water from ponding and decreasing the flood risk.

The flood map below illustrates the extent of the flood risk zone surrounding The Wash. Showing that the zone extends significantly into the East Midlands Area. Any development within this area would be at risk of severe flooding.



Flood Risk Assessment:

Land Adjacent to 84 Roman Bank, Long Sutton, Spalding, PE12 9LB



Flood map for planning

Your reference
woad lane

Location (easting/northing)
543774/323061

Scale
1:50000

Created
17 Jun 2019 9:02

-  Selected point
-  Flood zone 3
-  Flood zone 3: areas benefiting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Flood storage area

0 500 1000 1500m

Tidal Breaching Hazard Mapping

As shown on the Northern Area Tidal Hazard Map, the closest modelled breach locations would be along the River Trent, in two locations around Sutton Bridge, and towards the Wash at Gedney Drove end. There are a number of weak points which have been modelled along the River Nene, however these would have little to no effect and would require at least a 1 in 1000 year flood to occur

The 1 in 200 2006 flood level scenario shows that the proposed location is not within a hazard location, shown by the max hazard key, as no area has been coloured. The site is not recorded on the max depth or the max velocity level. The 1 in 1000 flood level scenario in 2006 also shows that the site is not within a hazard zone as per the tidal breaching hazard map. Therefore, the max depth and max velocity is not recorded on this map. However, in the 1 in 1000 2006 scenario the risk of flooding is greatly increased showing that there is minor flooding within 50m of the proposed site.

Shown on the 1 in 200 2115 flood level scenario, the calculated max depth is shown as a maximum of 0.25m (shown in yellow) with the surrounding areas being shown in orange and red – denoting a higher maximum flood level depth – reinforcing the idea that the proposed site is at a higher level than the surrounding houses. The majority of the surrounding area has a low max velocity, <0.3m/s. The location has a very low maximum velocity as it sits on the edge of the yellow hatched area, meaning that it is likely that there would be little to no flow over the site. These two factors combined demonstrates that occupants of the land are at a low/no hazard risk if flood defences are breached.

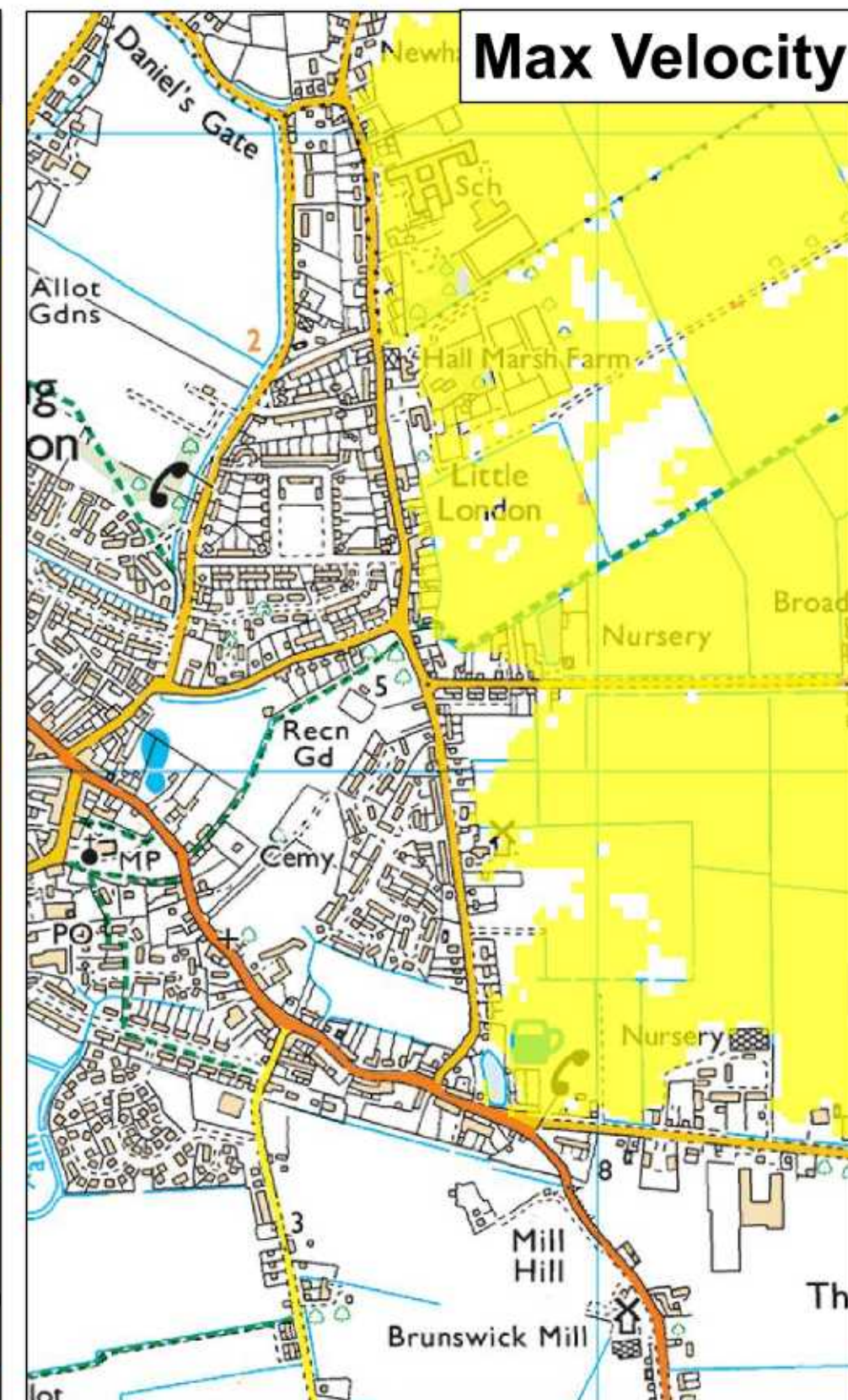
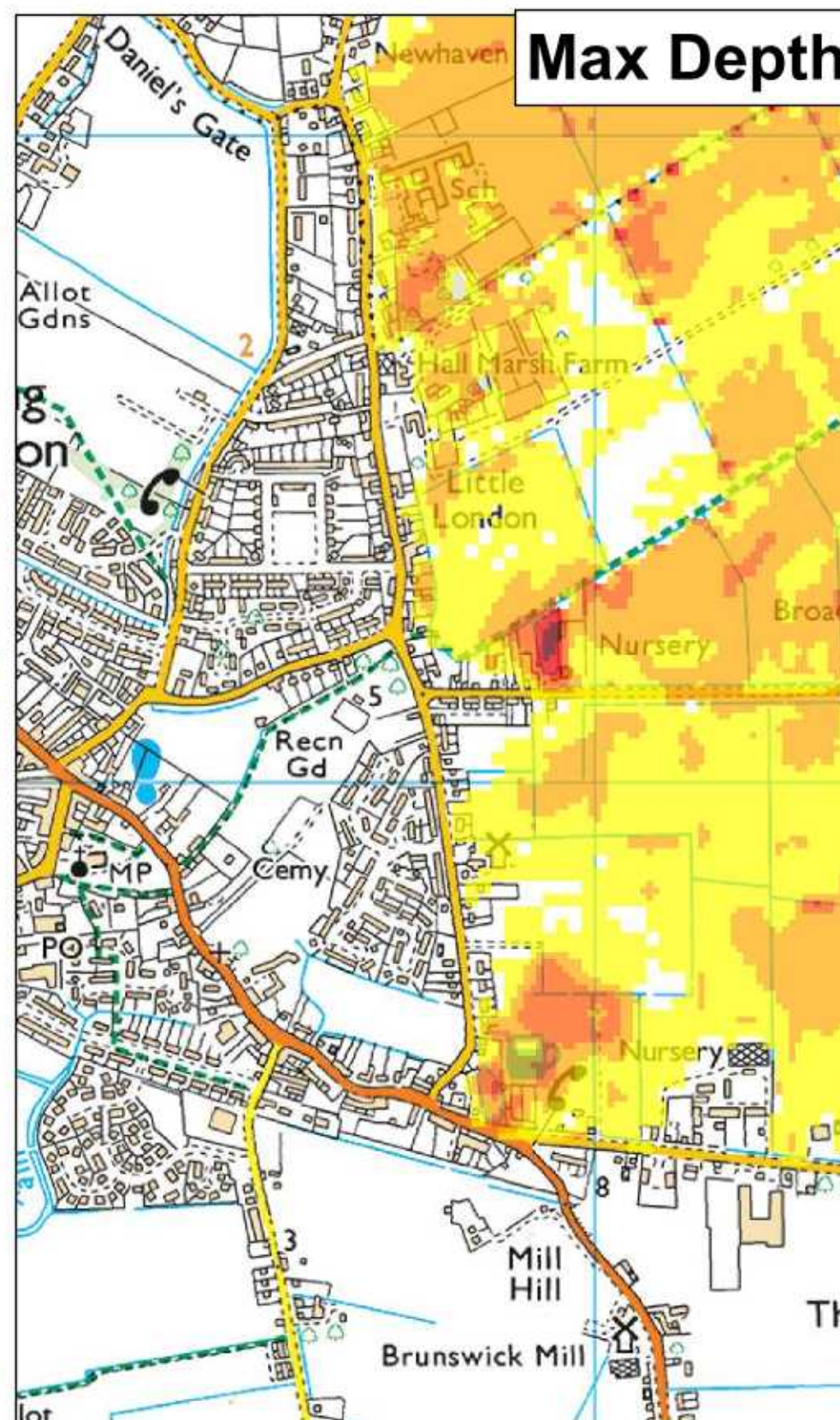
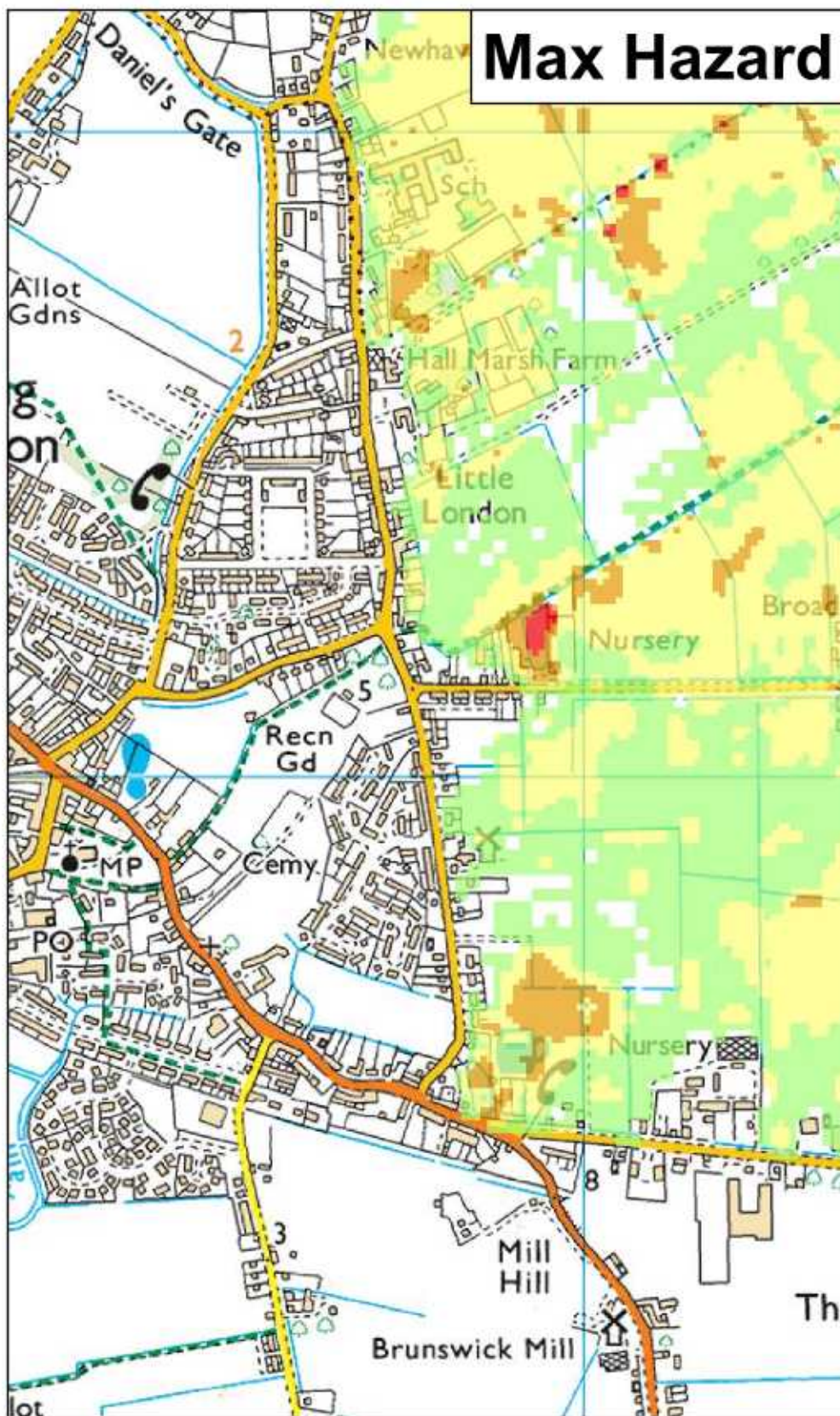
The 1 in 1000 2115 flood level scenario shows a significantly increased risk to Roman bank and the surrounding area as a whole, with the main road running through the area having a significantly lower hazard risk for people, as it is on a higher level than the houses which line it. The land adjacent to 84 Roman Bank again shows a low max depth of 0.3m or less, a very low or no velocity across the land and therefore giving it a low hazard risk.

Nearby Water Hazards

The closest water hazard to the proposed location is a small lake (with an approximate area of 0.9km²) which for the majority of the year remains almost empty, however during the winter months this collects excess runoff from the field drains. This hazard is approximately 200m from the location as the crow flies.

There are a number of other field drains/streams that run around and through Long Sutton, however these are far enough away from the site (more than 500m) that they should not cause issues to the site.

The closest main river is the River Nene which runs parallel to Sutton Bridge. As the crow flies, the closest point of the river is over 5 kilometers from the proposed site. The closest tidal location to the site is The Wash National Nature Reserve, this is approximately 8km away which in both flooding scenarios shown above, is the leading factor for any flood risk that is calculated.



★ 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)			
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 +			
Date Printed	November 2018	Scenario year	2006	Scenario Annual Chance	0.5% (1 in 200)	CCN Number	CCN-2018-106914

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.

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.

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.

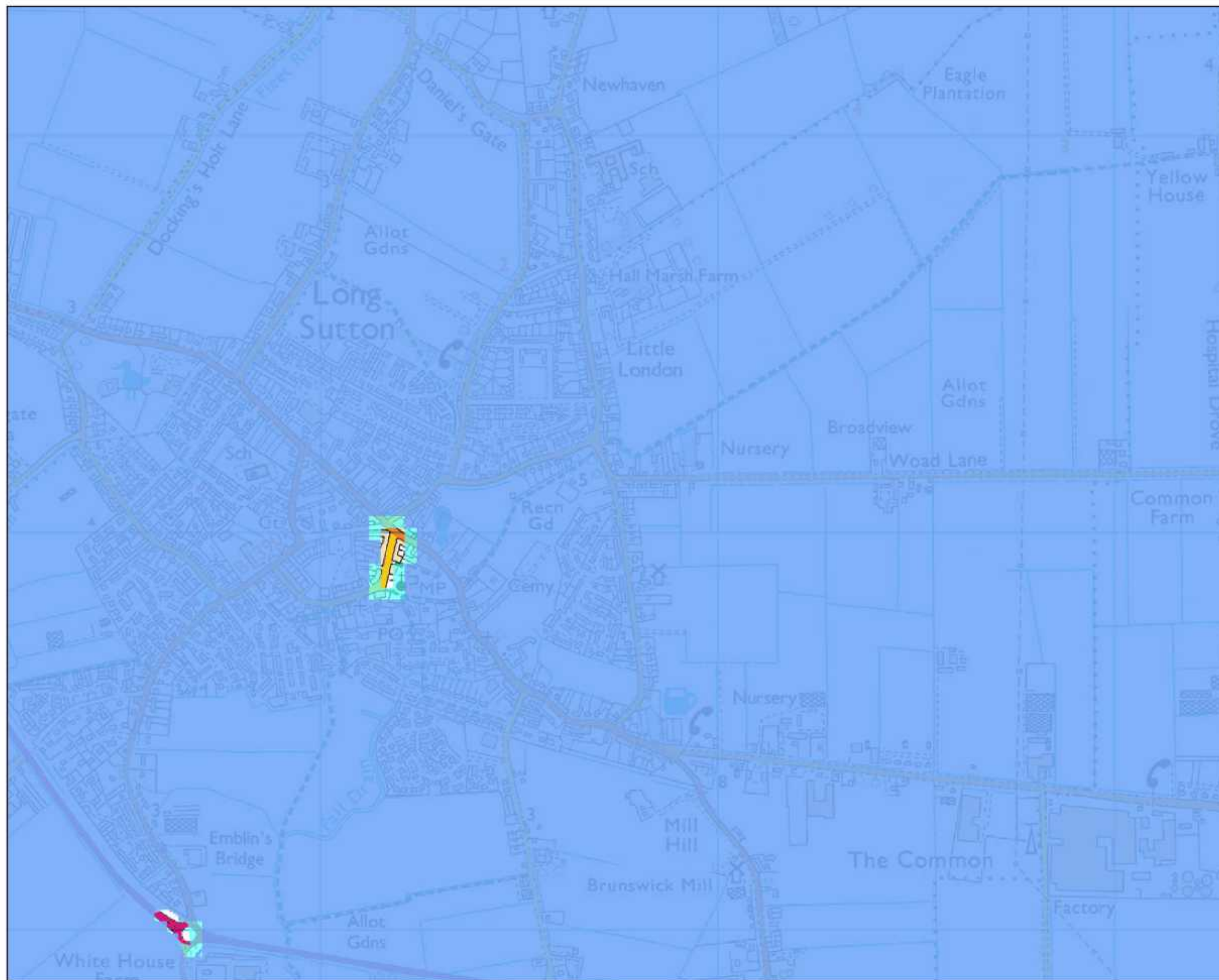


Lincolnshire and Northamptonshire Tidal Breaching Hazard Mapping

Map Centred on TF 43758 23096

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Flood Map centred on TF 43758 23096 - created November 2018 [Ref: CCN-2018-106914]



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



^ Modelled Breach Locations

0 3.5 7 14 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 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: 03706 506 506.

Weekday daytime calls cost 5p plus up to 6ppm from BT Weekend Unlimited. Mobile and other providers charges may vary



Produced by the Partnership and Strategic Overview Team, Lincoln
General Enquiries No: 03706 506 506

Northern Area Tidal Hazard Mapping

Location of Modelled Breaches

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Recent Notable Flooding Events

One of the most notable recent severe flooding events was in 1953 where a large amount of land surrounding the wash was flooded due to 'an unusually high spring tide coupled with a severe wind and North Sea tidal surge'. A number of small villages surrounding the wash were evacuated with some having suffered severe flooding, at the highest of predicted levels. A large area of Huttoft was under water, including the main A52 road – cutting off the adjacent houses from rescue for many hours. However, the raised Roman Bank helped protect a large majority of Long Sutton and small Western villages, limiting the flood levels and damaged caused.

Summary

The proposed site sits on an area of land higher than the surrounding properties thanks to being situated on the historic roman bank. The increased elevation significantly decreases the overall threat of flooding, with the maximum flood risk in a number of scenarios being low to none. Any flooding that may occur would be easily controlled in comparison to other properties because of the topography of the site. Utilising soft landscaping solutions and controlling the surface water rate of discharge will help to mitigate the impact of developing the site.

Tidal Level Location Map

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	~