

# FLOOD RISK ASSESSMENT

**LOCATION:**

Replacement Dwelling, Mill Lane, Acaster Malbis

**CLIENT:**

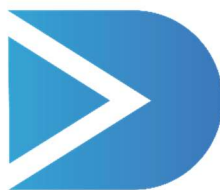
Mr M Hutchinson

**DOCUMENT REF:**

23626-FRA-001

**DATE:**

Feb 2024



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ENGINEERING

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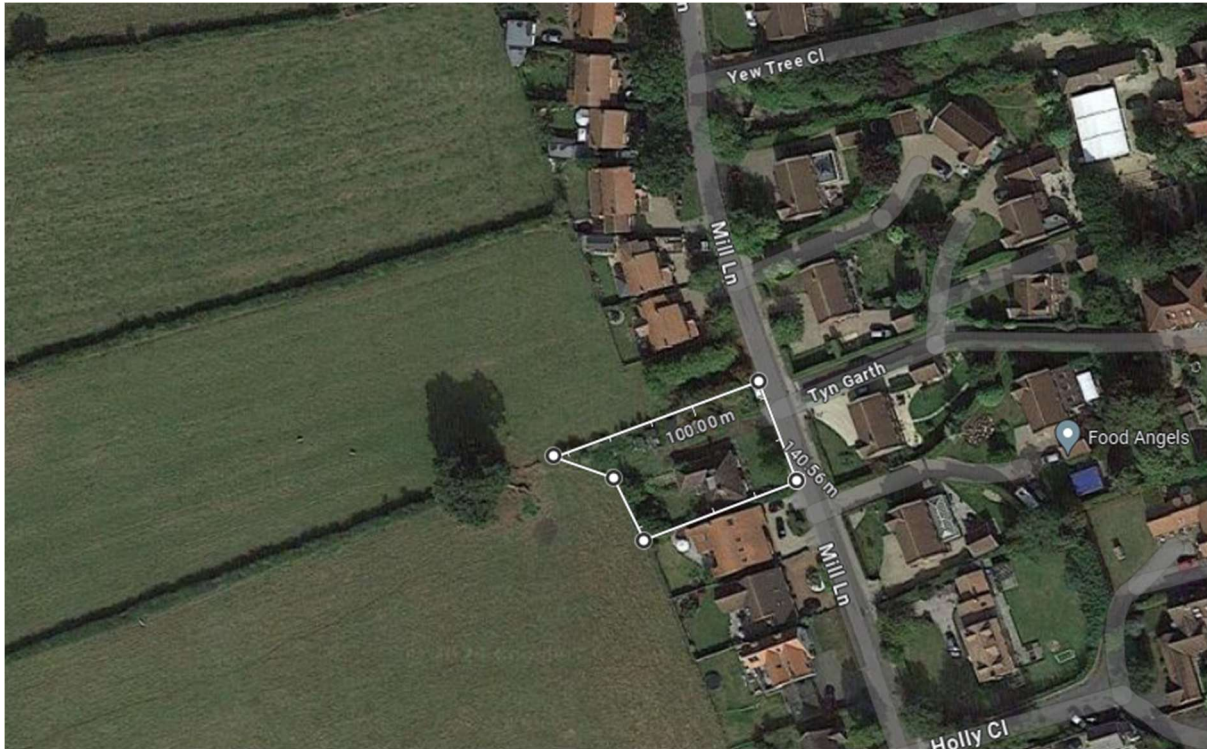
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Revision	Description	Date	Author	Checked
A	First Issue	Feb 2024	A Dyson	R Thacker

## 1.0 INTRODUCTION

This Flood Risk Assessment (FRA) is compliant with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance. The FRA has been produced on behalf of the Mr M Hutchinson in respect of a planning application for the proposed replacement residential development at Mill Lane, Acaste Malbis.



**Table 1.1** - Site Summary

## 1.1 SOURCES OF DATA

The report is based on the following information:

- i. Topographical Survey(Appendix A)
- ii. Proposed Site Layout (Appendix B)
- iii. Environment Agency information
- iv. City of York Strategic Flood Risk Assessment

## 1.2 EXISTING SITE

The site in question is located in the village of Acaster Malbis. The site is accessed via Mill Lane to the east and is bounded by existing residential properties to the north and south and agricultural land to the west.

From Appendix A it can be considered that the development area has a fall from west to east. The highest point of site is the western boundary which is around 9.37m AODD and falls to the east which is the lowest point of site at 8.91m AOD.

There are several waterbodies and watercourses within the neighbouring areas of the site. The closest watercourse to site is the River Ouse 150m to the east.

**Figure 1.1** - Site Location

## 1.3 PROPOSED DEVELOPMENT

The proposed development is set to consist of the development of replacement residential dwelling. A proposed site layout is contained in Appendix B.

## 1.4 FLOOD RISK PLANNING POLICY

### National Planning Policy Framework

The NPPF sets out the Government's national policies on different aspects of land use planning in England in relation to flood risk. Planning Practice Guidance is also available online.

The Planning Practice Guidance sets out the vulnerability to flooding of different land uses. It encourages development to be located in areas of lower flood risk where possible and stresses the importance of preventing increases in flood risk off site to the wider catchment area.

The Planning Practice Guidance also states that alternative sources of flooding, other than fluvial (river flooding), should also be considered when preparing a Flood Risk Assessment.

This Flood Risk Assessment is written in accordance with the NPPF and the Planning Practice Guidance.

### **Flood Zone Definition**

Flood Zone 1	Low probability (1 in 1000 annual probability of river or sea flooding (<0.1%)).
Flood Zone 2	Medium probability (between 1 in 100 and 1 in 1000 annual probability of river flooding (1.0%-.0.1%) or between 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5%-.0.1%) in any given year)
Flood Zone 3a	High probability (1 in 100 or great annual probability of river flooding (>1.0%) or 1 in 200 or greater annual probability of sea flooding (>0.5%) in any given year).
Flood Zone 3b	This zone comprises land where water must flow or be stored in times of flood. Land which would flood with an annual probability of 1 in 20 (5.0%), or is designed to flood in an extreme flood (0.1%) should provide a starting point for discussions to identify functional floodplain.

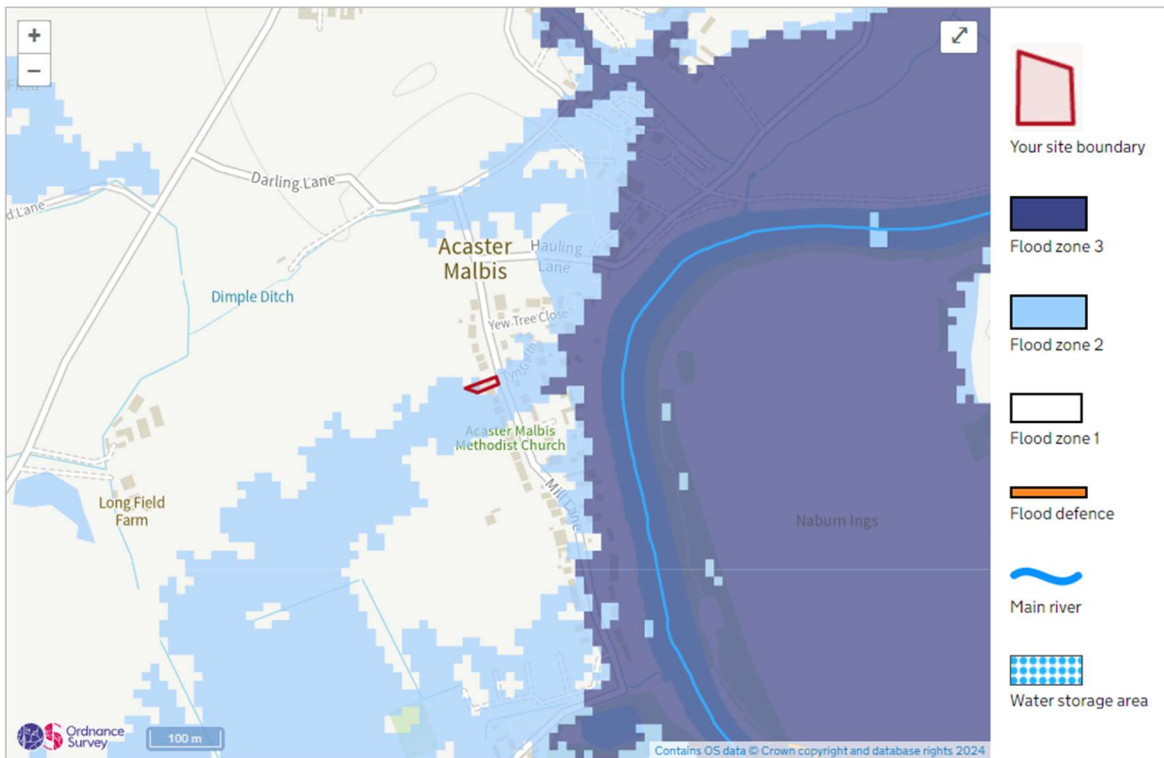
The Flood Zones do not consider the projected effects of climate change and may not represent potential flooding from smaller watercourses.

The aim is to steer new development to Flood Zone 1 and where there are no reasonably available sites in Flood Zone 1, local planning authorities in their decision making should consider the flood risk vulnerability of land uses and consider reasonably available sites in Flood Zone 2, applying the Exception Test if required.

Only where there are no reasonably available sites in Flood Zones 1 or 2 should the suitability of sites in Flood Zone 3 be considered, considering the flood risk vulnerability of land uses and applying the Exception Test if required.

**Flood Zones**

The Flood Zone Map for Planning has been prepared by the Environment Agency. This identifies areas potentially at risk of flooding from fluvial or tidal sources. An extract from the mapping is included as Figure 1.2.



**Figure 1.2 - Environment Agency Flood Zone Mapping**

The site is shown to be located Flood Zone 2.

Table 2 of the Planning Practice Guidance classifies land use. Under these classifications the proposed replacement dwellings considered to be ‘More Vulnerable’ to the potential impacts of flooding.

Table 3 of the Planning Practice Guidance identifies that any development is considered appropriate within Flood Zone 1.

Flood Risk Vulnerability Classification	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable
Flood Zone 1	✓	✓	✓	✓
Flood Zone 2	✓	✓	Exception test required	✓
Flood Zone 3a	Exception test required	✓	x	Exception test required
Flood Zone 3b	Exception test	✓	x	x

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	required			
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**1.5 OTHER RELEVANT POLICY AND GUIDANCE**

**Strategic Flood Risk Assessment**

The City of York Strategic Flood Risk Assessment (SFRA) was prepared to review flood risks on a much wider scale to assess the potential for new development within the study area. The SFRA was used as an evidence base for Local Development Frameworks for each Local Planning Authority.

The SFRA therefore aims to bring together all available flood risk information for a variety of sources to provide a robust assessment. The SFRA therefore is useful for this site-specific FRA by highlighting available data and instances of known flooding in the area. Although written under the guidance of Planning Policy Statement 25, the SFRA is still considered to include relevant information.

**2.0 POTENTIAL SOURCES OF FLOOD RISK**

The table below identifies the potential sources of flood risk to the site, and the impacts which the development could have in the wider catchment prior to mitigation. These are discussed in greater detail in the forthcoming section. The mitigation measures proposed to address flood risk issues and ensure the development is appropriate for its location are discussed within Section 3.0.

Flood Source	Potential Risk				Description
	High	Medium	Low	None	
Fluvial			X		The site is located in flood zone 1.
Tidal				X	There are no tidal influences effecting the site.
Canals				X	None present.
Groundwater			X		Ground conditions are not conducive to fluctuating groundwater levels.
Reservoirs and waterbodies				X	The site is shown to fall outside of the catchment for reservoir and waterbodies flooding.
Sewers			X		The site in question is higher than the surrounding sewers therefore there is a very low risk.
Pluvial runoff		X			An area of the site is within a medium-risk area of surface water flooding.
Effect of Development on Wider Catchment				X	The impermeable area of the site is not being altered.

**Table 2.1** - Pre-Mitigation Sources of Flood Risk

**2.1 FLUVIAL FLOOD RISK**

As previously mentioned, the site is shown to be within Flood Zone 1 and therefore poses a low risk to the proposed development.



The risk of flooding posed to the proposed development is low. This is because there is only one watercourse near the site that can pose a threat. However, the watercourse is 75m away from the site and is at a lower level.

Mitigation measures to address the residual risk posed by the watercourses surrounding the site are discussed within Section 3.0 of this report.

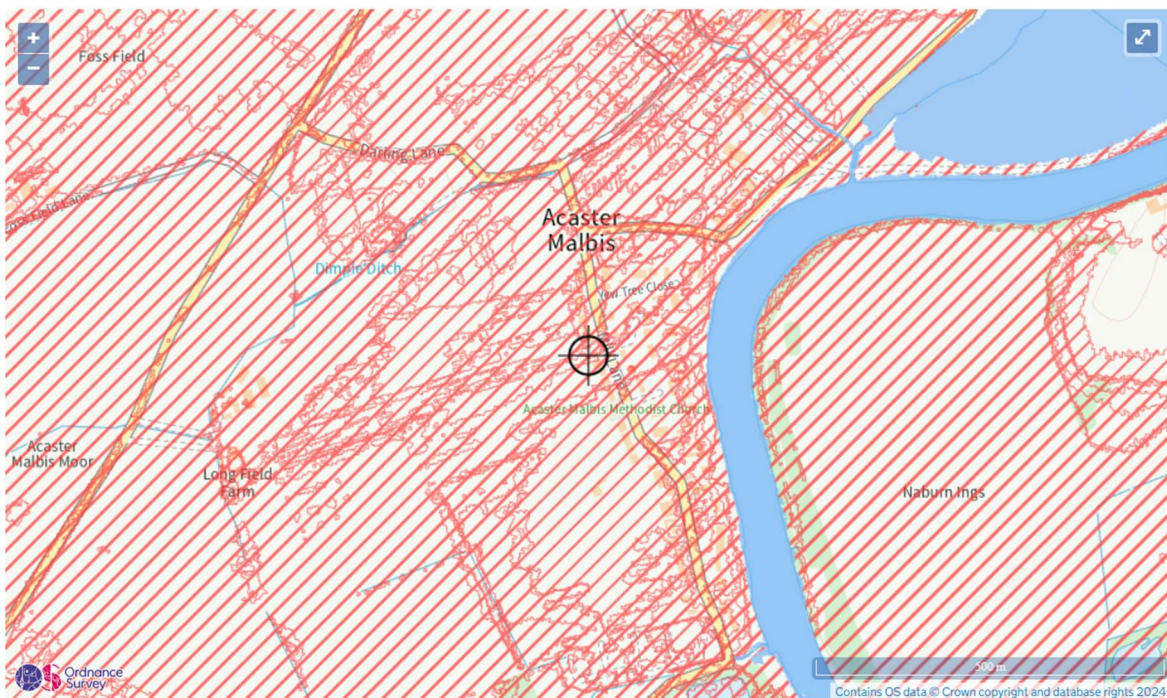
## 2.2 GROUNDWATER FLOOD RISK

Subject to completion of site investigation to confirm we would assume that natural ground water level is located well below the site surface and the nature of the strata means it is unlikely that there will be perched water above this level.

We therefore do not consider there is a risk of groundwater flooding affecting the development subject to final confirmation upon completion of suitable site investigation.

## 2.3 FLOOD RISK FROM RESERVOIRS & LARGE WATERBODIES

Reservoir failure flood risk mapping has been prepared by the Environment Agency, this shows the largest area that might be flooded if a reservoir were to fail and release the water it holds. The map displays a worst-case scenario and is only intended as a guide. An extract from the mapping is included as Figure 2.1.



**Figure 2.1** - Environment Agency Reservoir Failure Flood Risk Map

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 a worst-case scenario and is only intended as a guide.

As such, there is considered to be no risk from reservoir flooding.



**2.4 FLOOD RISK FROM SEWERS**

The site in question lies above any main roads which is potentially where any United Utilities sewers will lie.

As such, it is considered that there is no risk of flooding from sewers.

**2.5 PLUVIAL FLOOD RISK**

Risk of flooding from surface water mapping has been prepared by the Environment Agency, this shows the potential flooding which could occur when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead. An extract from the mapping is included as Figure 2.2



Extent of flooding from surface water

● High ● Medium ● Low ○ Very low ⊕ Location you selected

**Figure 2.2 - Risk of Flooding from Surface Water Mapping**

The mapping produced by the Environment Agency shows that there are no areas of the site that are at risk of surface water flooding.

Therefore, the risk posed by this threat is considered negligible.

**2.6 EFFECT OF DEVELOPMENT ON WIDER CATCHMENT**

**2.6.1 Development Drainage**

The current site is considered to be brownfield, however surface water impermeable areas are being changed therefore a strategic surface water drainage strategy prepared for wider development will ensure a sustainable approach to surface water management.

## 3.0 FLOOD RISK MITIGATION

Section 2.0 has identified the sources of flooding which could potentially pose a risk to the site and the proposed development. This section of the FRA sets out the mitigation measures which are to be considered within the proposed development detail design to address and reduce the risk of flooding to within acceptable levels.

### 3.1 SITE ARRANGEMENTS

#### 3.1.1 Sequential Arrangement

The Flood Zone mapping shows the site to be located within flood zone 1.

#### 3.1.2 Finished Levels

Given the site's location within Flood Zone 1, there are no specific requirements for finished floor levels with regard to flood risk. However the nearest EA main river is the River Ouse approximately 150m away to the east.

Information provided by the EA gives the following modelled, in-channel, flood levels at node OUSE02\_0675 taken from the 2018 Lower Ouse and Wharfe Washlands modelled results:

<b>Return Period</b>	<b>Level (m AOD)</b>
1.0% (1 in 100)	8.96
1.0% (1 in 100) + 20%	9.19
1.0% (1 in 100) + 30%	9.29
0.1% (1 in 1000)	9.32

Although the site is in Flood Zone 1 for the replacement dwelling the 1.0% (1 in 100) + 30% flood level in the River Ouse is 9.29m AOD and it is proposed that the minimum floor level will be 0.30m above this level at 9.60m AOD

It is recommended that the future occupants sign up to the EA flood warning service.

#### 3.1.3 Exception Test

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

The first part of the Exception Test is to show that the proposed development will provide wider sustainability benefits to the community that outweigh flood risk

The second part is the requirement for a FRA to demonstrate that it will be safe for its lifetime, without increasing flood risk elsewhere and where possible reduce flood risk overall.

As such it is considered the above FRA report covers the Exception Test requirement.

## 4.0 CONCLUSIONS AND RECOMMENDATIONS

This Flood Risk Assessment (FRA) is compliant with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance. The FRA has been produced on behalf of Mr M Hutchinson

This report demonstrates that the proposed development is not at significant flood risk, and simple mitigation measures have been recommended to address any residual risks that may remain. The identified risks and mitigation measures are summarised within Table 4.1.

Flood Source	Proposed Mitigation Measure
Fluvial	Site is shown to be in Flood Zone 2. Minimum FFL of 9.60m AOD
Impact of the Development	Strategic surface water drainage strategy prepared for wider development will ensure a sustainable approach to surface water management.

**Table 4.1** - Summary of Flood Risk Assessment

In compliance with the requirements of National Planning Policy Framework, and subject to the mitigation measures proposed, the development could proceed without being subject to significant flood risk. Moreover, the development will not increase flood risk to the wider catchment area as a result of suitable management of surface water runoff discharging from the site.

## 5.0 APPENDICES

Appendix A – Topographical Survey

Appendix B – Proposed Site Layout

**Appendix A**

**Topographical Survey**



**Appendix B**

**Proposed Site Layout**

KEY TO SYMBOL/ANNOTATION	LINE TYPE
MBN	Building
MBW	Wall
MBD	Door
MBR	Roof
MBP	Path
MBE	Edge
MBF	Fence
MBG	Gate
MBH	Hedge
MBI	Ironing
MBJ	Jetty
MBK	Keystone
MBL	Level
MBM	Manhole
MBN	Natural
MBO	Obstacle
MBP	Pipe
MBQ	Quarry
MBR	Road
MBS	Stream
MBT	Tank
MBU	Utility
MBV	Vehicle
MBW	Wall
MBX	Window
MBY	Yard
MBZ	Zone

COMMON POINTS	NORTHING	EASTING
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**NOTES**  
 Levels and Co-ords related to OSG6836 (15) National Datum and grid using GPS  
 Drawing scale 1:200 when plotted on A0 drawing sheet



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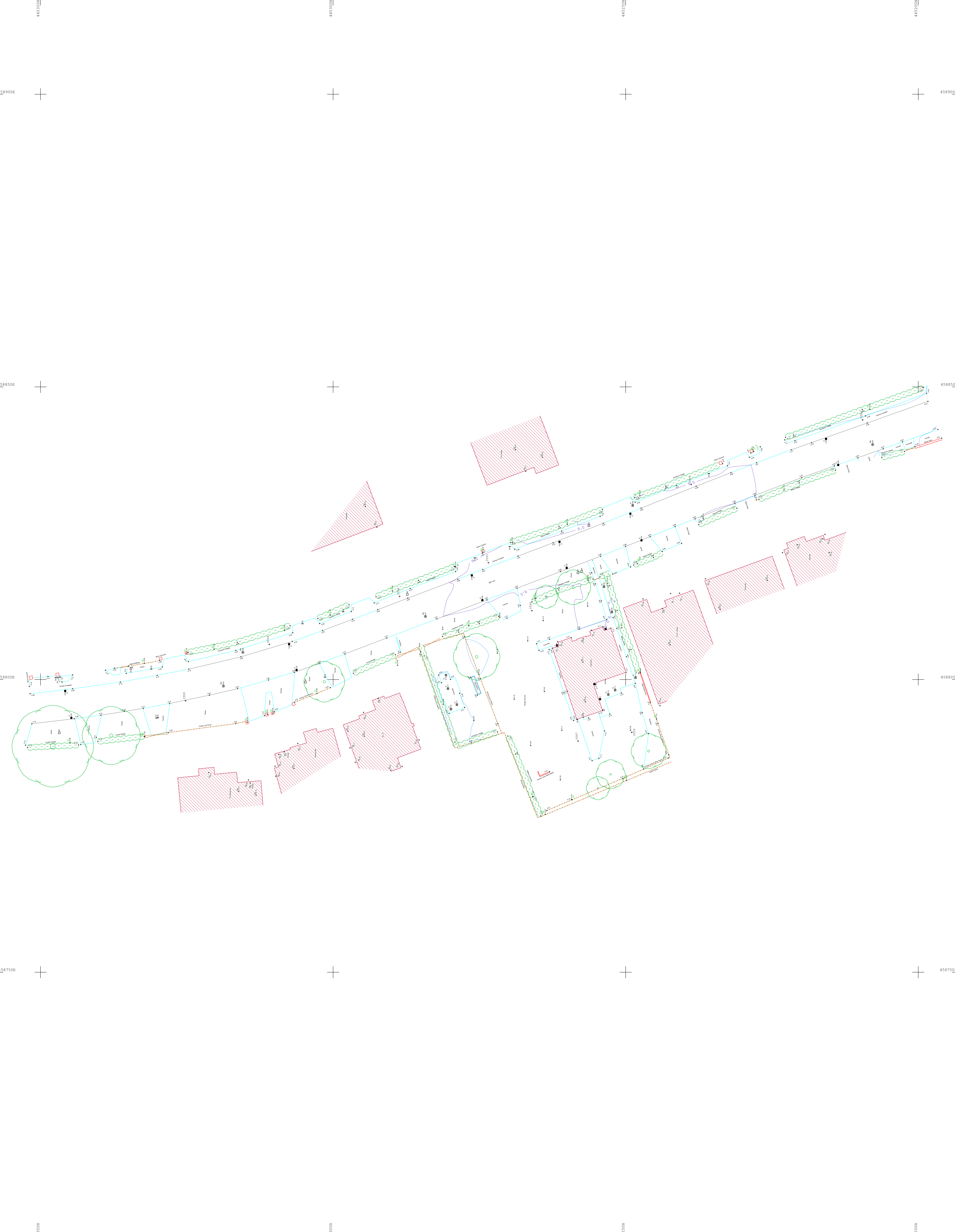
PROJECT:  
**Fairholme**  
**Acaster Malbis**  
**York YO23 2UJ**

DESIGNED BY:  
**Topographical Survey**

CHECKED BY:  
**Mark Hutchinson**

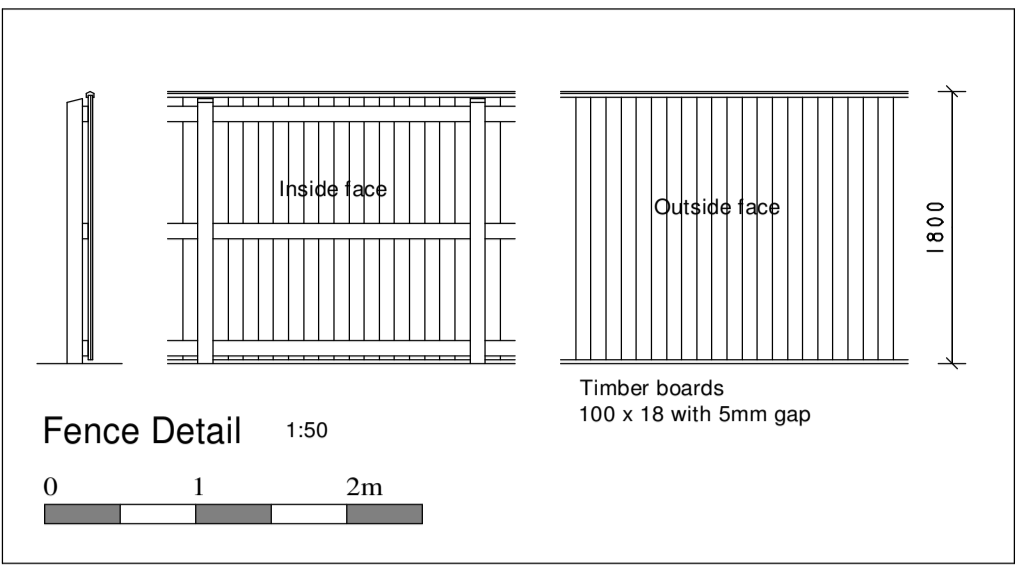
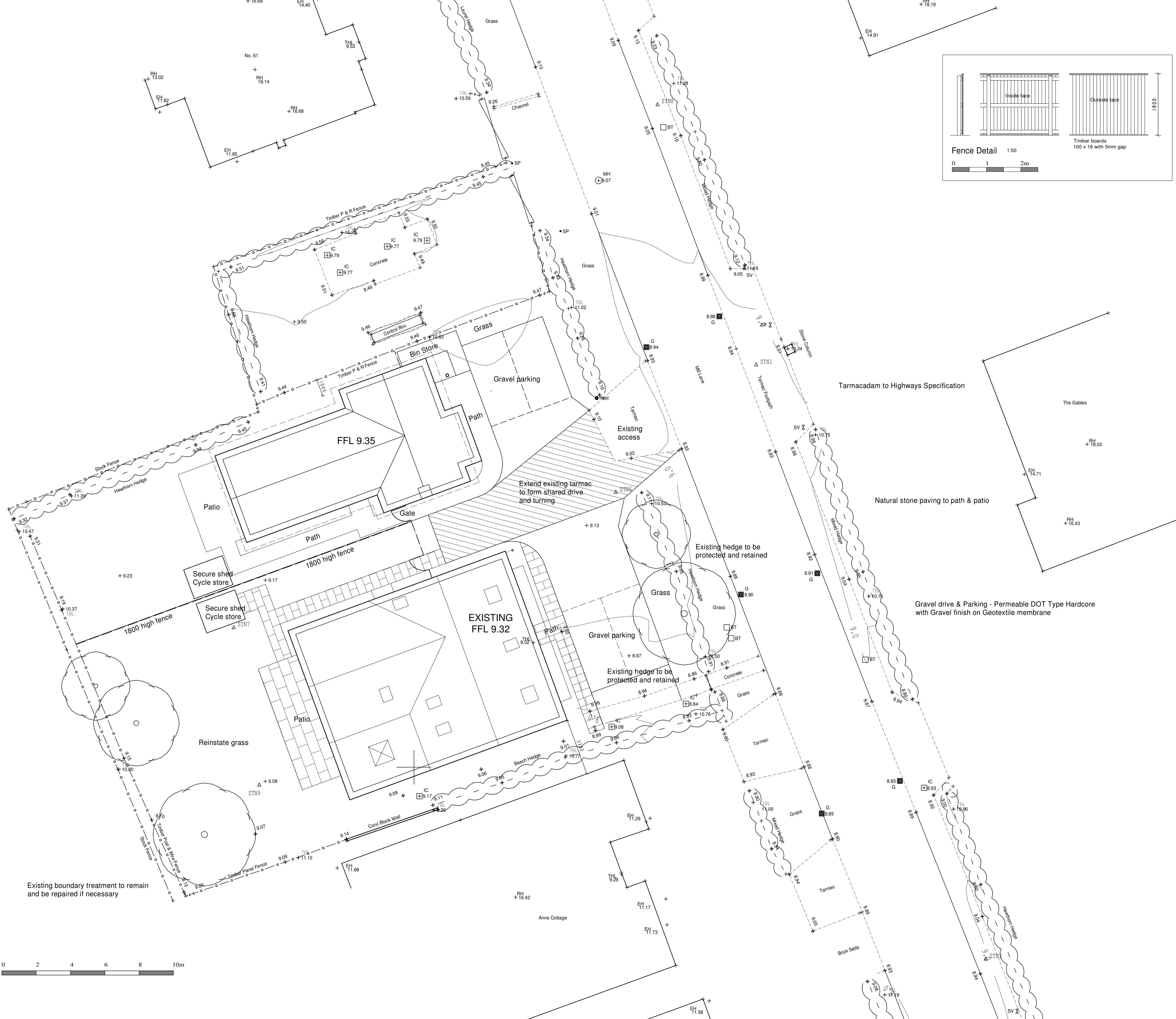
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**4549-1**



**Appendix B**

**Proposed Site Layout**



**CONSTRUCTION (DESIGN & MANAGEMENT) REGULATIONS 2015**

IN ORDER TO UNDERSTAND YOUR LEGAL OBLIGATIONS AS A CLIENT UNDER THE CONSTRUCTION (DESIGN & MANAGEMENT) REGULATIONS 2015 (CDM 2015) PLEASE REFER TO THE HEALTH & SAFETY EXECUTIVES WEBSITE AT <http://www.hse.gov.uk/constructioncdm.htm> OR CONTACT THIS OFFICE FOR FURTHER INFORMATION.  
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- PROTECT FROM FALLING AND COLLAPSE
- LOCATE, DISCONNECT, MAKE SAFE SERVICES PRIOR TO COMMENCEMENT
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<p>PROJECT:  <b>Replacement Dwelling            Fairholme            Acaster Malbis</b></p>		
<p>DRAWING TITLE:  <b>Planning Drawing            Site Block Plan</b></p>		
<p>SCALE:  <b>1:100</b></p>		<p>DATE:  <b>February 2024</b></p>
<p>DRAWN:  <b>PW</b></p>	<p>CHECKED:  <b>-</b></p>	<p>DWG NO. REV.  <b>4002-PD-05 -</b></p>

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