

FLOOD RISK ASSESSMENT

Proposed Vehicle/Machinery Storage Area
Cliftons Bridge,
Fishergate,
Sutton St James,
PE12 0EZ.

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FLOOD RISK ASSESSMENT PROPOSED VEHICLE/MACHINERY STORAGE AREA. CLIFTONS BRIDGE, FISHERGATE, SUTTON ST JAMES, PE12 0EZ.

INTRODUCTION

The Government has placed increasing priority on the need to take full account of the risk associated with flooding at all stages of the planning and development process. This seeks to reduce the future damage to property and the risk to life from incidents of flooding. Their expectations relating to flooding are contained in the National Planning Policy Framework Dec 2023, (NPPF), which identifies how the issue of flooding is dealt with in the drafting of planning policy and the consideration of planning applications by avoiding inappropriate development in areas at risk from flooding and to direct development away from areas at highest risk.

The NPPF provides that development in areas at risk of flooding should be avoided and seeks to direct development away from areas at highest risk. There is a sequential, risk-based approach to the location of development avoiding where possible, flood risk to people and property managing any residual risk and taking account of the impacts of climate change.

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APPLICATION SITE

The site is located at Horizon Agriculture, Cliftons Bridge, Fishergate, Sutton St James, PE12 0EZ, within the South Holland District Council's administrative area. The National Grid Reference is TF 38301 18787, and the site area is 0.408 Hectares. **Plan 1**

This flood risk assessment has been prepared for a planning application for a change of use to form a level hard-standing area for the relocation of vehicle/machinery storage yard to support the existing agricultural business. It is proposed that the site is stripped of topsoil, which will form the 2.0m high bund on the southwestern boundary to form the biodiversity area as shown on the layout plan and replaced with a layer of 300mm deep hard core forming the vehicle storage area. The storage area surface will remain close to the existing ground level. **Plans 2 & 3**

The National Planning Policy Framework Guidance NPPG defines three levels of flood risk depending upon the annual probability of fluvial flooding occurring.

Zone 1 – Low Probability (<0.1%)

Zone 2 – Medium Probability (0.1 – 1.0%)

Zone 3 – High Probability (>1.0%)

The proposed development site is shown mainly to be within Flood Zone 3 “High Probability” as detailed on the Environment Agency’s Flood Zone Maps **without defences**, and as defined in Table 1 of NPPG.

Table 1: Flood Zones Definition

Flood Zone 3- High Probability
Definition Land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. The water-compatible and less vulnerable uses of land are appropriate in this zone. The highly vulnerable uses should not be permitted in this zone. The more vulnerable and essential infrastructure uses should only be permitted in this zone if the Exception Test is passed. Essential Infrastructure permitted in this zone should be designed and constructed to remain operational and safe for uses in times of flood. Flood Risk Assessments requirements All proposals in this zone should be accompanied by a Flood Risk Assessment. Policy aims. Developers and local authorities should seek opportunities to: • reduce the overall level of flood risk in the area through the layout and form of the development and the appropriate application of sustainable drainage techniques. • relocate existing development to land with a lower probability of flooding. • create space for flooding to occur by allocating and safeguarding open space for flood storage.

Applying the Flood Risk Vulnerability Classification in Table 2 of NPPG, the proposed storage area is classified as “Less Vulnerable,” Table 1 of NPPG states that such uses are permitted in this zone.

Table 2: Flood Risk Vulnerability Classification

Less Vulnerable
• Police ambulance and fire stations that are not required to be operational during flooding. • Buildings used for shops, financial, professional, and other services, restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non-residential institutions not included in “more vulnerable” and assembly and leisure. • Land and buildings used for agricultural and forestry. • Waste treatment (except land fill and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment works that do not need to remain operational during times of flood. • Sewage treatment works (if adequate measures to control pollution and manage sewage during flood events are in place).

Site Levels

From the topographical survey the site is reasonably level, the ground levels vary from 2.55mODN to 2.30mODN with a low area around 2.0mODN The road level at the site entrance, is higher at 2.98mODN. **Plan 4**

DRAINAGE AUTHORITIES

Environment Agency

The Environment Agency has permissive powers for reducing the risk of flooding from designated main rivers and from the sea.

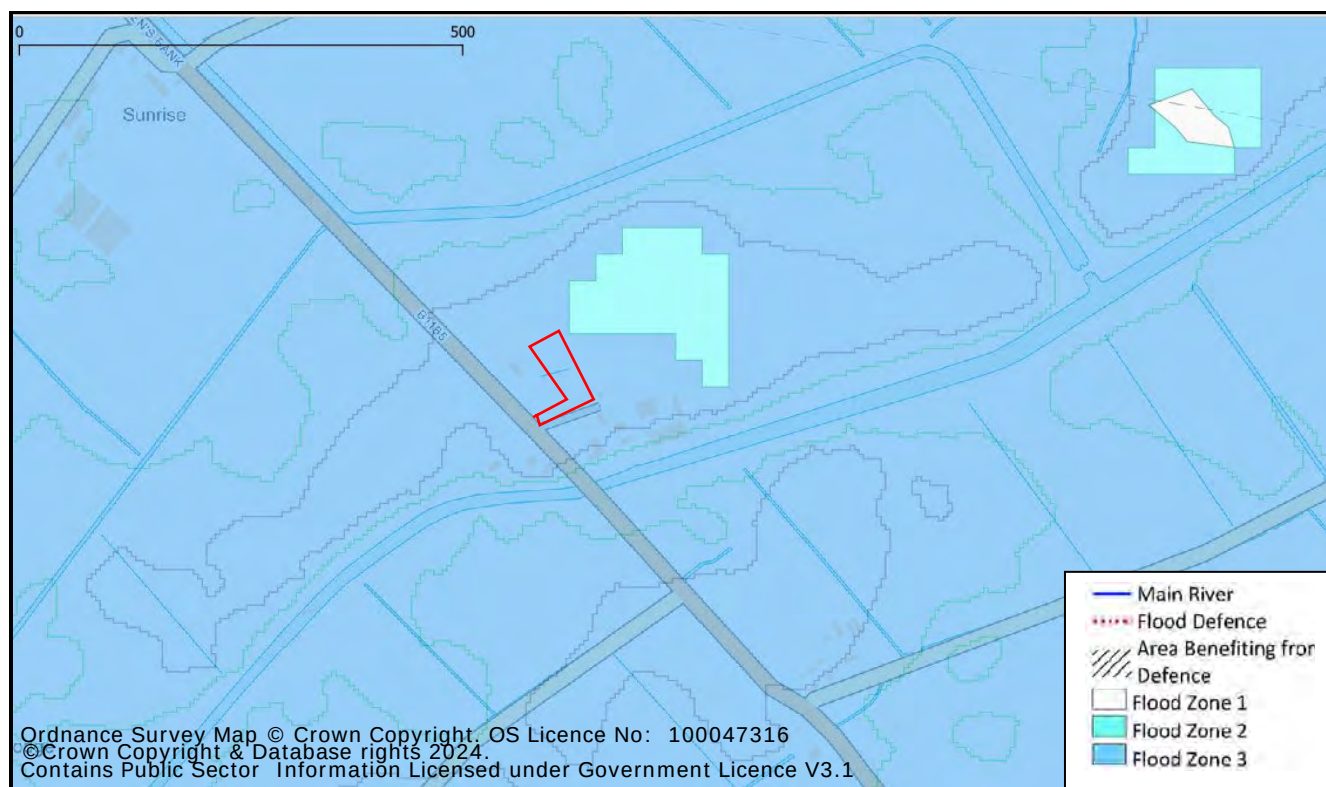
The following potential sources of flooding affecting the development site have been identified as:

The following potential sources of flooding affecting the development site have been identified as:

- the River Nene (Tidal)
- The Wash (Tidal)
- South Holland Internal Drainage Board system

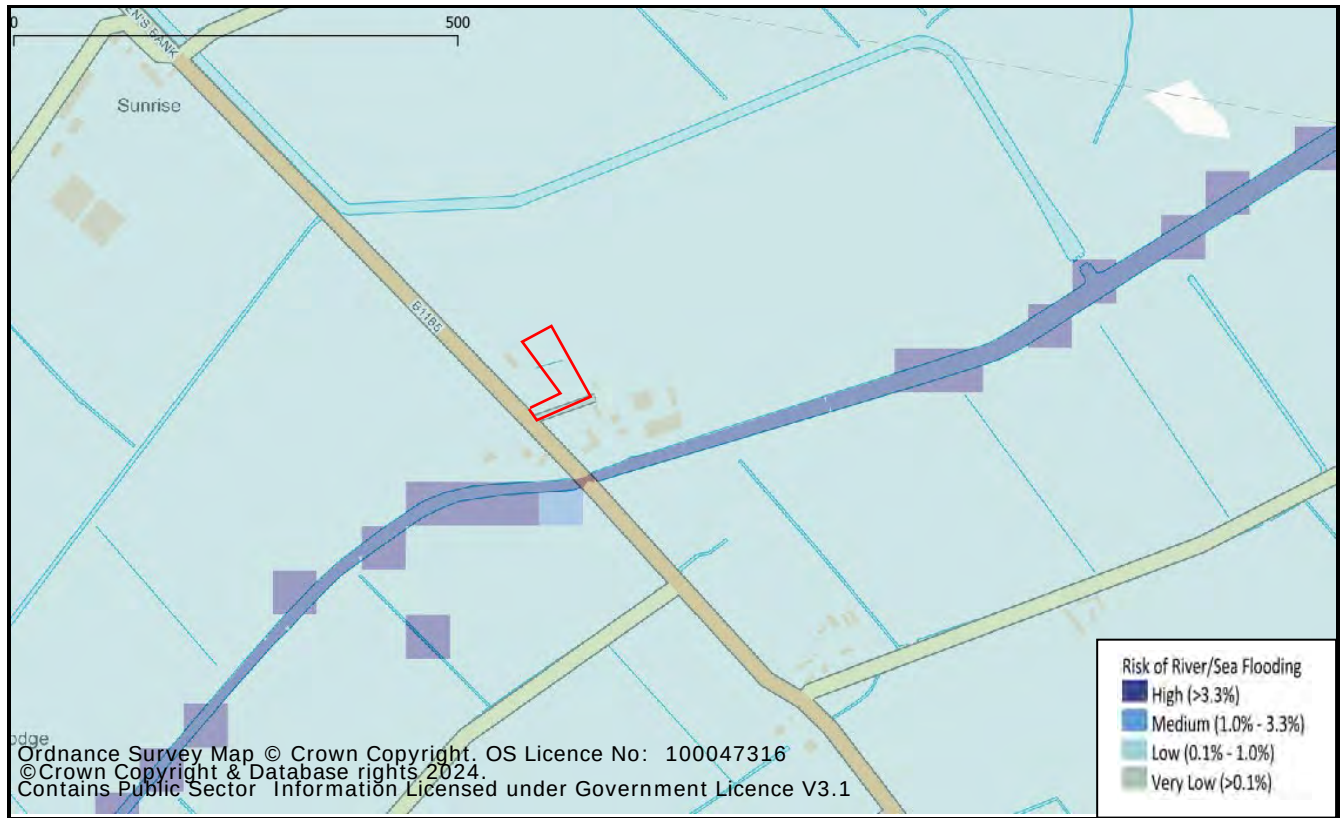
The flood zone maps indicate that the area would be flooded without flood defences.). The Flood Map indicates the area at risk of flooding, **assuming no flood defences exist**, for a flood event with a 0.5% chance of occurring in any year for flooding from the sea, or a 1% chance of occurring for fluvial (river) flooding. It also shows the extent of the Extreme Flood Outline which represents the extent of a flood event 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 there are many kilometres of raised flood defences. To meet the requirements of the National Planning Policy Framework, these defences are removed in their entirety to produce the Flood Map for Planning (Rivers and Sea). The map therefore shows the full extent of areas that would be at risk of flooding if no defences existed, and water could spread out across the floodplain.

Flood Zones



Flood Map for Planning (Source EA)

These maps show that the site is considered at risk from tidal/fluviat flooding as it is all located within an area zoned as Flood Zone 3a. The maps indicate that the area would be flooded, without flood defences, which are in place, (with an annual probability of more than 0.5% i.e., return frequency of less than 1 in 200 years for tidal flooding or more than 1.33% return frequency of less than 1 in 100 years for fluviat flooding).



Risk of Flooding from Rivers & Sea Map (Source EA)

The Risk of flooding from Rivers and Sea map shows the site for the development, to be at Low Risk. Low means that each year, this area has a chance of flooding between 0.1% and 1.0%. This takes into account the effect of any flood defences that may be in this area. Flood defences reduce, but do not completely stop the chance of flooding as they can be overtopped or fail.

Fluvial Flooding

There are no fluvial Main Rivers in the close vicinity of the site, maintained by the Environment Agency, which could be potential sources of flooding affecting the development site

The Wash Tidal Defences

The Wash is located some 15Km northeast of the site. The tidal defences protecting this site consist of earth embankments, the crest heights are circa 7.00mODN. They are in good condition and reduce the risk of flooding (at the defence) to a 0.67% (1 in 150) chance of occurring in any year. The Environment Agency inspect these defences routinely to ensure potential defects are identified.

The River Nene Tidal Defences

The River Nene is located some 9.0 Km southeast of the site. The existing tidal defences protecting this site consist of earth embankments which are supplemented by saltmarsh to maintain foreshore levels.

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

Breach Analysis to the Tidal Defences

From Lincolnshire & Northamptonshire Area Tidal Modal Analysis, levels for East Coast and Wash: Immingham to the West Lighthouse have an assessment date of 2017, which should be used in any consideration of future increases due to climate change. **Map 1**

Peak tide levels (2017) for the 1 in 200-year 50% confidence bound tide level is 5.82mODN at West Lighthouse and 5.78 at Wisbech.

Peak tide levels (2124) tide level a is 5.82mODN plus Higher Central climate change of 1025mm would be 6.85mODN at West Lighthouse and 6.81mODN at Wisbech.

Taking the precautionary approach, the Hazard Rating following a breach which in Flood Risk Assessment (FD 2320) Guidance for New Development Phase 2 R & D Technical Report these are classified as low <0.75, moderate 0.75-1.25, significant 1.25-2.50 and extreme >2.50 based upon an empirical measure of velocity and depth.

Flood Hazard			Description
	<0.75	Low	Caution – Flood Zone with shallow flowing water or deep standing water.
	0.75 – 1.25	Moderate	Danger for Some - (i.e. children) Danger Flood Zone with deep or fast flowing water.
	1.25 – 2.0	Significant	Danger for Most – Danger Flood Zone with deep fast flowing water.
	>2.0	Extreme	Danger for All – Extreme Danger Flood Zone with deep fast flowing water.

$$HR = d \times (v + 0.5) + DF$$

Where V = Flood flow velocity (m/sec)

D = Flood depth (m)

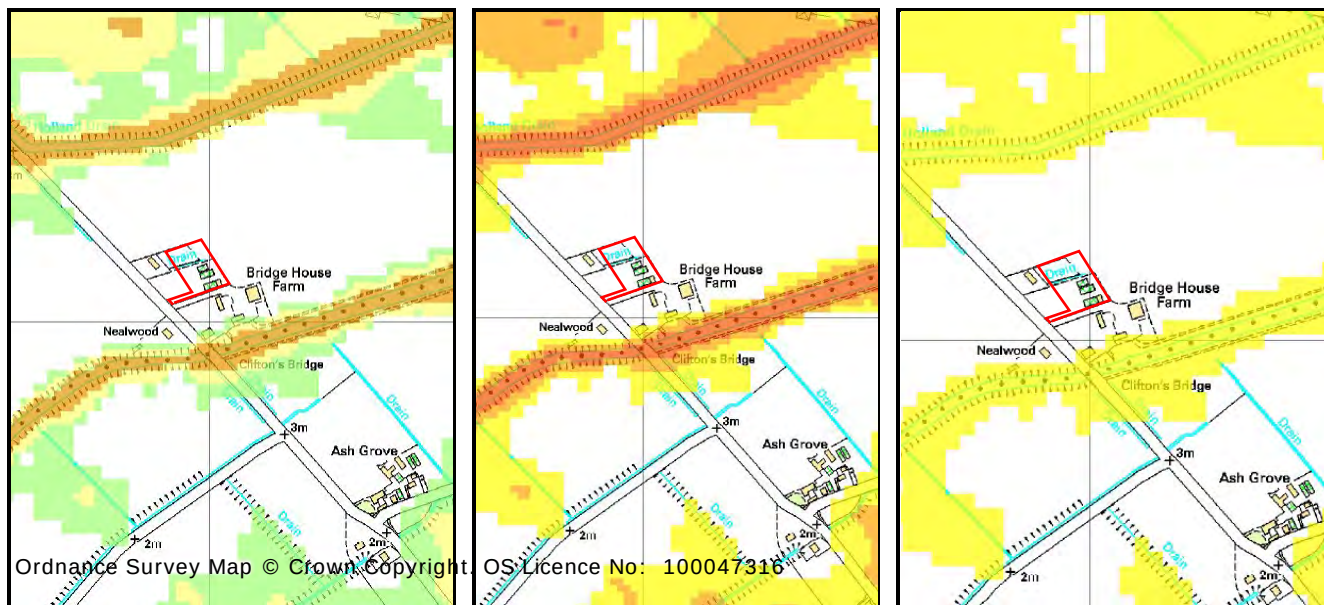
DF = A debris factor included to represent the greater damage, or risk of injury to people, that can occur if debris is swept along with the water. = 0.5 for depths <0.25 or 1.0 for depths.

For the degree of Flood Hazard to be classified as low HR must be <0.75.

The Environment Agency has carried out a Tidal Hazard Mapping and following a breach to the defences. The Northern Area Tidal Hazard Maps (2009) for Scenario year 2006 for the 1 in 200-year event show that the site is not affected by breaching. With climate change up to year 2115 the maps still show that for the 1 in 200-year

event that the site is also not affected by breaching.

The Environment Agency has also produced maps based on computer modelling of simulated overtopping of defences along the coastline for specific tidal scenarios. The maps only consider the consequences of overtopping of defences and do not show the possible consequences of breaches of the tidal defences. For future climate change scenarios, it is assumed that the defences remain at 2006 heights. The site is not affected by overtopping for the 0.5% (1 in 200) chance events for 2006 and 2115.



Tidal Breach Maps for 1 in 200year Event 2115 (Source EA)

Floor Levels

With the site not being affected by a breach to both fluvial and tidal sources the storage area will be set at the existing ground level ground level.

South Holland District Council

In order to inform the process of risk assessment and site selection the District Council commissioned Haskoning UK Ltd Consultants to prepare a Strategic Flood Risk Assessment in December 2002. They have carried out an update of this report and this report was published in January 2010, and this was further updated in February 2017.

This Flood Risk Assessment has taken the results of the (2017) updated South Holland Strategic Flood Risk Assessment (SHSFRA) into account in its findings.

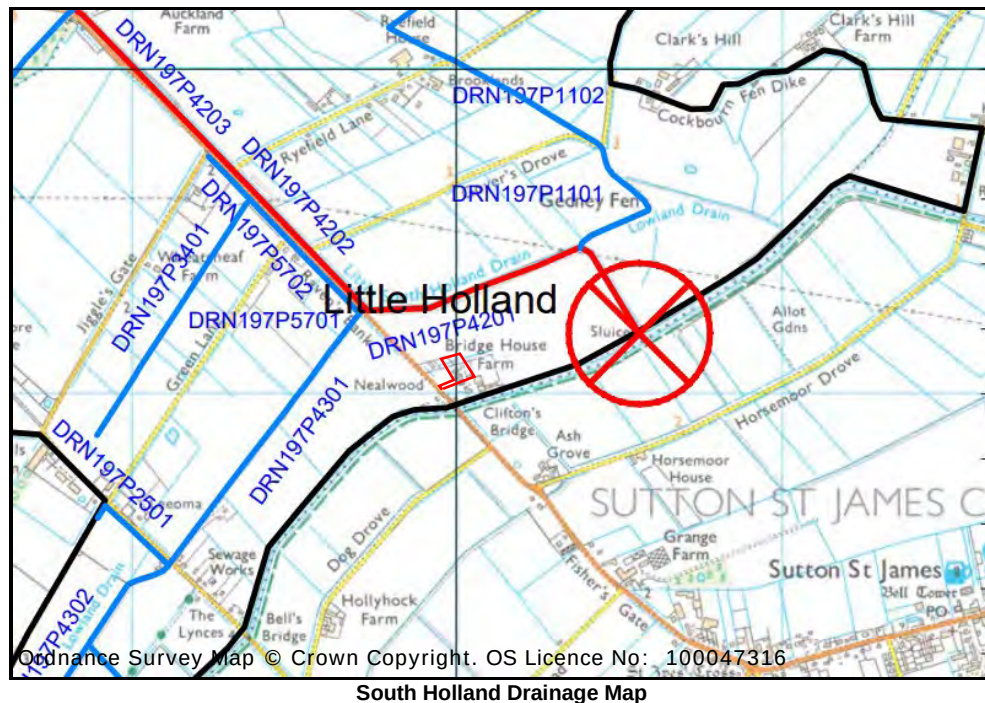
The whole of the tidal flooding information has been replaced by the mapping from the latest Environment Agency Tidal Hazard mapping. Where the mapping for an area contains both fluvial and tidal components, the more severe of the two has been presented.

The present-day for the Residual Flood Hazard, Depth and Velocity District –1% fluvial and 0.5% Tidal Event Probability maps show that the site where the proposed development is to be located is not within hazard area.

for both, the present day and with climate change climate change (2115). **Maps 2,3 & 4**

South Holland Internal Drainage Board

The proposed development site is located within Little Holland S Catchment area (CMT197P) of South Holland Internal Drainage Board. The Board is responsible to operate and maintain the arterial fluvial system. The Board have a high priority watercourse DRN197P4201 F48 Moulton Mere Drain North which discharges into the South Holland main Drain at Little Holland Sluice



The Board's prior written consent will be required for any of the following works:

- No person without the previous consent of the Board shall erect any building or structure, whether temporary or permanent, or plant any tree, shrub, willow or other similar growth within 9 metres of the landward toe of the bank where there is an embankment or wall or within 9 metres of the top of the batter where there is no embankment or wall, or where the watercourse is enclosed within 9 metres of the enclosing structure.
- No person shall, without the previous consent of the Board, for any purpose, by means of any channel, siphon, pipeline or sluice or by any other means whatsoever, introduce any water into the district or, whether directly or indirectly, increase the flow or volume of water in any watercourse in the district.
- The erection or alteration of any mill dam, weir or other like obstruction to the flow, or erection or alteration of any culvert within the channel of a riparian watercourse.

FLOODING FROM OTHER SOURCES

Flooding is a natural process and can happen at any time from sources other than watercourses and the sea.

- Flooding from land can occur from intense rainfall, often over short duration of time that is unable to soak into the ground or enter the drainage system. However, with the natural topographic nature of the ground being flat, with no high ground around the site this will not cause any rapid inundation of the site and is likely only lead to local ponding of shallow depth and low velocity. The ground floor level for the proposed storage units are raised above the existing ground level. The updated SFRA concluded that flooding from this source is limited to minor isolated cases and is not of strategic significance as regards to flood risk.
- Groundwater flooding occurs when groundwater levels increase sufficiently for the water table to intersect the ground surface. Groundwater flooding can occur in a variety of geological settings including valleys, in areas underlain by chalk, and in river valleys with thick deposits of alluvium and river gravels. The area is not known to suffer from any groundwater problems.
- Flooding from sewers can occur from overloading from heavy rainfall caused by blockages or having inadequate capacity. There are no public sewers in the vicinity of the site.
- Non-natural or artificial sources of flooding such as reservoirs, lakes, or canals where water is stored above natural ground level could cause flooding if the structure fails or is over topped. There are no known sources within the vicinity of the site.

RESIDUAL RISKS

There is always a possibility of a flood more than that allowed for which might conceivably cause some flooding to the properties. However, such an event would have a very low probability and the risk of flooding to the property would be extremely small. It is therefore considered that the residual risks associated with flooding are not significant.

SURFACE WATER FLOODING

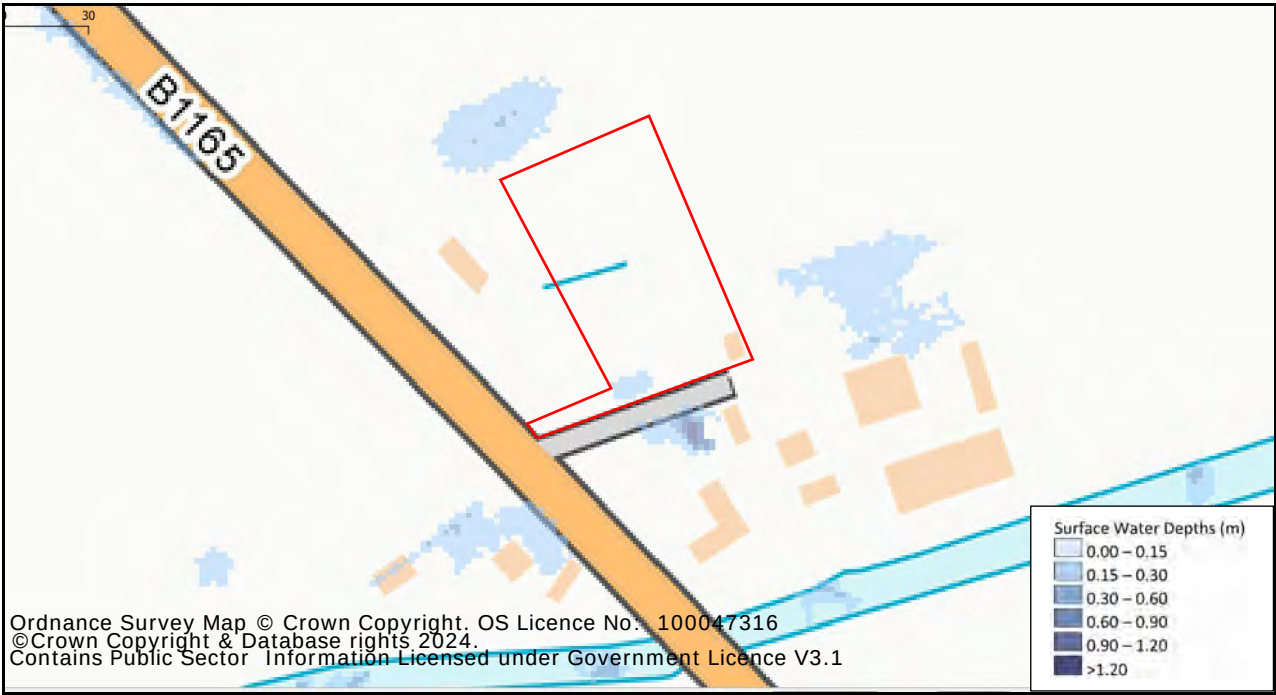
Part of the site is shown on the Low-Risk scenario Surface Water flood maps, for the 1 in 1000-year event, to be not affected from surface water flooding.

The maps for surface water and revised maps for river and sea flooding define the risk as High, Medium, Low and Very Low. The chance of flooding for the area defined in any given year is shown below:

- **High:** greater than 1 in 30 (3.3%).
- **Medium:** between 1 in 100 (1%) and 1 in 30 (3.3%).
- **Low:** between 1 in 1000 (0.1%) and 1 in 100 (1%).
- **Very Low:** less than 1 in 1000 (0.1%)

Unlike the fluvial mapping, which is based on a detailed hydraulic model, this mapping is based purely on applying rainfall to a digital terrain model. As such this mapping serves to represent a worst-case scenario which may well overstate the actual probability of flooding in this area.

There is a caveat on the Defra Data website, as to the use of these maps and that they are not to be used to identify that an individual property will flood. Because of the way they have been produced and the fact that they are indicative, these maps are not appropriate to act as the sole evidence for any specific planning or regulatory decision or assessment of risk in relation to flooding at any scale without further supporting studies or evidence.



Risk of Flooding From Surface Water Map (Source EA)

SEQUENTIAL APPROACH

When applying the sequential approach for flood risk in accordance NPPF the site would fall into Zone 3a (High Probability) as the site is shown to be within the tidal/fluviial flood plain as shown on the Environment Agency's Flood Map without defences in place.

However, the results of the updated SHSFRA shows that the site is located within a low/medium probability flood zone, but the area is reliant on protection by flood defences providing a standard of protection of 1 in 100 years return period.

TABLE 3: Flood Risk Vulnerability and Flood Zones ‘Compatibility’

Flood Risk Vulnerability Classification		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Flood Zone 1	✓	✓	✓	✓	✓
	Flood Zone 2	✓	✓	Exception Test Required	✓	✓
	Flood Zone 3a	Exception Test Required	✓	✗	Exception Test Required	✓
	Flood Zone 3b Functional Floodplain	Exception Test Required	✓	✗	✗	✗

Sequential Test

NPPF Guidance Paragraphs 157 - 179 requires development within high areas of flood risk be determined using a sequential risk-based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account the impacts of climate change.

The aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. The NPPF states that development should not be permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower probability of flooding. It is important to note that the Sequential Test does not specifically mean that sites such as this cannot be developed, rather that sites at less risk should be developed first.

The risk of flooding at the site is very low, it is shown on the 2017 Update to SHDC, SFRA Hazard, Velocity and Depth Maps, year 2115, for the 1 in 100-year event, that the site where the proposed development is to be located is not within an area affected by flooding from a breach to the flood defences.

Accordingly, Policy 7 of the adopted SE Lincolnshire Local Plan confirms that new employment development /businesses or the extension of an existing business outside the allocated employment sites will be supported provided that the proposal involves the re-use of previously developed land or the conversion/re-use of redundant buildings. On that basis, it is considered that development would be important to the economic or social needs of the community.

As the proposal for the 'Less Vulnerable' uses are for industrial purposes adjacent to the site of the existing business, it would be unreasonable to consider sites elsewhere within the district as this facility is to sustain the established business and provide employment opportunities. In this particular case the business is centred on the land owned and operated by Horizon Agriculture and to consider areas outside the holding would not be practical. The relocation of the vehicle/machinery storage area will help to support the existing business use already established on site. Consequentially the Sequential Test is met, with the development being "Less Vulnerable" the Exception Test is not required.

CLMATE CHANGE

Global warming is now recognised that it is likely to affect the frequency and severity of extreme events as both tidal and fluvial flooding. The Climate change allowances in the NPPF Guidance was updated on the 20th of July 2021.

Peak River Flow Allowances

For flood risk assessments use the Management Catchment Climate Changes for the peak river flow map. Management catchments are sub-catchments of River Basin Districts.

The site is located within the Welland Management Catchment within the Anglian River Basin District, for sites within Flood Zone 2 or 3a and for "Less Vulnerable" land uses, the Central allowances figures, in the Table below,

should be used.

Peak River flow allowances within the Management Catchment Allowances				
River Basin District /Management Catchment	Allowance category	Total potential change anticipated for '2020s' (2015 to2039)	Total potential change anticipated for '2050s' (2040 to2069)	Total potential change anticipated for '2080s' (2070 to2115)
Anglian/ Welland	Upper End	22%	26%	53%
	Higher Central	10%	10%	28%
	Central	5%	4%	17%

The effect of global warming on peak rainfall allowances is given in Table 1.

Table 1 Peak Rainfall Intensity

Table 1 Peak rainfall intensity allowance in small and urban catchments (1961 to1990 baseline)			
Applies across all of England	Total potential change anticipated for 2010 to 2039	Total potential change anticipated for 2040 to 2059	Total potential change anticipated for 2060 to 2115
Upper End	10%	20%	40%
Central	5%	10%	20%

The annual sea rise due to climate change is given in NPPF and the recommended contingency allowances are stated in Table 2.

Table 2 Peak Sea Level Rise

Table 2 Peak Sea level allowance for each epoch in (mm) per year with cumulative sea level rise for each epoch in brackets (use 1981to 2000 baseline)						
Area of England) (Use River Basin	Allowance	2000 to 2035	2036 to 2065	2066 to 2095	2096 to 2125	Cumulative Rise 2000 to 2125 (m)
Anglian	Higher Central	5.8 (203mm)	8.7 (261mm)	11.6 (348mm)	13 (390mm)	1.20m
Anglian	Upper End	7 (245mm)	11.3 (339mm)	15.8 (474mm)	18.1 (543mm)	1.6m

DRAINAGE STATEMENT

Surface Water Drainage

The surface water run-off from the vehicle/machinery storage area will discharge to ground and percolate away within the proposed pervious hardstanding mimicking the existing situation.

Foul Water Drainage

There are no foul drainage requirements needed for this proposal.

CONCLUSION

- o The site does have the protection of fluvial/ tidal flood defences which are well maintained by the Environment Agency.

- o The site for the proposed development is shown to be within Flood Zone 3 'High Probability' as detailed on the Environment Agency's Flood Zone Maps without defences.
- o The Environment Agency Breach hazard Maps and the 2017 Update to SHDC, SFRA Hazard, Velocity and Depth Maps, year 2115, for the 1 in 100-year event, shows that the site where the proposed development is to be located is not within an area affected by flooding from a breach to the flood defences.
- o The proposed hardstanding surface will remain at the existing ground level.
- o The Flood Risk Vulnerability Classification in Table 2 of NPPG the proposed development is classified as "Less Vulnerable" use.
- o Any impact of damage to the property can be foreseen and mitigated against by relatively simple design and construction techniques. They will be constructed using materials which are flood resilient construction as outlined in the report.
- o Flooding from other sources is unlikely to affect the site.
- o No obvious constraints have been identified that may impact the proposed development and the type of mitigation measures that can be used to reduce the flood risk, there is no increase in the flood risk to others.
- o It is therefore concluded that the proposed development can be constructed, safely and sustainably, to meet the requirements of the South Holland District Council Development Plan Policies, and the National Planning Policy Framework.

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

Key Node Points

Map 1



Scale 1:550,000



▲ East Coast and Wash

See separate data sheet for predicted flood levels

Created by the Partnerships and Strategic Overview Team, Lincoln

East Coast and Wash: Immingham to the West Lighthouse

2018 Coastal Flood Boundary Extreme Sea Levels

CFB REF	LOCATION	EASTING	NORTHING	ANNUAL CHANCE (1 IN X) OF TIDE LEVEL IN METRES ODN																						
				1			10			50			100			200			300			1000				
				Confidence Bound			Confidence Bound			Confidence Bound			Confidence Bound			Confidence Bound			Confidence Bound			Confidence Bound				
				2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%	97.5%	2.5%	50%
3888	Immingham	520440	417625	4.16	4.17	4.19	4.50	4.53	4.62	4.73	4.80	5.00	4.83	4.93	5.19	4.93	5.06	5.41	4.98	5.14	5.55	5.15	5.38	6.01		
3890	Haborough Marsh	522100	416512	4.14	4.15	4.17	4.48	4.51	4.60	4.70	4.77	4.97	4.80	4.90	5.16	4.90	5.03	5.38	4.94	5.10	5.51	5.11	5.34	5.97		
3898	Grimsby	529295	413162	3.98	3.99	4.01	4.31	4.34	4.43	4.53	4.60	4.80	4.61	4.71	4.97	4.71	4.84	5.19	4.74	4.90	5.31	4.88	5.11	5.74		
3906	Buck Beck	534709	407369	3.87	3.88	3.90	4.19	4.23	4.31	4.41	4.50	4.68	4.50	4.61	4.86	4.61	4.75	5.10	4.64	4.82	5.22	4.80	5.05	5.66		
3910	Tetney	538035	405537	3.85	3.86	3.89	4.17	4.22	4.30	4.40	4.50	4.67	4.49	4.61	4.86	4.60	4.75	5.10	4.63	4.82	5.21	4.80	5.06	5.66		
3918	Donna Nook	544641	401997	3.82	3.83	3.86	4.14	4.19	4.27	4.38	4.48	4.65	4.47	4.60	4.85	4.58	4.74	5.10	4.63	4.82	5.22	4.81	5.08	5.68		
3928	Saltfleet	549131	393360	3.78	3.79	3.82	4.11	4.16	4.26	4.36	4.46	4.64	4.47	4.59	4.86	4.57	4.74	5.11	4.63	4.83	5.25	4.83	5.11	5.74		
3942	Boygrift	555131	380860	3.72	3.74	3.77	4.06	4.11	4.22	4.33	4.43	4.65	4.43	4.57	4.87	4.56	4.73	5.13	4.62	4.83	5.28	4.85	5.15	5.82		
3968	Gibraltar Point	557652	356181	4.16	4.17	4.20	4.51	4.56	4.67	4.76	4.85	5.08	4.85	4.97	5.27	4.94	5.10	5.49	4.99	5.18	5.63	5.14	5.41	6.09		
3992_14	Hobhole	535990	340116	4.96	4.97	5.01	5.40	5.44	5.56	5.66	5.76	5.98	5.78	5.90	6.20	5.88	6.04	6.44	5.92	6.11	6.57	6.03	6.31	6.99		
	Grand Sluice*	532366	344510	4.93	4.94	4.98	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3		
3992_9	Boston Barrier	532754	342852	4.93	4.94	4.98	5.41	5.45	5.57	5.73	5.83	6.05	5.85	5.97	6.27	5.93	6.09	6.49	5.94	6.13	6.59	5.98	6.26	6.94		
3992_5	Fosdyke Bridge	531886	332234	4.87	4.88	4.92	5.31	5.35	5.47	5.58	5.68	5.90	5.71	5.83	6.13	5.82	5.98	6.38	5.87	6.06	6.52	6.01	6.29	6.97		
4008	West Lighthouse	550094	329971	4.87	4.88	4.91	5.21	5.26	5.37	5.46	5.56	5.78	5.56	5.68	5.98	5.66	5.82	6.21	5.71	5.90	6.35	5.86	6.14	6.81		
-	Marsh Road	525988	324065	-	5.04	-	-	5.44	-	-	5.73	-	-	5.85	-	-	5.98	-	-	-	-	-	-	-		
-	Wisbech	546110	309940	-	4.83	-	-	5.25	-	-	5.53	-	-	5.66	-	-	5.78	-	-	-	-	-	-	-		
-	Dog-in-a-Doublet	527200	299287	-	3.67	-	-	4.00	-	-	4.22	-	-	4.32	-	-	4.42	-	-	-	-	-	-	-		

See next page for notes

2018 Coastal Flood Boundary Extreme Sea Levels

NOTES:

The following notes apply to all CFB sites (ie all on table excluding Marsh Road, Wisbech, Dog-in-a-Doublet)

- The base date for the data is 2017.
- The levels are still water levels. Depending on the use of the data it may be necessary to consider wave heights and / or joint probability analysis of water level and other variables.
- Levels for other annual chance probabilities are available if required.
- For additional information relating to the 2018 Coastal Flood Boundary Extreme Sea Levels or to access the full dataset for the above sites or intermediate locations refer to the Defra Metadata Catalogue at <https://deframetadadata.com/geonetwork/srv/eng/catalog.search#/metadata/84a5c7c0-d465-11e4-b0bd-f0def148f590>

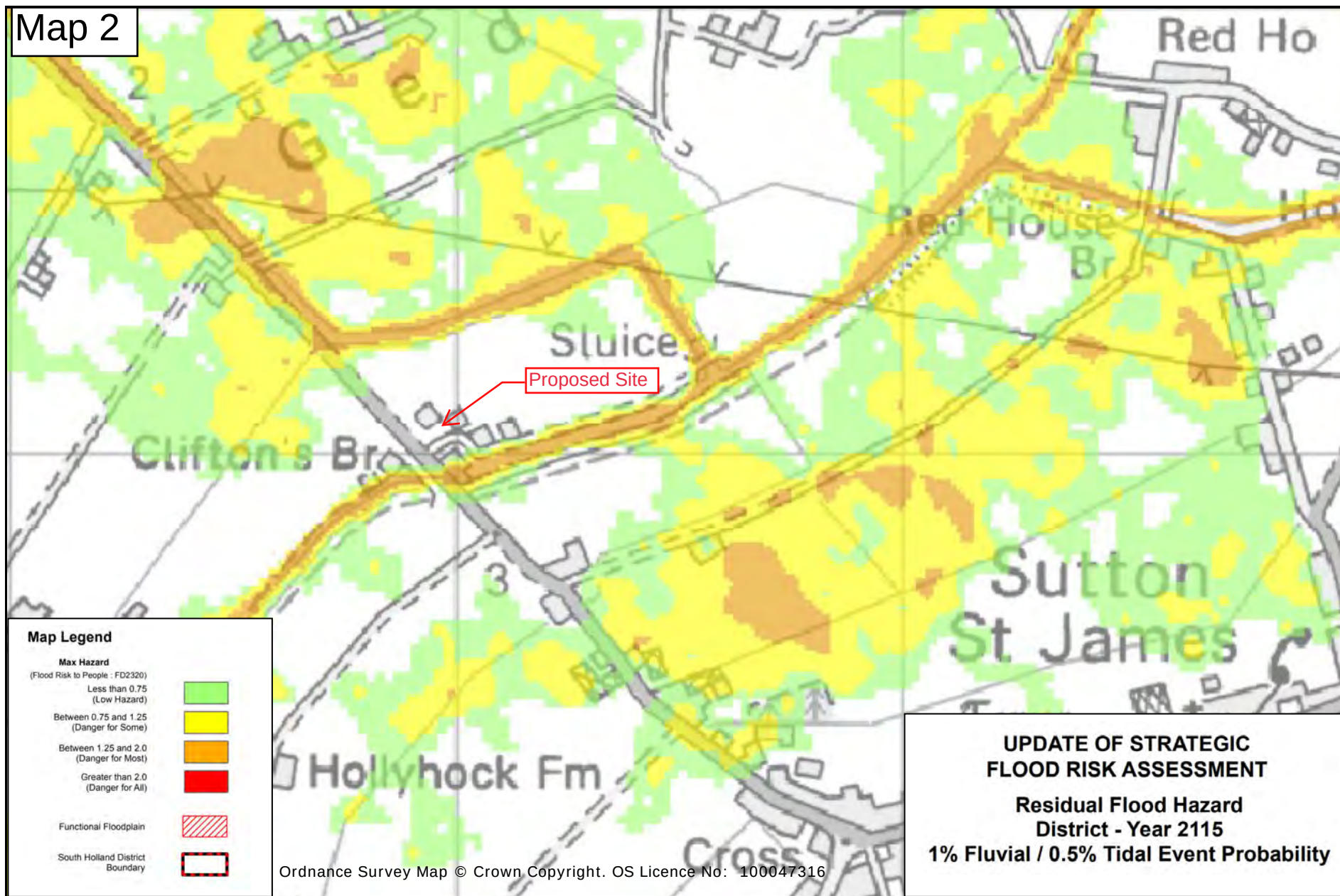
The following notes apply to all Marsh Road, Wisbech, Dog-in-a-Doublet

- The base date for the data is 2006
- The levels are still water levels. Depending on the use of the data it may be necessary to consider wave heights and / or joint probability analysis of water level and other variables.
- Levels for other annual chance probabilities are available if required.
- These levels will be updated as their respective tidal river models are updated.

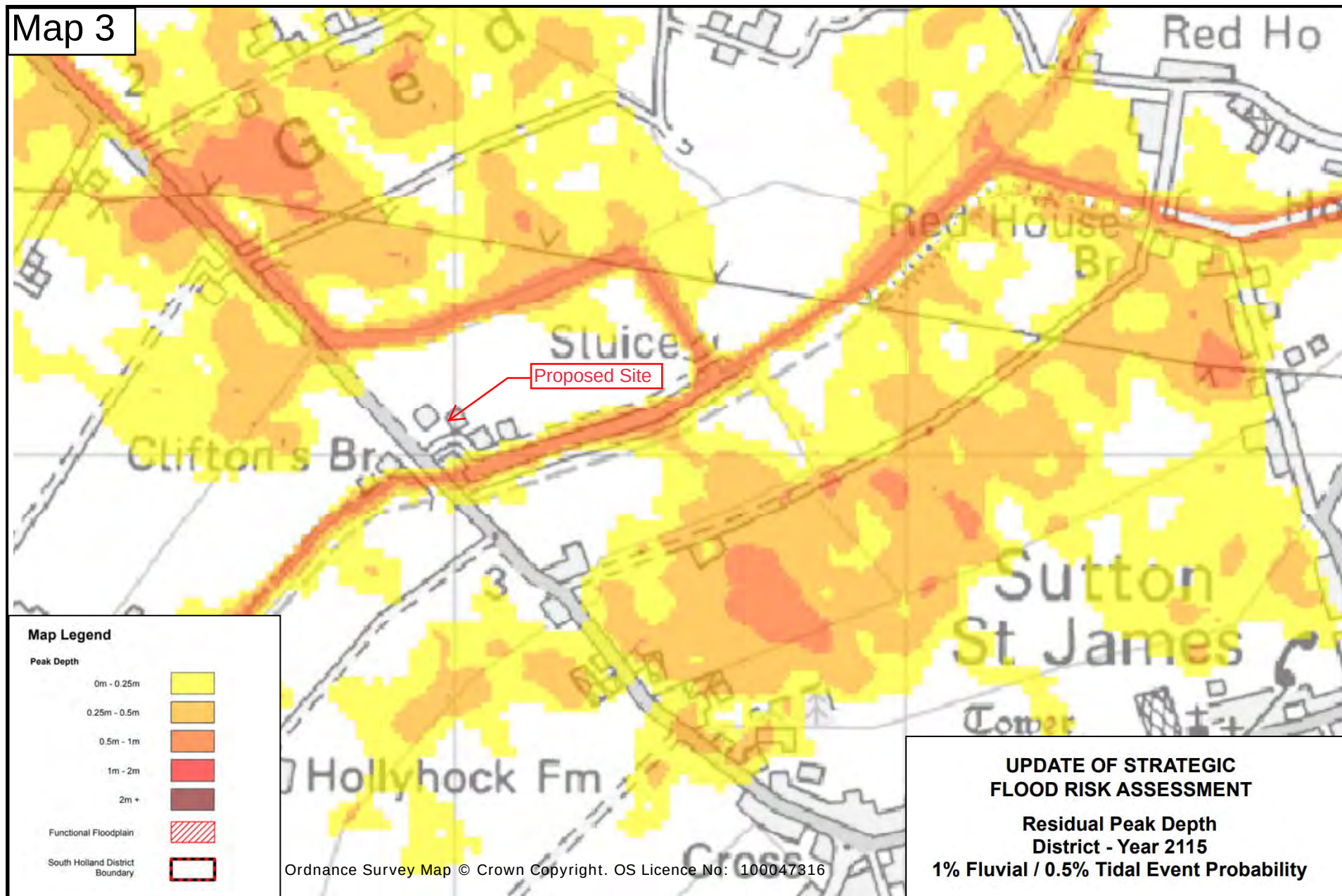
The following notes apply to Grand Sluice

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

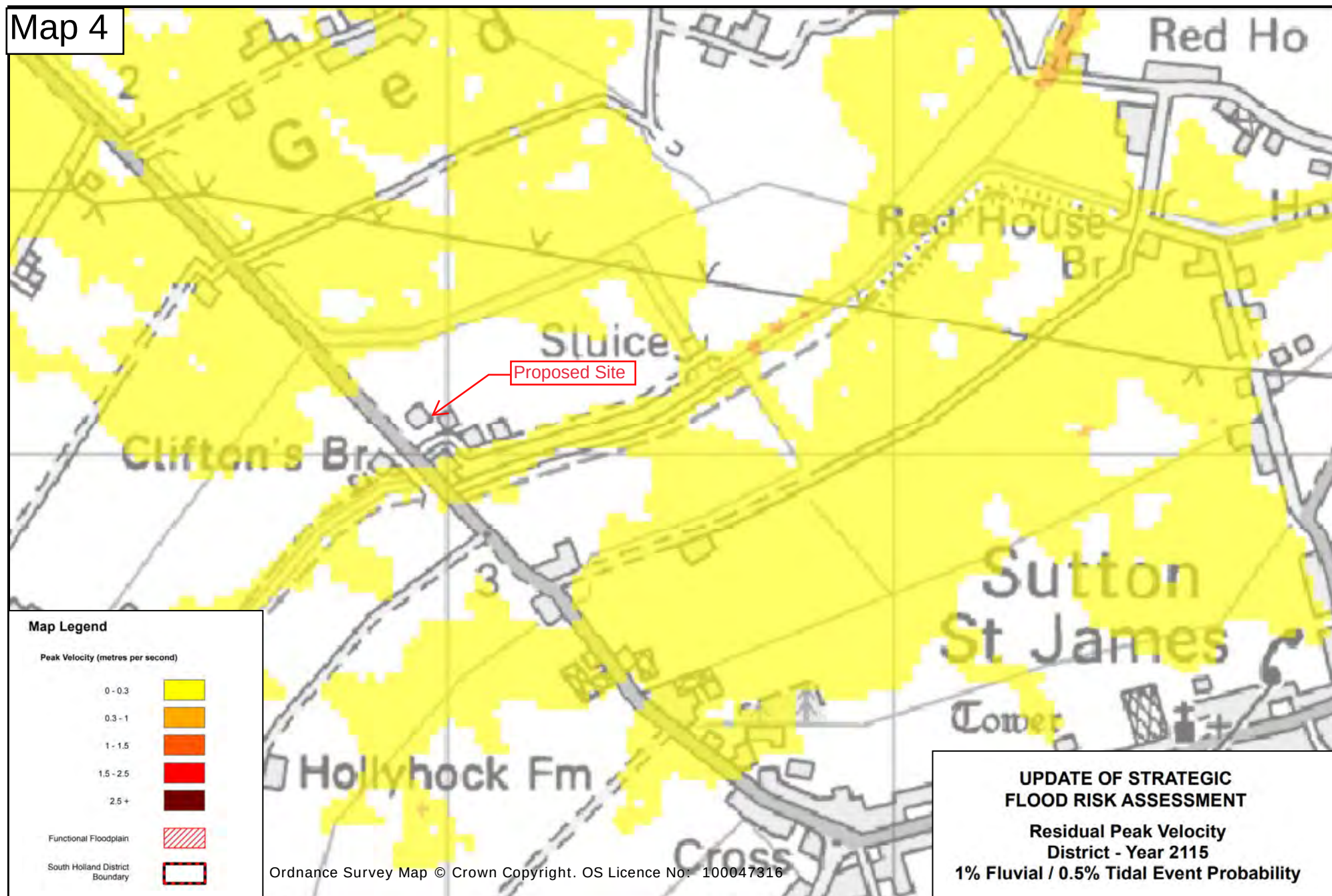
Map 2



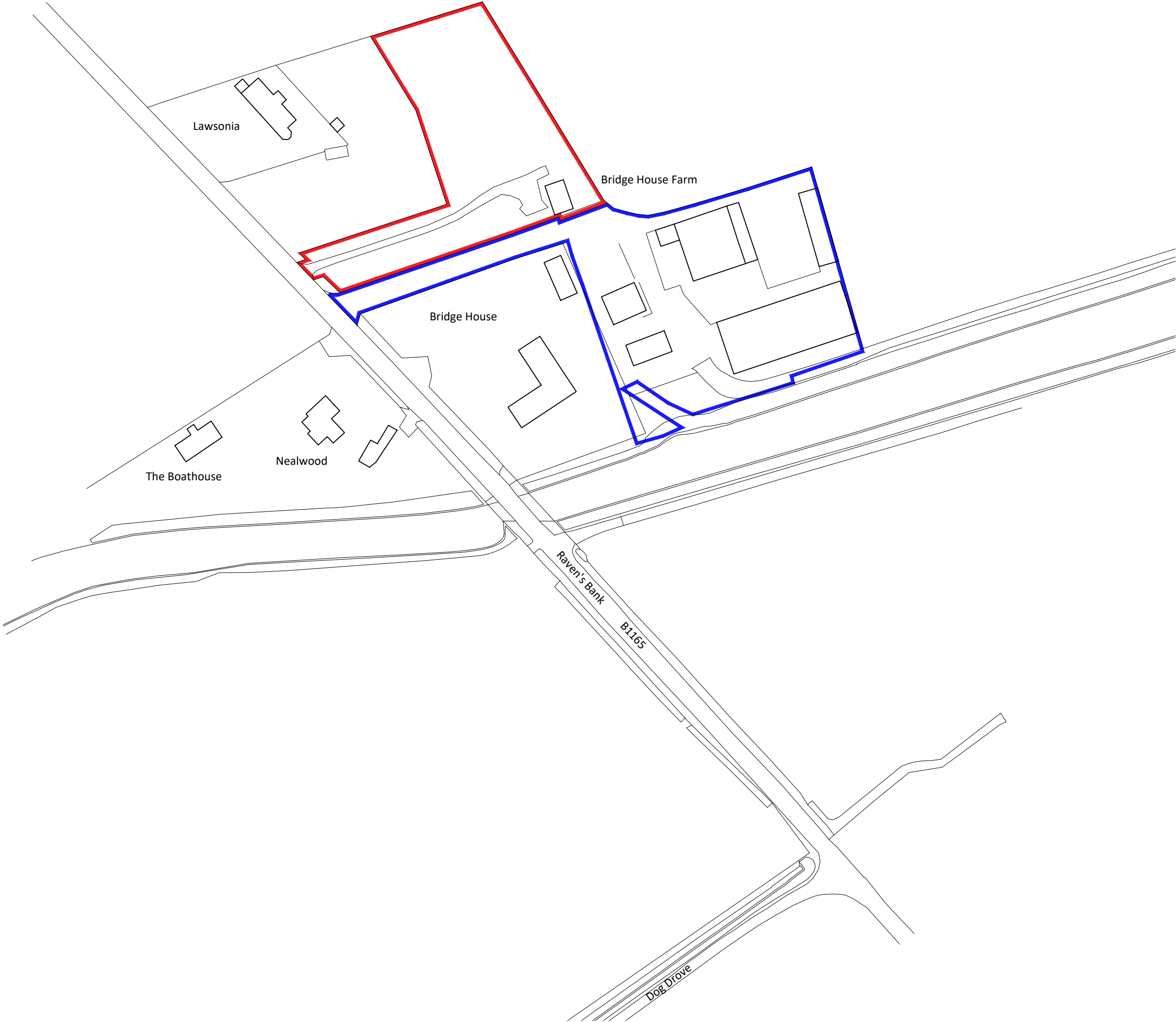
Map 3



Map 4



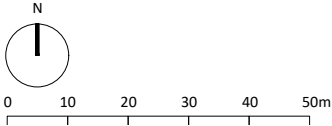
Plan 1



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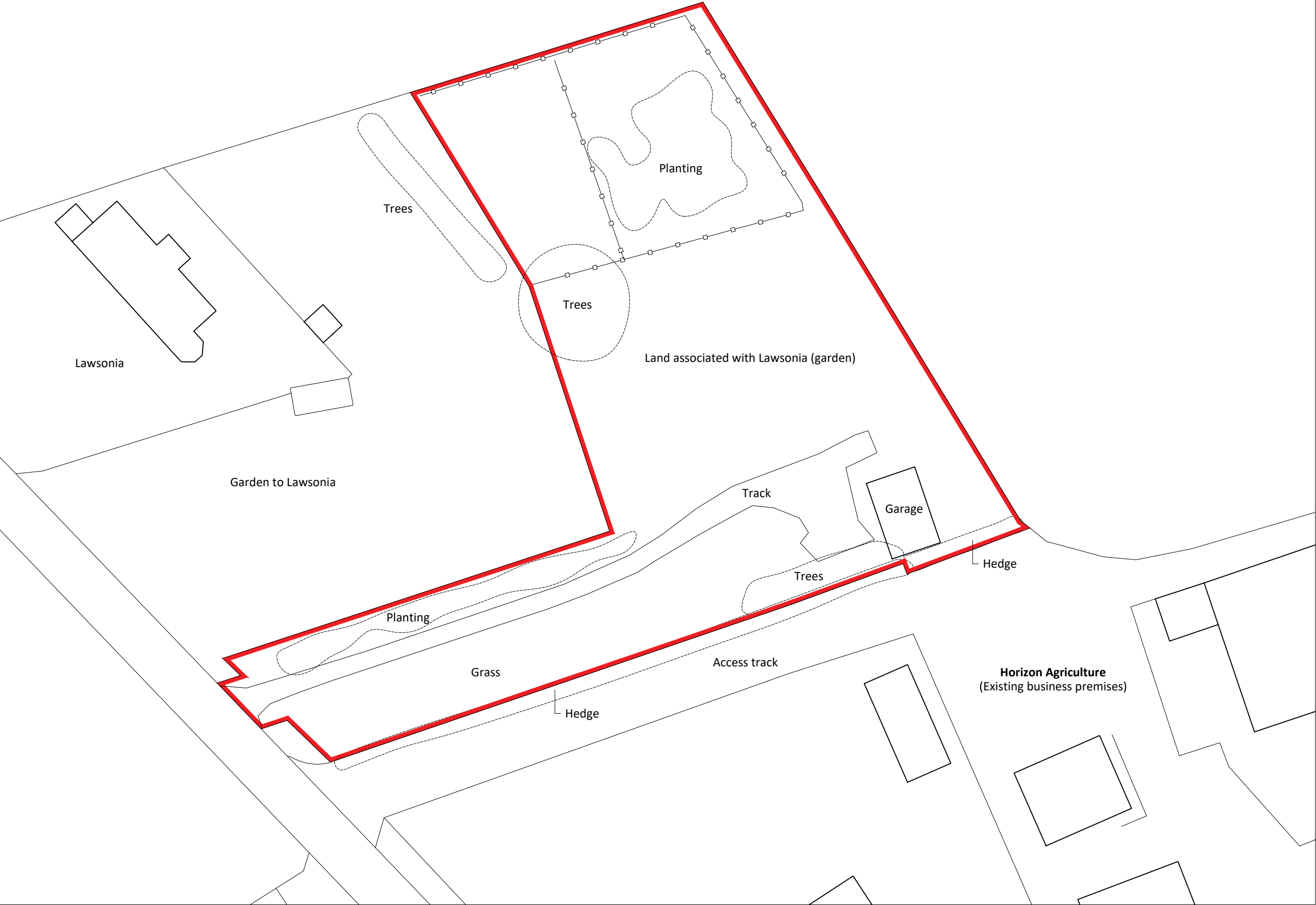
Project
Change of Use
Clifton's Bridge, Sutton St James

Drawing
Location Plan

Scale @ A3 1: 1250		Date 16/08/24
Drawn By WW		Checked By -
Job Number 1411-4	Status FP	Purpose of Issue Planning

Drawing No. 1411-4_FP_LP01	Rev -
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Plan 2



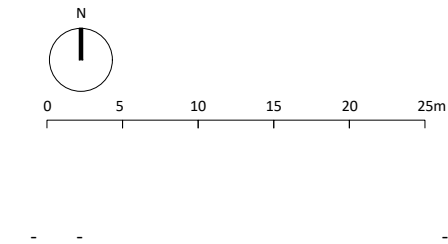
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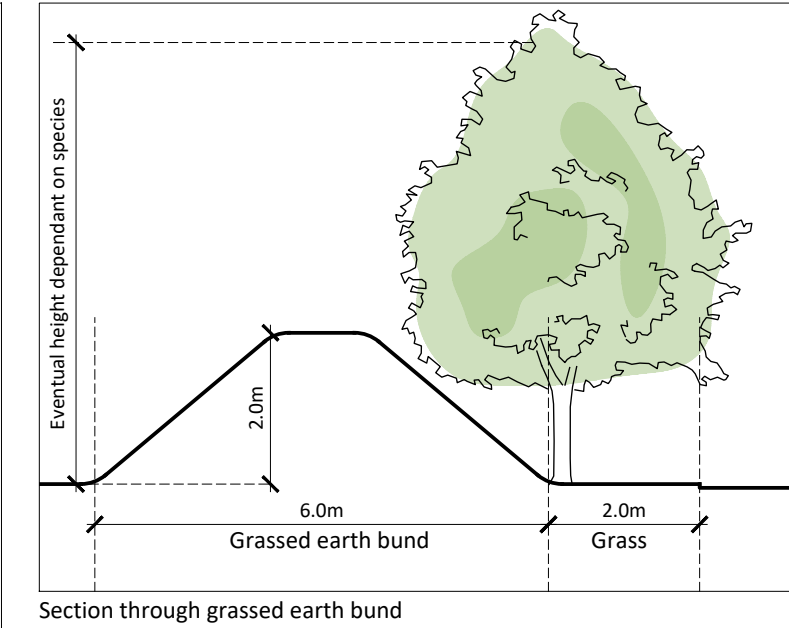
Client
Horizon Agriculture

Project
Change of Use
Clifton's Bridge, Sutton St James

Drawing
Existing Site Plan

Scale @ A3 1: 500		Date 16/08/24
Drawn By WW		Checked By -
Job Number 1411-4	Status FP	Purpose of Issue Planning
Drawing No. 1411-4_FP_SP01		Rev -

Plan 3



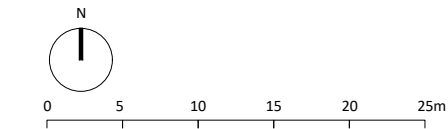
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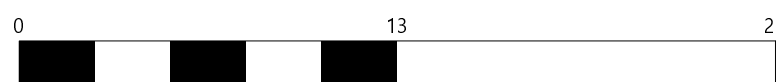
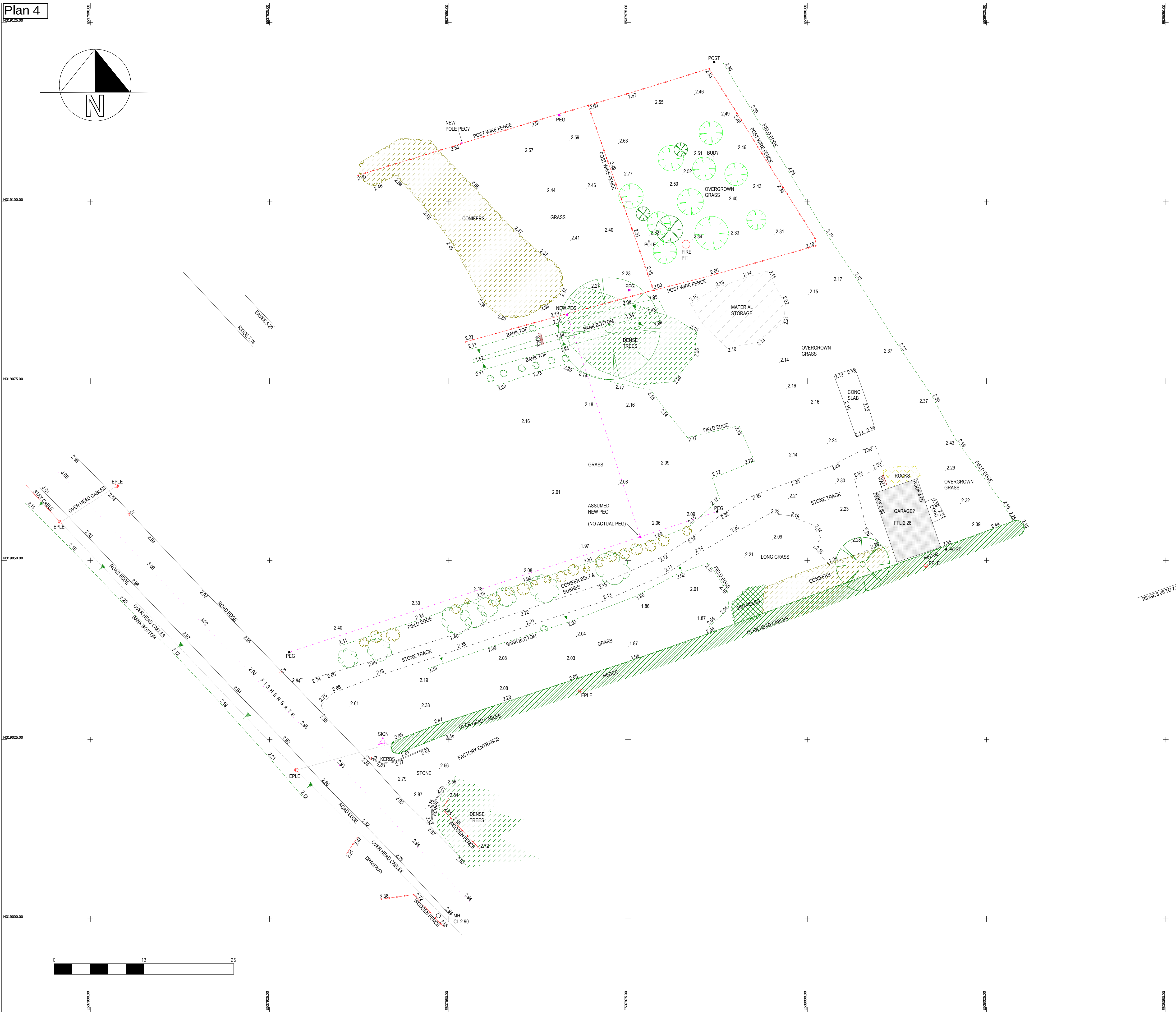
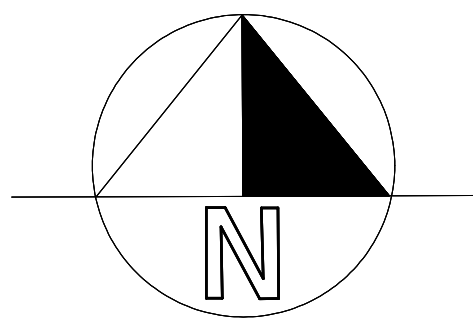
Client
Horizon Agriculture

Project
Change of Use
Clifton's Bridge, Sutton St James

Drawing
Proposed Site Plan

Scale @ A3 1: 500		Date 16/08/24
Drawn By WW		Checked By LMS
Job Number 1411-4	Status FP	Purpose of Issue Planning

Drawing No. 1411-4_FP_SP02	Rev -
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NOTES

ABBREVIATIONS & SYMBOLS

AV	AIR VALVE	OHC	OVERHEAD CABLE
BH	BORER HOLE	PB	POST BOX
BOL	BOLLARD	PIV	PIPE INVERT LEVEL
CATV	CABLE TV MH	PM	PARKING METER
CL	COVER LEVEL	PO	POST
CH	CHANNEL	PT	POST TOP LEVEL
COL	COLUMN	PR	POST & RAIL FENCE
DC	CABLE TV LID	PNW	POST & WIRE FENCE
DP	DOWN PIPE	RE	EDGE OF ROAD/KERB
DR	DRAIN	RL	EDGE OF ROAD/KERB
EL	EAVES LEVEL	RS	EDGE OF ROAD/KERB
EP	ELECTRIC POLE	SLA	STONE LEVEL
ER	EARTH ROD	RS	ROAD SIGN
FB	FLOWER BED	RS	ROAD SIGN
FI	FIRE HYDRANT	SV	SOFFIT LEVEL
FIL	FINISHED FLOOR LEVEL	SW	SURFACE WATER
FP	FLAG POLE	TAC	TACTILE PAVING
FW	FULL WATER	TH	TRIAL HOLE
GV	GAS VALVE	TL	TRAFFIC LIGHTS
HW	HEADWALL	TLN	TELEGRAPH POLE
IC	INSPECTION COVER	TP	TOW TOP OF WALL LEVEL
IL	INVERT LEVEL	TR	TRACK
KB	KERB BOTTOM	UTL	UNABLE TO LIFT
KO	KERB ORLET	VP	VENT PIPE
KT	KERB TOP	WL	WATER LEVEL
LP	LAMP POST	WLVL	WATER LEVEL
LC	LIGHT COLUMN	WM	WATER METER
MH	MANHOLE	WO	WASH OUT POINT
MP	MARKER POST		

---	FENCE	---	TREE
---	HEDGE	---	BORER HOLE
---	ELECTRIC	---	STATION
---	BANK EDGE	---	TBM
---	STORM LINE	---	MANHOLE
---	FOUL LINE	---	GULLY
---	TELECOM LINE	---	BATTERY
---	GAS LINE	---	CHANNELS
---	WATER MAIN	---	WATER LVL
---		---	GATE

1. THE POSITION OF THIS SURVEY IS BASED ON GPS OSTN15 GRID
2. ALL LEVELS RELATE TO HGTS TAKEN USING TRIMBLE VRS NOW
3. TREES SPREADS ARE DRAWN TO SCALE AND SHOW THE GENERAL/AVERAGE CANOPY SPREAD
4. ALL BELOW GROUND LEVEL INFORMATION INCLUDING VOIDS, DRAINAGE & SERVICES HAVE BEEN IDENTIFIED FROM THE SURFACE LEVEL ONLY. THEREFORE PIPE SIZES ETC ARE ESTIMATIONS ONLY. ALL CRITICAL DIMENSIONS SHOULD BE CHECKED PRIOR TO THE COMMENCEMENT OF ANY SITE WORKS
5. EVERY EFFORT HAS BEEN MADE TO LOCATE AND SURVEY ALL VISIBLE FEATURES. IT SHOULD BE NOTED THAT SOME ITEMS MAY HAVE BEEN OBSERVED AT THE TIME OF THE SURVEY AND THEREFORE NOT SHOWN ON THIS DRAWING
6. PHYSICAL BOUNDARY FEATURES SHOWN ON THIS DRAWING DO NOT NECESSARILY REPRESENT THE ACTUAL LEGAL BOUNDARIES. THIS INFORMATION SHOULD BE CONFIRMED WITH THE RELEVANT DOCUMENTATION
7. THE CONTRACTOR MUST CHECK AND VERIFY ALL SITE LEVELS, DIMENSIONS, UTILITIES AND DRAINAGE DETAILS PRIOR TO THE COMMENCEMENT OF ANY SITE WORKS. ANY DISCREPANCIES MUST BE NOTIFIED TO CASTLE HILL SURVEYS LTD.
8. ALL SURVEY STATION CONTROL POINTS MUST BE CHECKED BY THE CONTRACTOR PRIOR TO STARTING ANY SITE WORKS

Point	Eastings	Northing	Elevation
J1	537905.394	319056.424	2.938
J2	537926.512	319034.331	2.945
J3	537939.159	319022.344	2.901

SURVEY DATE: 29-08-2023 INITIALS: JT

REV: AMENDMENTS: DRN: DATE:

A NEW PEG LOCATION ADDED JT 14/8/24

Client: ROBERT DOUGHTY CONSULTANCY

Project Title: LAND OFF LAWSONIA FISHERGATE

Drawing Title: TOPOGRAPHICAL SURVEY

Scale @ A1: 1:250 Date: 29/08/2023

Drawing No: C H S 2 3 - 1 6 0 - 0 1 Rev: A

C.A.D. Title: rdc lawsonia, fishergate/lopo (chs 23-160-01).mjo

Drawn By: JT Checked By: CT