

# Householder Planning Application Flood Risk Assessment

Erection of 'garden' structures for the further enjoyment of the dwelling and re-siting of the oil tank

Clifton Barn, Vicarage Road, South Clifton. NG23 7AQ



August 2022

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### 1.0 Introduction

1.1 This flood risk assessment has been prepared to support a household planning application for several garden structures that will be used for the further enjoyment of an existing dwelling within a site area of 0.22ha that will be submitted to Newark & Sherwood District Council.

1.2 This document should be read in conjunction with all of the accompanying submitted supporting application documents and drawings:

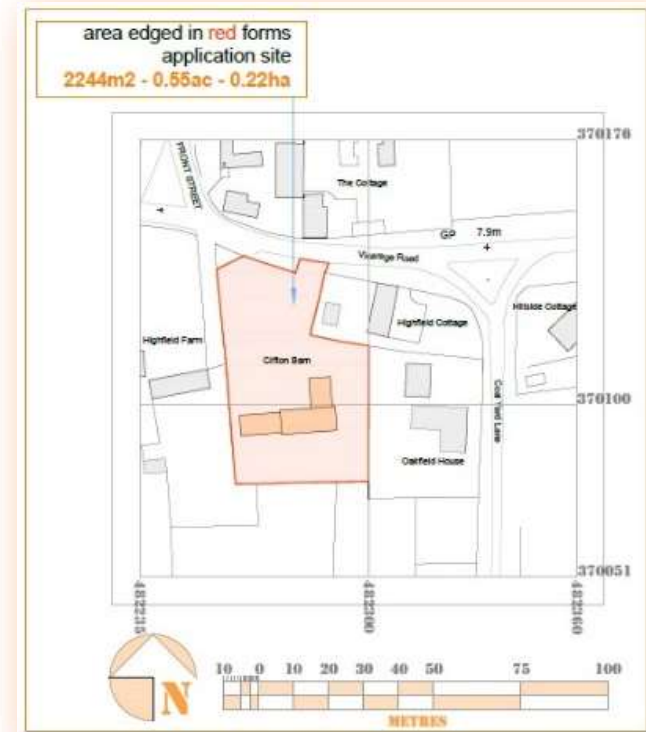
- ARQ/1200/01 – OS Location Map
- ARQ/1200/02 – Existing and Proposed Block Plan
- ARQ/1200/03 – Existing and Proposed Plans and Elevations for Pergola 1
- ARQ/1200/04 – Plans and Elevations of Pergola 2 and Greenhouse
- ARQ/1200/05 – Proposed Garage, Shed and Greenhouse Details
- ARQ/1200/06 – Plans and Elevations of Oil Tank
- Heritage Impact Assessment

### 2.0 Existing Site Context

2.1 South Clifton is located to the east of the River Trent by some 800m, approximately 10miles north of Newark and 10miles west of Lincoln. The application site extends to approximately **0.22ha** and is predominantly rectangular in shape, with a wide frontage onto Vicarage Road and has an OS grid reference where the dwelling is located of 482276, 370117.

2.2 On the corner of Vicarage Road and Coal Yard Lane, immediately north of the application site, lies Highfield Cottage a two-storey dwelling set with its gable facing Vicarage Road. To the east and west lies new residential development with agricultural land to the south.

2.3 Fig.1 – Location Map for the Planning Application



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2.4 The site comprises a recently built two storey dwelling with integral garaging approved under planning permission 17/00214/FUL, with the prior use of the land being for agricultural uses, formerly occupied by 19th Century brick farm buildings.

2.5 The topography of the site is generally level with ground levels around the dwelling set at 8.3m AOD and the finished floor level set at 8.5m AOD. There is a very gentle slope from the eastern elevation of the dwelling towards the eastern boundary (7.9m AOD) that is shared with Oakfield House. The site levels are consistent with the adjoining land.

2.6 The boundary to the north adjoining Highfield Cottage and the east shared with Oakfield House is formed with a 1.8m high timber close boarded fence with hedge planting. The boundaries to the south and west are formed with traditional timber post and rail fencing.

2.7 Fig.2 – View of the principal elevation of Clifton Barn



2.8 Fig.3 – View of rear amenity space of Clifton Barn



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2.9 The site is located within Flood Zone 2, as is the whole village, with the proposed garden structures to be used for the further enjoyment of the dwelling, falling under the category of 'minor development' as set out in the flood vulnerability and flood zone charts produced by the government. This Flood Risk Assessment has been included with this application highlighting the flood risks and how these are proposed to be mitigated.

2.10 The site is not shown to be at risk of flooding from the River Trent in a 1 in 100year event however it is shown to be at risk of flooding from the River Trent in a 100 year plus climate change flood event. The difference is due to the height of the river defences.

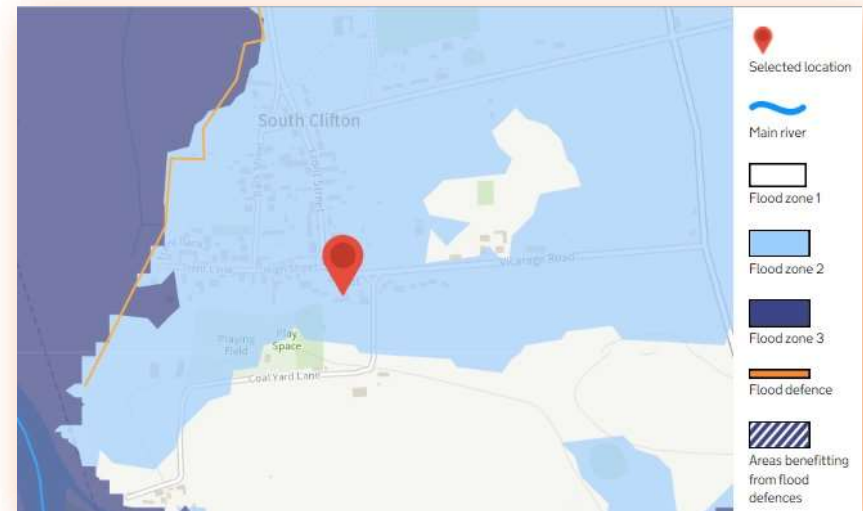
2.11 The village has the protection from flooding up to a 1 in 100year event but they are not sufficiently high enough to protect during a 100 year plus climate change event as the modelled rivers hight would be higher than the right hand side bank defences.

2.12 The site has a superficial geology of sand and gravel deposits. The underlying bedrock is 'Mercia Mudstone' group.

2.13The Surface Water from the site is already managed through a sustainable drainage system that incorporates an area of shallow attenuation in the form of an infiltration basin. It is proposed to use the existing infiltration basin to discharge the surface water from the brick built shed.

The other shed and greenhouse will discharge direct from their roofs on to the ground, which is a typical arrangement for these type of garden structures.

2.14 Fig.4 – Overall Flood Map



2.15 The proposal will not increase the flood risk to neighbouring properties or have any adverse effect on a watercourse, floodplain or flood defences.

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### 3.0 Proposed Development Description

3.1 The proposal seeks planning permission for a detached brick built shed, a traditional timber shiplap shed, a greenhouse and two pergolas, one of which will be immediately situated to the rear of the existing dwelling and the other pergola to the south west corner of the dwellings amenity space.

3.2 The proposed 'garden' structures will all be for the further enjoyment of the dwelling and will also result in the relocation of the oil tank that is sited in the north eastern corner of the plot by some 9m to the west along the same northern boundary.

3.3 Although all of the proposed would ordinarily be considered permitted development under the Town and Country Planning Order 2015, these rights were revoked as part of the Planning Permission for the new dwelling under condition 8 of approval 17/00214/FUL.

3.4 The Shed marked as 'Shed 1' on the accompanying proposed block plan is detailed to be built in facing brickwork with a pantile roof. This is mainly due to its more prominent location forward of the main dwelling and will follow similar patterns within the village where dwellings are accompanied by smaller single storey brick buildings. Shed 1 will be used for the storage of larger pieces of gardening equipment and garden furniture during the colder months.

3.5 Surface water is proposed to discharge to an existing infiltration basin within amenity space to the front of the dwelling.

3.6 Fig.5 – Proposed Site Layout



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3.7 Shed 2 and the Greenhouse will take more traditional forms as garden buildings and be positioned along the eastern boundary. Shed 2 will be used for smaller gardening items and the Greenhouse used for the applicants hobby for the cultivation of spring and summer plants and shrubs.

3.8 Adjoining the dwelling on the southern elevation it is proposed to site a contemporary aluminium framed pergola that will be fitted with manually operated vented roof shutters. This choice of pergola is preferred due to its smaller section members opposed to that of a traditional timber pergola and will help to provide clean lines when viewed against the dwelling.

3.9 Within the garden space in the south western corner, it proposed to site a smaller pergola to that proposed to be positioned against the dwelling, again using an aluminium framed construction.

### 4.0 Risk of Flooding from Rivers and Watercourses

4.1 The site falls within Flood Zone 2 as identified on the Environment Agency's flood maps and is therefore at risk of flooding, but it should be noted that that it is in an area benefiting from flood defences. The site lies approximately 800m to the east of the River Trent and 575m from the flood defences

### 4.2 Fig.6 – Indication of Flooding from Rivers



4.3 The flood defences along the east bank of the River Trent comprise earth bunds approximately 1.3m above the surrounding ground levels. If these defences were breached during a 100-year flood event the water could flow into an area behind and create flooding issues for anybody living in the area.

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4.4 During a 100 year plus climate change event the river rises approximately 1.3m higher than the land directly behind the defences. In this case there would be a 'danger to some' during a breach, mainly to vulnerable people if caught in the open, however this risk is small. The distance between the site and the lower ground levels at the foot of the embankment would tend to reduce the hazard resulting from a failure of the defences and water would diminish as the distance from the defence increases. The application site is around 300mm lower than the flood levels that could breach the defences.

4.5 There are Board maintained watercourses to the west of the village, however there is no flooding information held for this area.

4.6 Fig.7 – Trent Valley Internal Drainage Board Watercourses





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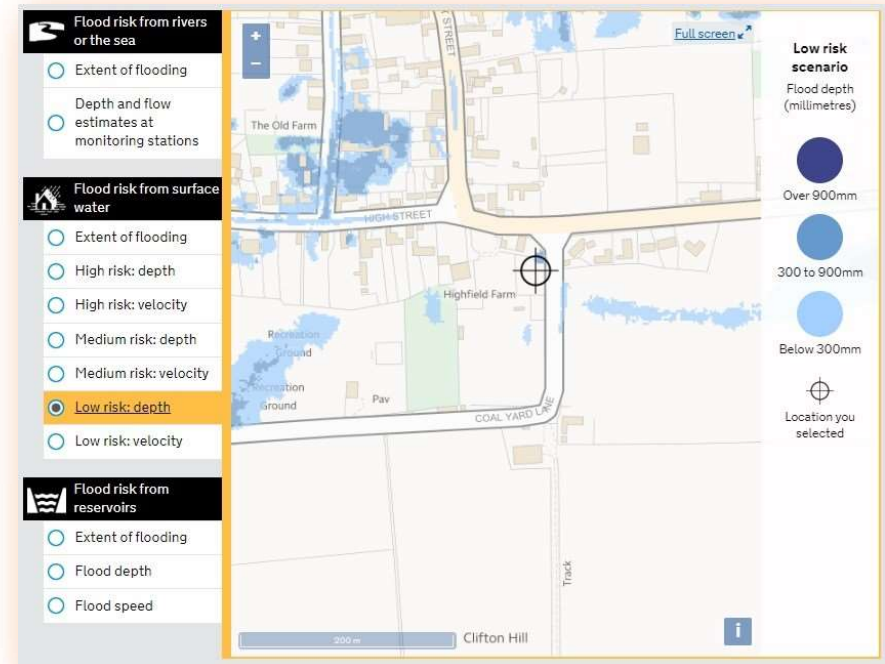


### 5.0 Risk of Flooding from Surface Water

5.1 Surface water flooding can happen when the rain falling onto a site cannot drain away into a drainage system or infiltrate into the ground. It also occurs when the capacity of the available drainage systems is exceeded leaving the excess water to flow over the ground and accumulate against barriers to the flow and in hollows.

5.2 The risk from flooding from surface water is very low. The following image shows the environment agency's risk of flooding from surface water. The underlying sandy soils would tend to allow surface water to infiltrate into the ground.

### 5.3 Fig.8 – Indication of Flooding from Surface Water



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### 6.0 Risk of Flooding from Other Sources

6.1 **Reservoirs** – After consulting the EA flood maps, the site does not show any risk of flooding from reservoirs.

6.2 **Sewers** – There is a 150mm diameter foul drain that runs east to west along Vicarage Road to the north of the site and is not thought to provide a flooding risk. The levels are such that any flooding from the sewers would be expected to flow in the opposite direction to the application site along the road network in the village.

6.3 **Groundwater** – The underlying ground is made up of permeable sands and gravels over mudstones, which allows water to filtrate through. It is unlikely that groundwater flooding would occur on the application site. The application site already takes advantage of these conditions and utilises an infiltration basin soakaway system for the surface water from impermeable areas.

6.4 **Highways** – The road adjacent to the site falls towards grass verges that have the same underlying ground conditions as the application site. It is accepted that during intense rainfall water could accumulate, but this would only be to a few centimetres and pose no risk of flooding to the application site.

### 7.0 Conclusions

7.1 The site is shown within Flood Zone 2 as indicated on the Environment Agency's mapping. The site would not flood in a 100-year event according to the most recent modelling analysis for the River Trent, however there is some limited flooding when the increase in river levels due to climate change are added to the model.

7.2 Flood risks from minor water courses, surface water, sewers, highways and ground water sources have been considered and the risk of flooding from these sources is minimal.

7.3 The proposed development is classed as 'minor development' and as such unlikely to raise significant flood risk issues.

7.4 The proposal does create impermeable surfaces within the site and this runoff would be managed by infiltration with zero amount of run off discharged outside of the site.

7.5 The information shown on maps produced by the British geological Survey suggest that underlying ground conditions may be suitable for infiltration drainage. In 2015 9no permeability tests were undertaken on 3no holes and the mean permeability coefficient for the site was calculated to be  $3.18 \times 10^{-5}$  m/sec. This value supported the suitability for the disposal of surface water from the site using a shallow infiltration basin located within the front amenity space of the recently built property.

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7.6 The existing infiltration basin is constructed 300mm deep with 1:3 slopes. The basin is surfaced with sandy/gravelly topsoil and seeded to grass.

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