FLOOD RISK ASSESSMENT
FOR A CHANGE OF USE AT
GLENSIDE SOUTH, PINCHBECK

FINAL REPORT

ECL1322/PETER HUMPHREY ASSOCIATES

DATE JULY 2024

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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 to accompany an application for planning permission. This Flood Risk Assessment has been produced on behalf of Mr K Whincup in respect of a development that consists of a change of use of an agricultural building to form a dwelling on land north west of The Chestnuts, Glenside South, Pinchbeck.

A planning application for the proposed development is to be submitted by Peter Humphrey Associates.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Site Location

The site is located on land north west of The Chestnuts, Glenside South, Pinchbeck, Spalding, PE12 3SA. The National Grid Reference of the site is 52330/32594.

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 Glenside South. The site consists of a small agricultural building. The building sits within agricultural land however it is unsuitable for modern agricultural processes due to the established trees and vegetation. There are residential dwellings to the east of the site and agricultural land to the south.

Environment Agency LIDAR data shows that site levels around the building are typically +3.7m OD. The carriageway level of Glenside South adjacent to the site is +4.8m OD. The land to the south of the site is typically at a level between +2.8m OD and +3.0m OD.

The site is in the Welland and Deepings Internal Drainage Board (IDB) District. Surface water at the site drains through a local network and hence to the IDB drain system. The nearest IDB maintained watercourse, Reedy Graft, is 750m south of the site.

The online British Geological Survey 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 development consists of the change of use of the agricultural building to form a dwelling. The dwelling will be single storey. Details of the proposed development are provided in Attachment 1.

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. The site is located within Flood Zone 3, an area with a high probability of flooding.

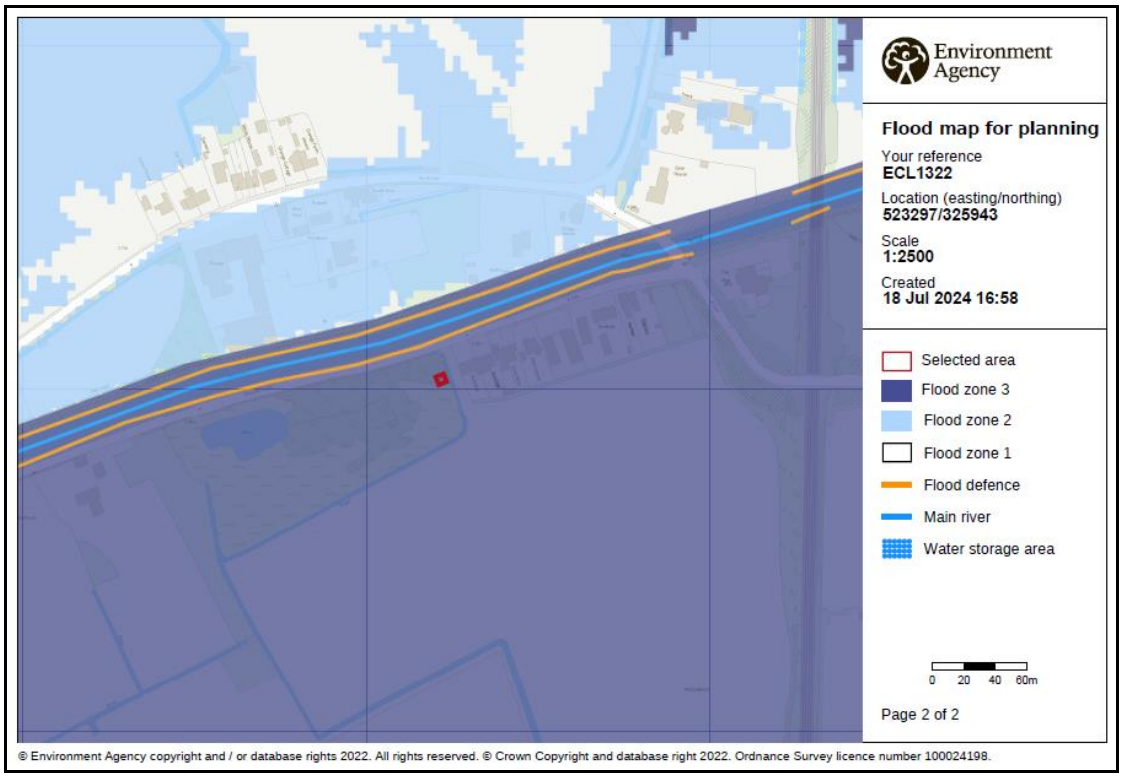


Figure 2 – Environment Agency Flood Map for Planning

The Environment Agency Long Term Flood Risk maps show that:

- the site has a low risk of flooding from rivers or the sea (annual probability between 0.1% and 1%);
- the site has a very low risk of surface water flooding (annual probability less than 0.1%); and
- the site is not within an area at risk of reservoir flooding.

Table 1 shows the level of risk at the site within the South East Lincolnshire SFRA. The proposed development will be single storey and therefore the 0.1% annual probability event has been considered.

SFRA Map	Present Day	2115
Residual Flood Hazard Map for the 0.1% event	The site is in the 'Low Hazard' area	The site is in the 'Danger for Most' area
Residual Peak Depth Map for the 0.1% event	The peak flood depth is between 0.0m and 0.25m	The peak flood depth is between 0.25m and 0.5m

Table 1 – Flood Risk within SFRA Maps

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.

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. The proposed development is covered by the description of buildings used for dwellings and is classified as 'More Vulnerable'.

Table 3 of the PPG Flood Risk and Coastal Change sets out Flood Risk Vulnerability and flood zone 'compatibility'. The site is in Flood Zone 3 and the development is 'More Vulnerable' therefore it is necessary to complete the Exception Test.

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.

Paragraph 033 of planning practice guidance (PPG) on Flood Risk and Coastal Change states that 'The Sequential Test does not need to be applied for applications for Change of Use (except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site)'.

Paragraph 048 of the PPG states that 'A Change of Use may involve an increase in flood risk if the vulnerability classification of the development is changed. In such cases, the applicant will need to show in their flood risk assessment that future users of the development will not be placed in danger from flood hazards throughout its lifetime.' The mitigation measures proposed in Section 5.2 of this flood risk assessment are such that risks to future users are mitigated.

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 Local Plan has a target of a net increase of at least 11,681 dwellings in South Holland over the 25-year local plan period. The Plan considers this new housing is

required to ensure the sustainability of the Local Plan area. The proposed development will contribute to this target.

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 site is approximately 30m south of the River Glen. The risk of flooding at the site is reduced by an embankment on the southern bank of the River Glen. The defences 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.

There is an extensive local drainage network managed by Welland and Deepings IDB. The Reedy Graft, an IDB maintained watercourses that is 750m south of the site. The site and the surrounding land are within the Fourth District catchment and drain in a south westerly direction to Fourth District Pumping Station. Fourth District Pumping Station discharges to Vernatt's Drain which flows into the River Welland at Surfleet.

During the operation and maintenance of its pumping stations, associated structures, and channel systems, the IDB seeks to maintain a general standard capable of providing flood protection to its district. A routine maintenance programme is in place to ensure that the Boards assets are commensurate with the standard of protection that is sought.

Current maintenance standards of the Welland and Deepings IDB and the Environment Agency are 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
Drainage Network Flooding	The risk is assessed in Section 4.3.
Surface Water Flooding	Based upon the EA maps the risk is very low.
Fluvial Flooding	The risk is assessed in Section 4.3.
Tidal Flooding	The risk is not at risk of tidal flooding.
Reservoir Flooding	Based upon the EA maps the site is not at risk of reservoir flooding.
Groundwater Flooding	There is no evidence to suggest the site is at risk of groundwater flooding.

Table 2 – Sources of Flooding

4.3 Probability of Flooding

The probability of flooding associated with blockages in the Welland and Deepings IDB drainage system is low due to the maintenance standards achieved and managed by the IDB.

Through the operation and maintenance of the pumping stations and the channel system the Board seek to maintain a general standard capable to providing flood protection to agricultural land and developed areas of 1 in 20 years and 1 in 100 years, respectively. The risk associated with flood events that exceed the standard of protection provided is lowered due to the Welland & Deeping IDB main drains incorporating freeboard. This freeboard provides storage during the exceedance events.

The River Glen defences provide protection during the 1% annual probability (1 in 100 chance each year) fluvial event.

4.4 Historic Flooding

During the preparation of this assessment, no evidence was discovered of the site being flooded.

4.5 Climate Change

Climate change is likely to impact the site through increased rainfall intensity and duration affecting the local drainage network and increased flood levels in the River Welland.

The River Glen defences have been designed to include an allowance for climate change.

In summary the existing systems and defences are appropriate for the design life of the development (i.e. 100 years).

4.5 Residual Risk

There is a residual risk of flooding at the site should a breach of the tidal defences occur. The South East Lincolnshire SFRA includes maps demonstrating the residual peak depth in 2115.

The proposed development is single storey and therefore any mitigation measures will need to consider the 0.1% annual probability (1in 1000 chance each year) event in 2115. An extract from this map is shown in Figure 3 below. When climate change allowances are applied to the 0.1% annual probability (1 in 1000 chance each year) event the maximum flood depth within the site is between 0.25m and 0.5m.



Figure 3 – SFRA 2116 Residual Peak Depth Map during the 0.1% Annual Probability Event

5.0 FLOOD RISK MITIGATION

5.1 Summary of Risks

The probability of this development flooding from localised drainage systems is low. Failure of Fourth District Pumping Station could lead to an increased level of risk at the site.

The probability of the site flooding from any Environment Agency system is less than 1% annual probability (1 in 100 chance each year) because of the standards of the existing flood defences. Over time there will be a gradual increase in risk to the site due to climate change. During the design life of the development it is not anticipated that the site would flood.

The SFRA considers the residual risk associated with overtopping and a breach in the defences in 2115. The maximum flood depth at the site is between 0.25m and 0.5m.

There will be no increase in impermeable area associated with the development so there is no potential that flood risk will be increased elsewhere.

5.2 Mitigation Measures

The recommended mitigation against the remote risk of flooding has considered the maximum height to which floor levels can be raised. The development utilises an existing building and therefore floor raising is constrained by the buildings height and the existing doors and windows.

It is proposed that the floor level of the bedroom is elevated so that it is 0.5m above ground level. It is recommended that there is flood resilient construction to a level of 0.8m above ground level.

The developer should ensure that the eventual occupier of the dwelling is sufficiently aware of the risk of flooding, and the standard of the existing defences. 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 Warnings Service is a national system run by the Environment Agency for broadcasting flooding warnings. The occupier of the dwelling should register to receive flood warnings.

Should there be a failure of Fourth District Pumping Station and conditions were such to put properties and land at risk of flooding, the IDB would take emergency action to maintain the drainage level of service by utilising temporary pumping equipment.

It is recommended that surface water run-off is managed so that stormwater from the development will not affect any adjoining properties or increase the flood risk elsewhere.

6.0 CONCLUSIONS

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

- The proposed development consists of a change of use of the agricultural building to form a single storey dwelling on land north west of The Chestnuts, Glenside South, Pinchbeck.

- The site is located within an Internal Drainage Board catchment and through the operation and maintenance of the pumping stations and the channel system the Board seek to maintain a general standard capable to providing flood protection to agricultural land and developed areas of 1 in 20 and 1 in 100 years, respectively.

- The proposed development is protected during the 1% annual probability (1 in 100 chance each year) event including an allowance for climate change by defences on the tidal River Welland.

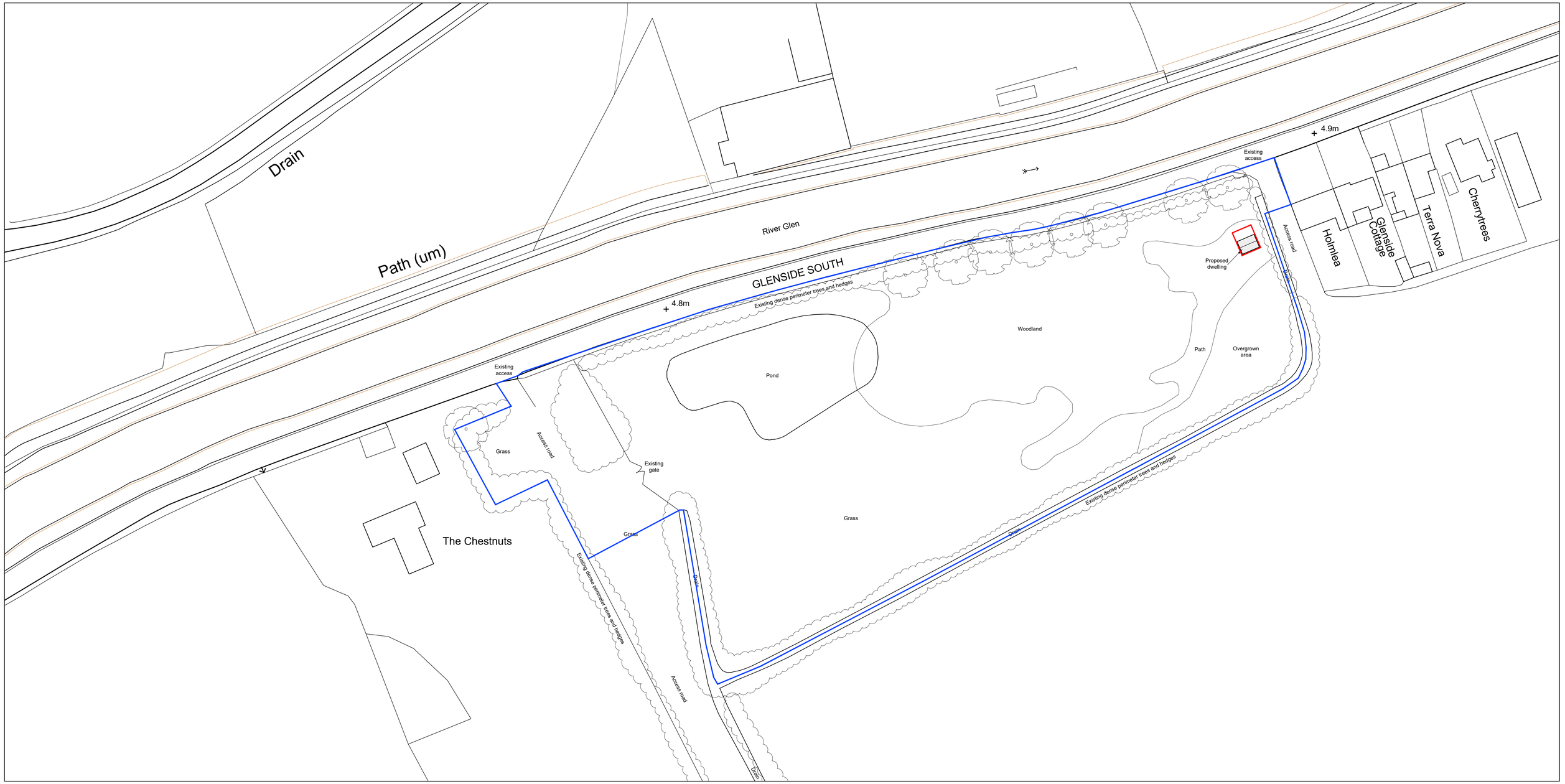
- It is proposed that the floor level of the bedroom is elevated so that it is 0.5m above ground level and there is flood resilient construction to a level of 0.8m above ground level.

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

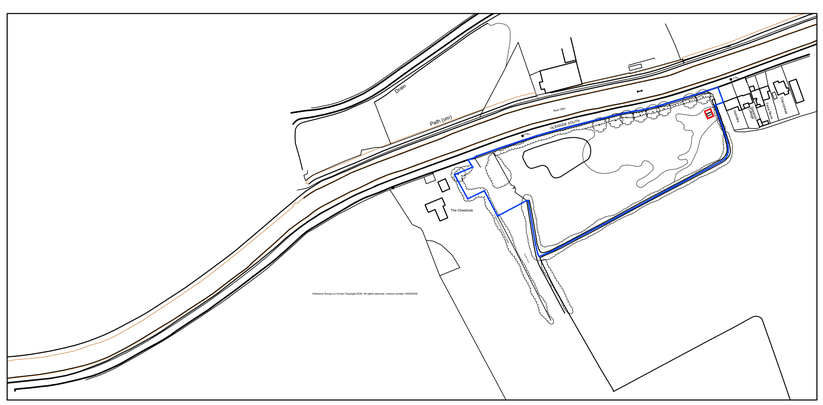
ATTACHMENT 1

PROPOSED SITE PLAN
(DWG 6911/02)

BUILDING PLANS, SECTIONS & ELEVATIONS
(DWG 6911/03B)



Proposed Site Plan 1:500



Location Plan 1:2500

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REVISIONS

JOB NO.	PAPER SIZE	DATE
6911/02	A1	APRIL 2024

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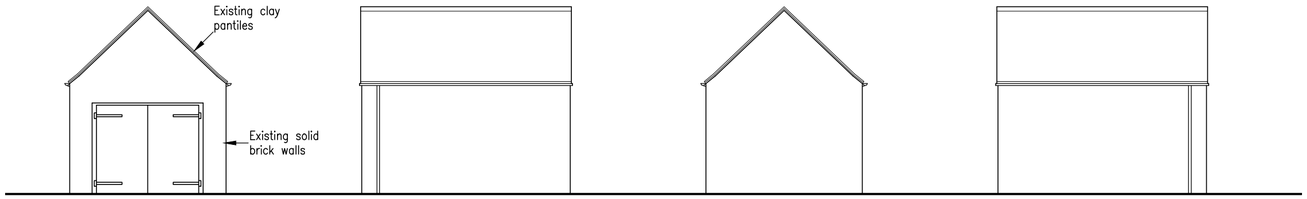
CLIENT
MR K WHINCUP

PROJECT
PROPOSED DEVELOPMENT

SITE
LAND NORTH-WEST OF 'THE CHESTNUTS'
GLENSIDE SOUTH
PINCHBECK
SPALDING, LINCS
PE11 3SA

DRAWING
PLANNING DRAWING 2 (PROPOSED SITE PLAN)

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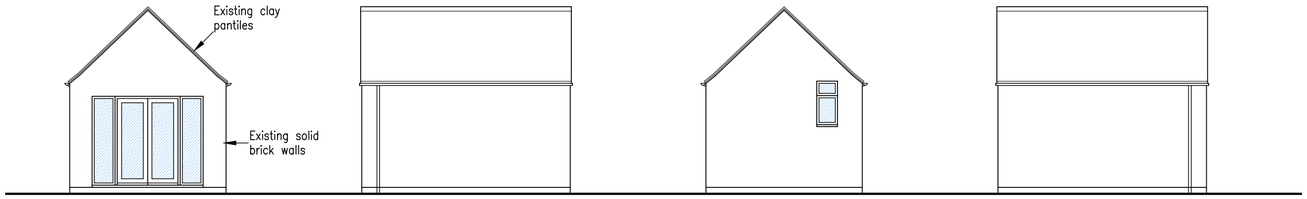


Existing Front Elevation 1:100

Existing Side Elevation 1:100

Existing Rear Elevation 1:100

Existing Side Elevation 1:100

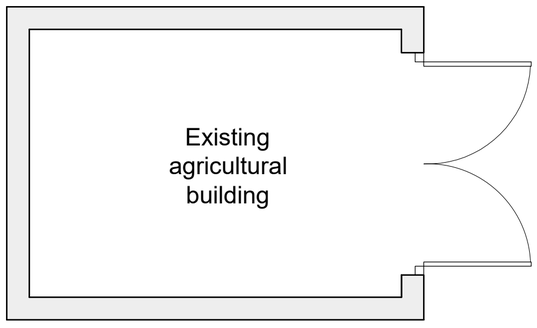


Proposed Front Elevation 1:100

Proposed Side Elevation 1:100

Proposed Rear Elevation 1:100

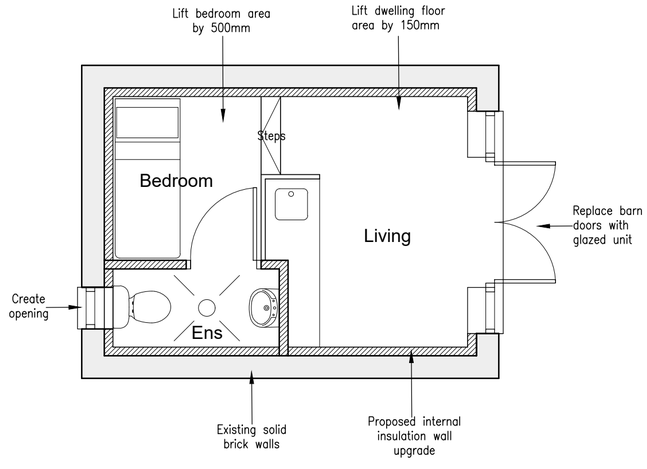
Proposed Side Elevation 1:100



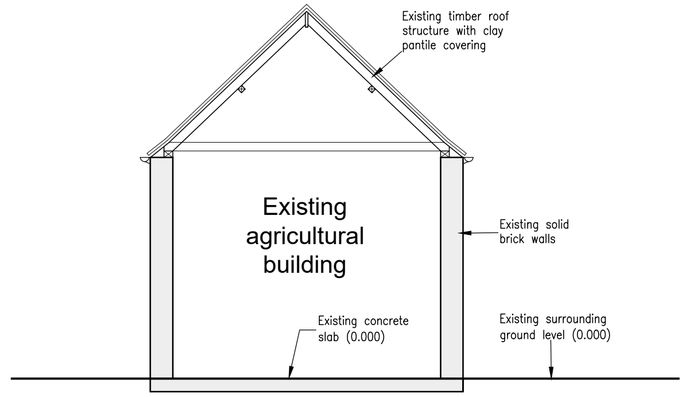
Existing Floor Plan 1:50



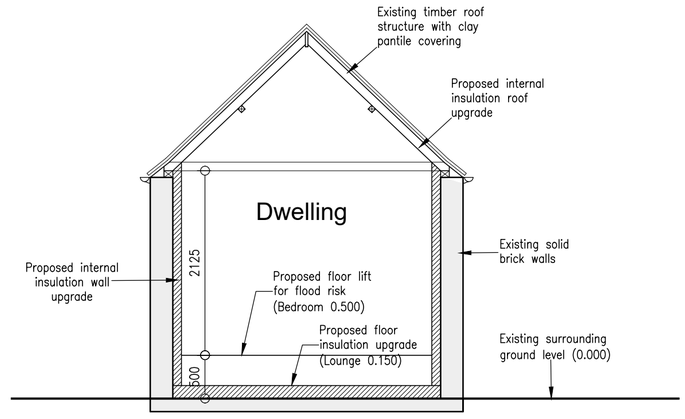
Existing/Proposed Roof Plan 1:50



Proposed Floor Plan 1:50



Existing Section 1:50



Proposed Section 1:50

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DRAWING
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