Flood Risk Assessment

IN SUPPORT OF A PLANNING APPLICATION AT
LAND ADJACENT TO STONE FOLD
BB7 3DL

ruralfutures

economic & environmental development

Contents

1.0 Introduction

“Flood risk” is a combination of the probability and the potential consequences of flooding. Areas at risk of flooding are those at risk of flooding from any source, now or in the future. Sources include rivers and the sea, direct rainfall on the ground surface, rising groundwater, overwhelmed sewers and drainage systems, reservoirs, canals and lakes and other artificial sources. Flood risk also accounts for the interactions between these different sources. This term is key to the application of the presumption in favour of sustainable development in paragraph 11 of the National Planning Policy Framework.

For areas at risk of river and sea flooding, this is principally land within Flood Zones 2 and 3 or where a Strategic Flood Risk Assessment shows it will be at risk of flooding in the future. It can also include an area within Flood Zone 1 which the Environment Agency has notified the local planning authority as having critical drainage problems.

1.1 Site Details

This report is produced to support a planning application for the construction of a general purpose agricultural building and removal of a shipping container on land adjacent to Stone Fold, Slaidburn Road, Newton-in-Bowland (SD70118, 47754) See Location Plan attached.

The site is located approximately 2 miles south of Newton-in-Bowland and adjacent to the access track to the moor and inbye land. The site lies at elevation 267mAOD.

The site consists of an area of permeable stone with a small shipping container positioned to the west on a base of stone.

The site has a slight slope approximately 300mm west to east and 200mm south to north. There are no watercourses within 270 metres (NW) and 330m (SW). The closest water course is 13 metres below the level of the proposed building.

The site is accessed by a single lane stone track off Slaidburn Road. The access point at the highway is at elevation 268m AOD and falls sharply to Bonstone Brook at 222mAOD to continue rising towards the site.

The access track crosses 4 watercourses at various points between the highway and the site.

1.2 Flood Risk

Annex A shows site falls in Flood Zone 1. Table 1 defines land within Zone 1 as having a low probability of River and Sea flooding. Annex B provides a flood risk summary of the site.

Table 1: Flood Zones

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
Zone 2 Medium Probability	Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: • land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or • land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

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The proposal is for an agricultural building within Flood Zone 1. The intended use is for the storage of machinery, fodder and feed. NPPF Annex 3 indicates that land and buildings used for agriculture and forestry fall into the '**Less Vulnerable'** classification.

NPPF Annex 3 Flood Risk Vulnerability Classification

Less vulnerable

- Police, ambulance and fire stations which are not required to be operational during flooding.
- Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage

and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure.

- Land and buildings used for agriculture and forestry.
- Waste treatment (except landfill* and hazardous waste facilities).
- Minerals working and processing (except for sand and gravel working).
- Water treatment works which do not need to remain operational during times of flood.
- Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.
- Car parks.

Flood Risk Vulnerability classification (see Table D2)		Essential Infrastructure	Water compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone (see Table D.1)	Zone 1	✔	✔	✔	✔	✔
	Zone 2	✔	✔	Exception Test required	✔	✔
	Zone 3a	Exception Test required	✔	✗	Exception Test required	✔
	Zone 3b 'Functional Flood plain'	Exception Test required	✔	✗	✗	✗

Key: ✓ Development is appropriate ✗ Development should not be permitted.

1.3 Proposed Development

The proposed development is to construct a 13.07m x 9.15m steel frame building on an existing hardcore stone area. A 6.10m x 2.6m shipping container will be removed from the site.

The floor will be concrete. Wall construction is concrete panels to 1.20m and clad above with timber boarding.

There are no electrical services to the building.

2.0 Flood Defence Assessment

2.1 Present & Future Flood Risk

The site is not protected by fluvial defences. Annex A shows the flood risk for the site with and without flood defences for the present and with climate change.

3.0 Historical Flooding.

The site has no history of flooding. The applicant travels to the site daily from his residence in Newton-in-Bowland. No flooding has ever occurred at the site or on the access track during his ownership of the land for over 20 years.

4.0 Sequential Test

*As noted above, the NPPG states that when applying the sequential test a pragmatic approach to the availability of alternatives sites should be taken. It gives an example of a planning application for an extension to an existing business premises and suggests that it **might** be **impractical to** suggest that there are more suitable alternative locations for that development elsewhere.*

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Statement of operational circumstances

The nature of the farming business and the need for building is justified to optimise efficiency of operations and provide security for expensive equipment and machinery. The building will allow fodder and feed to be purchased in bulk.

The location of the building is in Flood Zone 1

As shown an alternative site is impractical and the sequential test is not required.

5.0 Surface Water Flooding

The location of the building is not at risk of flooding from rivers and seas, surface water or ground water.

There are 4 points on the access track that are vulnerable to surface water flooding.

Surface water flood maps showing the predicted depth of flooding for the period to 2040 and for the period 2040 – 2060 are shown as Annex C

The risk of annual flooding to a depth of 20cm is high. The flooding will be contained to a narrow width across a concrete covered culvert. Annex D shows images of the 4 points where surface water flooding is indicated. 2 of these points are small drainage grips with insignificant flow. The topography of the land at all 4 points falls steeply downstream and any flooding will not reach any significant depth.

None of the culverts flooded in 2015 during the Storm Desmond flood event.

6.0 Flood Precaution and Mitigation.

There is no risk of flooding at the proposed site of the building. There are 4 points on the access road where surface water flooding is a risk.

The following mitigation measures will be incorporated.

These include the following:

- The applicant is signed up to the Environment Agency Flood Warning Alert

The building is for storage and in storm conditions there will be no urgent requirement to access the building.

7.0 Impact on Surrounding Properties

The proposal is a small building with a roof area of 125.35m^2 . The existing container measures 14.64m^2 and will be removed. The net gain in roof water will be 110.71m^2impermeable surface.

A soakaway system designed to SUDs standards will deal with surface water drainage.

8.0 Conclusions

The site is located within Flood Risk Zone 1 with a low probability of flooding. The intended use is agricultural and classed as less vulnerable.
The exception test is not required.
The Sequential Test is not required.
Surface water flood risk is limited to 4 access points where no flooding of the culvert systems have ever occurred.
Flood precaution and mitigation measures have been identified
The applicant has signed to the EA Flood Warning Alert.