

FLOOD RISK ASSESSMENT

PROPOSED RESIDENTIAL DEVELOPMENT
THE MERMAID INN,
GOSBERTON ROAD,
SURFLEET,
SPALDING.
PE11 4AB



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FLOOD RISK ASSESSMENT PROPOSED RESIDENTIAL DEVELOPMENT THE MERMAID INN, GOSBERTON ROAD, SURFLEET, SPALDING. PE11 4AB

Summary of Possible Sources of Flooding

Source	Significant	Comment
Fluvial (Main River)	Low	Part of the site is at risk from a fluvial source in the form of residual risk due to the failure of flood management infrastructure such as a breach of a raised flood defence or overtopping. scenario, today or with an allowance for climate change
Tidal	Low	Part of the site is at risk from a tidal source in the form of residual risk due to the failure of flood management infrastructure such as a breach of a raised flood defence or overtopping. scenario, today or with an allowance for climate change
Pluvial	No	Shown on Flooding from Surface Water map not to be affected for the 0.1% event
Ground Water	No	This location is outside a ground flood alert area
Overland flow	No	No high ground surrounding the site
Blockage	Low	River Glen alongside the southern boundary
Infrastructure	Low	Public sewers close to the site
Reservoirs	No	Site not at risk from a reservoir failure.
Lakes & Canals	No	No lakes or canals close to the site

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 July 2021, (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 on land at The Mermaid Inn, Gosberton Road, Surfleet, within the administrative area of South Holland District Council. The National Grid Reference is TF25085 28167. **Plan 1**

Planning permission Ref. H17-1012-22 was granted for change of use of the Mermaid Inn to 5 apartments and the erection of a terrace of 3 No two storey dwellings and 1 single storey dwelling.

This flood risk assessment has been prepared for the erection of 2 No two-storey detached dwellings (plots 1 & 2) (in lieu of the approved 3 No two storey dwellings) within the rear garden and car park to the former Inn. **Plans 1, 2 & 3.**

The proposed Plots 1 & 2 have been set back 10m from the brink of the riverbank. The existing boundary wall and landing stage are retained.

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%)

Most of the proposed development site is shown to be within Flood Zone 1 'Low Probability' with the area alongside the riverbank in Flood Zone 3 'High probability' as detailed on the Environment Agency's Flood Zone Maps **without defences.**

Table 1: Flood Zones Definition (Ignoring the presence of defences)

Flood Zone 1- Low Probability
Definition This zone comprises land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%). Appropriate uses. All uses of land are appropriate in this zone.
Flood risk assessment requirements For development proposals on sites comprising one hectare or above the vulnerability to flooding from other sources as well as from river and sea flooding, and the potential to increase flood risk elsewhere through the addition of hard surfaces and the effect of the new development on surface water run-off, should be incorporated in a flood risk assessment. This need only be brief unless the factors above or other local considerations require particular attention.
Policy aims In this zone, developers and local authorities should seek opportunities to reduce the overall level of flood risk in the area and beyond through the layout and form of the development, and the appropriate application of sustainable drainage systems.

Applying the Flood Risk Vulnerability Classification in Table 2 of NPPG, the proposed residential development use for the site is 'More Vulnerable'. Table 3 of NPPG states that such uses are permitted in this zone.

Table 2: Flood Risk Vulnerability Classification

More Vulnerable
• Hospitals • Residential institutions such as residential care homes, children's homes, social services homes, prisons, and hostels. • Buildings used for: dwelling houses; student halls of residence; drinking establishments; nightclubs; and hotels • Non-residential uses for health services, nurseries, and educational establishments • Landfill and sites used for waste management facilities for hazardous waste. • Sites used for holiday or short-let caravan and camping, subject to a specific warning and Evacuation Plan.

Site Levels

From the topographical survey the ground levels for Plots 1 & 2 average 4.60mODN, Stockhouse Lane at the site entrance is 4.65mODN with Gosberton Road averaging 5, 70mODN. The levels on the southern boundary alongside the river vary from 5.35mODN East, to 4 57mODN West. A brick wall with piers forms this boundary and the top of the wall is 5.28mODN. The landing stage in front of this has a decking level of 3.39mODN. **Plan 6**

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 has been identified as:

- River Glen (Fluvial)
- River Welland (Tidal)
- Welland & Deepings Internal Drainage Board system

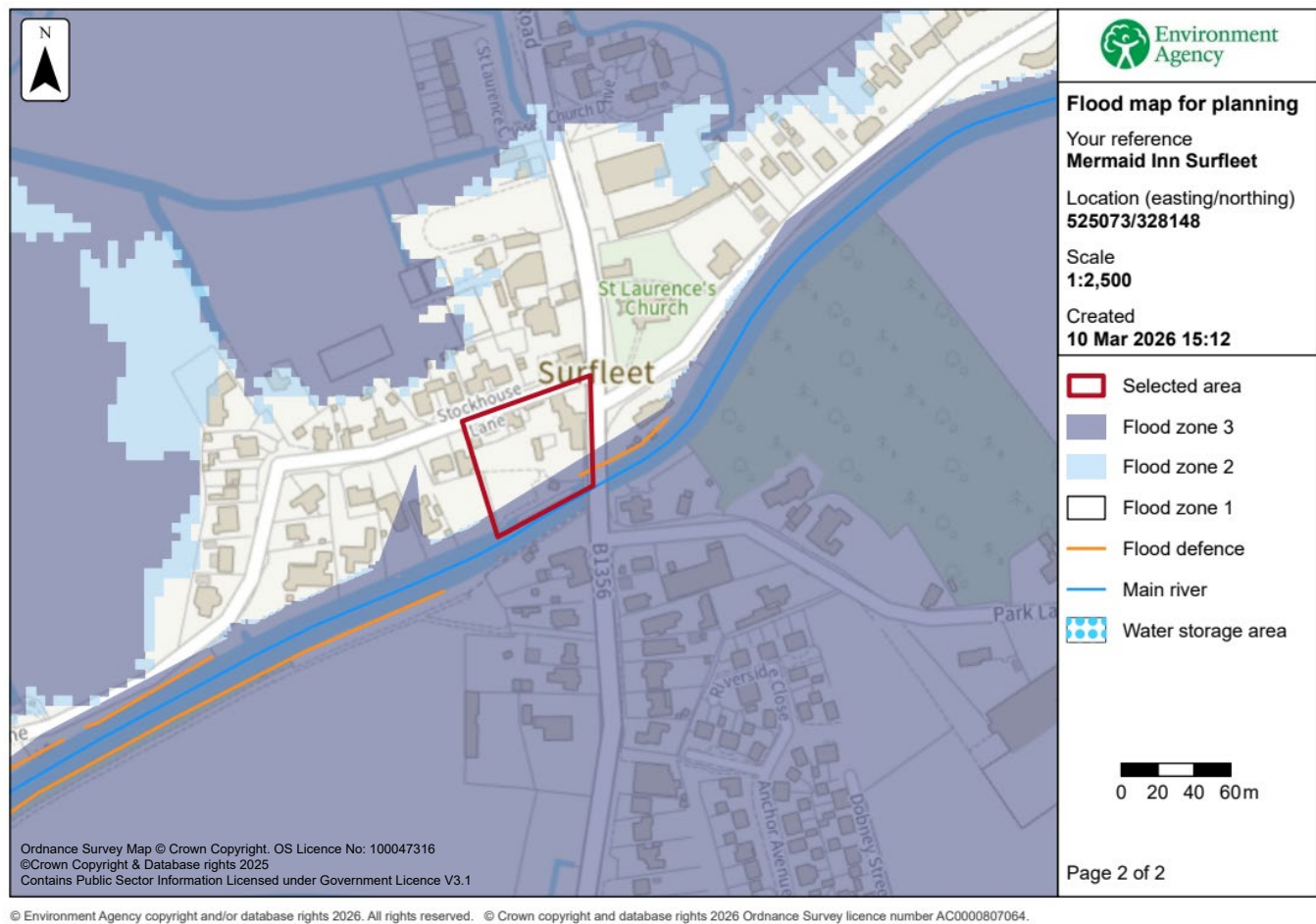
The flood zone maps indicate that the area would be flooded without flood defences.). The Flood Map indicates the area at risk of flooding, **assuming no flood defences exist**, for a flood event with a 0.5% chance of occurring in any year for flooding from the sea, or a 1% chance of occurring for fluvial (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. 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

The Flood Zone Map indicates the area at risk of flooding, **assuming no flood defences exist**, for a flood event

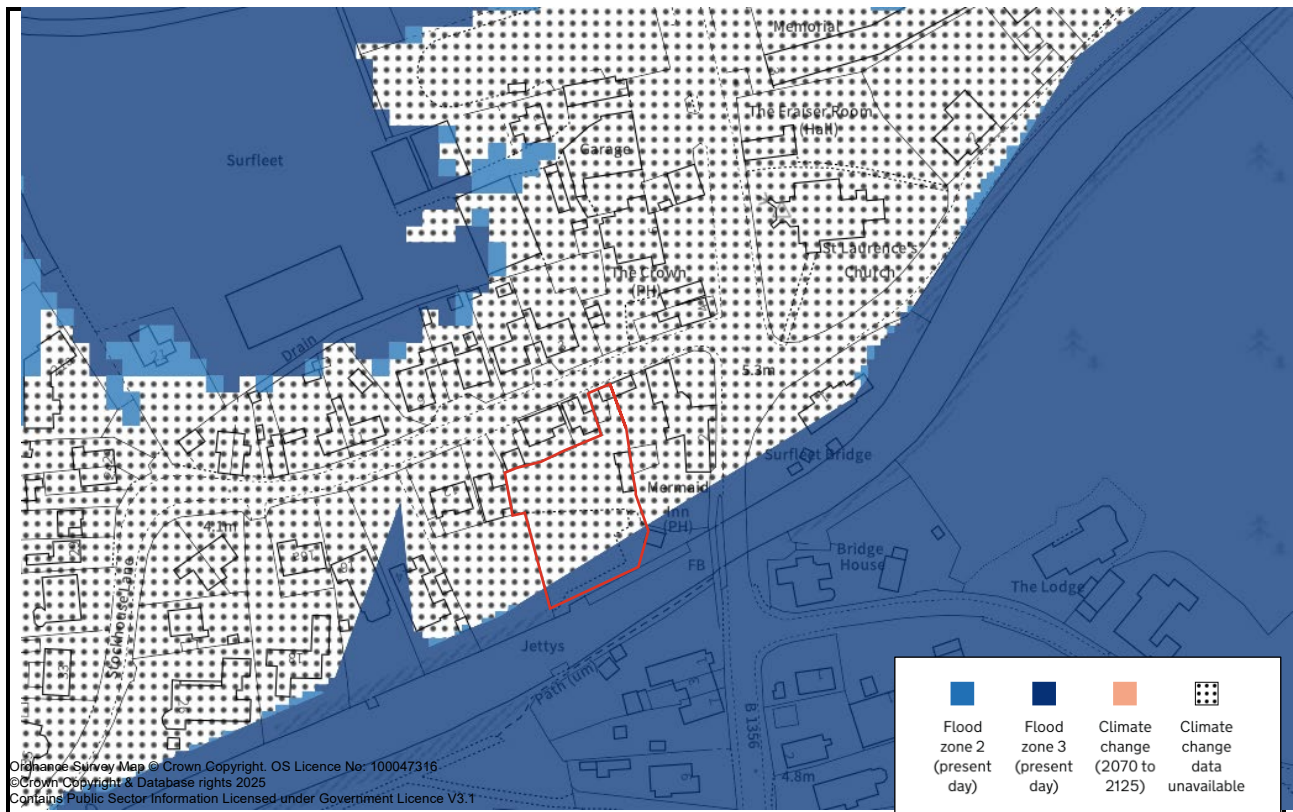
with a 0.5% chance of occurring in any year for flooding from the sea, or a 1% chance of occurring for fluvial (river) flooding. It also shows the extent of the Extreme Flood Outline which represents the extent of a flood event with a 0.1% chance of occurring in any year, or the highest recorded historic extent if greater. In some locations, 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.

These maps were updated on the 25th March 2025 and show that site is considered to be at risk from tidal/fluvial flooding as it is all located within an area zoned as Flood Zone 1 and 2. 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 fluvial flooding).



Flood Map for Planning Present Day (Source EA)

On the 27 August 2025 the Environment Agency added a new layer on “Flood Map for Planning Flood Zones plus Climate Change”, which shows how the combined extent of Flood Zones 2 and 3 could increase with climate change over the next century. Flood Zone 1 sites that are within the ‘flood zones plus climate change extent should be treated as if they were in Flood Zone 2. The Environment Agency do not at present have any data for this area. The site remains in Flood Zone 1.



Flood Map for Planning with Climate Change (Source EA)

Risk of Flooding from Rivers & Sea

The Risk of Flooding from Rivers and Sea map was updated in January 2025 and for the present day shows that the site for the development, to be at no chance of flooding for both the present day and with climate change. 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.

Yearly chance of flooding

Very low

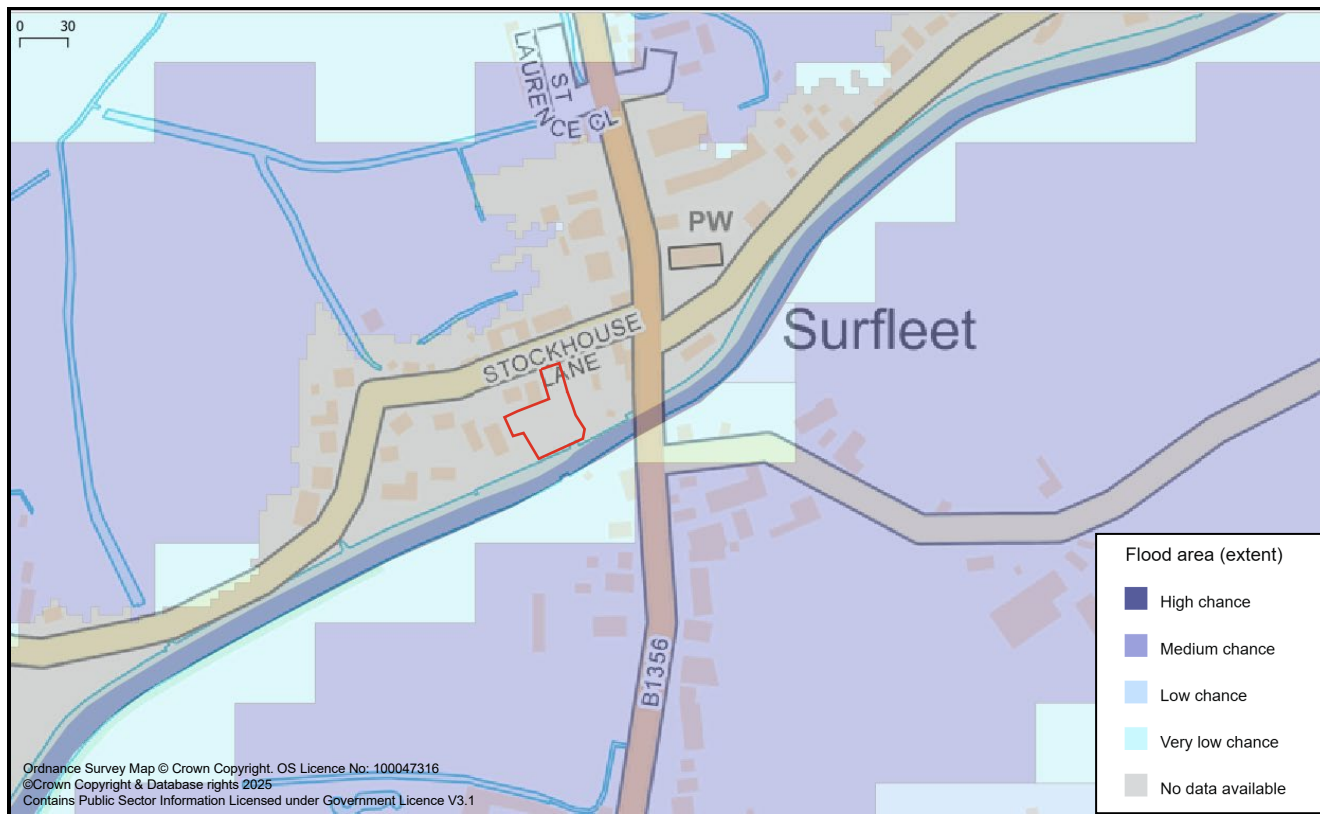
Low

Medium

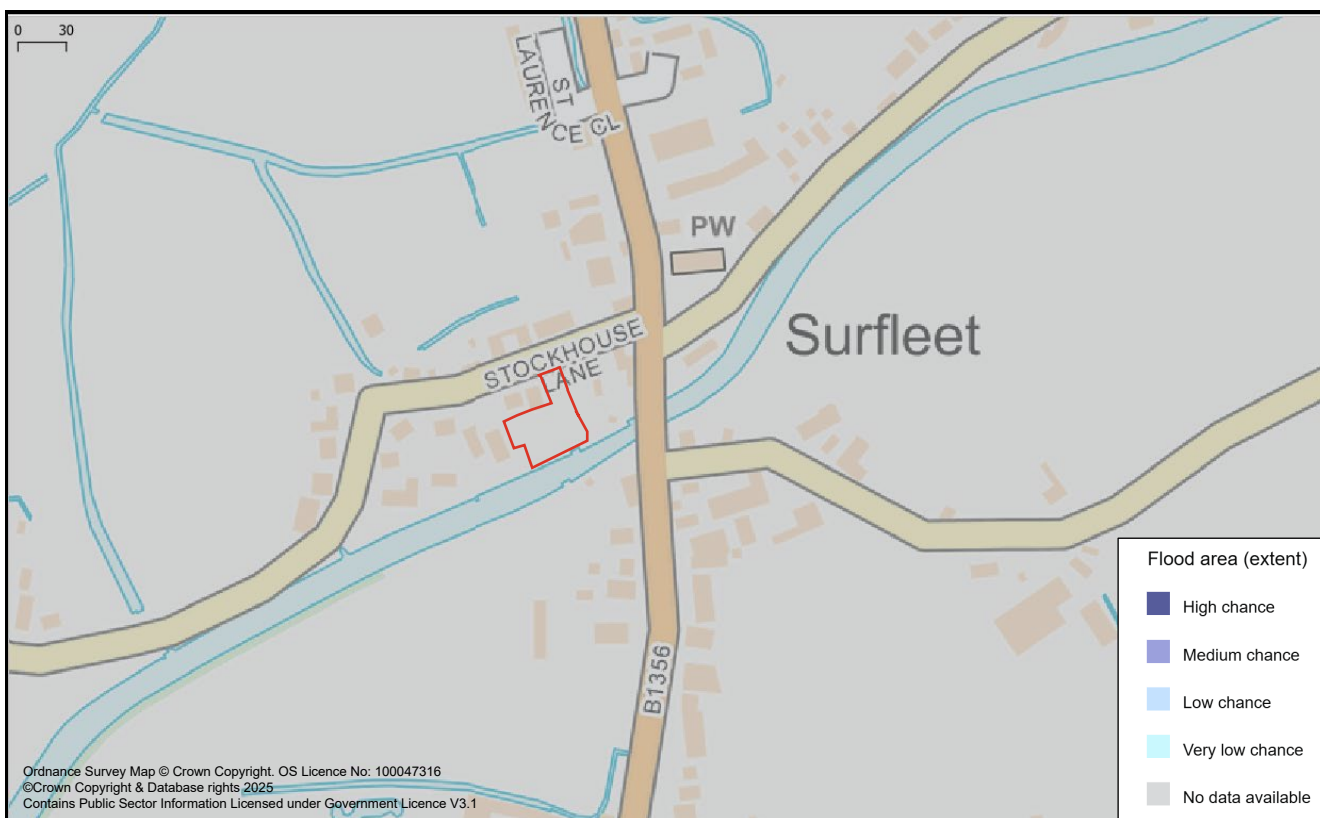
High

Yearly chance of flooding between 2036 and 2069

No data available



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



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

River Glen

The River Glen is located alongside the southern boundary of the site, which discharges into the tidal River

Welland at Surfleet Seas End. To stop tidal/saltwater entering the River Glen there is a tidal sluice (Surfleet Sluice) located adjacent to Reservoir Road. There are high embankments along the tidal Welland to defend against flooding from extreme high tides and surge.

There are no formal flood defences reducing the risk of flooding to this site. The nearby 'river' channel provides a nominal level of protection.

Surfleet Reservoir

Surfleet Reservoir lies downstream of the site, immediately upstream of Surfleet Sluice on the River Glen, located close to the confluence of the River Glen and River Welland, and is classified as Flood Zone 3b or Functional Floodplain.

During periods of high tide, the River Glen cannot discharge water into the River Welland as it is 'tide-locked' – the tide levels in the River Welland are higher than the level of water in the River Glen. During periods of tide-lock the water from the River Glen catchment cannot discharge into the River Welland and it is stored in Surfleet Reservoir to avoid flooding of agricultural land. In most conditions this water remains within the channel flowing through the reservoir, however there are occasions where the reservoir fills, and flooding occurs. This is typically when high flows in the River Glen (such as following prolonged rainfall) coincide with high or surge tides. In these instances, flooding of the berm can and does occur.

Fluvial Flood Levels (mODN)

The Fluvial flood levels for the model nodes shown on the attached map are set out below. They are measured in metres above Ordnance Datum.

			Annual Exceedance Probability – Maximum Water levels (mODN)										
Node Point	Easting	Northing	1 in 2 50%	1 in 5 20%	1 in 10 10%	1 in 25 4%	1 in 50 2%	1 in 75 1.33%	1 in 100 1%	1 in 100 1%+20%CC	1 in 200 0.5%	1 in 1000 0.1%	1 in 1000 0.1% + 20%CC
Glen 3817	525080	328118	3.75	4.01	4.11	4.17	4.19	4.21	4.23	5.12	4.26	4.35	5.26
Glen 3910	524998	328075	3.75	4.01	4.12	4.18	4.20	4.22	4.24	5.12	4.27	4.36	5.27
Glen 4108	524821	327987	3.75	4.02	4.12	4.18	4.21	4.23	4.25	5.12	4.28	4.38	5.27

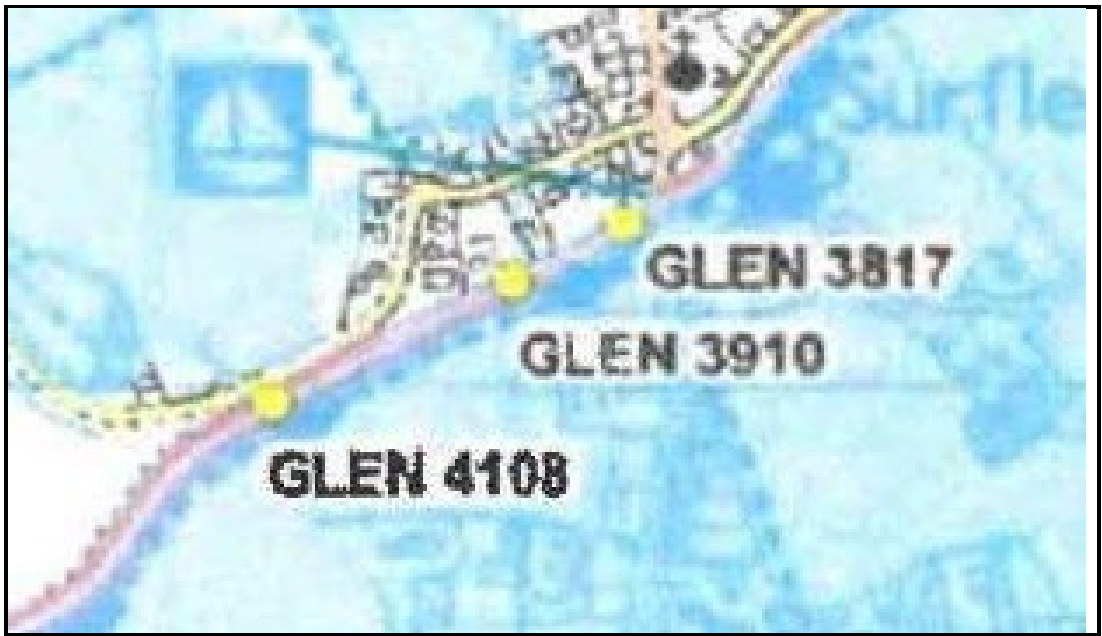
Fluvial Flood Flows (m³/sec)

The Fluvial flood levels for the model nodes shown on the attached map are set out below. They are measured in metres above Ordnance Datum.

			Annual Exceedance Probability – Maximum Flows (m ³ /sec)										
Node Point	Easting	Northing	1 in 2 50%	1 in 5 20%	1 in 10 10%	1 in 25 4%	1 in 50 2%	1 in 75 1.33%	1 in 100 1%	1 in 100 1%+20%CC	1 in 200 0.5%	1 in 1000 0.1%	1 in 1000 0.1%+20%CC
Glen 3817	525080	328118	20.00	24.57	27.92	30.58	31.67	32.59	133.72	44.09	35.09	40.21	50.34
Glen 3910	524998	328075	19.95	24.52	27.87	30.53	31.62	32.54	33.67	44.01	35.05	40.21	50.26
Glen 4108	524821	327987	19.76	24.37	27.72	30.36	31.47	32.38	33.51	43.65	34.90	40.22	50.06

The above flood levels for the return periods have been taken from data supplied by the Environment Agency

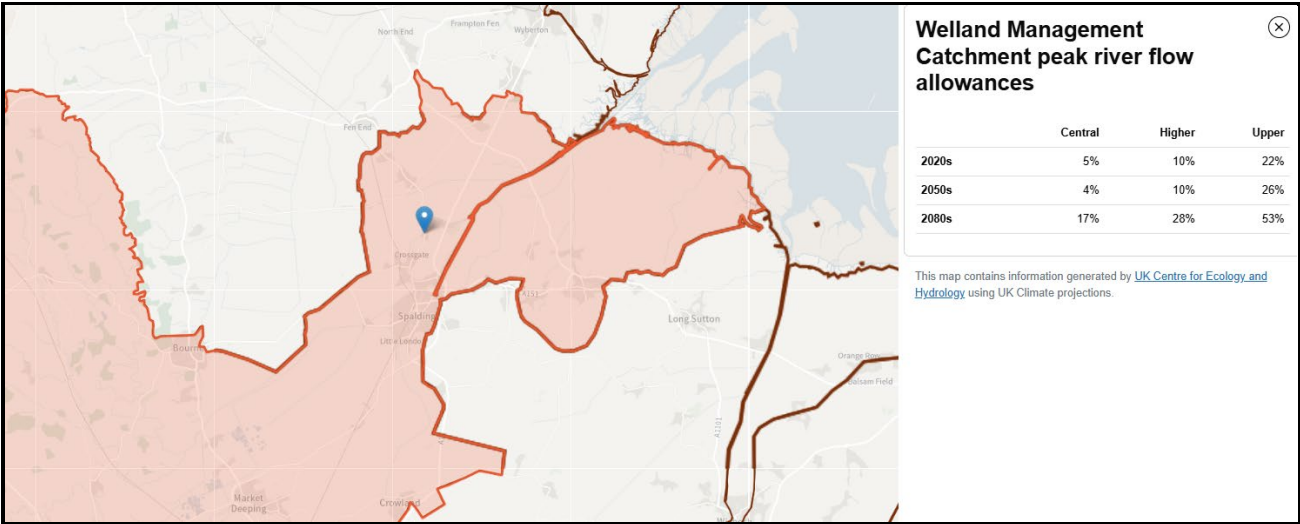
taken from the Welland Catchment Strategic Model 2016.



River Glen Node Map

Climate Change

The above results have a climate change increase of 20% added to the peak river flows whereas the updated guidance (27 July 2021) the Central allowance (17%) should be used for More Vulnerable uses in flood zone 3a and 2 should be added for developments in Anglian RBD/ Welland management catchment.



The River Glen flood levels at this location is very much influenced by the tidal River Welland and the Surfleet Reservoir and without modelling the exploration of flows and river levels are unpredictable. Therefore, the modelled 1 in 100year with 17% climate change added has been adopted to determine the finished floor level for the development.

Given the scale and nature of the proposed development it is considered that additional hydraulic modelling is not

appropriate to determine the revised river levels. Therefore, a linear interpolation of the river levels has been used which gives the following;

Scenario	Level (m ODN)
Present Day	4.23
20% CC	5.12
1%	0.04
17% CC	4.98

1.0% (1:100) Revised Flood Levels

Environment Permit

An Environment Agency Environment Permit will be required for any works within 8m of the fluvial main river.

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.

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.

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

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.

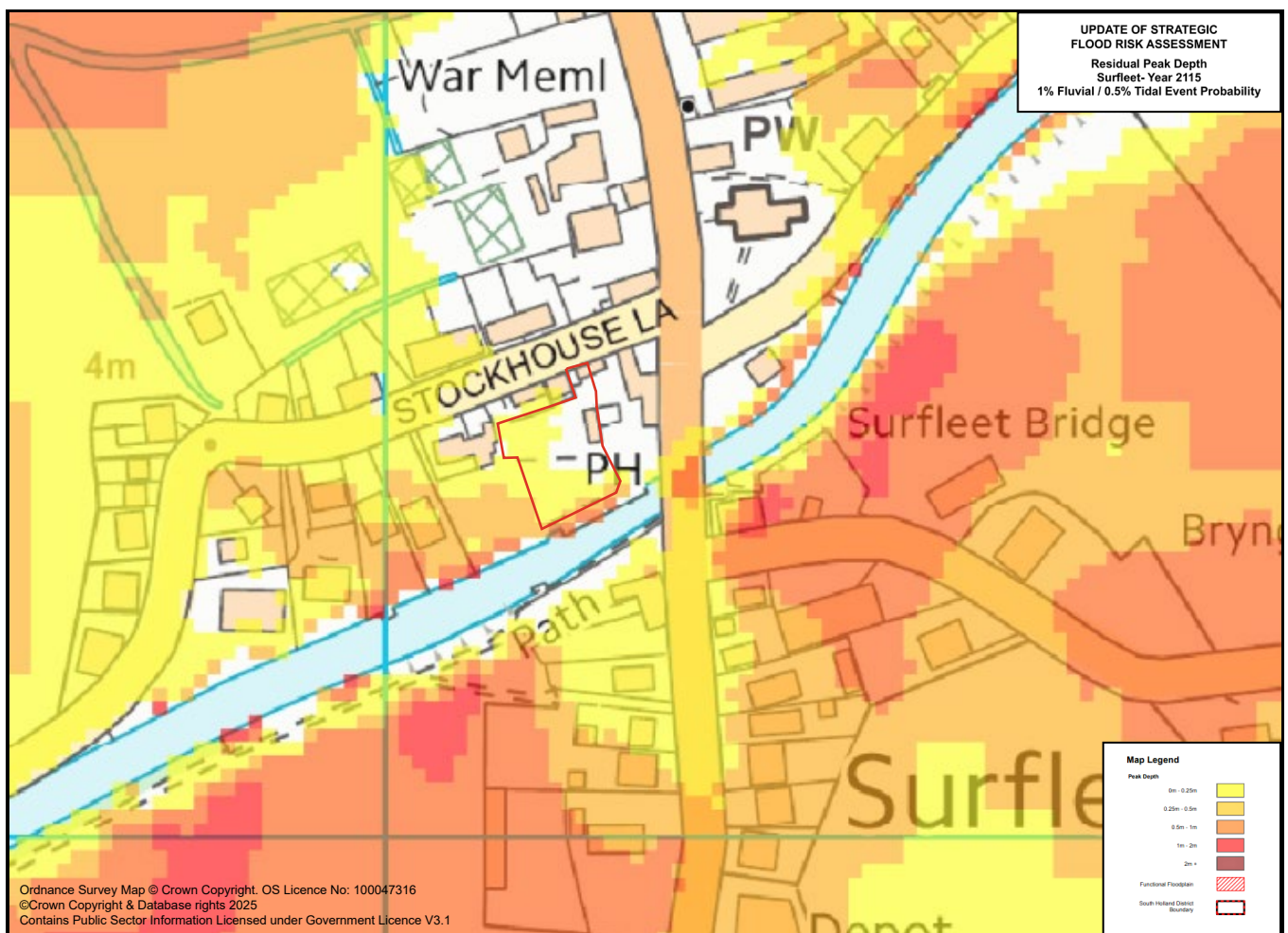
For the degree of Flood Hazard to be classified as low HR must be <0.75

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.

The 2017 Update to SHDC, SFRA has carried out a Tidal & Fluvial Hazard Mapping, for Surfleet, following a breach to the defences. The present-day Residual Flood Hazard, Surfleet – present day 0.1% fluvial and 0.5% Tidal Event Probability Maps show that the site where the proposed development is not located in a low hazard area. **Map 3**

From the Residual Flood Hazard, Depth and Velocity Surfleet - Year 2115 0.1% Tidal Event Probability maps, from the update of strategic flood risk assessment for South Holland District Council, the single storey dwelling is not affected from a breach to the flood defences. Plots 1 and 2 are mostly within a Low Hazard Rating Area, Depth 0m – 0.25m and velocity 0 –0.3m/sec. **Maps 4, 5 & 6**



Extract from SHDC Residual Peak Depth Map Surfleet 1% Event 2115

Finished Floor Levels

They also recommended that for housing development the finished floor level should be informed by the predicted flood depth maps. For depths of between 0 – 0.25m the FFL should be set 300mm above the ground level.

It is therefore proposed, in accordance with the Environment Agency's recommendations that the ground floor habitable accommodation for Plots 1 & 2 be raised 300mm above the existing ground level set at 5.00mODN which is above the 17% climate change level in the river.

WELLAND & DEEPINGS INTERNAL DRAINAGE BOARD

The proposed development site is located within the catchment area of Welland & Deepings Internal Drainage Board. The Board is responsible to operate and maintain the arterial fluvial system.

The site is within Board's Surfleet Village catchment. There are no Boards maintained drains in the vicinity of the site.



Welland & Deepings IDB Drainage Map

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 having no high ground around the site and with the proposed ground floor levels being set above the existing ground floor level this will not cause any rapid inundation of the site.

- 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. This location is outside of a groundwater flood alert area.
- Flooding from sewers can occur from overloading from heavy rainfall caused by blockages or having inadequate capacity. However, with the natural topographic nature of the ground having no high ground around the site and with the proposed ground floor levels being set above the existing ground level this will not cause any rapid inundation of the site. The risk is considered to be low as the sewerage system is well maintained by Anglian Water.
- 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.

Reservoirs

The EA has prepared reservoir failure flood risk mapping to show the largest area that might be flooded if a reservoir were to fail and release the water it holds. The mapping displays two scenarios as follows:

- Dry this is the extent when the river levels are normal,
- Wet this is the extent when there is also flooding from rivers.

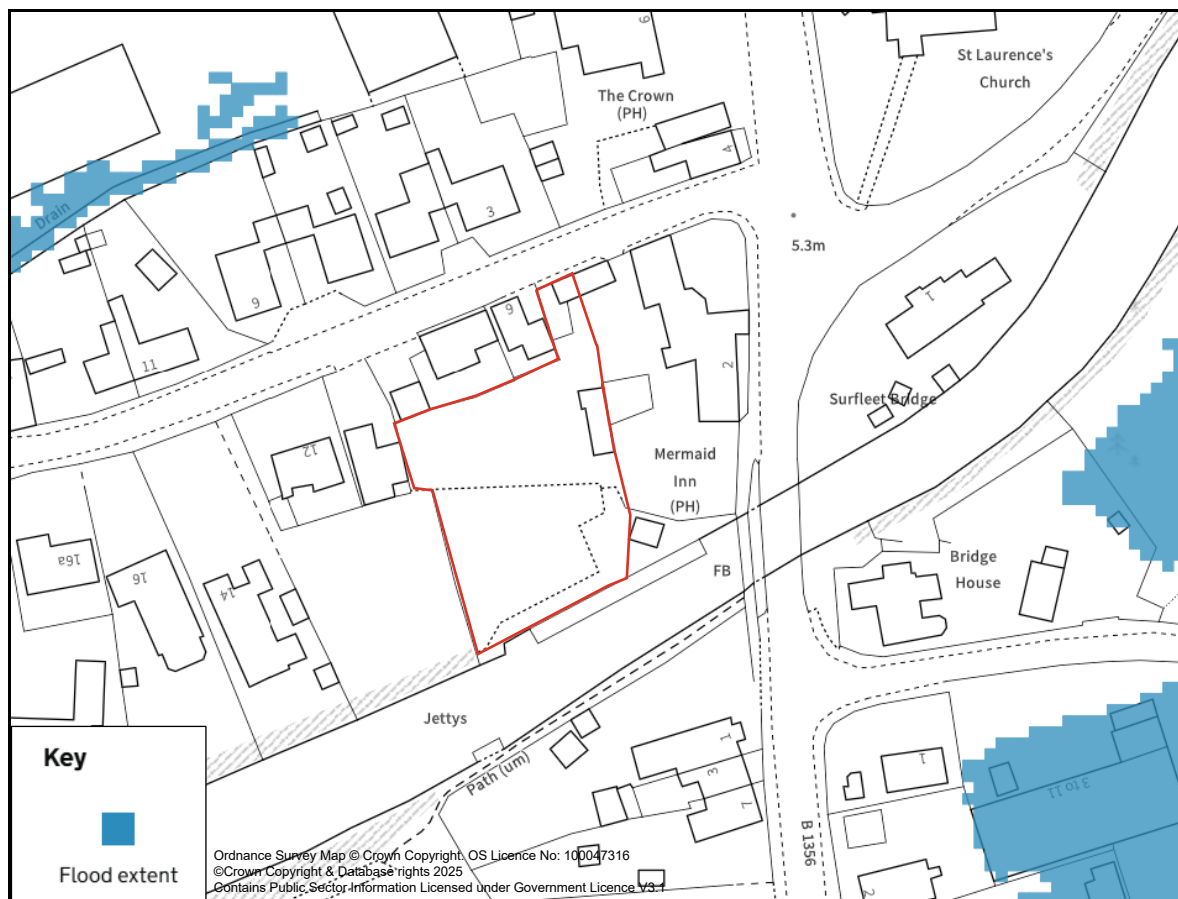
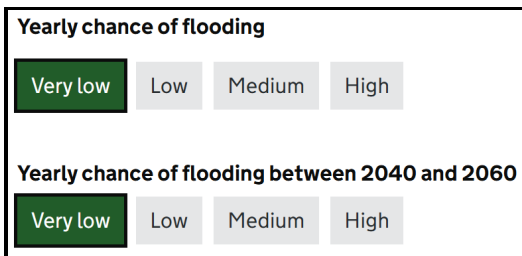
The mapping displays a worst-case scenario and is only intended as a guide. The site is shown to be at no risk of flooding due to the failure of a large, raised reservoir in both the dry and wet day scenario. All large reservoirs must be inspected and supervised by reservoir panel engineers as detailed by the enforcement authority for the Reservoirs Act 1975 in England. The EA are responsible to ensure that reservoirs are inspected regularly, and essential safety work is carried out. As such, the risk of flooding from this source is relatively low.

Canals and or Artificial Water Bodies.

The site is not at risk of flooding from canals and or Artificial Water Bodies.

SURFACE WATER FLOODING

The whole of the site for the proposed units is not shown on the Low-Risk scenario Surface Water flood maps, for the 1 in 1000-year event, to be affected from surface water flooding. This type of flooding is usually short lived and associated with heavy downpours of rain, thunderstorms etc.



Risk of flooding From Surface Water Map 1 in 1000 event (Source EA)

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.

SEQUENTIAL APPROACH

When applying the sequential approach for flood risk in accordance NPPF the site would fall into Zone 1 (Low Probability) as shown on the Environment Agency's Flood Map without defences in place.

The Environment Agency categorise land into one of three Flood Zones.

- Flood Zone 1 is Land having a less than 1 in 1,000 annual probabilities of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3)
- Flood Zone 2 is Land having between a 1 in 100 and 1 in 1,000 annual probabilities of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probabilities of sea flooding. (Land shown in light blue on the Flood Map)
- Flood Zone 3a is Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)

Applying the Flood Risk Vulnerability Classification in Table 2 of NPPG, the proposed use is classified as, "More Vulnerable" use, Table 1 of NPPG states that such uses are appropriate in this zone subject to the exception test, (as summarised in Table 3 NPPG)

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 & Exception Test

NPPF Guidance Paragraphs 161 - 186 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 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 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.

This windfall site for the 2 No plots is located within the settlement boundary for Surfleet, a Minor Service Centre as set out in the Southeast Lincolnshire Local Plan (2019). Policy 1 (Spatial Strategy) of the Local Plan. This states that within the settlement boundaries of these centres; development will normally be limited to allocated and committed sites and infill. There are no other sites in Surfleet which are at a lower flood risk which are available.

The NPPF requires the application of the Sequential Test to steer new development to areas with the lowest probability of flooding. If, following the application of the Sequential Test, it is not possible, consistent with wider sustainability objectives, for the development to be in zones with a lower probability of flooding, the Exceptions Test can be applied if appropriate.

With most of the site being constructed within the area shown on the Environment Agency Flood Map (without defences) to be in Flood Zone 1, it need not be considered further in relation to the Sequential or Exception Tests for the location of new development with respect to flood risk. Examination of Table 3 shows that for Flood Zone 1, **all** vulnerability classifications are appropriate for development.

This Flood Risk Assessment in terms of making the development safe, would result in finished floor levels being set at 5.00mODN. This would be sufficient to mitigate against flood risk and demonstrates that the development will be safe for its lifetime, and it will not increase flood risk elsewhere.

Given the above, it is concluded that the Sequential and Exceptions Test are satisfied.

DRAINAGE STATEMENT

Surface Water Drainage

This drainage statement, for the site, proposes to utilise infiltration techniques to reduce the storm water discharge from the proposed development and to minimise the impact of the development on the surrounding area and to comply with guidelines, which require at least one workable solution for managing surface water.

In accordance with recognised guidance, National Planning Policy Framework 2012, there is a hierarchy of where surface water should discharge. This hierarchy should be followed where practicable, and is as follows:

- 1) Infiltration
- 2) Watercourse
- 3) Public sewer

Infiltration

It is proposed that surface water from the roofs of the 2 No proposed two storey dwellings will be discharged to soakaways, designed in accordance with BRE Digest 365.

The access and car parking areas are existing.

Foul Drainage

Government guidance contained within the National Planning Practice Guidance (Water supply, wastewater and water quality – considerations for planning applications, paragraph 20 sets out a hierarchy of drainage options that must be considered and discounted in the following order:

1. Connection to the public sewer
2. Package sewage treatment plant (adopted in due course by the sewerage company or owned and operated under a new appointment or variation)
3. Septic Tank

Research has revealed that there are public maintained foul sewers in Stockhouse Lane. The foul drainage from the properties will be collected in underground pipes designed in accordance with Building Regulations.

Document H. and be connected into the Anglian Water sewer.

As there is a positive drainage system capable of receiving flows from the development there is no likely impact on neighbouring property.

CLIMATE 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 27th 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 “More 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

FLOOD PROTECTION

Any impact of damage to the properties can be foreseen and mitigated against by relatively simple design and construction techniques. There are two forms of flood protection works: -

- **Flood-resistance or proofing works:** - these try to reduce the amount of water entering a building.

- **Flood-resilient works:** - these reduce the amount of damage caused by water entering the building.

The proposed development will have the following resilient measures incorporated in the construction in accordance with "Improving the flood performance of new buildings" CLG (2007).

- The ground floor living accommodation for Plots 2 & 3 are to be raised above the existing average ground level, to be set at a level of 5.00mODN.
- Water, electricity, and gas meters: should be located above the predicted flood level. Electrical services: electrical sockets, heating systems: boiler units and ancillary devices should be installed at least 500mm above the ground floor level to minimise damage to electrical services Electric ring mains should be installed at first floor level with drops to ground floor sockets and switches.
- The ground floor to be constructed with a solid concrete floor with no voids beneath and no low-level wall vents. However, if a beam type floor is to be used, provision should be incorporated for draining the under-floor voids. The wall vents are to be fitted with 'Flood Angel' air bricks which allow air to free pass through as a usual, (complying with BS493:1995) but under flood conditions it shuts down when in contact with water. A removable mesh prevents the passage of debris which may otherwise impinge on the moving part.
- Avoid the use of absorbent cavity insulation to the ground floor level and use the closed cell type.
- Where possible, all service entries should be sealed (e.g., with expanding foam or similar closed cell material). Closed cell insulation should be used for pipes which are below the predicted flood level.
- As this site is in an area that can receive flood warnings from the Environment Agency Floodline Warning Direct system. It is recommended that the property Owners contact the Environment Agency's Floodline on 0845 988 1188 to register the property to receive advance warning of flooding by telephone, mobile, fax, SMS text, email or pager. The Environment Agency aim to issue a 'severe flood warning' approximately 2 hours before existing defences are overtopped.

CONCLUSION

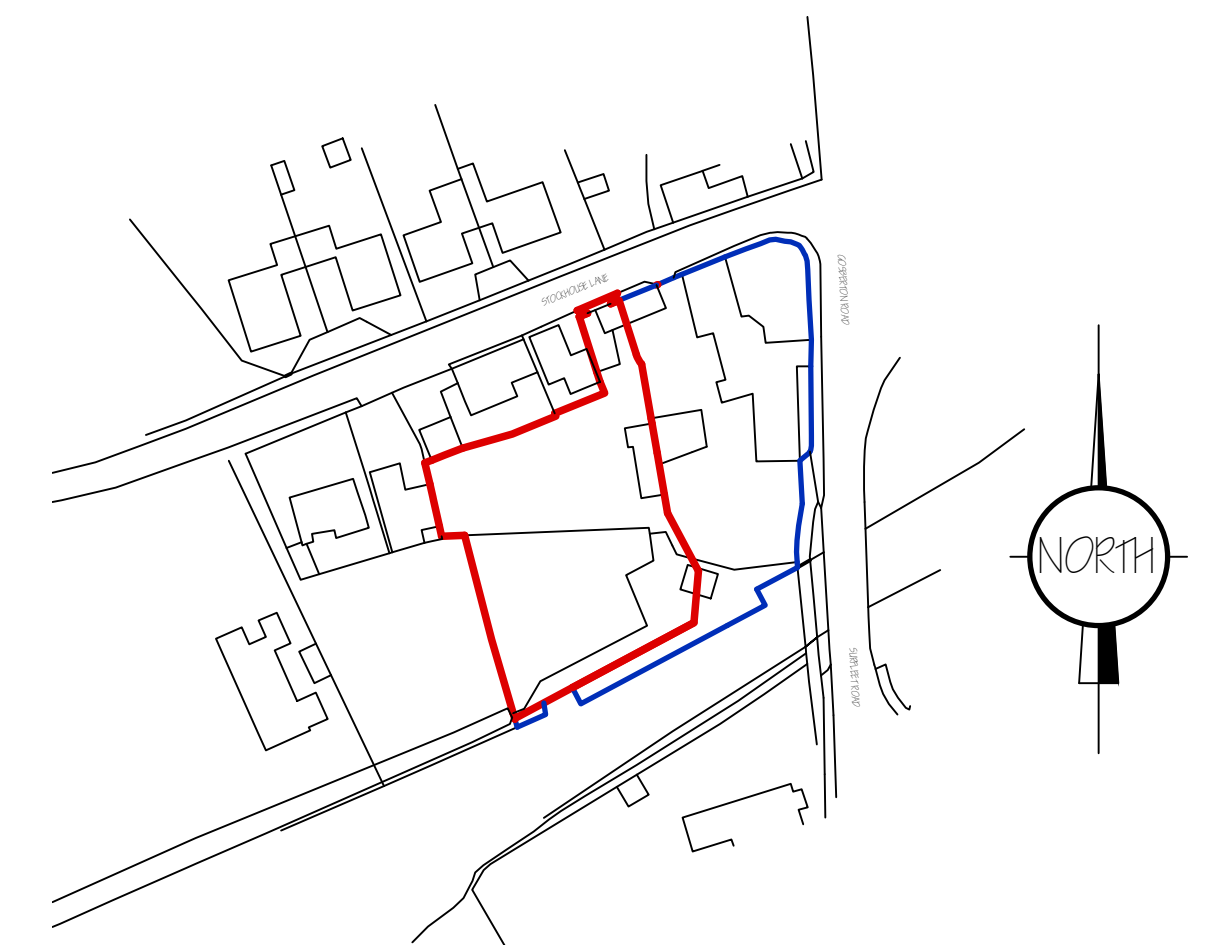
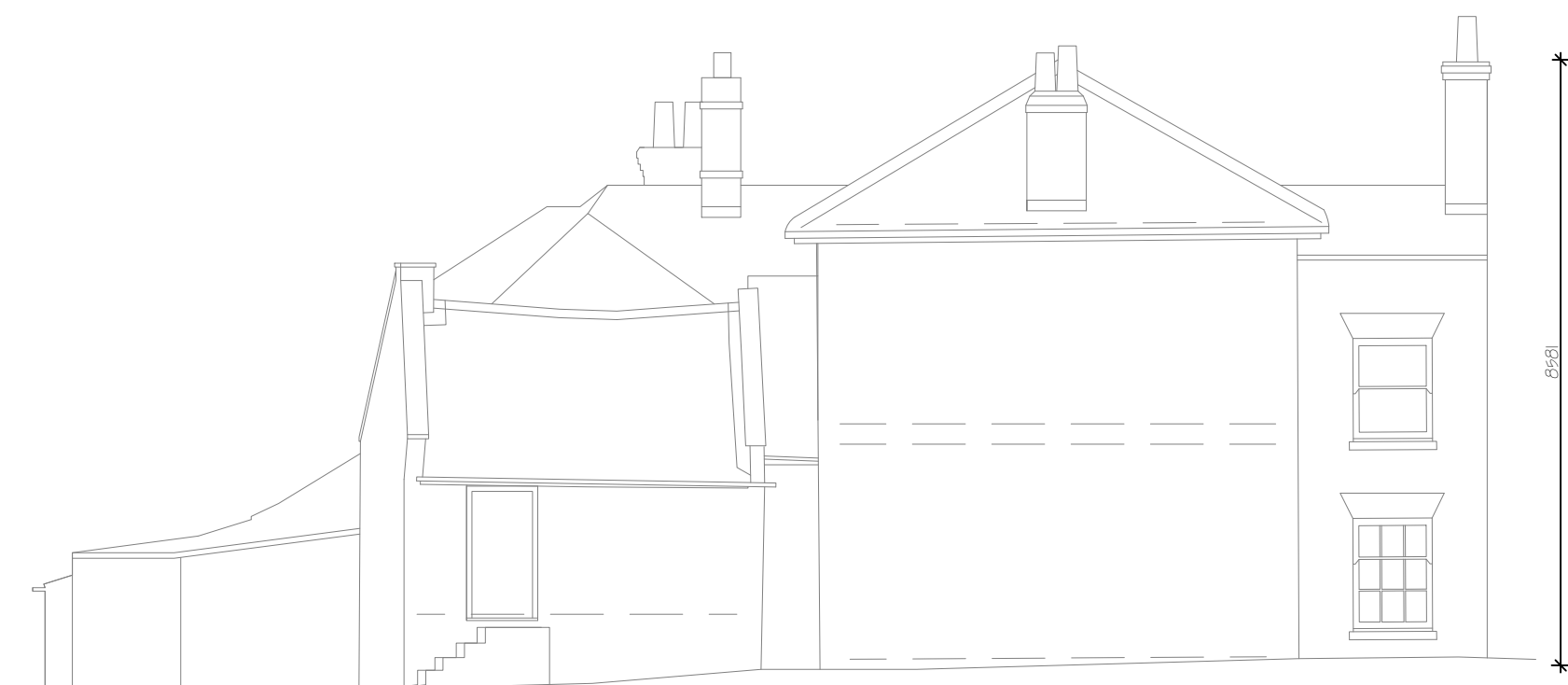
- The site does have the protection of flood defences which are well maintained by the Environment Agency.
- The proposed development site is shown to be within Flood Zone 1 'Low Probability' with the area alongside the riverbank within Flood Zone 3 'High probability' as detailed on the Environment Agency's Flood Zone Maps without defences
- The Flood Risk Vulnerability Classification in Table 2 of NPPG the proposed residential development

is classified as “More Vulnerable”, with Table 1 of NPPG stating that such uses are appropriate in this zone.

- The 2017 Update to SHDC, SFRA Tidal & Fluvial Hazard Mapping, for District following a breach to the defences for the present day the site is not within a hazard area. From the Residual Flood Hazard, Depth and Velocity Surfleet - Year 2115 1% maps, Plots 1 & 2 are mostly within a Low Hazard Rating Area, depth of flow 0m – 0.25m and velocity of flow 0 – 0.3m/sec
- The ground floor living accommodation for Plots 1 & 2 are to be raised above the existing average ground level, to be set at a level of 5.00mODN. A safe haven is provided at first floor level.
- Any impact of damage to the properties 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.
- Flooding from other sources is unlikely to affect the site.
- 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. Following the guidelines contained within the NPPF, the proposed development is suitable assuming appropriate mitigation is maintained for the lifetime of the development.
- 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.



RIVERSIDE SCENE 1:100



LOCATION PLAN 1:1250

E	PLANNING AMENDMENTS	MAY 2026
D	SCHEME REDRAW	MAY 2026
C	SCHEME REDRAW	APR 2026
B	CLIENT AMENDMENTS	MAR 2026
A	CLIENT AMENDMENTS	MAR 2026
ref:	revision	date

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Project

RESIDENTIAL DEVELOPMENT
THE MERMAID INN
2 GOSBERTON ROAD, SURFLEET
SPALDING, Lincs. PE11 4AB

Client
G.J.R & K.F. SWINDELLS

Drawing

SITE PLAN - PROPOSED
LOCATION PLAN
RIVERSIDE ELEVATIONS

Job Ref.
4418-25

Drawing No.
03E

Date NOV 2025

Drawn
SLB

Scales
1:50 & 1:100 (Unless Otherwise Stated)

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This drawing is copyright and may not be altered, traced, photographed or used in any other drawing other than that for which it was issued. The General Contractor is to check all dimensions on site and make any necessary adjustments. It is the responsibility of the General Contractor to ensure that all foundations are based upon typical site conditions related to the site area. No responsibility can be assumed by the General Contractor for any conditions not shown on this drawing.

R. G. Merchant Ltd. so that design amendments may be considered. See also surveys and other drawings for information on the site and the project.

This drawing is limited in the amount of information contained and does not purport to be a complete and exhaustive statement of the design of the project.

Regulation approval. This drawing must not be used as a contract document alone. The works will not be carried out until the design has been approved by the relevant authority.

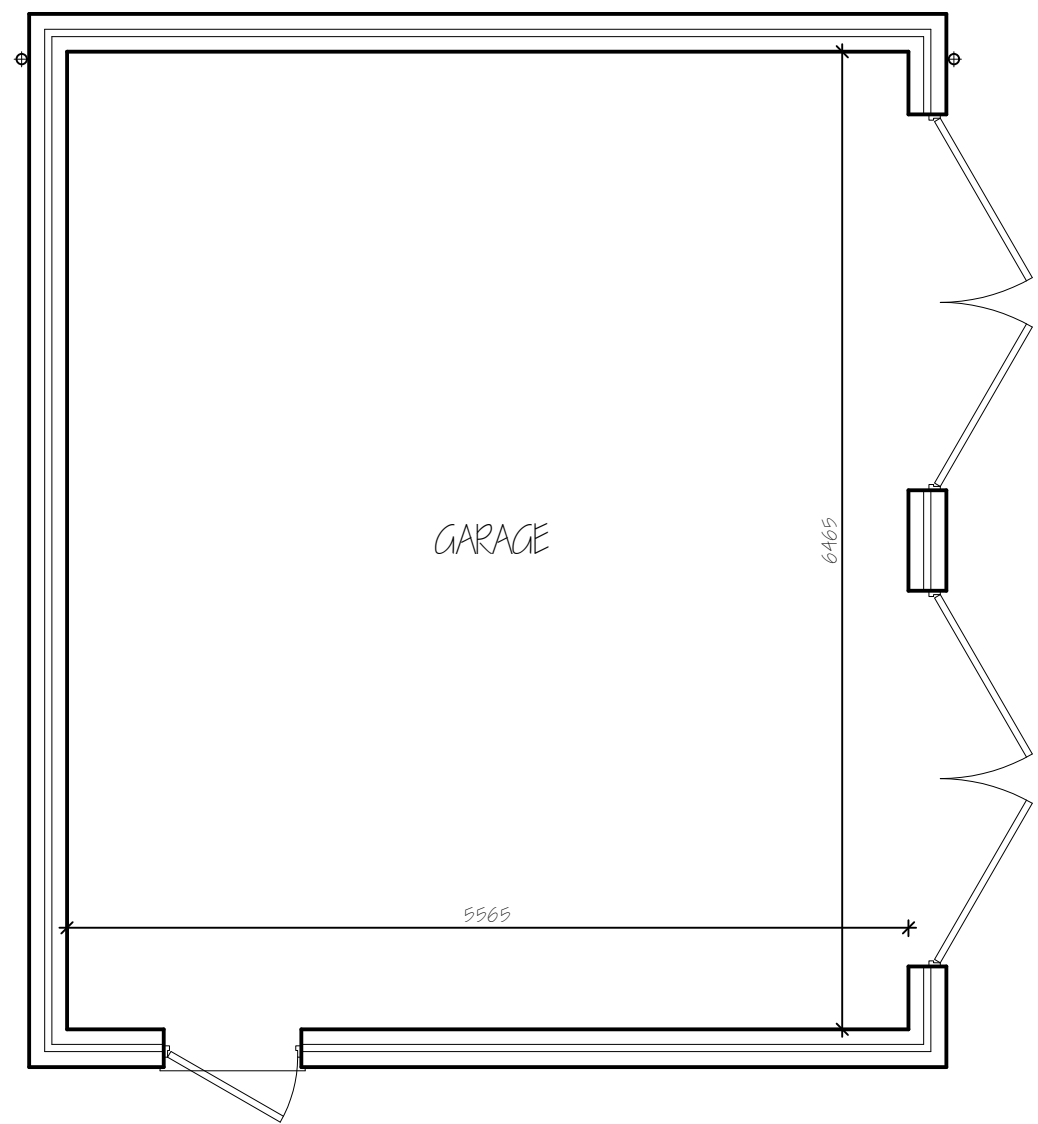
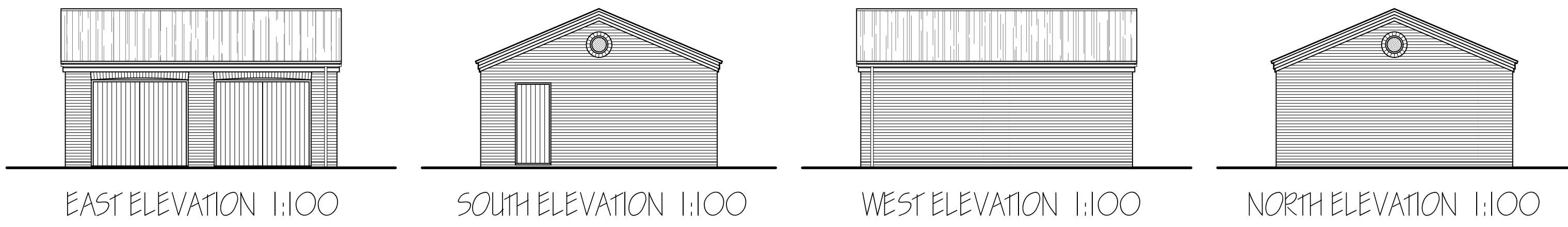
It is the responsibility of the General Contractor to ensure that the design is followed and that the reported contractor's (responsibility to contract documents, substitution of materials, and the use of materials and components materials) are used as specified and installed. It is in accordance with the design and the design is to be used as a contract document.

Standard specification or BSA certificate or European code equivalent. The Employer (Client) shall ensure that the design is in accordance with the relevant standard specification or BSA certificate or European code equivalent.

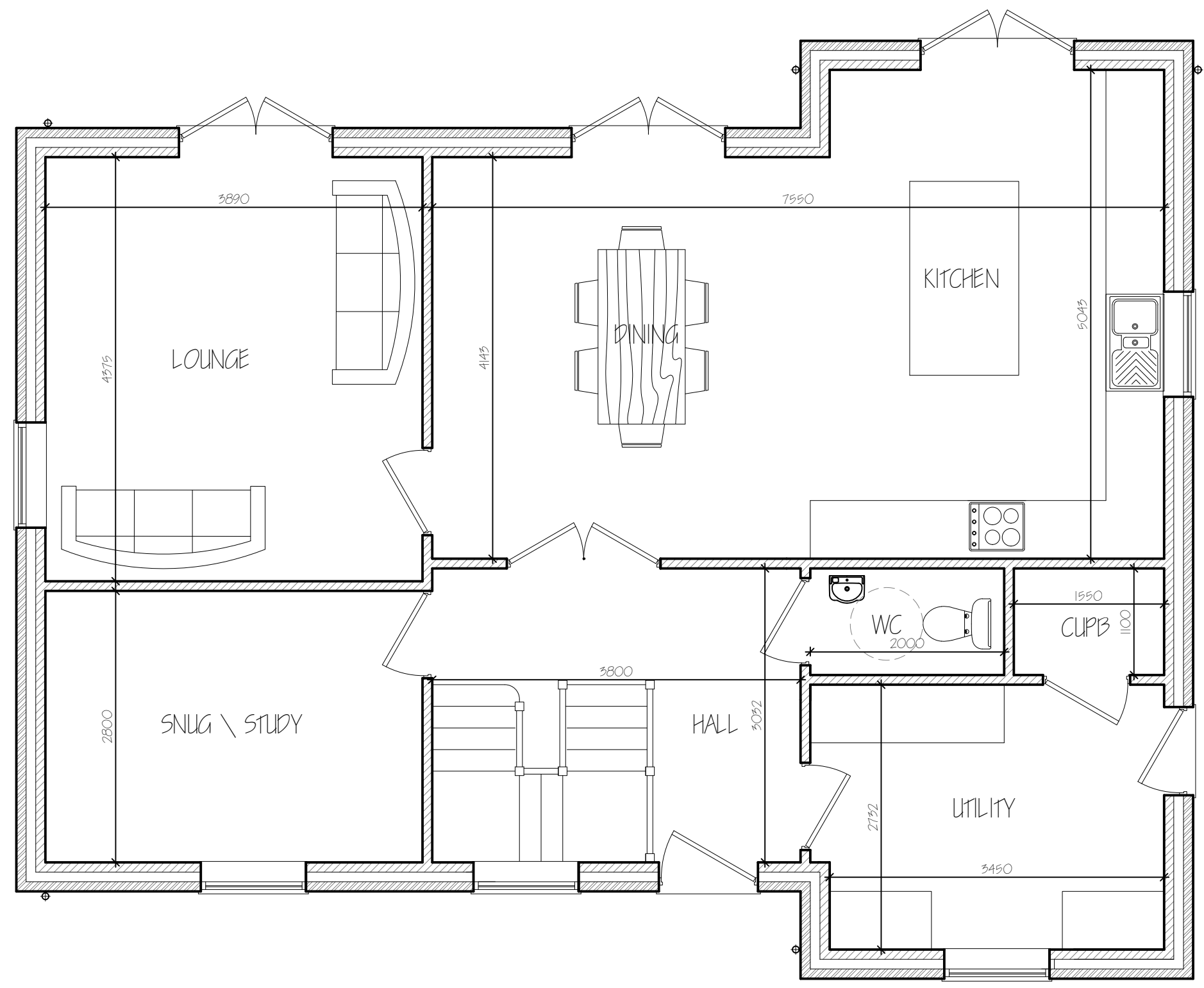
Compliance with Health and Safety legislation for Building sites and Work places. The Employer (Client) is advised that health and safety works to comply with the Construction Design and Management Regulations 2015 and the Health and Safety Regulations 2015.

Ownership on the drawing and designs. All work may not specifically be shown but may be reasonably assumed to be shown. The Employer (Client) shall ensure that the design is in accordance with the relevant standard specification or BSA certificate or European code equivalent.

Ownership responsibility to be aware of the Party Wall Act 1996 when building in close proximity to the boundary of the site.



GARAGE GROUND FLOOR PLAN 1:50



GROUND FLOOR PLAN 1:50



FIRST FLOOR PLAN 1:50

Materials Schedule:
Walls: Brown / Red Brickwork
Roof: Slate
Windows & Doors: Aluminium - Anthracite Grey
Cladding: Cedar Vertical Cladding - Black
Rainwater Goods - Black
External Railings - Metal - Black

E	DRAWING NUMBER / GARAGE ADDD	MAY 2026
F	SCHEME REDRAW	MAY 2026
C	SCHEME REDRAW	MAY 2026
B	CLIENT AMENDMENTS	MAY 2026
A	CLIENT AMENDMENTS	DEC 2025
ref.	revision	date

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Project
RESIDENTIAL DEVELOPMENT
THE MERMAID INN
2 GOSBERTON ROAD, SURFLEET
SPALDING, Lincs. PE11 4AB

Client
G.J.R & K.F. SWINDALLS

Drawing
PLOT ONE
FLOOR PLANS - PROPOSED
ELEVATIONS - PROPOSED

Job Ref.	Drawing No.
4418-25	01E
Date	Drawn
NOV 2025	S.L.B

Scales
1:50 & 1:100 (Unless Otherwise Stated)

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Materials Schedule:
Walls: Brown / Red Brickwork
Roof: Slate
Windows & Doors: Aluminium - Anthracite Grey
Cladding: Cedar Vertical Cladding - Black
Rainwater Goods - Black
External Railings - Metal - Black

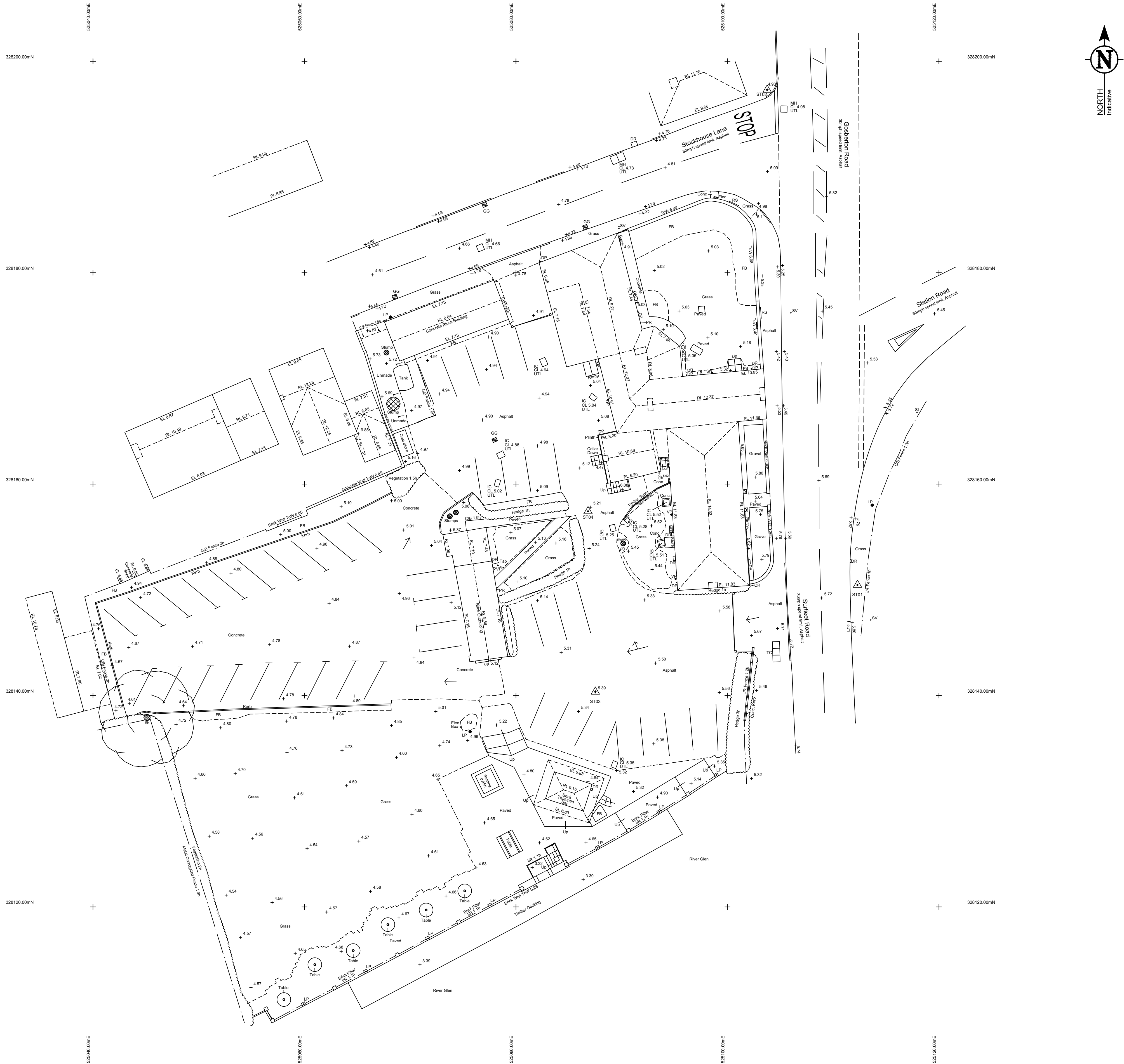
D	DWELLING HANDLED	MAY 2026
C	SCHEME REDESIGN	MAY 2026
B	CLIENT AMENDMENTS	MAR 2026
A	CLIENT AMENDMENTS	DEC 2025
ref:	revision	date

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Project	RESIDENTIAL DEVELOPMENT THE MERMAID INN 2 GOSPORT ROAD, SURFLEET SPALDING, Lincs. PE11 4AB
Client	GJR & KF. SWINDELLS
Drawing	PLOT TWO FLOOR PLANS - PROPOSED ELEVATIONS - PROPOSED
Job Ref.	4418-25 020
Date	NOV 2025 5LB
Scales	1:50 & 1:100 (Unless Otherwise Stated)
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DRAWING NOTE

Topographical Surveys

Trees are drawn to scale showing the average canopy spread. Descriptions and heights should be used as a guide only.

All building names, descriptions, number of storeys, construction type including roof line details are indicative only and taken externally from ground level.

All below ground details including drainage, voids and services have been identified from above ground and therefore all details relating to these features including: sizes, depth, description etc will be approximate only. All critical dimensions and connections should be checked and verified prior to starting work.

Detail, services and features may not have been surveyed if obstructed or not reasonably visible at the time of the survey.

Measured Building Surveys

Measurements to internal walls are taken to the wall finishes at approx 1m above the floor level and the wall assumed to be vertical.

Cill heights are measured as floor to the cill and head heights are measured from cill to the top of window.

General

The contractor must check and verify all site and building dimensions, levels, utilities and drainage details and connections prior to commencing work. Any errors or discrepancies must be notified to 3DSS.

The accuracy of the digital data is the same as the plotting scale implies. All dimensions are in metres unless otherwise stated.

The survey control listed is only to be used for topographical surveys at the stated scale. All control must be checked and verified prior to use.

3DSS holds the copyright to all the information contained within this document and their written consent must be obtained before copying or using the data other than for the purpose it was originally supplied.

Do not scale from this drawing.

The coordinate system established for this survey is related to Ordnance Survey (OS) national grid at a single point using VRS Now, then orientated to grid north with a scale factor of 1.000

The level datum established for this survey is related to Ordnance Survey (OS) using VRS Now.

To avoid discrepancies any coordinated data used in conjunction with this survey must be derived directly from this control data.

SURVEY CONTROL CO-ORDINATES				
STATIONS	EASTINGS	NORTHINGS	LEVEL	DESCRIPTION
ST01	525112.302	328150.461	5.860	PK Nail
ST02	525103.758	328197.305	4.930	PK Nail
ST03	525097.698	328140.353	5.387	PK Nail
ST04	525086.817	328157.428	5.214	PK Nail

REV	DESCRIPTION	DRAWN	APPR	DATE
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TOPOGRAPHICAL & MEASURED BUILDING SURVEYS					
ABBREVIATIONS & SYMBOLS					
AH	Arch Head Height	FH	Fire Hydrant	RSJ	Roller Steel Joist
AR	Assumed Route	FBD	Floor Board Direction	SI	Sign Post
AV	Air Valve	FH	Fire Hydrant	SP	Arch Spring Point Height
BB	Bellish Beacon	FL	Floor Level	SV	Stop Valve
BH	Bore Hole	FP	Flag Pole	SW	Surface Water
BL	Bed Level	FW	Full Water	SV	Stop Valve
BO	Bollard	GG	Gully Grate	Tac	Tactile Paving
BrP	Brace Post	GV	Gas Valve	TC	Telecom Cover
BS	Bus Stop	HH	Head Height	TH	Thresh Lip
BU	Bush	IC	Inspection Cover	THL	Threshold Level
BW	Barbed Wire Fence	IL	Invert Level	TL	Traffic Light
BV	Box (Utilities)	IR	Iron Railings	ToW	Top of Wall
C/B	Close Board Fence	KO	Kerbs Outlet	TP	Telegraph Pole
CH	Cliff Height	LP	Lamp Post	TV	Cable TV Cover
CL	Cover Level	MH	Manhole	UB	Universal Beam
CL	Chain Link Fence	MP	Marker Post	UC	Unknown Cover
C-Lav	Ceiling Level	NS	Name Board	UK	Unknown Tree
Col	Column	OHL	Overhead Line (approx)	USB	Under Side Beam
C/P	Chestnut Paling Fence	Pan	Panel Fence	UTL	Unable To Lift
CR	Cable Riser	PB	Post Box	VP	Vent Pipe
DC	Drainage Channel	PM	Parking Meter	WB	Waste Bin
DH	Door Head Height	PO	Post	WH	Weep Hole
DP	Down Pipe	PR	Post & Rail Fence	WL	Water Level
DR	Drain	PW	Post & Wire Fence	WM	Water Meter
EL	Eaves Level	P/Wall	Partition Wall	WO	Wash Out
EP	Electric Pole	RE	Rolling Eye	W	Floor to Ceiling Height
ER	Earth Rod	RL	Ridge Level	W	Floor to Ceiling Height
ET	EP-Transformer	RP	Reflector Post	W	Floor to Ceiling Height
FB	Flower Bed	RS	Road Sign	W	Floor to Ceiling Height
FBD	Floor Board Direction	RSD	Roller Shutter Door	W	Floor to Ceiling Height

REV: AMENDMENTS:	DRN:	CHK:	DA:
PROJECT:			
THE MERMAID INN PE11 4AB			
DRAWING TITLE:			
EXISTING TOPOGRAPHICAL SURVEY			
CLIENT:			
RDC			
DRAWING NUMBER:			
3DSS-PG-MI-21-03			
REVISION:	SHEET SIZE:	DATE:	
	A1	23/07/21	
DRAWN BY:	CHECKED BY:	SCALE:	
PG	RS	1:200@A1	
3DSURVEYSCAN			
3DSURVEYSCAN LLP - 01509 413361 - 07415322503 - www.3dsurveyscan.co.uk ROEBUCK HOUSE - 22 POTTER STREET - MELBOURNE - DERBYSHIRE - DE73 8L			