



**TOPPING
ENGINEERS**

CONSULTING CIVIL &
STRUCTURAL ENGINEERS

FLOOD RISK ASSESSMENT

LOCATION:

Pinfold Lane, Darfield

CLIENT:

Mark Booth

DOCUMENT REF:

21537-FRA-001

REVISION/DATE:

Revision A

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Revision	Description	Date	Author	Checked
A	First Issue	Aug 2021	J Sellers	A Dyson

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 Mboothdesign in respect of a planning application for the proposed residential development at Pinfold Lane, Darfield.

Site Name	Bedwin Pinfold Lane, Darfield
Location	Pinfold Lane, Darfield, S73 9HJ
NGR (approx.)	41936 04554
Application Site Area (ha)	0.1 ha
Development Type	Residential
NPPF Vulnerability	Low
EA Flood Zone	Flood Zone 1/2
EA Office	Sheffield
Local Planning Authority	Selwyn District Council

Table 1.1 - Site Summary

1.1 SOURCES OF DATA

The report is based on the following information:

- Site Location Plan by Mboothdesign (Appendix A)
- Proposed Site Layout by Mboothdesign (Appendix B)
- Topographical Survey (Appendix C)
- Environment Agency information
- Barnsley council Strategic Flood Risk Assessment

1.2 EXISTING SITE

The site in question is located to the east of the village of Darfield, which is far east of the town of Barnsley, approximately 7.33km away from the town centre. The site is approximately 0.1ha in size and is within a residential location bounded by Norville Cres to the north, Doncaster Road (A635) to the east, Pinfold Lane to the south, and Cover Drive to the west.

From Appendix C it can be considered that the development area is relatively steep. At the far northwest region of the site, the highest level is approximately 36.51 AOD. Contrastingly, in the far southeast area, the lowest level is approximately 26.77 AOD. Therefore, there is a 9.74m change in levels on this site.

There are several waterbodies and watercourses within the neighbouring areas of the site. Approximately 115m to the southeast of the existing buildings lies the River Dearne. Furthermore, 765m to the south of the existing building lies the River Dove that connects into the River Dearne to flow away from the site in a southern direction.

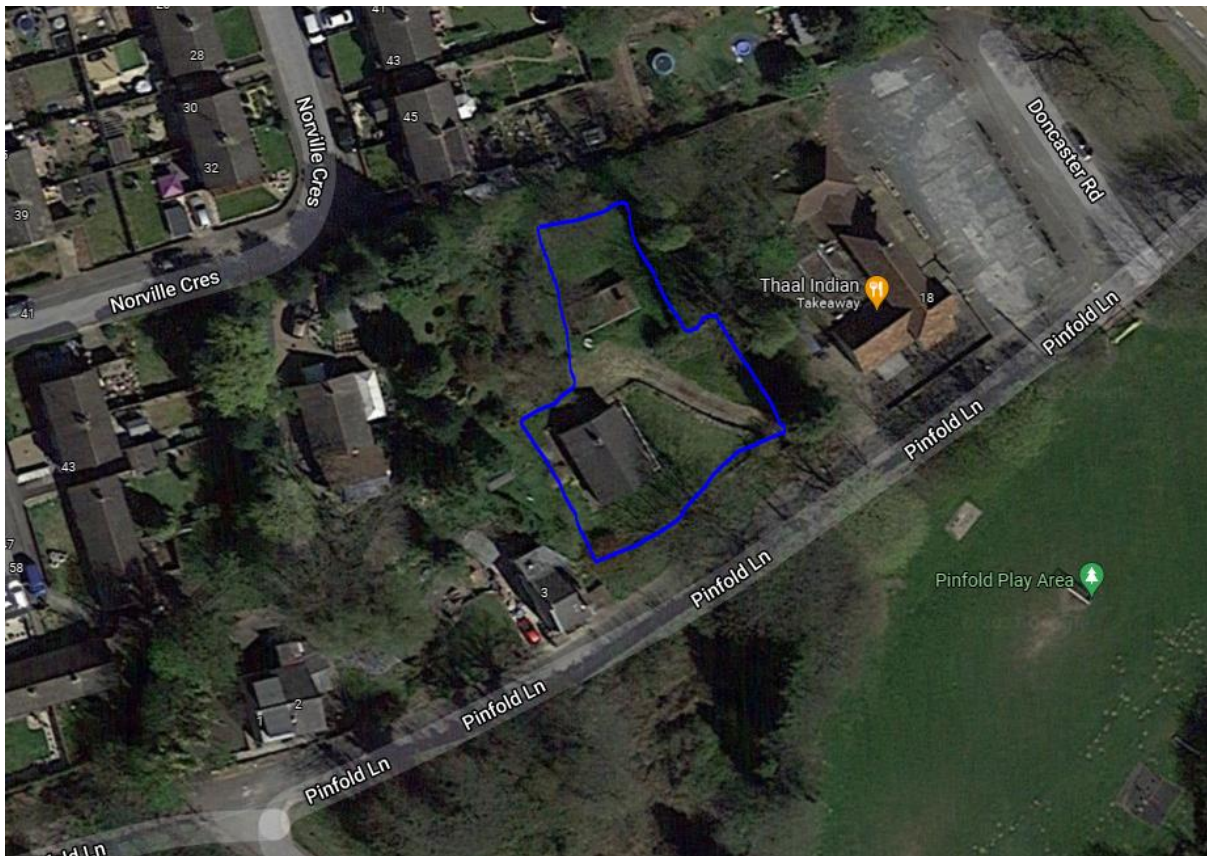


Figure 1.1 - Site Location

1.3 PROPOSED DEVELOPMENT

The proposed residential development is the construction of a five-bedroom house (see 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 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.

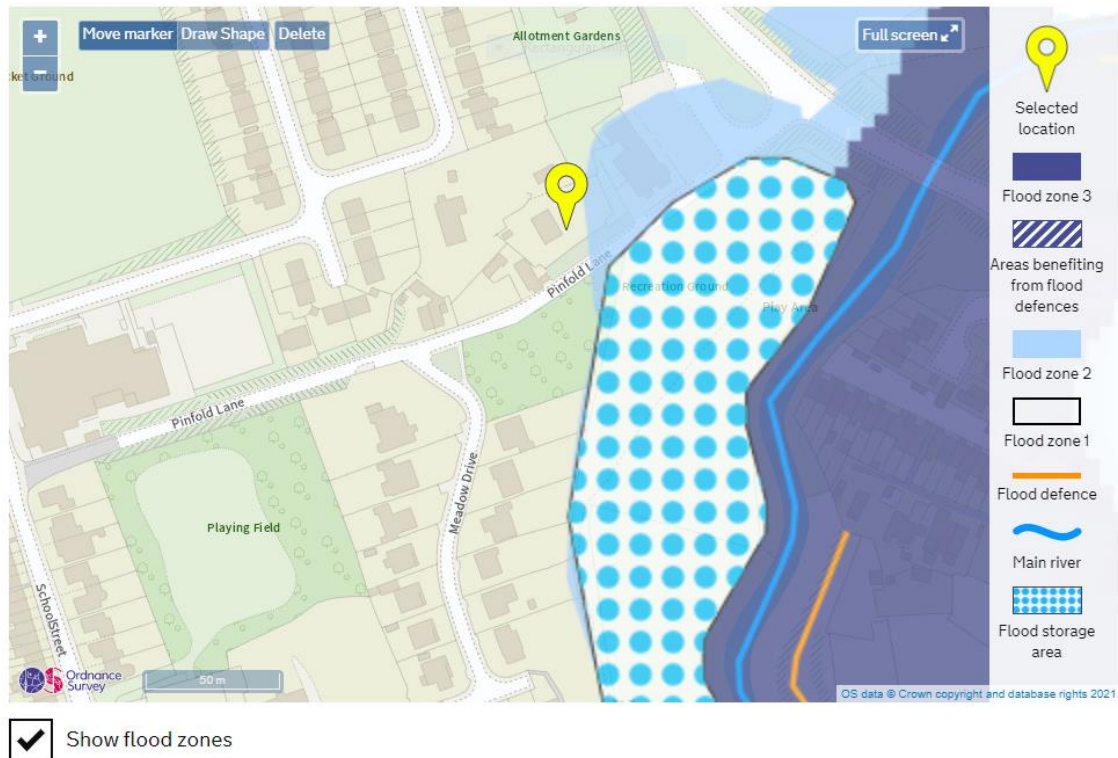


Figure 1.2 - Environment Agency Flood Zone Mapping

The site is shown to be located with the majority within Flood Zone 1 (Low Probability) and partially in flood zone 2. Therefore, the site is considered to be low risk of flooding. Flood Zone 1 is defined as land assessed as having less than a 0.1% annual probability of flooding from fluvial and tidal sources. Flood Zone 2 is defined as land assessed as having a 0.1% - 1% annual probability of flooding from fluvial and tidal sources. The proposed dwelling is to be built within flood zone 1 therefore no action needs to be taken.

Table 2 of the Planning Practice Guidance classifies land use. Under these classifications the proposed single dwelling is 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 required	✓	x	x

1.5 OTHER RELEVANT POLICY AND GUIDANCE

Strategic Flood Risk Assessment

The Barnsley council 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 1/2.
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 1/2 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 115m 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.

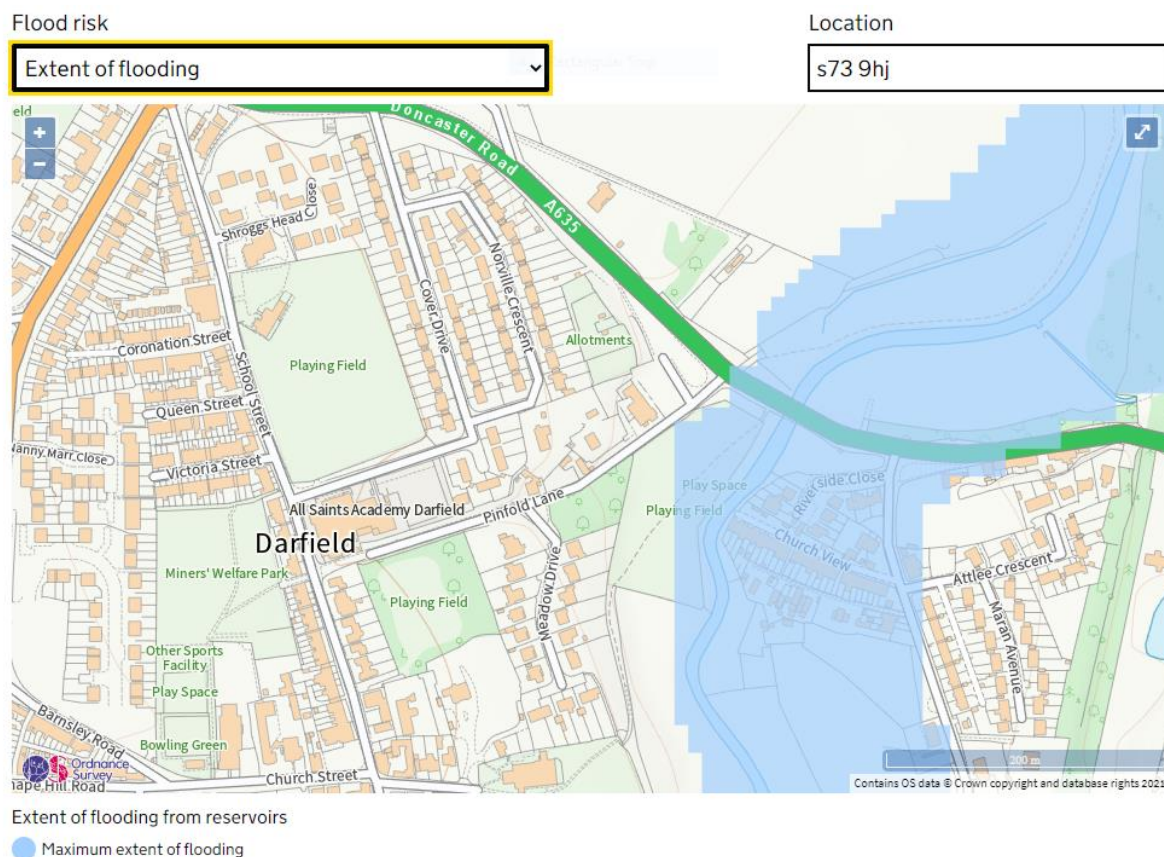


Figure 2.1 - Environment Agency Reservoir Failure Flood Risk Map

Mapping demonstrates the site and possible access routes are far removed from the flood extent associated with flooding from large reservoirs. A review of Ordnance Survey mapping shows that no areas or reservoir flooding encroach the site.

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.

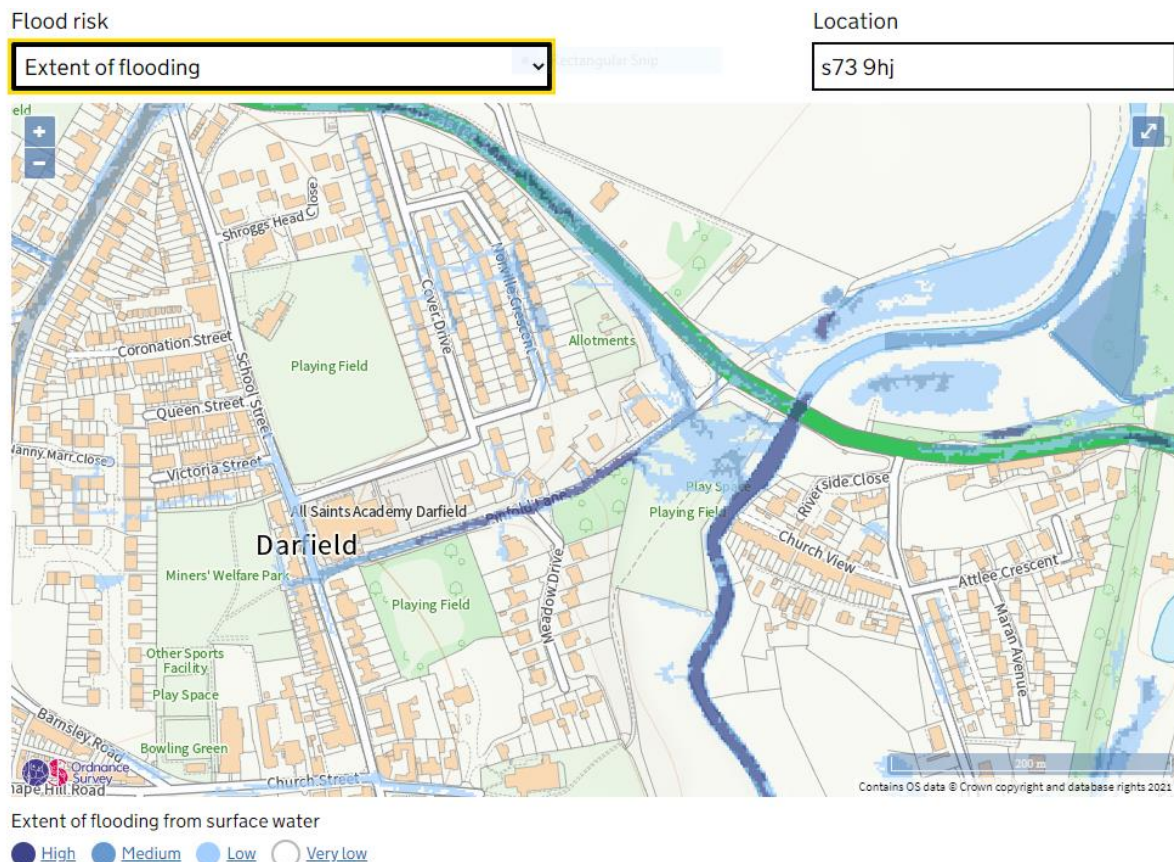


Figure 2.2 - Risk of Flooding from Surface Water Mapping

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 an existing building. The amount of impermeable area will not be altered. Therefore, the existing drainage systems will be suitable to discharge the surface water from the site. This also means that there will be no additional run-off leaving the site.

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 1/2.

3.1.2 Finished Levels

Given the site's location within Flood Zone 1/2, but the proposed dwelling sits inside flood zone 1, there are no specific requirements for finished floor levels with regard to flood risk.

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 Mboothdesign.

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 1/2.
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

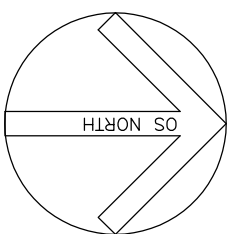
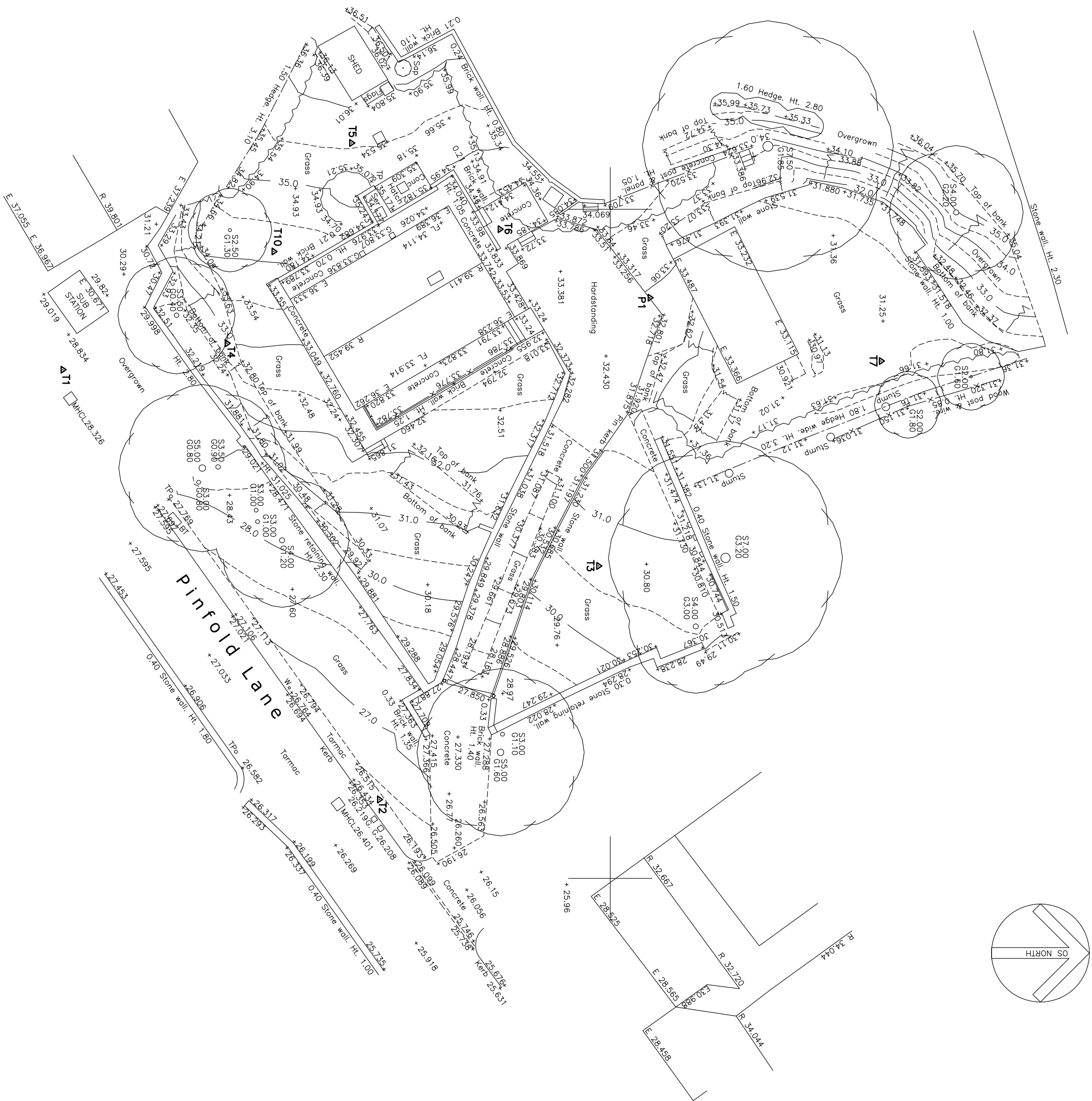
In compliance with the requirements of National Planning Policy Framework, and subject to the mitigation measures proposed, the development could proceed without being subject to significant flood risk. Moreover, the development will not increase flood risk to the wider catchment area as a result of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

5.0 APPENDICES

Appendix A – Site Plan/Location Plan

Appendix B – Building Plan and Elevation

Appendix C – Topographical Survey



Station	Easting	Northing	Level
P1	441925.288	404562.267	32.885
T1	441929.590	404527.262	28.520
T2	441955.282	404546.187	26.362
T3	441941.321	404559.298	30.700
T4	441928.012	404537.079	32.937
T5	441916.037	404544.525	35.567
T6	441921.190	404553.403	34.260
T7	441929.073	404576.195	31.203
T10	441922.522	404539.878	34.187



Haycock+Todd

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SITE SURVEY

'Benwin'
infold Lane
Darfield

Sheet 1 of 1	Surveyed by TI
Datum	Drawn by TI
GRID - Related to Ordnance Survey using One Point, Localisation on Station P1, Orientation at OS Grid North.	Date of Survey April 2021
LEVEL - Related to Ordnance Survey by connection to the OS Active Network by GPS	Scale 1/200
	Survey Job No. S9956

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