FLOOD RISK ASSESSMENT
FOR RESIDENTIAL DEVELOPMENT AKA MIRADOR,
AT 23 RESERVOIR ROAD, SURFLEET, PE11 4DH

FINAL REPORT

DATE MAY 2025

ELLINGHAM CONSULTING LTD
Email: tim@ellinghamconsulting.co.uk

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1.0 INTRODUCTION

This Flood Risk Assessment has been prepared in accordance with National Planning Policy Framework (NPPF) and supporting Planning Practice Guidance (PPG) on Flood Risk and Coastal Change.

In areas at risk of flooding or for sites of 1 hectare or more, developers are required to undertake a site-specific Flood Risk Assessment (FRA) to accompany an application for planning permission. This Flood Risk Assessment has been produced on behalf of Ms K Woods in respect of a proposed development that consists of one single-storey 1bed dwelling within the garden of 23 Reservoir Road, Surfleet.

The garden land on which the proposed new dwelling is to be built, meets the PPG on Flood and Coastal Change definition of Flood Zone 1.

A Detailed Planning Application for the proposed development is to be submitted to South Holland District Council.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Site Location

The proposed development site is located within the garden of the residential dwelling, 23 Reservoir Road, Surfleet, Spalding, PE11 4DH. The Grid Reference of the site is TF 27713 29117.

The location of the site is shown in Figure 1.

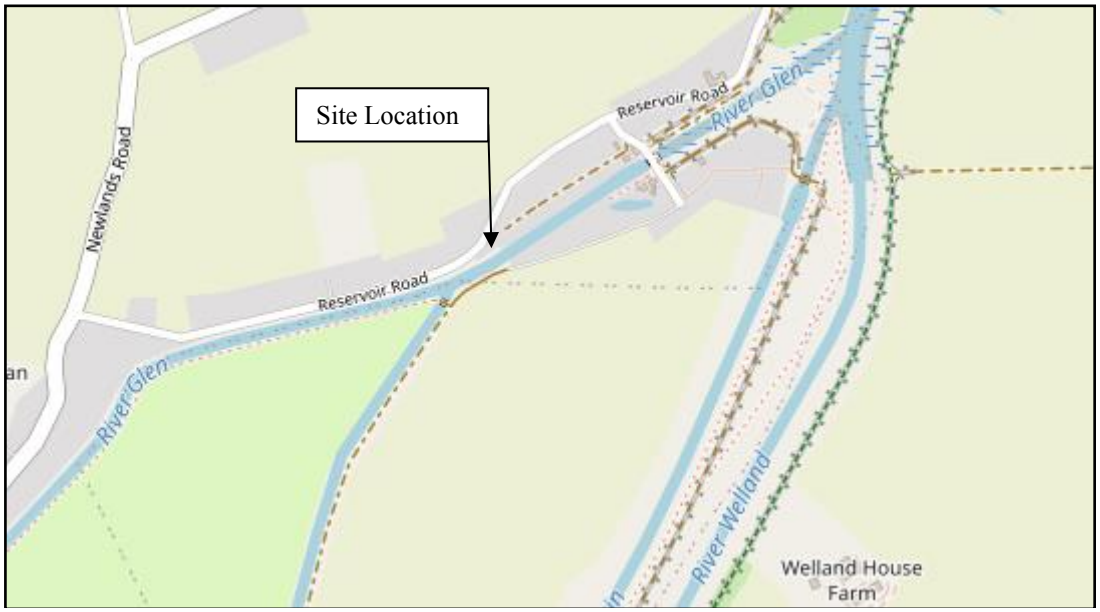


Figure 1 – Location Plan (© OpenStreetMap contributors)

2.2 Existing Site

The site is on the southern side of Reservoir Road. Reservoir Road is the flood defence for the left bank of the River Glen. The site is within the residential curtilage of the applicant's home at 23 Reservoir Road and is to the west of the existing dwelling. The southern boundary of the site is formed by a row of sheet-piles alongside the River Glen, the riparian boundary. A second inland row of sheet-piles divides the garden into an upper terrace (Flood Zone 1) and lower terrace (Flood Zone 3).

The proposed residential dwelling, known as 'Mirador', is to be located on the upper terrace, an area measuring approximately 0.014 Hectares (0.04acres) at an average level of +4.65m OD (ranging from +4.3m to +4.9m OD) fulfilling the definition of Flood Zone 1.

A Topographical Survey (Topo) of the site has been commissioned and is provided as ATTACHMENT 1. The Topo provides levels of the lower terrace of typically between +3.2m OD and +3.3m OD and is identified as Flood Zone 3 on the EA Flood Map. While the upper terrace is included on the EA Flood Map as Flood Zone 3, the Topo ground levels (range between +4.3m OD and +4.9m OD) demonstrate the site fulfils the definition of Flood Zone 1.

The proposed development site is located in an area surrounded by land that is within the Welland and Deepings Internal Drainage Board (IDB) District.

The online British Geological Survey (BGS) maps indicate that the site is likely to be underlain by Oxford Clay Formation mudstone. The bedrock is shown to be overlain with superficial deposits of clay and silt.

2.3 Proposed Development

The proposed residential development, 'Mirador', consists of one single-storey detached 1bed dwelling, incorporating a 'safe-refuge,' in the form of a mezzanine floor within the bedroom. The proposed dwelling is to be located on the upper garden terrace (average level +4.65m OD). Accompanying Sketch Scheme drawings of the proposed new residential dwelling are provided as ATTACHMENT 2.

2.4 Local Development Documents

The South East Lincolnshire Local Plan 2011 – 2036, adopted in March 2019, is the Local Plan for the District. Policy 4: Approach to Flood Risk states the requirements for flood risk reduction.

The South East Lincolnshire Level 1 and Level 2 Strategic Flood Risk Assessment (SFRA) was prepared in June 2017.

The Joint Lincolnshire Flood Risk and Drainage Management Strategy has been prepared by Lincolnshire County Council as the Lead Local Flood Authority. The purpose of the Strategy is to increase the safety of people across Lincolnshire by reducing the number of people at risk of flooding, increasing the resilience of local communities, and reducing the impact of flooding.

2.5 Available Flood Risk Information

An extract from the Environment Agency Flood Map for Planning is shown in Figure 2 and identifies the local Flood Zones and the water storage area to the east of the site.

The role of the EA Flood Maps are of national strategic planning importance in identifying areas of land in the UK, at risk of flooding. Given the national coverage of the mapping, it is understandable that small areas of land like the upper garden terrace of 23 Reservoir Road, are not reflected within the mapping.

In this instance, part of the garden to 23 Reservoir Road is at a level of +4.65 OD which is defined as Flood Zone 1. By virtue of the available Topo, the upper garden terrace can be excluded from the EA Flood Zone 3 area and identified as Flood Zone 1. The lower garden terrace remains in Flood Zone 3.

Flood Zones are a guidance tool, formed by the Environment Agency, to demonstrate the probability of river and sea flooding in areas across England. The modelling used

by the Environment Agency in assessing risks of flooding assumes that no flood defences exist.

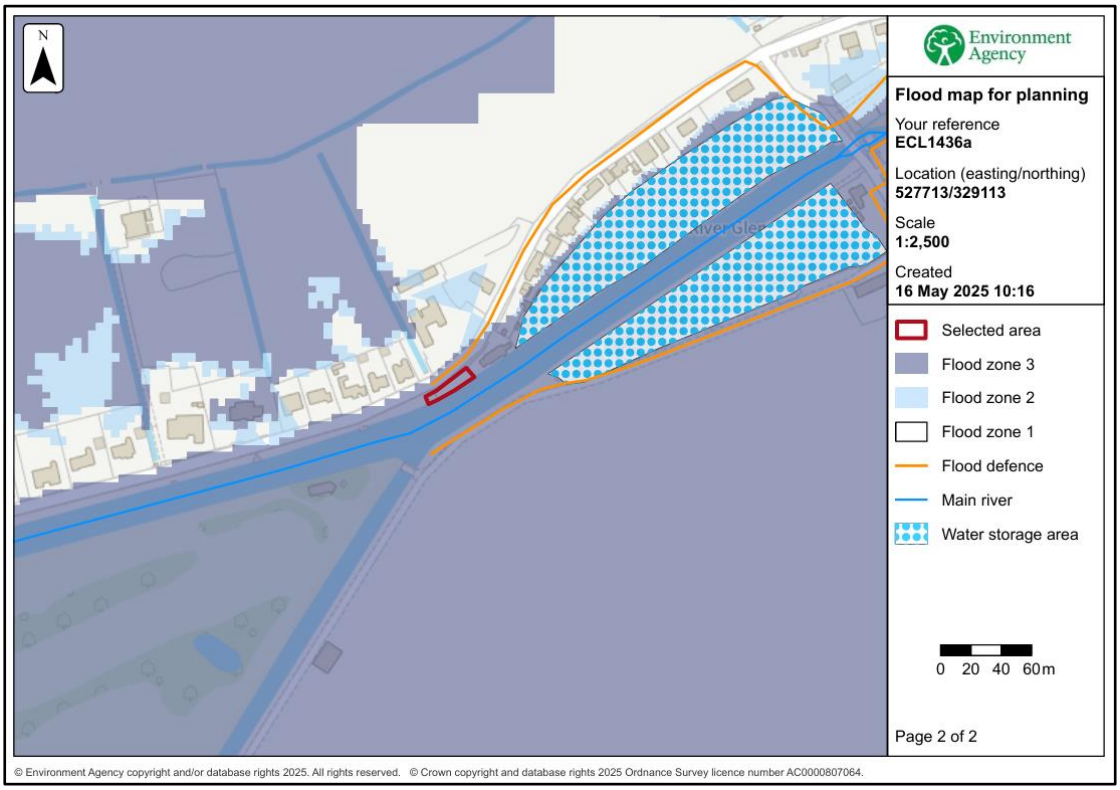


Figure 2 – Environment Agency Flood Map for Planning

The details provided within the Environment Agency Long Term Flood Risk maps are summarised in Table 1.

	Present Day		2050 Epoch	
	Risk of Flooding	**Depth**	**Risk of Flooding**	**Depth**
Rivers and the Sea	High risk (greater than 3.3% chance each year)	No data available	No data available	No data available
Surface Water	Outside of the low risk area (between 0.1% and 1% chance each year)	No risk	Outside of the low risk area (between 0.1% and 1% chance each year)	No risk
Reservoir	Outside of the area at risk.			

Table 1 – Environment Agency Long Term Flood Risk Maps

Flood risk assessment data provided by the Environment Agency for the site is provided as ATTACHMENT 3.

3.0 FLOOD RISK VULNERABILITY

3.1 The Sequential and Exception Test

The NPPF requires the application of a Sequential Test to ensure that new development is in areas with the lowest probability of flooding i.e. Flood Zone 1.

The Exception Test is a method to demonstrate and help ensure that flood risk to people and property will be managed, while allowing necessary development to go ahead in situations where suitable sites at lower risk of flooding are not available.

3.2 Vulnerability Classification

Table 2 of the PPG Flood Risk and Coastal Change categorises different types of uses and development according to their vulnerability to flood risk.

Residential dwellings are identified generally under the guidance 'More vulnerable' Table 3 of the PPG Flood Risk and Coastal Change sets out Flood Risk Vulnerability and flood zone 'compatibility'. Although the EA flood Zone Map shades the upper terrace of the development site in blue, the attached Topographical Survey provides updated levels that place that area in Flood Zone 1.

PPG Flood Risk and Coastal Change defines that the lifetime of the development in terms of flood risk and coastal change is 100 years.

3.3 Application of the Sequential and Exception Test

It is for the Local Planning Authority, using the evidence provided and taking advice from the Environment Agency as appropriate, to consider whether an application passes the Sequential Test.

Whilst it is recognised that the site is indicated as being in Flood Zone 3 on the Environment Agency Flood Map, the site specific levels demonstrate differently. Flood Zone 1 is defined as land that has less than a 0.1% annual probability (1 in 1000 chance each year) of flooding. The 0.1% annual probability (1 in 1000 chance each year) flood level is +4.31m OD and the typical ground level in the upper terrace of the site exceeds this level by more than 300mm.

The proposed new dwelling is to be built on land that meets the definition of Flood Zone 1. On this basis the site is considered to pass the Sequential Test.

The Exception Test requires consideration of the wider sustainability benefits of a development and that the development would be safe and residual risks managed.

The proposed dwelling, 'Mirador', will provide a local, regional, and national benchmark for flood resilient design.

Section 5 of this Flood Risk Assessment describes the flood mitigation measures and the management of the residual risks, demonstrating that this development will be safe and not increase flood risk elsewhere. The development is considered to pass the Exception Test.

4.0 SITE SPECIFIC FLOOD RISK

4.1 Local Flood Assets

The southern boundary of the site is formed by the sheet piling in the River Glen, the riparian boundary. The site is adjacent to a Flood Storage Area of the River Glen immediately upstream of Surfleet Sluice, known as 'The Reservoir'. Reservoir Road to the north of the site forms a defence that protects the land to the north and retains water within the Flood Storage Area.

The River Glen has its confluence with the tidal River Welland 300m downstream of Surfleet Sluice. The Sluice Gate and the adjoining embankments offer protection during a tidal flood event in the River Welland.

The River Glen and River Welland are both Main Rivers. These watercourses, together with Surfleet Sluice and adjoining embankments, are the responsibility of the Environment Agency.

There is a long-term strategy for the maintenance of the Environment Agency defences which is reviewed and updated periodically. The condition of Environment Agency assets is generally good.

4.2 Sources of Flooding

A summary of the sources of flooding is provided in Table 2.

Source of Flooding	Level of Risk
Surface Water Flooding	Based upon the EA maps the risk is **very low**.
Fluvial Flooding	The risk is assessed in Section 4.3 and Section 4.5.
Tidal Flooding	Based upon the EA data response the site is **not considered to be at risk** of tidal flooding.
Reservoir Flooding	This risk is similar to the fluvial risk and is assessed in Section 4.3 and 4.5.
Groundwater Flooding	Flooding from groundwater is **unlikely** in this area.

Table 2 – Sources of Flooding

4.3 Probability of Flooding

Present day flood levels for the River Glen were obtained from the Environment Agency. The flood levels (m AOD) at a model node that best represents the flood levels at the site are shown in the Table 3 below.

Node	Annual Probability				
	5%	2%	1%	0.5%	0.1%
Glen 704	4.19	4.17	4.18	4.22	4.31

Table 3 – Present day flood levels (m AOD)

Flood Zone 3b is the Functional Flood Plain and defined as the land where water from rivers or the sea has to be stored at times of flood. Functional Flood Plain comprises land having a 3.3% or greater annual probability of flooding.

Based upon the Table 2, the 3.3% annual probability flood level is less than +4.19m OD. Based upon a typical ground level in the area of the proposed dwelling of +4.65m OD, the development is not considered to be at risk during the 3.3% annual exceedance probability (1 in 30 chance each year) event.

4.4 Historic Flooding

The site, the upper garden terrace(circa 4.65m OD) is outside the area at risk shown on the historic flood map during the Easter 1998 event provided by the Environment Agency. During this event it is considered likely that the lower parts of the site flooded.

4.5 Climate Change and Residual Risk

Climate change is likely to impact the site through increased rainfall intensity and duration increasing flood levels in the River Glen and River Welland.

Climate change flood levels were provided by the Environment Agency for the model node that best represents flood levels at the upper terrace site. The flood level for the 1% annual probability (1 in 100 chance each year) event with a 20% climate change allowance is +4.78m OD. This is a depth of approximately 0.2m of shallow water in the area of the proposed dwelling. When the 0.1% annual probability (1 in 1000 chance each year) event is considered with a 20% climate change allowance the flood level is +4.83m OD.

The Environment Agency peak river flow map shows that for the Welland Management Catchment the peak river flow central allowance is 17% for the 2080's (100 year) timeframe. The flood levels above are therefore a conservative estimate for the climate change central allowance.

There is a small residual risk of shallow flooding on the upper terrace should there be an exceedance event.

5.0 FLOOD RISK MITIGATION

5.1 Summary of Risks

The proposed residential development site, the upper garden terrace, is at the lowest level of risk of flooding from the River Glen and River Welland. The flood levels verified by the Topographical Survey (ATTACHMENT 1) show the site levels meet the definition of Flood Zone 1, the lowest risk to flooding. The ground levels in the area of the proposed dwelling are above this flood level.

Over time, the EA identify there will be a gradual increase in risk of flooding to the site due to climate change. During the design life of the development the maximum flood level at the site is +4.83m OD, this is a shallow depth across 75% of the site of circa 0.20m in the area of the proposed dwelling.

The proposed development would increase the impermeable area of the upper terrace, potentially creating a relatively small increase in the volume of surface water runoff.

5.2 Mitigation Measures

The proposed dwelling has been developed with an underlying design ethos that:

- increases the safety of the household;
- reduces risk of flooding locally;
- increases flood resilience; and
- reduces the impact of flooding

The flood risk to the proposed development is mitigated by the following measures.

Floor Level: It is proposed that the floor level of the dwelling is at +5.1m OD, 0.32m above the 1% annual probability flood level with climate change. It is proposed that there is 0.3m of flood resilient construction above finished floor level.

Safe Refuge: The development will include a safe refuge in the event of flooding within the home on a mezzanine floor in the bedroom at a level of +7.71m OD, 2.61m above Finished Floor Level and 2.93m above the 1% annual probability flood level with climate change.

Flood Warning: The Environment Agency operates a flood warning system for properties at risk of flooding to enable householders to protect life or take actions to manage the effect of flooding on property. Floodline is a national system run by the Environment Agency for broadcasting flooding warnings. The occupier of the dwelling should register to receive flood warnings.

Surface water run-off: To be managed so that stormwater from the dwelling will not affect any adjoining properties or increase the flood risk elsewhere.

The flood resilience measures within the development will include:

- double door entry to front door, allowing outer door to function as a flood gate;
- tanking to external block wall that will be continuous from underside of slab up walls to eaves;
- bespoke Jamb Details reduces risk of Window and door water penetration into property, placing windows and doors on the outside surface of external walls;
- floating Slab (technically a raft) elevated above existing ground level by 500mm;
- non cavity walls as cavity walls trap moisture from flood waters, creating a long- term building defect;
- resilient construction materials i.e. *timber or MDF skirting, architrave, floor boards, plasterboard, joists etc*
- raised services to at least 450mm above Finished Floor Level (FFL) i.e. *electric sockets, USB spurs, cabling, waste pipes, water supply, telephone, internet, routers, batteries, inverters, switchgear etc;*
- Miradors off-grid capability means that in the event of an outage e.g. flooding, the dwelling would remain with power indefinitely, sustaining an internal air temperature at circa 23C in-perpetuity;
- rainwater harvesting of 5,000Litres on site enhances the sites flood resilience while sustaining potable water use during flood conditions; and
- sewerage treatment plant with a blower in an elevated location and pumpstation after the treatment plant, to ensure functioning sewerage treatment during a flood event.

This Flood Risk Assessment has been submitted to the Environment Agency for their review under their Planning Advice Service. The response from the Environment Agency is provided within ATTACHMENT 4. The response stated that:

'*we are satisfied that the FRA proposes appropriate flood risk mitigation measures and is in accordance with the local flood risk advice matrix. We are also pleased to see the detailed consideration for flood resilience and resistance measures as outlined in Section 5,2 of the submitted FRA. Based on this we anticipate that we would have no objection to the planning application from a flood risk perspective.'*

6.0 CONCLUSIONS

As a result of the assessment, the following conclusions have been reached.

- The proposed development consists of one single-storey 1bed dwelling within the garden of 23 Reservoir Road, Surfleet, the applicants home.

- The proposed development is alongside a water storage area and is identified as Flood Zone 1

- During the 0.1% annual probability (1 in 1000 chance each year) event including an allowance for climate change the flood level at the site is +4.83m OD.

- It is proposed that:

    - the floor level is at +5.1m OD;
    - there is 0.3m of flood resilient construction above finished floor level; and
    - there is a safe refuge inside the home on a mezzanine floor

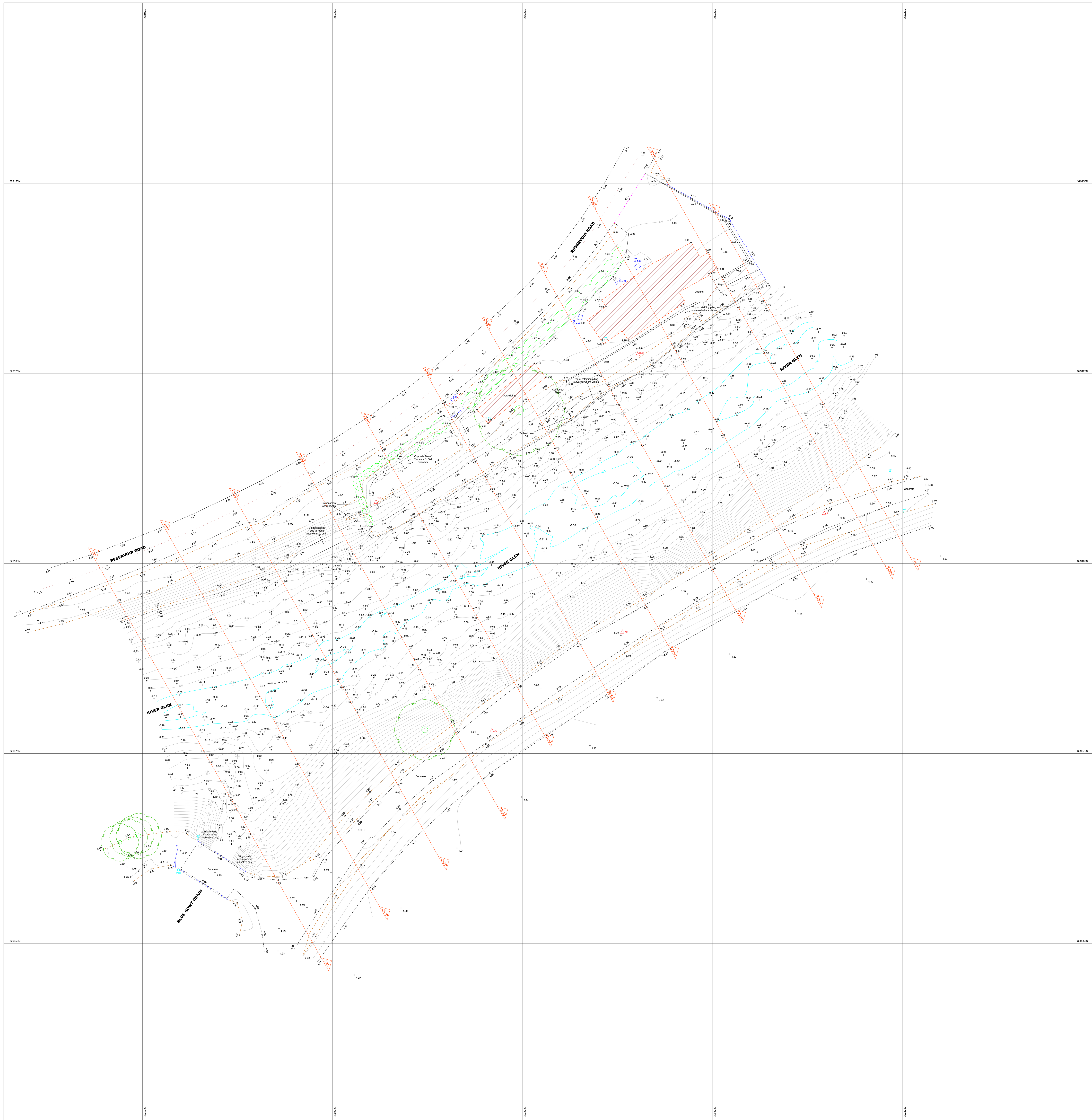
- Following a review of this FRA, the Environment Agency have advised that they anticipate that they would have no objection to the planning application from a flood risk perspective;

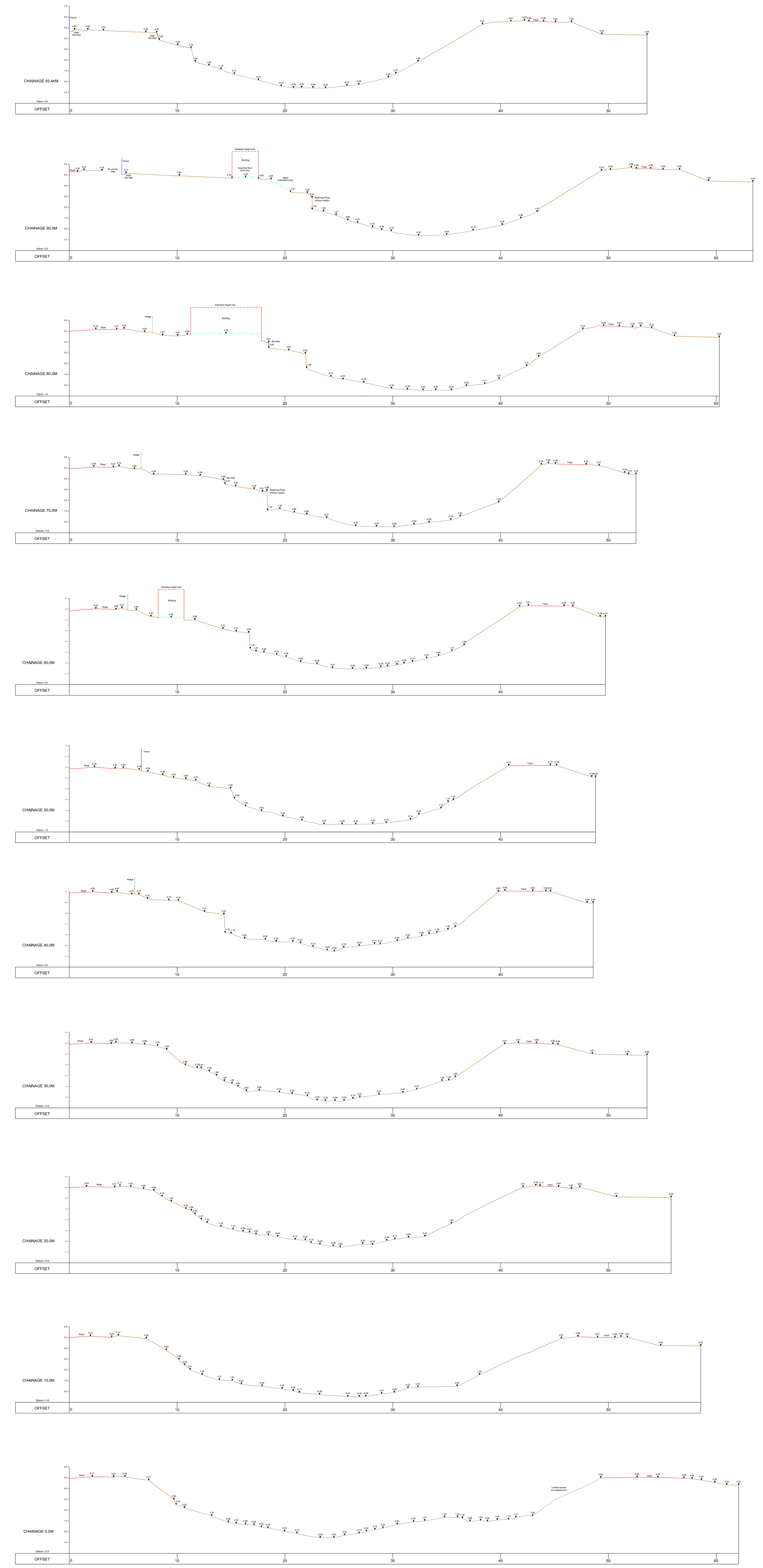
- The development passes the Sequential Test and Exception Test and is therefore suitable for the proposed location.

- Through an exceptional building design, the safety of the household is secured in the event of a flood

ATTACHMENT 1

TOPOGRAPHICAL SURVEY (DWG 2029_SURFLEET)





REV. NO.	DESCRIPTION TO REVISION	REV. BY	DATE
A			
B			
C			
D			

NOTES:

TERRA MEASUREMENT

3D SURVEY AND MEASUREMENT SPECIALISTS

Telephone +44 (0)1773 790080
Email info@terrameasurement.com
Website www.terrameasurement.com

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CLIENT:

PROJECT:
LAND AND RIVER GLEN ADJACENT TO RESERVOIR ROAD SURFLEET SPALDING

TITLE:
TOPOGRAPHICAL/HYDROGRAPHICAL SURVEY AND CROSS SECTIONS

DATE: 26.07.2019

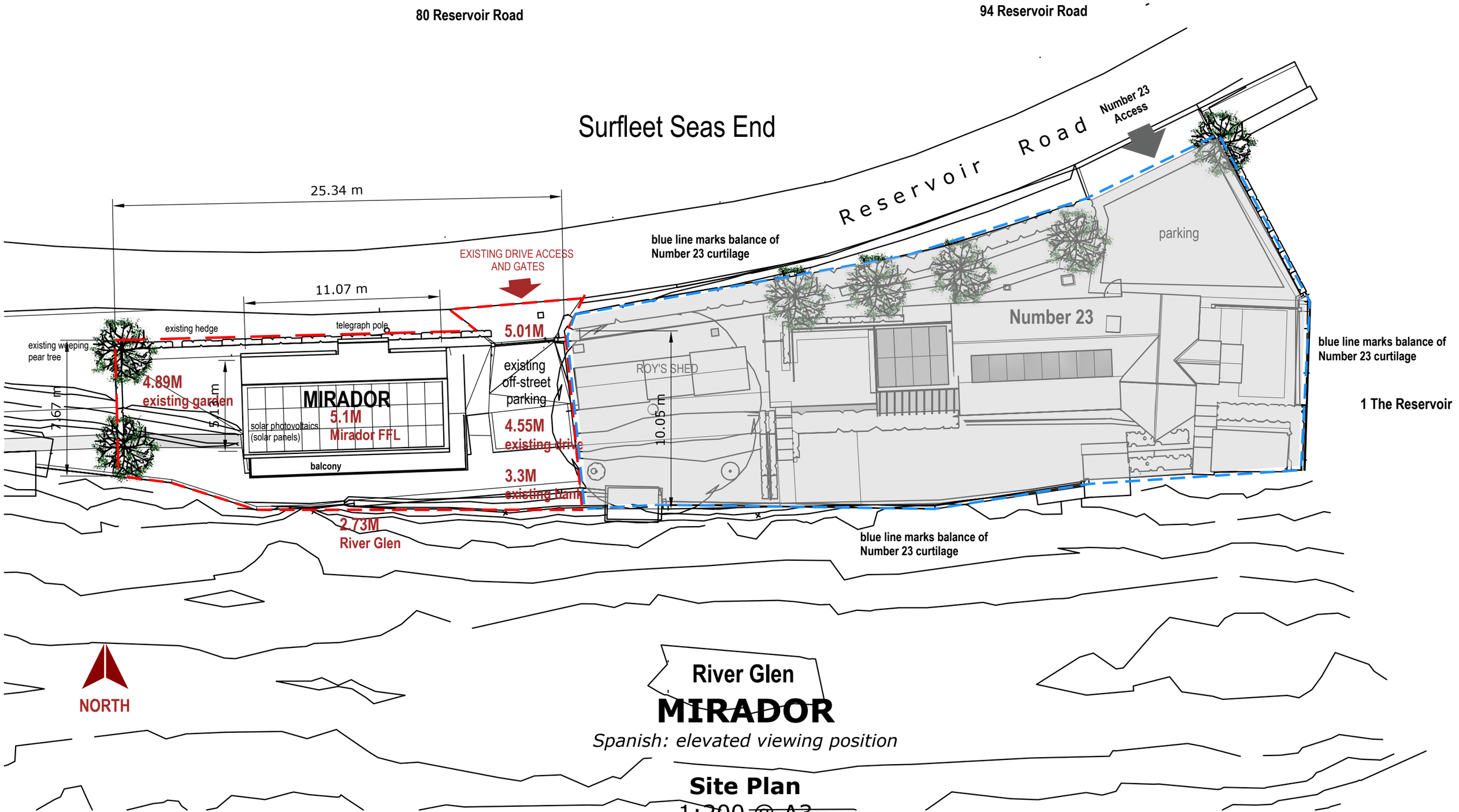
GRID:	LEVEL:	DATA TYPE:	OTHER DATA AVAILABLE:
ORDNANCE SURVEY	ORDNANCE SURVEY	2D	3D ACAD - YES 3D GROUND MODEL - YES POINT CLOUD - NO SECTIONS - YES CUT & FILL ANALYSIS - YES

DRAWN BY:	SCALE @ AO:	PROJECT NO.:	DRAWING NAME:	REV.
AJB	1:200	2029	2029_SURFLEET	REV

N W E S

ATTACHMENT 2

SITE PLAN



~~MIRADOR~~

Spanish: elevated viewing position

Site Plan

1:200 @ A3

Proposed Single Storey Dwelling
(within garden curtilage)
1bed, 44m2 Floor Area

23 Reservoir Road
Surfleet
Spalding
PE11 4DH
what3words///*waltz.contact.holds*

ATTACHMENT 3

ENVIRONMENT AGENCY
FLOOD RISK INFORMATION

Environment Agency

Tim Ellingham
tim@ellinghamconsulting

Our ref: 230125/AT10 (amended)

Date: 27/01/2023

Dear Tim,

Provision of Flood Risk Information for Reservoir Road, Surfleet Seas End

Thank you for your request for our flood risk information for the above site. The information is set out below and attached. It is important you read any contextual notes on the maps provided.

If you are preparing a Flood Risk Assessment (FRA) for this site, please note this information may not be sufficient by itself to produce an adequate FRA to demonstrate the development is safe over its lifetime. Additional information may be required to carry out an appropriate assessment of all risk, such as consequence of a breach in defences.

We aim to review our information on a regular basis, so if you are using this data more than twelve months from the date of this letter, please contact us again to check it is still valid.

Please read the letter in full as the information covered has been updated in **January 2023.**

1. Flood Map

The attached map includes the current Flood Map for your area. The Flood Map indicates the area at risk of flooding, **assuming no flood defences exist**, for a flood with a 0.5% chance of occurring in any year for flooding from the sea, or a 1% chance of occurring for fluvial (river) flooding. It also shows the extent of the Extreme Flood Outline which represents the extent of a flood with a 0.1% chance of occurring in any year, or the highest recorded historic extent if greater.

In some locations, such as around the fens and the large coastal floodplains, showing the area at risk of flooding assuming no defences may give a slightly misleading picture in that if there were no flood defences, water would spread out across these large floodplains. This flooding could cover large areas of land but to relatively shallow depths and could leave pockets of locally slightly higher land as isolated dry islands. It is important to understand the actual risk of the flooding to these dry islands, particularly in the event of defence failure.

The Flood Map also shows the location of formal raised flood defences and flood storage reservoirs. It represents areas at risk of flooding for present day only and does not take account of climate change.

The Flood Map only indicates the extent and likelihood of flooding from rivers or the sea. It should also be remembered flooding may occur from other sources such as surface water sewers, road drainage, etc.

2. Historic Flood Event Outlines

A copy of the Historic Flood Extent Map showing the extent of previous recorded flooding in your area is attached. The map shows Surfleet Reservoir stored water in 1998. It is also known to have stored water on other occasions, most notably in 1994, 2000, 2009 and 2013. This only covers information we hold and it is possible other flooding may have occurred which other organisations, such as the Local Authority or Internal Drainage Boards, may have records.

3. Schemes in the area

There are no ongoing capital projects to reduce or sustain the current flood risk to this site.

4. Fluvial Flood Risk Information

This site is considered to be at risk of flooding from main rivers.

The site may be at risk from local ordinary watercourses for which other risk management authorities, such as the Lead Local Flood Authority (ie top tier council) or Internal Drainage Board (where they exist) have responsibility.

The River Glen joins the tidal River Welland at Surfleet Seas End. To stop tidal/salt water 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 surges. 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 and properties can and does occur.

4.1 Fluvial Defence Information

The area of interest comprises the Surfleet Reservoir which is a fluvial flood storage reservoir designed to contain fluvial flood water when discharge from the River Glen is tide-locked.

4.2 Fluvial Modelled Levels and Flows

Available modelled fluvial flood levels and flows for the model nodes shown on the attached map are set out in the data table attached. This data is taken from the model named on the data table, which is the most up-to-date model currently available.

Please note these levels are "in-channel" levels and therefore may not represent the flood level on the floodplain, particularly where the channel is embanked or has raised defences.

Our models may not have the most up to date climate change allowances. In time we will update our models for the latest allowances. You should refer to 'Flood risk assessments: climate change allowances' to check if the allowances modelled are appropriate for the type of development you are proposing and its location. You may need to undertake further assessment of future flood risk using different allowances to ensure your assessment of future flood risk is based on best available evidence.

4.3 Fluvial Modelled Flood Extents

Please find attached a map showing available modelled flood extents, taking into account flood defences, for your area. This data is taken from the model named on the map, which is the most up-to-date model currently available.

In some cases the flood extents shown may not be from main river, but may be from other sources such as IDB lowland drainage networks.

4.4 Fluvial Hazard Mapping

For certain locations we have carried out modelling to map the maximum values of flood depth, velocity and hazard rating (danger to people) resulting from overtopping and / or breaching of defences at specific locations for a number of scenarios.

At present this information is available for fluvial flood risk in Northampton, Lincoln, Wainfleet and some isolated rural locations.

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

At present this site is not covered by any fluvial hazard mapping.

5. Tidal Flood Risk Information

This site is not considered to be at risk from tidal flooding.

6. Development Planning

If you would like local guidance on preparing a flood risk assessment for a planning application, please contact our Sustainable Places team at LNplanning@environment-agency.gov.uk. It will help if you mention this data request and attach your site location plan.

We provide free preliminary advice; additional/detailed advice, review of draft FRAs and meetings are chargeable at a rate set to cover our costs, currently £100 (plus VAT) per hour of staff time. Further details are available on our website at https://www.gov.uk/guidance/developers-get-environmental-advice-on-your-planning-proposals.

General advice on flood risk assessment for planning applications can be found on GOV.UK at https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications

Climate change will increase flood risk due to overtopping of defences. Please note, unless specified otherwise, the climate change data included has an allowance for 20% increase in flow. Updated guidance on how climate change could affect flood risk to new development - 'Flood risk assessments: climate change allowances' was published on GOV.UK in **July 2021**. The appropriate updated climate change allowance should be applied in a Flood Risk Assessment.

You should also consult the Strategic Flood Risk Assessment produced by your local planning authority.

7. Data Licence and Other Supporting Information

We respond to requests for recorded information we hold under the Freedom of Information Act 2000 (FOIA) and the associated Environmental Information Regulations 2004 (EIR).

This information is provided in accordance with the Open Government Licence which can be found here: http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/

Further information on flood risk can be found on the GOV.UK website at:
https://www.gov.uk/browse/environment-countryside/flooding-extreme-weather

8. Other Flood Risk Management Authorities

The information provided with this letter relates to flood risk from main river or the sea. Additional information may be available from other risk management authorities, such as the Lead Local Flood Authority (ie top tier council) or Internal Drainage Board (where they exist).

I hope we have correctly interpreted your request. If you have any queries or would like to discuss the content of this letter further please contact Alexander Tan using the email address below and quoting our CCN reference number above.

Yours sincerely,



Team dial: +442030253535

for Alastair Windler
Welland and Nene Partnerships and Strategic Overview Team Leader
e-mail PSOWN@environment-agency.gov.uk

Enc.
Flood Map
Historic Flood Event Outlines Map
Modelled Node Points Map
Modelled Fluvial Levels and Flows Data Sheet
Modelled Flood Extent Maps

Flood Map centred on TF 27724 29120 - created January 2023 [Ref: 230125/AT10]



Environment Agency

Scale 1:10,000

N

Legend

- Main Rivers
- Raised Defences
- Flood Storage Areas
- Areas 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.

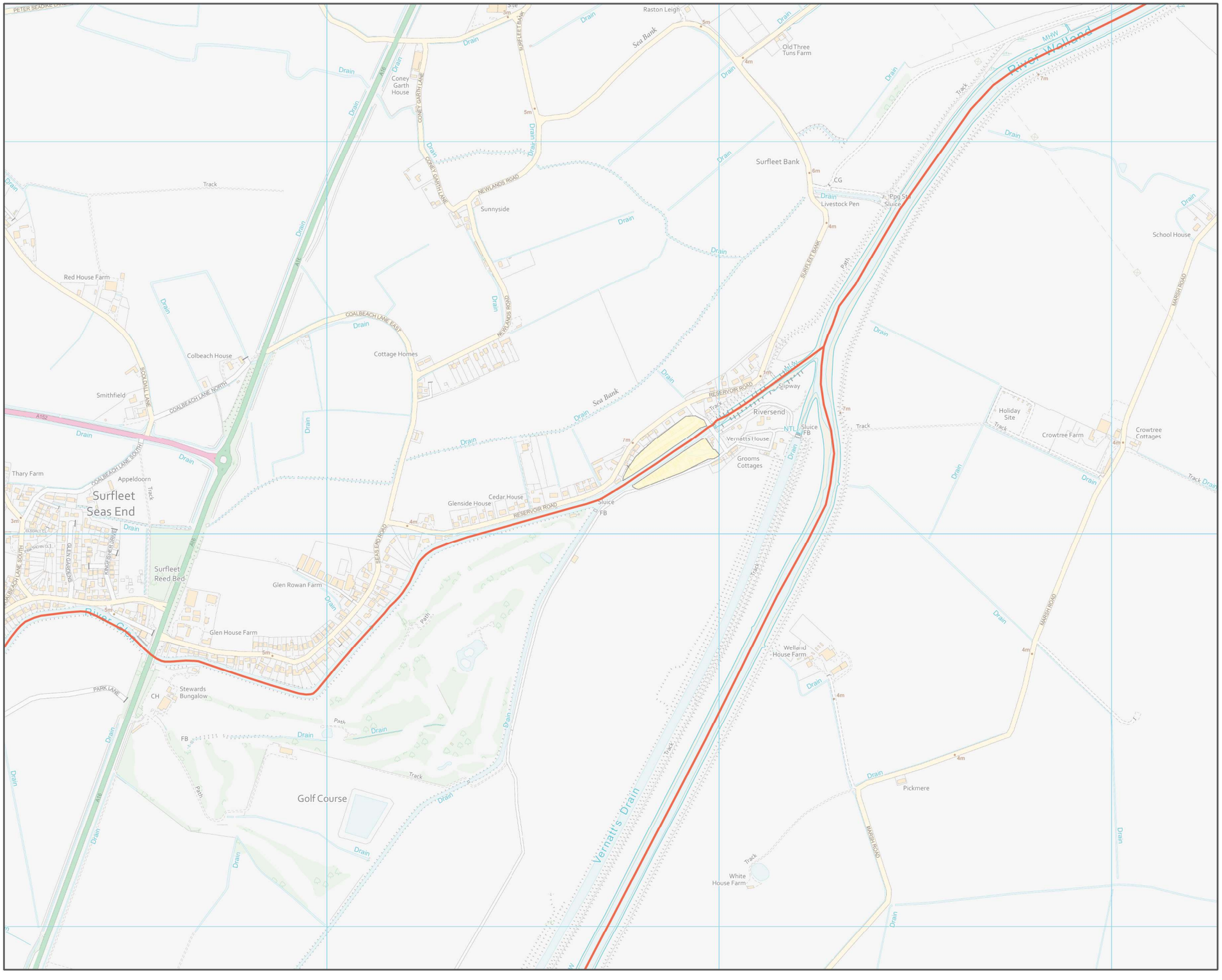
These two colours show the extent of the natural floodplain if there were no flood defences or certain other manmade structures and channel improvements. Sites outside the two extents, but behind raised defences, may be affected by flooding if the defences are overtopped or fail.

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Historic Flood Map centred on TF 27724 29120 - created January 2023 [Ref: 230125/AT10]



Environment Agency

Scale 1:10,000

N

Legend

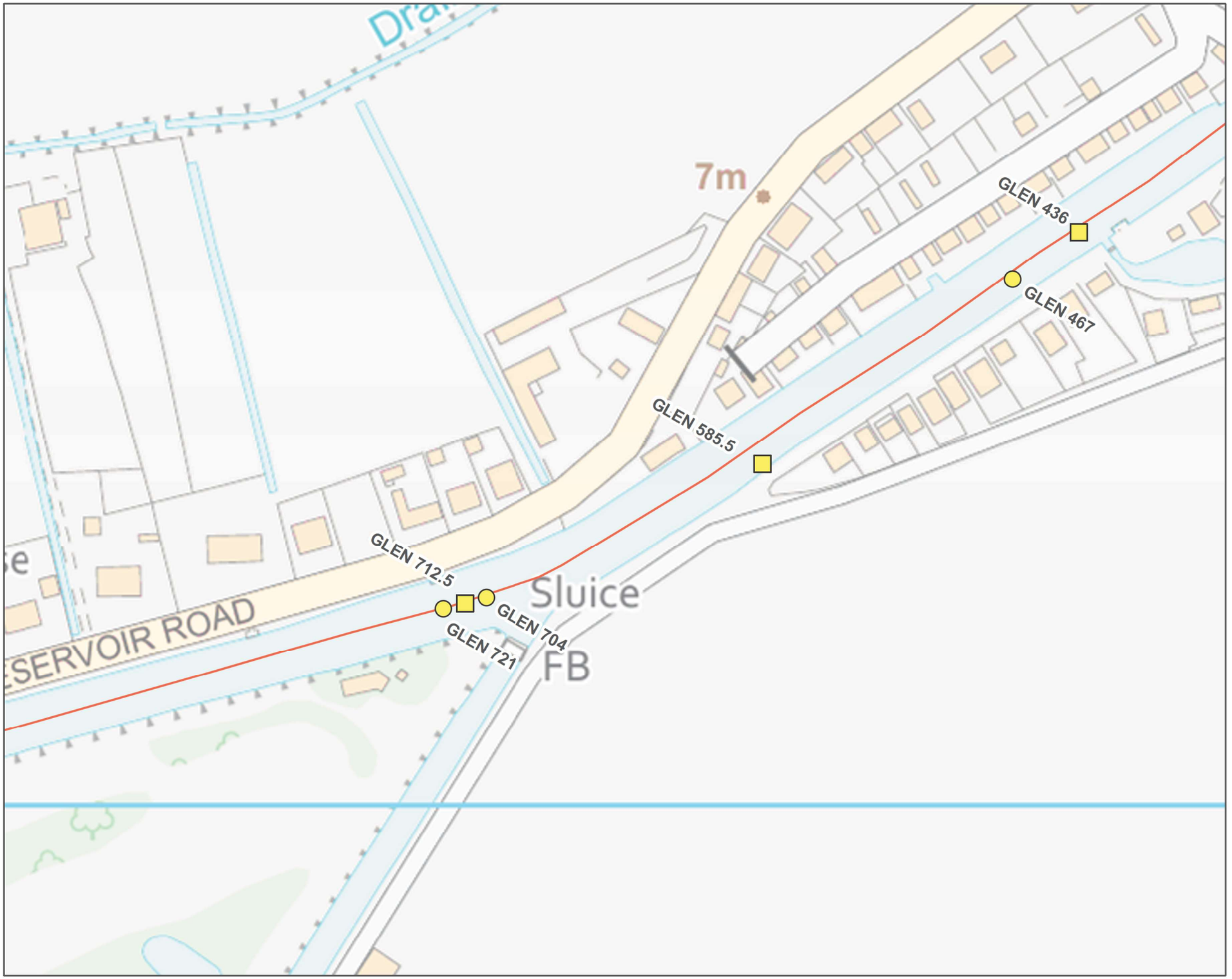
- Main Rivers
- Easter 1998 on the River Glen at Surfleet

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Node Map centred on TF 27724 29120 - created January 2023 [Ref: 230125/AT10]



Environment Agency

Scale 1:1,500

N

Legend

- Modelled Flows
- Modelled Levels
- Main Rivers

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Fluvial Flood Levels (mODN)

The fluvial flood levels for the model nodes shown on the attached map are set out in the table below. They are measured in metres above Ordnance Datum Newlyn (mODN).

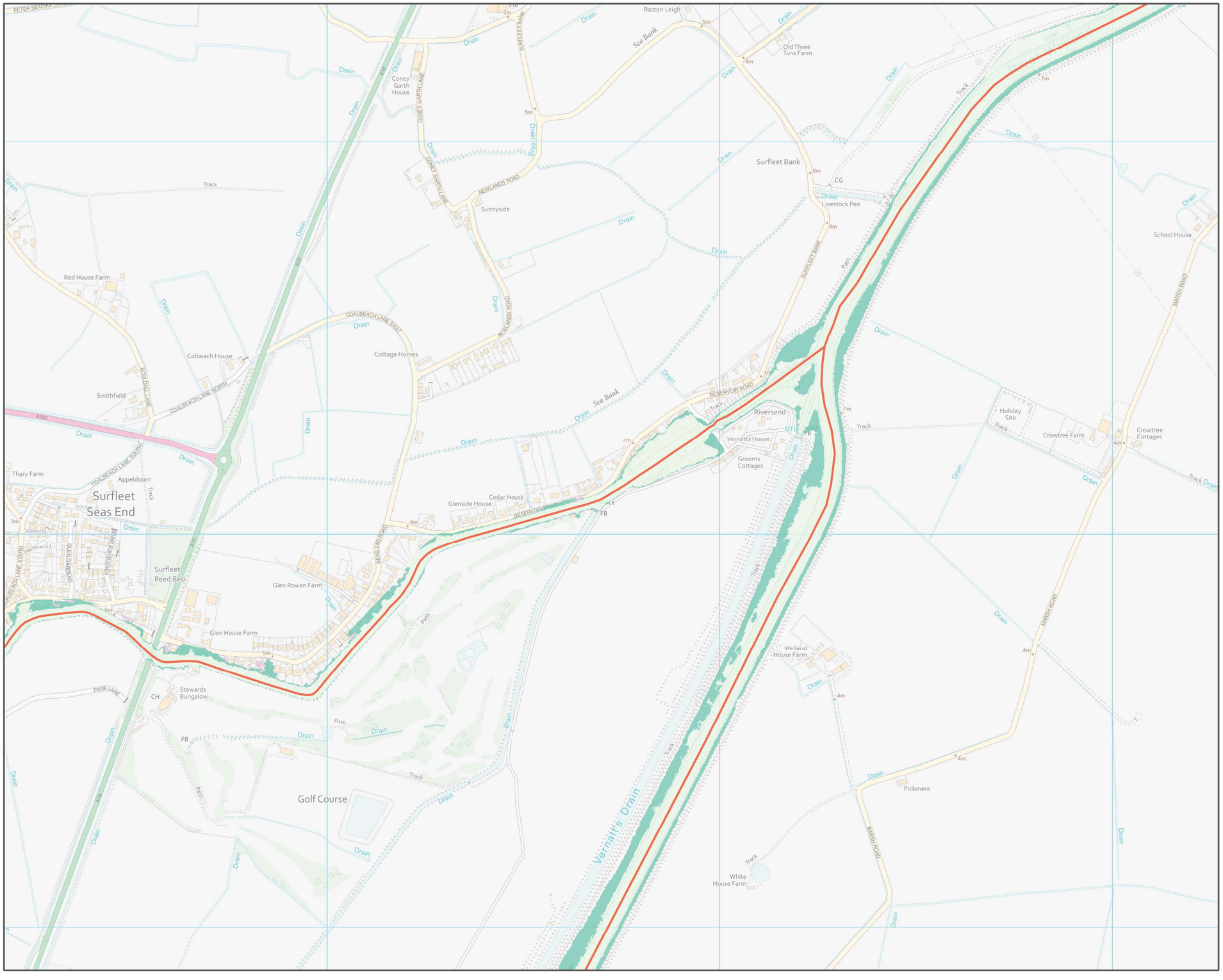
			Annual Exceedance Probability - Maximum Water Levels (mODN)										
Node Label	Easting	Northing	50% (1 in 2)	20% (1 in 5)	10% (1 in 10)	5% (1 in 20)	2% (1 in 50)	1.33% (1 in 75)	1% (1 in 100)	1% (1 in 100) inc 20% Climate Change	0.5% (1 in 200)	0.1% (1 in 1000)	0.1% (1 in 1000) inc 20% Climate Change
GLEN 467	527875	329200	3.90	4.04	4.13	4.19	4.16	4.17	4.17	4.78	4.22	4.30	4.83
GLEN 704	527675	329079	3.91	4.04	4.13	4.19	4.17	4.18	4.18	4.78	4.22	4.31	4.83
GLEN 721	527659	329075	3.91	4.04	4.13	4.19	4.17	4.18	4.18	4.78	4.22	4.31	4.83

Fluvial Flood Flows (m^3/s)

The fluvial flood flows for the model nodes shown on the attached map are set out in the table below. They are measured in metres cubed per second (m^3/s).

			Annual Exceedance Probability - Maximum Flows (m^3/s)										
Node Label	Easting	Northing	50% (1 in 2)	20% (1 in 5)	10% (1 in 10)	5% (1 in 20)	2% (1 in 50)	1.33% (1 in 75)	1% (1 in 100)	1% (1 in 100) inc 20% Climate Change	0.5% (1 in 200)	0.1% (1 in 1000)	0.1% (1 in 1000) inc 20% Climate Change
GLEN 436	527900	329218	61.17	63.09	64.30	66.85	67.27	68.12	70.35	80.17	70.69	79.46	88.86
GLEN 585.5	527780	329130	58.71	60.86	62.61	64.73	64.89	65.93	65.92	77.20	68.97	76.89	85.97
GLEN 712.5	527667	329077	54.83	56.98	58.81	60.90	61.09	62.15	62.26	73.34	65.23	73.13	82.15

Modelled Flood Extents (with defences) Model: Welland Catchment Strategic 2016 centred on TF 27724 29120 - created January 2023 [Ref: 230125/AT10]



Environment Agency

Scale 1:10,000

N

Legend

- Main Rivers
- 5% (1 in 20) fluvial event
- 1% (1 in 100) fluvial event
- 1% (1 in 100) inc 20% climate change fluvial event
- 0.1% (1 in 1000) fluvial event
- 0.1% (1 in 1000) inc 20% climate change fluvial event

Created by the Partnerships and Strategic Overview Team, Kettering

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ATTACHMENT 4

ENVIRONMENT AGENCY PLANNING ADVICE

23 Reservoir Road
Surfleet
Spalding
PE11 4DH

Our ref: AN/2024/136223/02-L01

Agreement number: ENVPAC/1/LNA/00235

Date: 21 March 2025

ENVPAC/1/LNA/00235: Review of documents for 1no dwelling
Land adjacent to 23 Reservoir Road, Surfleet, Spalding, PE11 4DH

Thank you for accepting our offer to provide advice on your flood risk assessment (FRA) and accompanying plans for the proposed dwelling at land adjacent to 23 Reservoir Road.

We are providing our planning advice under our agreement number ENVPAC/1/LNA/00235 and an invoice for £300 plus VAT will be issued shortly.

Please note that due to the way invoices are automatically generated, you may receive multiple invoices.

We have reviewed the FRA dated February 2025, prepared by Ellingham Consulting Ltd and the other accompanying documents. We would like to make the following comments:

Technical details
In line with the South East Lincolnshire flood risk advice matrix, flood risk mitigation for single storey dwellings should be informed by the 0.1% annual exceedance probability (AEP) plus climate change (cc) flood event.

The submitted FRA has identified that the predicted flood level is 4.83 metres above Ordnance Datum (mAOD) for the 0.1% AEP plus 20% cc flood event. The required central climate change allowance for this site is 17% and therefore the FRA takes a slightly conservative approach.

The submitted FRA proposes a finished floor level (FFL) of 5.1mAOD. The proposed FFL includes a freeboard of 0.27m. Whilst the freeboard is slightly below 0.3m, we are satisfied that the proposed FFL is acceptable, in this instance, due to a slightly conservative climate change allowance.

We note that the 'Floor Plan' and 'Safe Space Section' drawings show an FFL of 5.01m AOD, whilst the Site Plan drawing shows an FFL of 5.10m AOD and the 'Proposed Single Storey Dwelling' drawing shows an FFL of 5.15m AOD. We support the FFL being raised to 5.15m AOD; however, we do not support an FFL of 5.01m AOD. We advise that the relevant documents are amended to correctly show the proposed FFL.

Therefore, whilst there are variations in the annotated FFLs, we are satisfied that the FRA proposes appropriate flood risk mitigation measures and is in accordance with the local flood risk advice matrix. We are also pleased to see the detailed consideration for flood resilience and resistance measures as outlined in Section 5.2 of the submitted FRA. Based on this we anticipate that we would have no objections to the planning application from a flood risk perspective.

Informatives

Flood risk activity permit

We can confirm that a permit from the Environment Agency will be required for the proposed development as it constitutes a flood risk activity, as set out in Schedule 25, Section 3 of The Environmental Permitting Regulations 2016.

Guidance to what is needed for a permit and links to the forms that need completing can be found at: https://www.gov.uk/guidance/flood-risk-activities-environmental-permits#bespoke-permits .

For an application we would require the following to be submitted to flood.permitting@environment-agency.gov.uk

- **Form part A: about you-** outlines who is to carry out the works and their contact details
- **Form part B10: bespoke permit for flood risk activities-** outlines the works and the scope of what is happening with grid references etc. including any temporary enabling works (such as temporary dewatering, storage in the floodplain, etc)
- **Form part F3: charging and declarations**- we can confirm the fee once we have received the application; please ensure the Declaration is in the name of a 'relevant' person
- **Risk assessment for flood risk activities**- to demonstrate the proposal will not increase flood risk, impact on drainage or harm the environment -guidance on risk assessment that is tailored to flood risk activities
- **Method of Works-** sets out your working methods and what will be done to minimise the risks identified in the risk assessment - Management Systems for flood risk activities
- **Site plans-** identifies the land on which the activity will take place
- **Drawings of the works**- existing and proposed
- **Fee**– Find how much you need to pay.
- **Emergency Plan**– contingency plan should a flood alert/warning be given for the site.

The Regulations prescribe a determination period of 2 months once an application is duly made. We will try our best to consider the information you provide with your permit application and determine your permit application in a timely manner. Please note that works cannot proceed until your permit application has been determined.

Cont/d..

Please be aware that although we will be determining the flood risk activity permit application, other licences, permissions or approvals including waste or discharge permits/licences under the same regulations may be required.

Should you have any further questions regarding permitting please do not hesitate to contact psown@environment-agency.gov.uk

Publication of new national flood and coastal erosion risk datasets
The Environment Agency is in the process of publishing new national flood and coastal erosion risk datasets. Some datasets have already been published with additional flood risk datasets, including updated Flood Zones and new climate change scenarios, due to be published on Flood Map for Planning on 25 March 2025.

In due course we expect to make further datasets available, including flood depth information for rivers, sea and surface water. More information about our new data can be found in this Defra Data Services Platform announcement. Our planning advice will continue to be based on the best information available at the time. Further information is available on the Town and Country Planning Association website – New national flood and coastal erosion risk information.

Please note this response is based on the information you have made available and our best available datasets at the time of this response. It is based on current national planning policy, associated legislation and environmental data / information. If any of these elements change we may need to reconsider our position.

Please include this letter as part of your planning application as an appendix to your flood risk assessment this will speed up our response to any consultation received from the local planning authority.

Should you require any additional information, or wish to discuss these matters further, please do not hesitate to contact me on the number below.

Yours sincerely

Danielle Maclean-Spencer
Sustainable Places Planning Advisor

Direct dial: 07826 875888
Direct e-mail: danielle.maclean-spencer@environment-agency.gov.uk
Team e-mail: LNplanning@environment-agency.gov.uk

End