FLOOD RISK ASSESSMENT
FOR RESIDENTIAL DEVELOPMENT AT
BELNIE LANE, GOSBERTON

FINAL REPORT

ECL1384-3/GR MERCHANT LTD

DATE AUGUST 2025

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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 Mrs K Baxter in respect of a development that consists of two dwellings at Belnie Lane, Gosberton.

Prior Approval (H08/0970/24) to convert an agricultural building to form one dwelling and Prior Approval (H08/0972/24) to convert an agricultural building to form two dwellings were approved in January 2025. The proposed development will supersede the approvals granted. A planning application for the proposed development is to be submitted by GR Merchant Ltd.

The mitigation measures proposed within this Flood Risk Assessment are consistent with those recommended within the Flood Risk Assessment prepared to support the previous application.

2.0 SITE LOCATION AND DESCRIPTION

2.1 Site Location

The site is located at Belnie Lane, Gosberton, Lincolnshire, PE11 4HN. The National Grid Reference of the site is 52507/33081.

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 northern side of Belnie Lane. The site consists of two agricultural building and the surrounding land. The site has an access from Belnie Lane that is between Belnie House and Paddock House. There is an agricultural land to the north. The area of development is approximately 0.85 hectares.

Environment Agency LiDAR data shows that ground levels in the vicinity of the agricultural building are typically between +3.4m OD and +3.8m OD. Belnie Lane adjacent to the site is typically at +3.8m OD.

The site is in the Welland and Deepings Internal Drainage Board (IDB) District. Surface water at the site drains naturally through soakaway and hence to the IDB drain system. Old Seadike, an IDB main drain forms the north western boundary 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 two dwellings. The dwellings will have two storeys. 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

The site is partly located within Flood Zone 3, an area with a high probability of flooding, of the Environment Agency Flood Maps for Planning as shown in Figure 2.

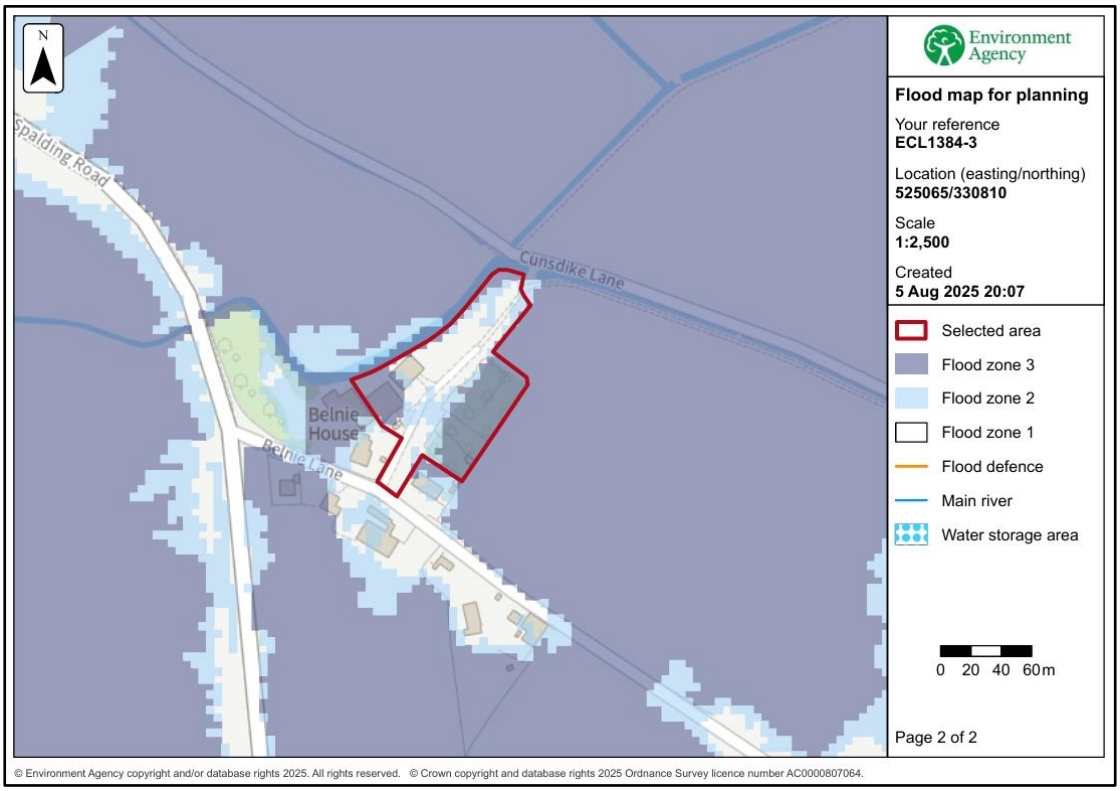


Figure 2 – Environment Agency Flood Map for Planning

The Environment Agency Long Term Flood Risk maps provide an indication of the risk from the primary sources of flooding. The details provided with these maps are summarised in Table 1. The depth of flooding identified is the maximum depth that occurs during a low chance (between 0.1% and 1% chance each year) event.

	Present Day		2050 Epoch	
	Risk of Flooding	**Depth (Low chance)**	**Risk of Flooding**	**Depth (Low chance)**
Rivers and the Sea	Part of the site has a medium chance (between 1% and 3.3% chance each year)	No data available	No data available	No data available
Surface Water	The site is outside the area with a low chance (between 0.1% and 1% chance each year)	Not at risk	The site is outside the area with a low chance (between 0.1% and 1% chance each year)	Not at risk
Reservoir	Outside of the area at risk.			

Table 1 – Environment Agency Long Term Flood Risk Maps

Table 2 shows the level of risk at the site within the South East Lincolnshire SFRA.

SFRA Map	Present Day	2116
Residual Flood Hazard Map for the 1% fluvial and 0.5% tidal event	The site is outside the 'Low Hazard' area	The site is outside the 'Low Hazard' area
Residual Peak Depth Map for the 1% fluvial and 0.5% tidal	The site is outside the area at risk during a breach	The site is outside the area at risk during a breach

Table 2 – 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.

The site has permission for the conversion of two agricultural buildings to form three dwelling. It is considered that the permissions for the change of use of the buildings has established the principle for three dwellings at the site. It is proposed that the two dwellings that forms this application will replace the existing permission.

As the proposed development can be considered to be the same as replacement dwellings it is not necessary to apply 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 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 2.2km north west of the tidal River Welland downstream of Spalding. The River Glen, a tributary of the River Welland, is 2.4km to the south of the site. The defences on the River Welland and the River Glen 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. There is an IDB maintained watercourse, Old Seadike on the western boundary of the site. The site and the surrounding land drains to the Risegate Eau which is 300m north of the site at its closest. The catchment drains in an easterly direction to Risegate Eau Pumping Station which discharges to the tidal River Welland.

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 3.

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 and 4.5.
Tidal Flooding	The risk is assessed in Section 4.3 and 4.5.
Reservoir Flooding	Based upon the EA maps the site is not at risk of flooding from reservoirs.
Groundwater Flooding	There is no evidence to suggest the site is at risk of groundwater flooding.

Table 3 – 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 South Holland IDB main drains incorporating freeboard. This freeboard provides storage during the exceedance events.

The River Welland tidal defences provide protection during the 0.5% annual probability (1 in 200 chance each year) tidal event. The River Glen has defences that 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 tide levels.

The River Welland tidal defences provide protection during the 0.5% annual probability (1 in 200 chance each year) event inclusive of the effects of climate change. The estimated tide level during this event is +7.13m OD and typical defence levels are more than +7.5m OD. In summary the existing systems and defences are appropriate for the design life of the development (i.e. 100 years).

4.6 Residual Risk

The South East Lincolnshire SFRA includes maps demonstrating the impact of climate change in 2116. The Residual Peak Depth maps within the SFRA show that when the climate change allowances are applied to the 1% annual probability fluvial (1 in 100 chance each year) and the 0.5% annual probability tidal (1 in 200 chance each year) event the site is not at risk.

5.0 FLOOD RISK MITIGATION

5.1 Summary of Risks

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

The site is not at risk from the River Welland or River Glen during the 1% annual probability (1 in 100 chance each year) fluvial event or 0.5% annual probability (1 in 200 chance each year) tidal event. Over time there will be a gradual increase in risk to the site due to climate change. During the design life of the development the site is not at risk.

The SFRA considers the residual risk associated with overtopping and a breach in the defences in 2116. The maps show that the site is not at risk.

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 site has a low 'actual risk' of flooding. Based upon the information available during the preparation of this flood risk assessment it is recommended that the floor level of the dwellings is 0.3m above surrounding ground levels and there is 0.3m of flood resilient construction above finished floor level.

The developer should ensure that the occupiers of the dwellings are 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 occupiers of the dwellings should register to receive flood warnings.

Should there be a failure of Risegate Eau Pumping Station and conditions were such to put properties and land at risk of flooding, the Internal Drainage Board would take emergency action to maintain the drainage level of service by using temporary pumping equipment.

It is recommended that surface water run-off is managed so that stormwater from the site 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 two 2 storey dwelling at Belnie Lane, Gosberton.

- 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 in Flood Zone 3. The site benefits from defences that provide protection during the 1% annual probability (1 in 100 chance each year) fluvial event and 0.5% annual probability (1 in 200) tidal event including climate change.

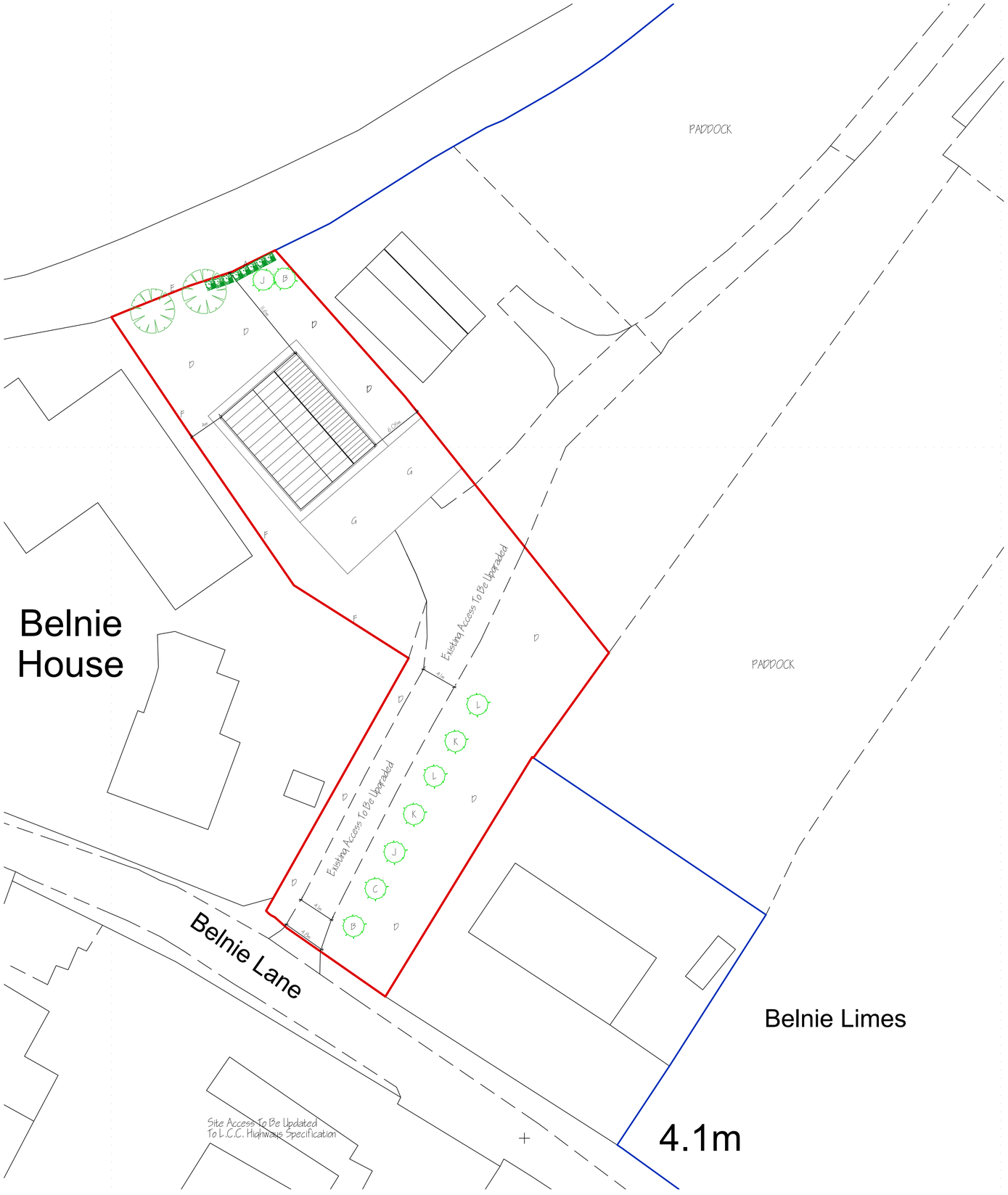
- During the design life of the development the site would not be at risk in the event of a breach of the tidal defences.

- It is recommended that the floor level of the dwellings is 0.3m above the surrounding ground levels and there is 0.3m of flood resilient construction above finished floor level.

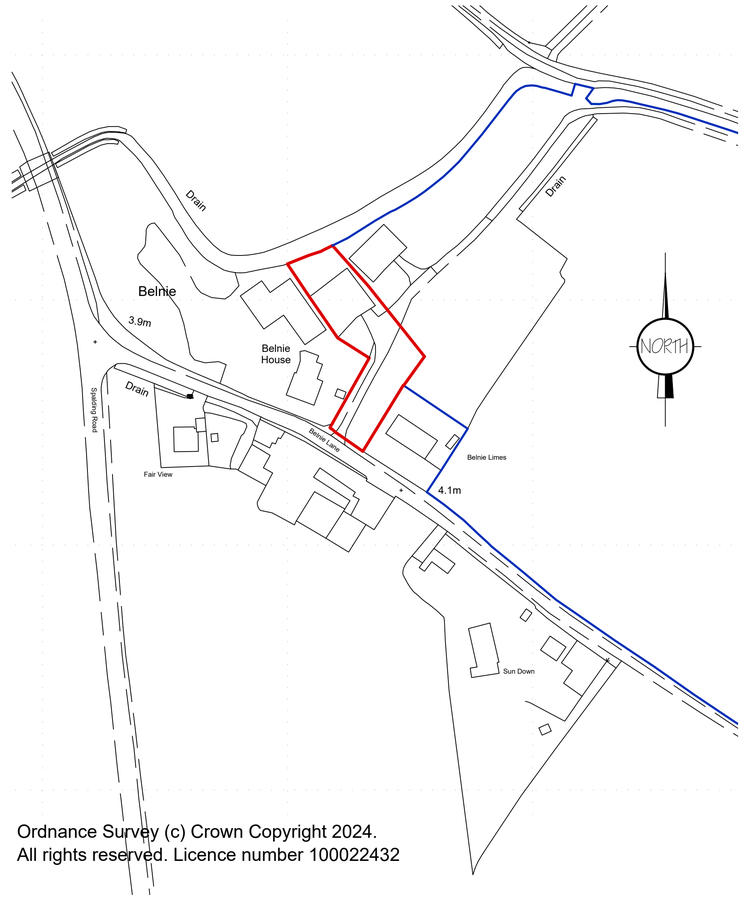
- The development passes the Sequential Test and Exception Test and is therefore suitable for the proposed location.

ATTACHMENT 1

SITE PLAN PROPOSED & LOCATION PLAN
(DWG 4301-24 11)



PROPOSED SITE PLAN 1:250



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LOCATION PLAN 1:1250

LANDSCAPING, FENCING & TREE PLANTING SCHEME.

A - MIXED HEDGE
(a) Hawthorn (Crataegus Monogyna)
(b) Beech (Fagus Sylvatica)
(c) Blackthorn (Prunus Spinosa)
(d) Buckthorn (Rhamnos Cathartica)

B - SILVER BIRCH (Betual Pendula) - Feathered

C - ROWAN (Sorbus) - Feathered

D - FLOWERING LAWNS Seeded EL -1 Mix From Emorsgate Seeds

E - Lincolnshire Wooden Post & Rail Fence

F - 1.8m High Wooden Close Boarded Fence

G - Gravel Driveway & Vehicle Parking

H - Mixed Shrubs
1) SPINDLE - 'CANADALE GOLD' - Euonymus Fortunei
2) MEXICAN ORANGE BLOSSOM - Choisya Ternata
3) ZEBRA PLANT - Calathea Zebrina
4) FOXTAIL FERN - 'MYERSII' - Asparagus Densiflorus

J - FLOWERING CHERRY - Prunus 'Accolade' - Feathered

K - CRAB APPLE (Malus Sylvestris) - Feathered

L - WILD CHERRY (Prunus Avium) - Feathered

Planting of Hedge to be double row staggered. Distance between plants to be 300mm.
Distance between rows to be 450mm. All as specified by The Woodland Trust.

All planting to be in accordance with BS 4428:1989 and amendment No. 1 (1991)
All trees to be planted with minimum 0.6m plastic mulch mat and to be staked, tied and tubed.
1/3 to ½ bag of peat free tree and shrub planting compost to be incorporated into backfill for each tree hole.

ref:	revision	date

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Project
BETTERMENT DWELLING
BELNIE LANE
GOSBERTON
SPALDING, LINCS. PE11 4HN

Client
MRS K M BAXTER

Drawing
SITE PLAN - PROPOSED
LOCATION PLAN

Job Ref.	Drawing No.
4301-24	11.
Date	**Drawn**
NOVEMBER 2025	SLD

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

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