



TOPPING ENGINEERS

CONSULTING CIVIL &
STRUCTURAL ENGINEERS

FLOOD RISK ASSESSMENT

LOCATION:

Land off Cliffe Lane
Gomersal

CLIENT:

Quarters Gomersal

DOCUMENT REF:

22691-FRA-001

REVISION/DATE:

Aug 2023

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Revision	Description	Date	Author	Checked
P1	First Issue	July 2023	P Beeley	J Sellers
P2	Client change	02-08-2023	P Beeley	J Sellers

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 Quarters Gomersal in respect of a planning application for a proposed residential development.

Site Name	Cliffe Lane, Gomersal
Location	Land between Cliffe Lane and Ferrand Lane
DNGR (approx.)	420281, 426342
Application Site Area (ha)	3.6 Ha
Development Type	Residential
NPPF Vulnerability	More Vulnerable
EA Flood Zone	Flood Zone 1
EA Office	City Walk Leeds
Local Planning Authority	Kirklees Council

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 Flood Maps
- iv. Kirklees Flood Risk Management Strategy
- v. Wakefield and Calderdale Council SFRA

1.2 EXISTING SITE

The site is greenfield and slopes in a south to north direction from Cliffe Lane down to Ferrand Lane.

The site levels range from 151.00m AOD down to 128.10m AOD, see topographical survey appendix A

The site is bounded by residential properties to the south and east, residential and commercial properties to the west and agricultural land to the north.

See aerial view figure 1.1.



Figure 1.1 – Aerial Photo

1.3 PROPOSED DEVELOPMENT

The proposed development involves the construction of 87 residential units. See proposed site plan appendix B.

Due to the topography of the site and the allowable gradients for the estate roads and car parking areas, a number of retaining wall will be required throughout the site.

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

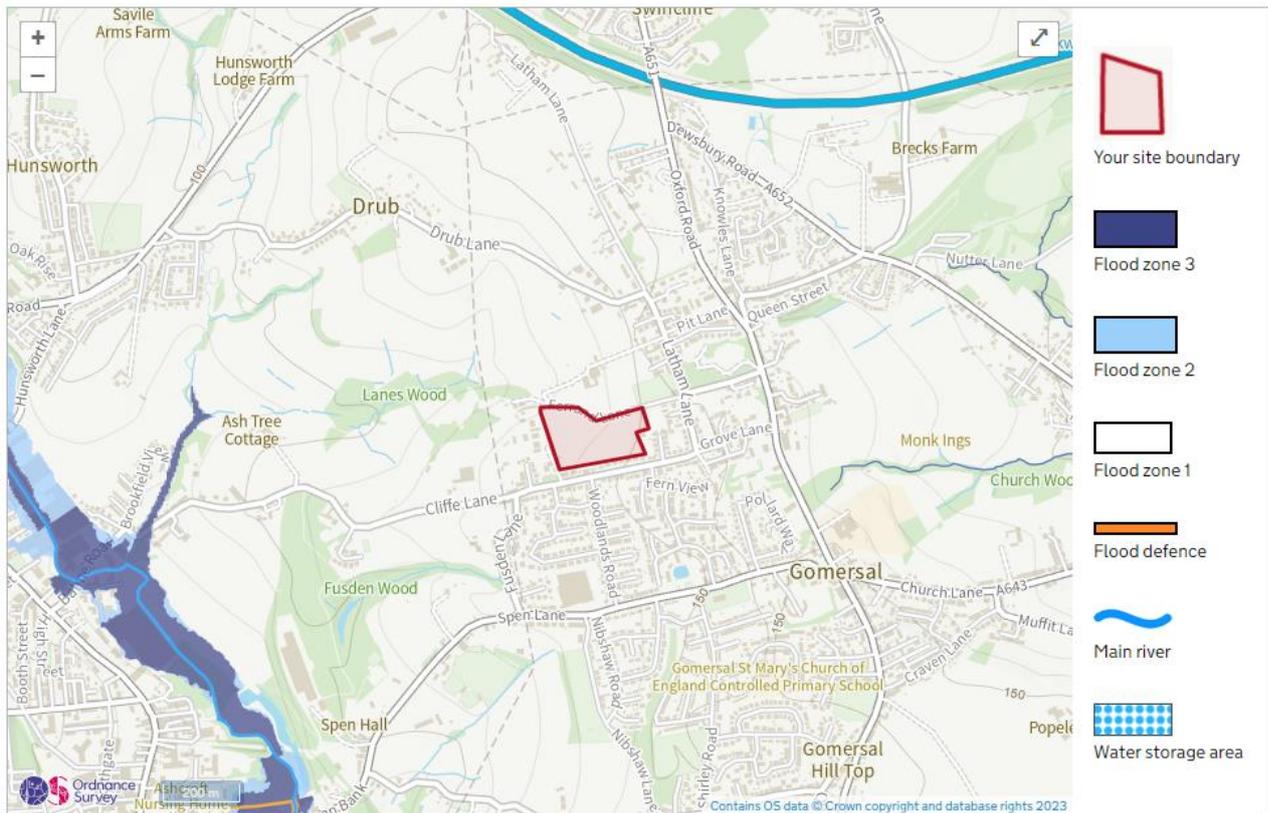


Figure 1.2 - Environment Agency Flood Zone Mapping

The site is shown to be located entirely within Flood Zone 1 (Low Probability) therefore the site is considered have a low risk of flooding. Flood Zone 1 is defined as land assessed as having a less than 0.1% chance of flooding from rivers.

Table 2 of the Planning Practice Guidance classifies land use. Under these classifications the proposed residential development is considered to be more vulnerable to the potential impacts of flooding.

Table 3 of the Planning Practice Guidance identifies that more vulnerable developments are considered appropriate within Flood Zone 1.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	X	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	X	X	X	✓ *

1.5 OTHER RELEVANT POLICY AND GUIDANCE

Strategic Flood Risk Assessment

The Wakefield and Calderdale Council 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.

CONCLUSIONS AND RECOMMENDATIONS

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		Tidal influences don't affect the site.
Canals			X		There are no canals in close proximity to the site
Groundwater			X		Given the ground conditions and topography of the site, groundwater flooding is unlikely
Reservoirs and waterbodies			X		Maps indicate the site is not affected by reservoir flooding.
Sewers			X		Sewers exist in the adopted highway, however the site topography limits the impact any flooding would have.
Pluvial runoff			X		The development site is not shown to be affected by surface water flooding
Effect of Development on Wider Catchment			X		The surface water run off from the site will be attenuated, to greenfield run off rates.

Table 2.1 - Pre-Mitigation Sources of Flood Risk

2.1 FLUVIAL FLOOD RISK

The site is shown to be in Flood Zone 1.

The risk of fluvial flooding affecting the site is low.

2.2 CANAL FLOODING

There are no canals in close proximity to the site therefore we do not consider canal flooding is a risk to the site.

2.3 GROUNDWATER FLOOD RISK

Kirklees Councils local flood risk management strategy states that groundwater flooding is rare in the Kirklees area.

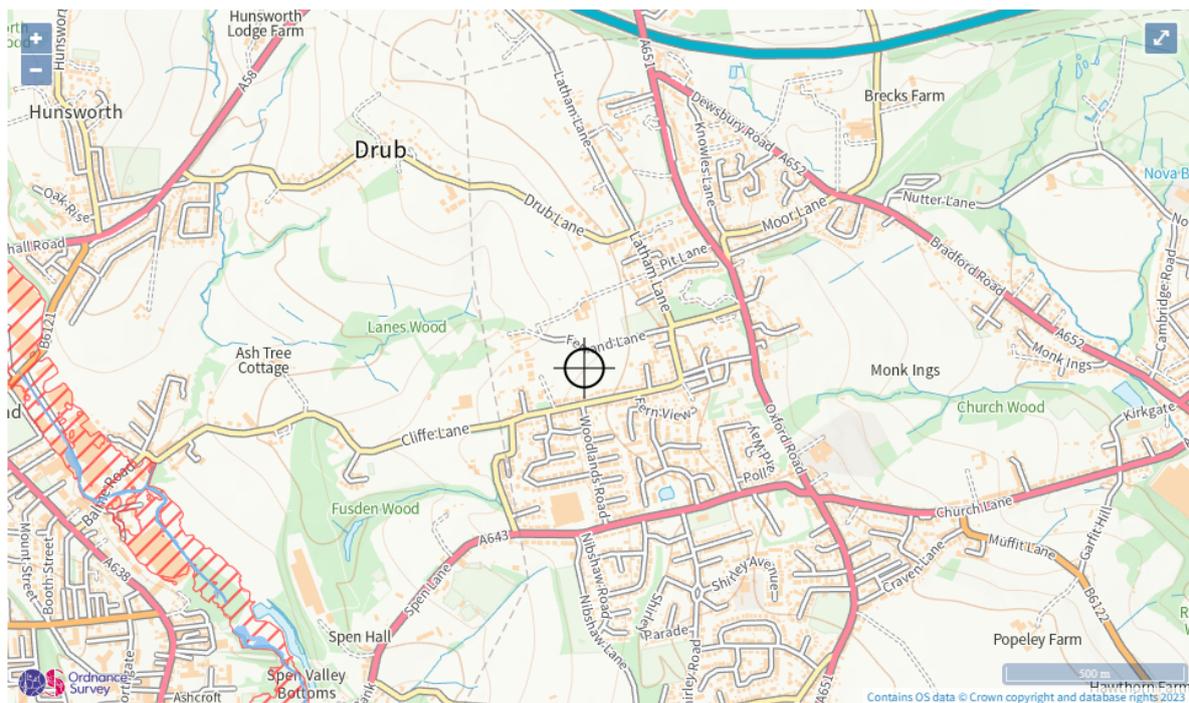
Site Investigations have been carried out on the site by GeoDyne, the ground conditions are generally clays over mudstone. There were no water strikes in the boreholes.

Based on the site investigation we don't expect there to be elevated or fluctuating water table levels on the site.

We therefore consider the risk of groundwater flooding is low.

2.4 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.



Maximum extent of flooding from reservoirs:

- when river levels are normal
- ▨ when there is also flooding from rivers
- ⊕ Location you selected

Figure 2.1 - Environment Agency Reservoir Failure Flood Risk Map

The maps indicate the site is located outside the zone of reservoir flooding and therefore we consider the risk is low.

2.5 FLOOD RISK FROM SEWERS

There are four public sewers in Cliffe Lane together with highway drainage.

The site entrance will rise slightly before falling into the site. In the event of any surcharging or blockage of the sewers, we would expect any resulting flood water to be contained within the channels of Cliffe Lane.

The connections from the site onto the foul sewer will be pumped, which will reduce the risk any surcharging will have on the site.

2.6 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

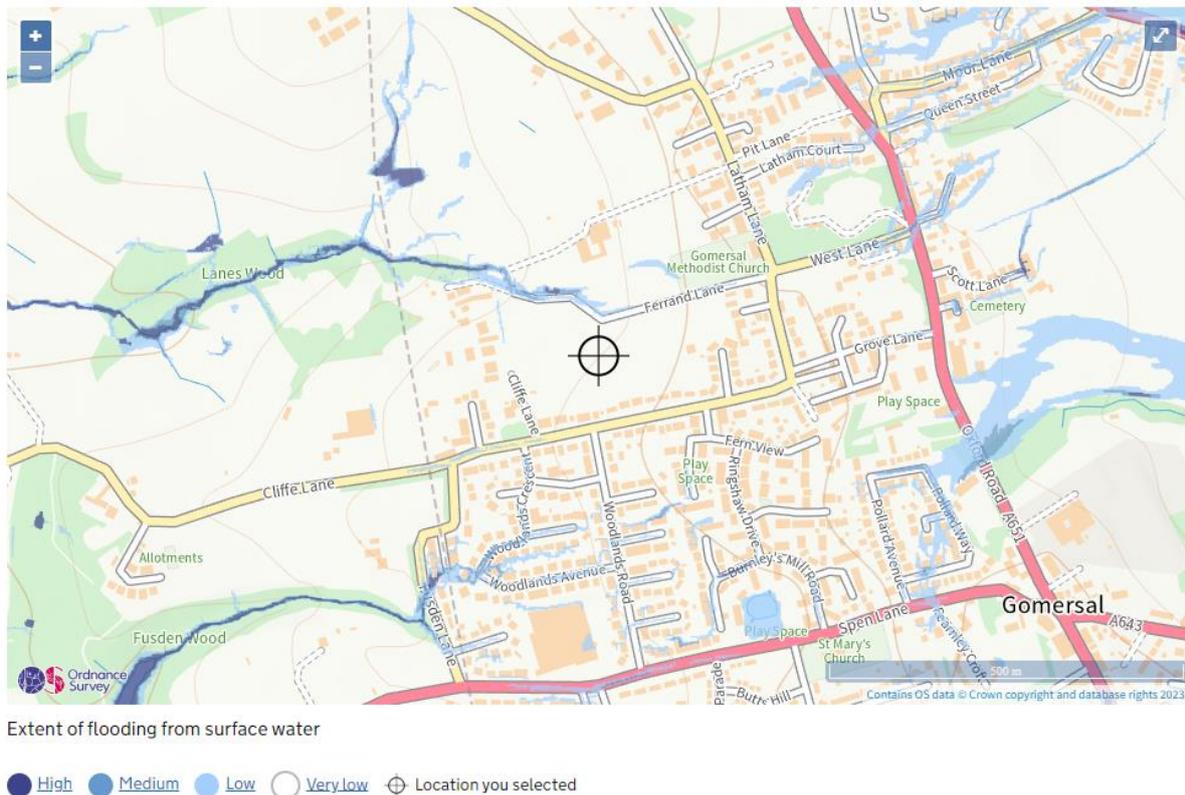


Figure 2.2 - Risk of Flooding from Surface Water Mapping

The maps show that there is a risk of surface water flooding in Ferrand Lane. This lane is located below the development site, any flooding within the lane would not affect any of the proposed development.

We therefore consider the risk of surface water flooding is low.

2.7 EFFECT OF DEVELOPMENT ON WIDER CATCHMENT

The development site is greenfield. The surface water flows from the site will be attenuated to greenfield run off rates and will drain to a watercourse that's located adjacent to Farnwood Activity centre to the north of the site.

This watercourse connects onto Nan Hall Beck, which is a tributary to the River Spen.

See the Drainage Strategy drawing, that accompanies the planning application for further details of the drainage proposals.

2.8 FLOOD RISK MITIGATION

Section 2.0 has identified there is a low risk of the development being affected by any source of flooding, and no specific flood mitigation measures are required.

3.0 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 Quarters Gomersal.

This report demonstrates that the proposed development could proceed without being at significant risk of flooding.

Moreover, the development will not increase the flood risk to the wider catchment area.

4.0 APPENDICES

Appendix A – Topographical Survey

Appendix B – Proposed Site Layout

Appendix A
Topographical Survey

CLIFFE LANE, GOMMERSAL

NOTES
ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE BUILDING REGULATIONS AND THE REQUIREMENTS OF THE LOCAL AUTHORITY.



REV. DESCRIPTION BY CHD. DATE

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CLIENT: QUARTERS DEVELOPMENTS

PROJECT: CLIFFE LANE, GOMMERSAL

TITLE: SKETCH VIABILITY LAYOUT A

DRAWING NO. 1694-001 REVISION -

SCALE 1:500 @ A1 DATE 12/22

DRAWN BY JIC CHECKED BY -

PURPOSE OF ISSUE

- PLANNING
- BUILDING REGS
- TENDER
- COMMENT
- INFORMATION
- CONSTRUCTION

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Appendix B
Proposed Site Layout

CLIFFE LANE, GOMERSAL

THIS DRAWING IS BASED ON SURVEY DRAWING NO. E11000-001, PREPARED BY LATITUDE SURVEYS AND ORDINANCE SURVEY INFORMATION. IT IS SUBJECT TO CONFIRMATION OF BOUNDARIES / RIGHTS OF WAY / EASEMENTS AND CONSULTATION WITH THE LOCAL AUTHORITY, DESIGN TEAM AND PUBLIC UTILITIES, ETC.

GENERAL KEY

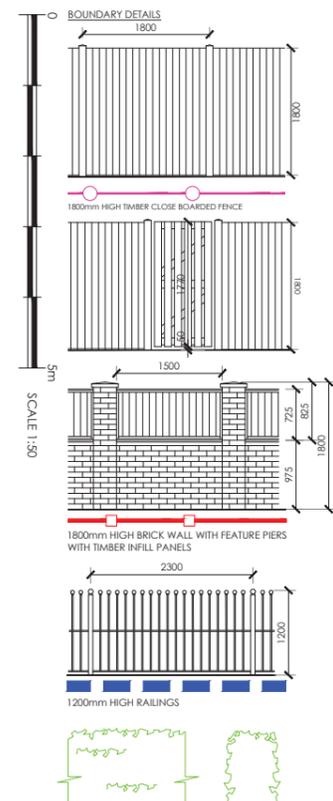
- PEDESTRIAN & VEHICULAR ENTRANCE/S
- GATE
- SIDE WINDOWS OVERLOOKING POS PLOTS 10, 69, 70, 78, 79 & 87
- BOUNDARY
- PROPOSED TREES TO INCLUDE SPECIES SUCH AS SILVER BIRCH, MOUNTAIN ASH & NATIVE CHERRY - REFERENCE LANDSCAPE ARCHITECTS DRAWINGS FOR SPEC.
- EXISTING TREES / SHRUBS / HEDGES TO BE REMOVED - REFERENCE ARBORCULTURISTS DRAWINGS.
- EXISTING TREES / SHRUBS / HEDGES TO BE RETAINED - REFERENCE ARBORCULTURISTS DRAWINGS.
- ROOT PROTECTION ZONES - REFERENCE ARBORCULTURISTS DRAWINGS.
- INDICATIVE ESTIMATED CANOPY SIZE

BOUNDARY TREATMENTS

- 1800mm HIGH STONE WALL WITH FEATURE PIERS AND CLOSE BOARDED TIMBER INFILL PANELS
- 1800mm HIGH TIMBER CLOSE BOARDED FENCE
- 1200mm HIGH METAL RAILINGS
- SMALL GARDEN RETAINING WALLS - REFERENCE S.E. DRAWINGS.
- LARGE RETAINING WALL - REFERENCE S.E. DRAWINGS.

GROUND TREATMENTS

- TARMAC TO ESTATE ROADS, PAVEMENTS / FOOTPATH, PRIVATE DRIVES AND DRIVE - UNLESS OTHERWISE STATED
- BRINDLE SETS TO MEWS COURTS / ACCESSWAYS AND DRIVES - UNLESS OTHERWISE STATED
- TURFED AREAS - ALL REAR GARDENS TO BE TURF
- PAVING SLABS TO PATHS & PATIOS
- LOW LEVEL SHRUBS



EXISTING HEDGE TO BE RETAINED - VARIES IN SIZE PLEASE REFERENCE ARBORCULTURAL REPORT FROM ELLIOTT CONSULTANCY LTD



NOTES
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REV	DESCRIPTION	BY	CHKD	DATE
F	UPDATED TO SUITE S.E. & ARBORCULTURAL COMMENTS RE: RETAINING WALL / BRP'S	BC	JC	21.06.23
E	SITE PLAN UPDATED TO SUIT HOUSE TYPE PFL AND RETAINING WALLS AS PER S.E. DETAILS.	BC	JC	21.06.23
D	ADDED FOOTPATH LINK TO NORTHERN BOUNDARY FROM SITE TO FERRAND LANE	BC	JC	12.06.23
C	UPDATED SITE LAYOUT TO SUIT HIGHWAYS AND PARKING PROVISIONS	BC	JC	10.05.23
B	UPDATED SITE LAYOUT TO SUIT PLANNERS COMMENTS FROM SITE MEETING	BC	JC	28.04.23
A	UPDATED SITE LAYOUT TO ACCOMMODATE T34	BC	JC	20.04.23

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CLIENT	QUARTERS GOMERSAL
PROJECT	CLIFFE LANE, GOMERSAL
TITLE	SITE PLAN LAYOUT
DRAWING NO.	1694-101
REVISION	F
SCALE	1:500 @ A1
DATE	01.23
DRAWN BY	BC
CHECKED BY	-

- PURPOSE OF ISSUE
- PLANNING
 - BUILDING REGS
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