

ML PLANNING CONSULTANCY LTD

FLOOD RISK ASSESSMENT

Lavender Cottage

Garstang Road

St. Michaels

Preston

PR3 0TD

**OUTLINE PLANNING APPLICATION FO THE ERECTION OF ONE
RESIDENTIAL DWELLING**

September 2023

SCOPE OF THE ASSESSMENT

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

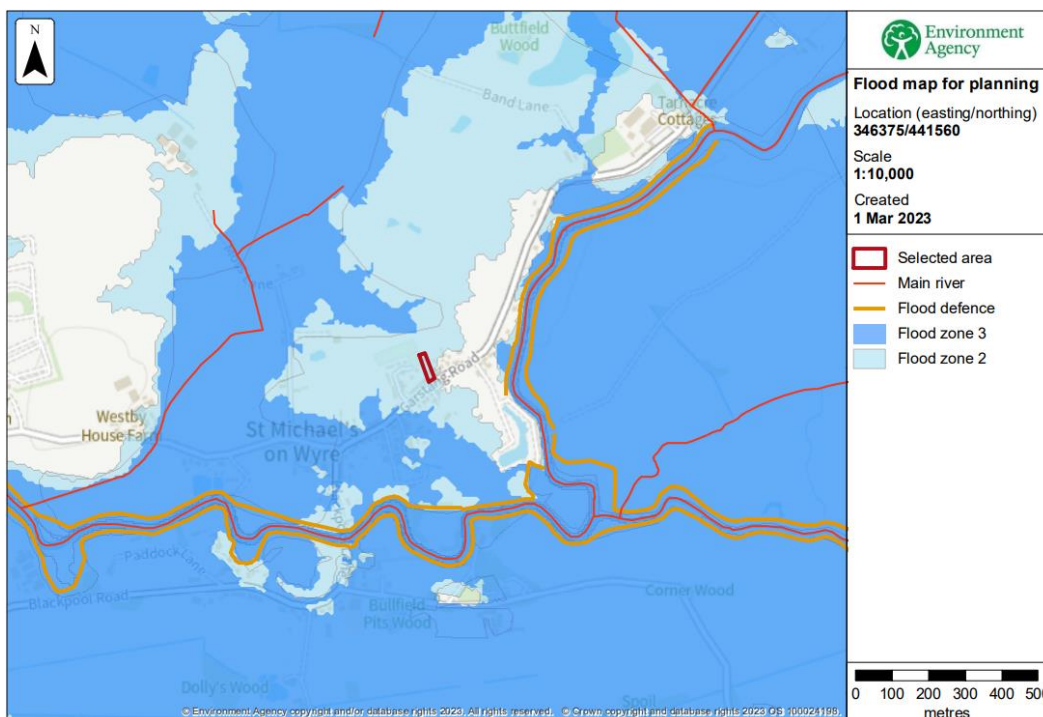
The NPPF sets out the vulnerability to flooding of different land uses. It encourages development to be located in areas of lower flood risk where possible and stresses the importance of preventing increases in flood risk off site to the wider catchment area.

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

As set out in the NPPF, local planning authorities should only consider development in flood risk areas appropriate where informed by a site specific Flood Risk Assessment. This document will identify and assess the risk associated with all forms of flooding to and from the development. Where necessary it will demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account.

In investigating the flood risk relating to the site, the Environment Agency flood mapping has been reviewed and has confirmed that the site lies within Flood Zone 2. Flood Zone 2 is identified as:-

Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or
Land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding.



STRATEGIC FLOOD RISK ASSESSMENT

The Strategic Flood Risk Assessment for Wyre Borough Council is dated July 2016 and was produced by Wyre Borough Council.

The SFRA sets out the distinct flood risk areas in Wyre. The site is within the Central Wyre Area. The main source of flooding within this area is from fluvial sources. Because of the flat nature of the topography many of the secondary watercourses back up when the River Wyre is bank full during peak flow events. The flat topography also allows tidal influences to impact throughout much of the area and certainly further than the defined tidal limits at Cartford Bridge Little Eccleston. Limited flood risk exists from sewer systems and canals.

SOURCES OF FLOOD RISK

River and Sea Flooding

During heavy or prolonged rainfall events, rivers can encounter large flows which can result in them exceeding their capacity (fluvial flooding). Additionally, when a river has a tidal influence, high tides and storm surges can result in river capacity exceedance. Tidal flooding can also occur when an exceptionally high tide, almost always accompanied by a storm tide surge, overtops and/or breaches the tidal defences along a coastline.

Surface Water Flooding

Flooding from surface water runoff usually occurs when rainwater does not drain away through drainage systems or soak into the ground and instead lies on or flows over the ground. This form of flooding typically occurs following a period of prolonged rainfall when either the ground is saturated or sewers/drainage is at full capacity. It is inextricably linked to issues of poor drainage and sewer flooding. Surface water flooding can also occur when the intensity of the rainfall prevents rainwater from having time to flow into sewers or soak into the ground.

Groundwater Flooding

Groundwater flooding occurs when heavy or prolonged rainfall makes the level of water underground rise above its natural surface. It is most likely to occur in areas underlain by permeable rocks, called aquifers. These can be extensive, regional aquifers, such as chalk or sandstone, or may be more local sand or river gravels in valley bottoms underlain by less permeable rocks. The risk of groundwater flooding can also be exacerbated by artificial factors, such as a reduction in water abstraction.

Sewer Flooding

Sewer flooding normally occurs when inflows into the sewer system exceed the underground system capacity resulting in the sewer system becoming overloaded. W

Flooding from Artificial Sources

There are a number of reservoirs in the Borough - including Grizedale, Barnacre and Grizedale Lea - which provide storage for public water supply.

PROPOSED DEVELOPMENT

The proposal is an outline application for the erection of one residential dwelling.

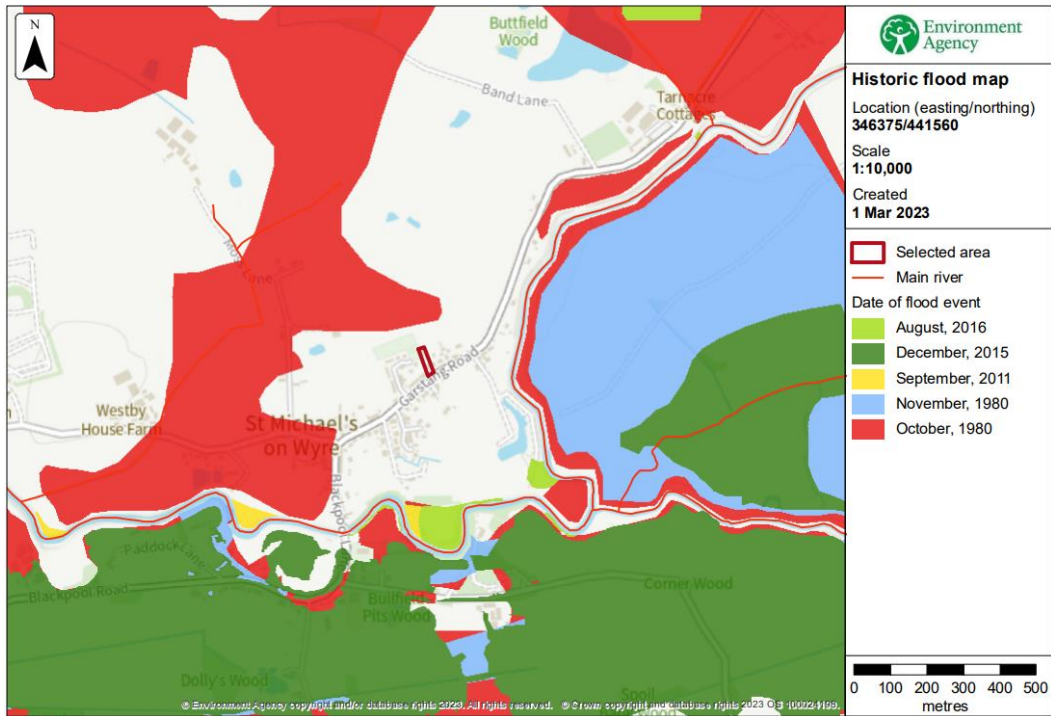
The vulnerability classification of the proposed development is 'more vulnerable'.

Location of the site:



HISTORIC FLOODING

This map is an indicative outline of areas that have previously flooded:

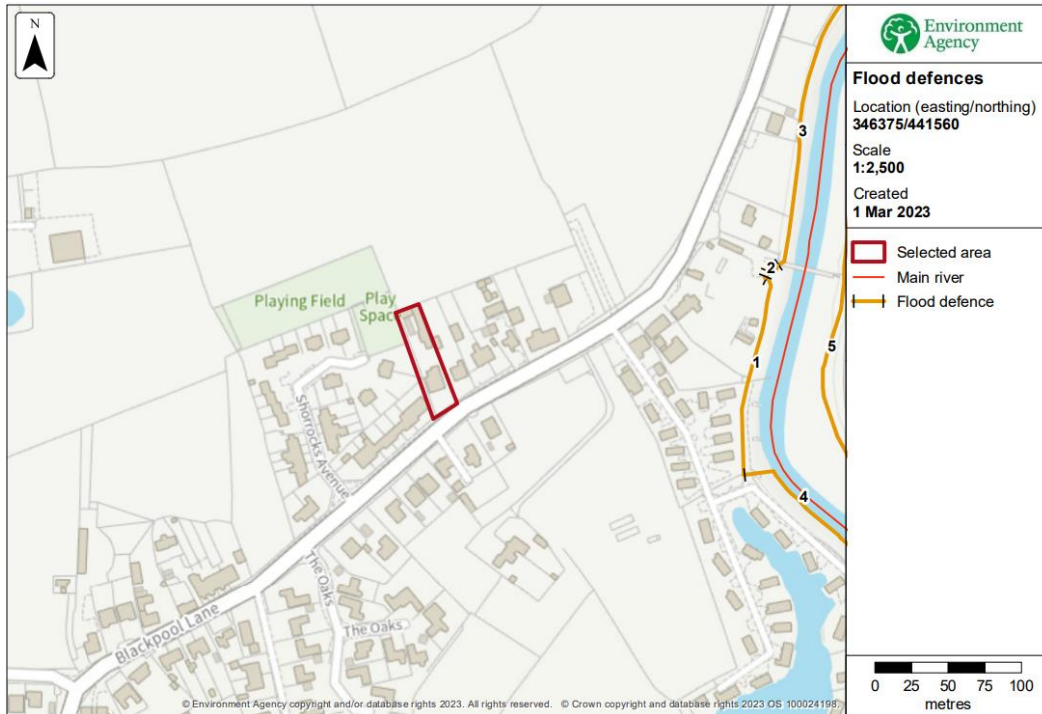


Historic flood event data

Start date	End date	Source of flood	Cause of flood	Affects location
22 August 2016	23 August 2016	main river	other	No
5 December 2015	6 December 2015	main river	operational failure/breach of defence	No
6 September 2011	6 September 2011	main river	channel capacity exceeded (no raised defences)	No
21 November 1980	22 November 1980	main river	overtopping of defences	No
14 November 1980	15 November 1980	main river	overtopping of defences	No
27 October 1980	28 October 1980	main river	overtopping of defences	No
23 October 1980	24 October 1980	main river	overtopping of defences	No

DEFENCES

The area is protected by flood defences that provide protection to the site.



Flood defences data

Label	Asset ID	Asset Type	Standard of protection (years)	Current condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
1	388934	Wall	40	Fair	10.30	10.40	10.30
2	487792	Flood Gate		Fair	8.98	9.17	8.98
3	101340	Embankment	40	Poor	10.28	10.78	10.28
4	388936	Engineered High Ground	40	Fair			
5	68070	Embankment	40	Fair	10.34	11.05	10.34

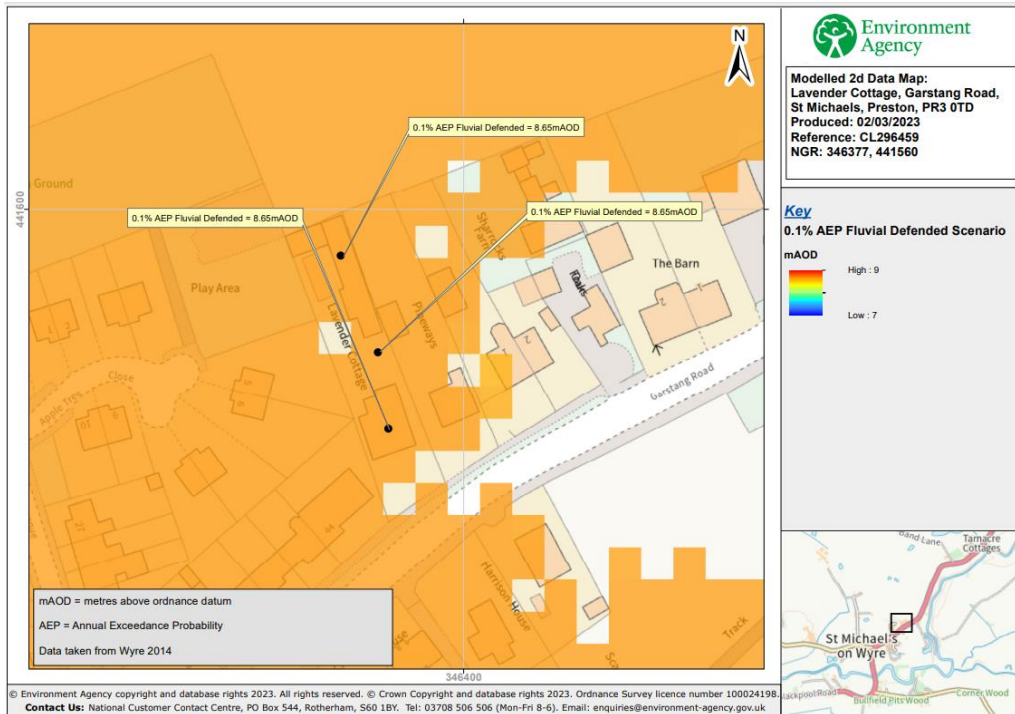
Any blank cells show where a particular value has not been recorded for an asset.

RISK OF FLOODING TO PROPOSED DEVELOPMENT

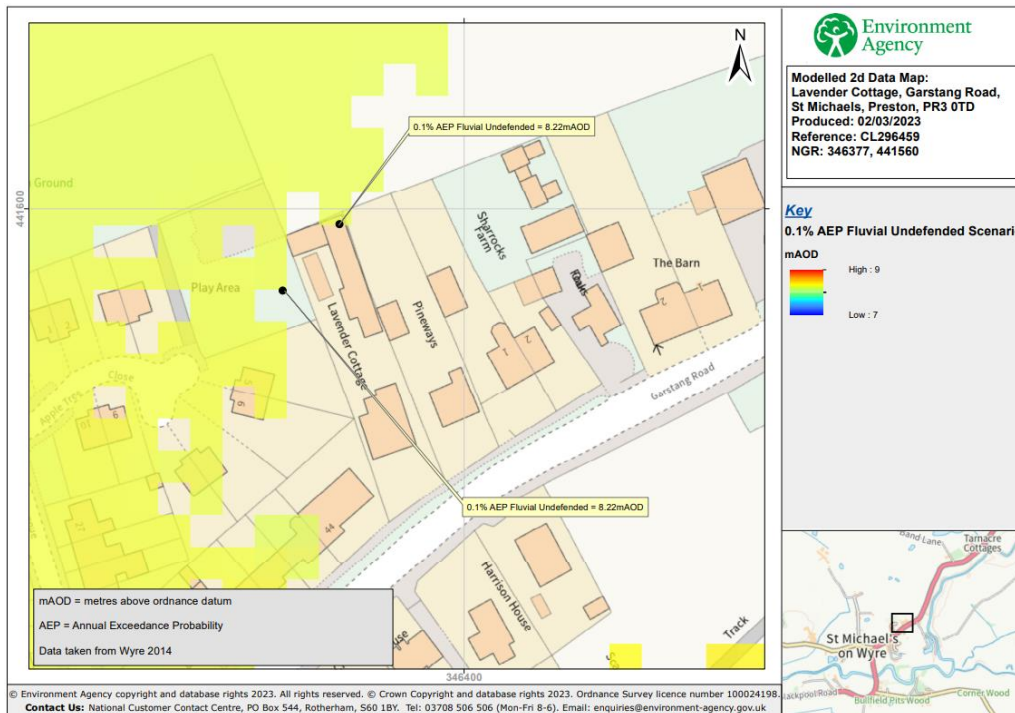
This section provides details of different scenarios the Environment Agency have modelled.

River flooding

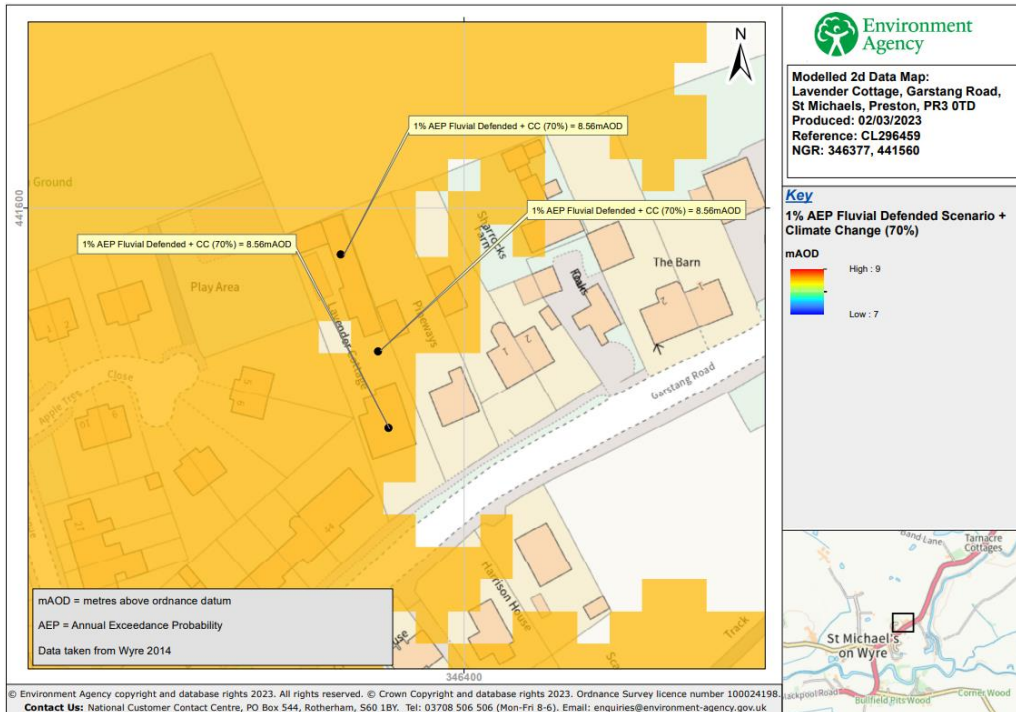
Risk of flooding from rivers where there are flood defences:



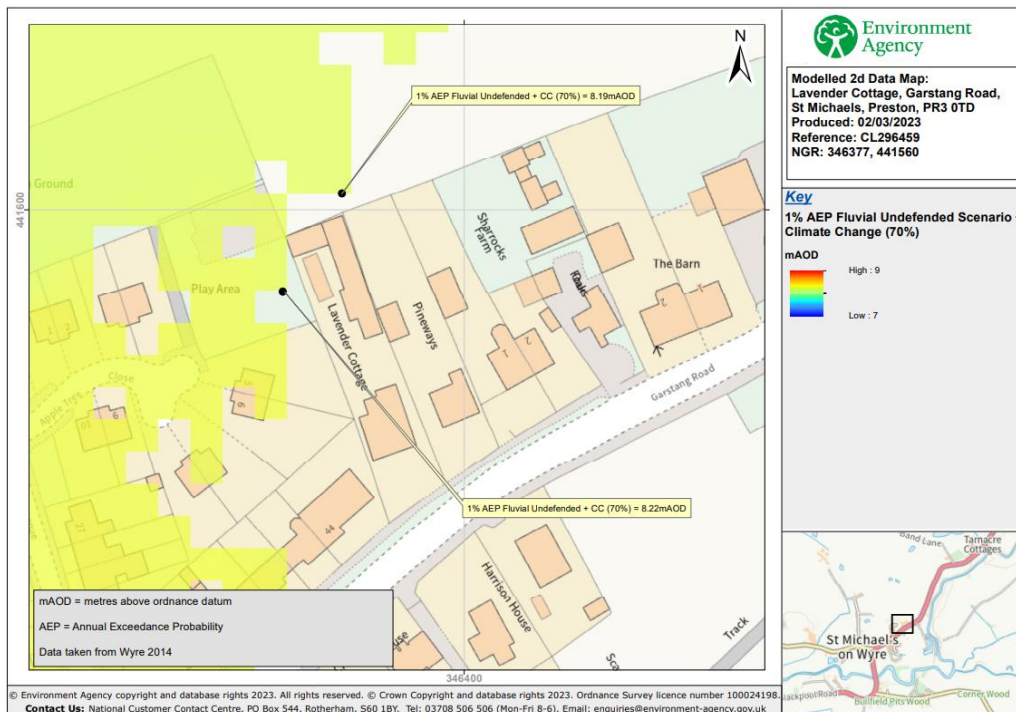
Risk of flooding from rivers where flood defences removed:



Risk of flooding from rivers where there are flood defences, including estimated impact of climate change:

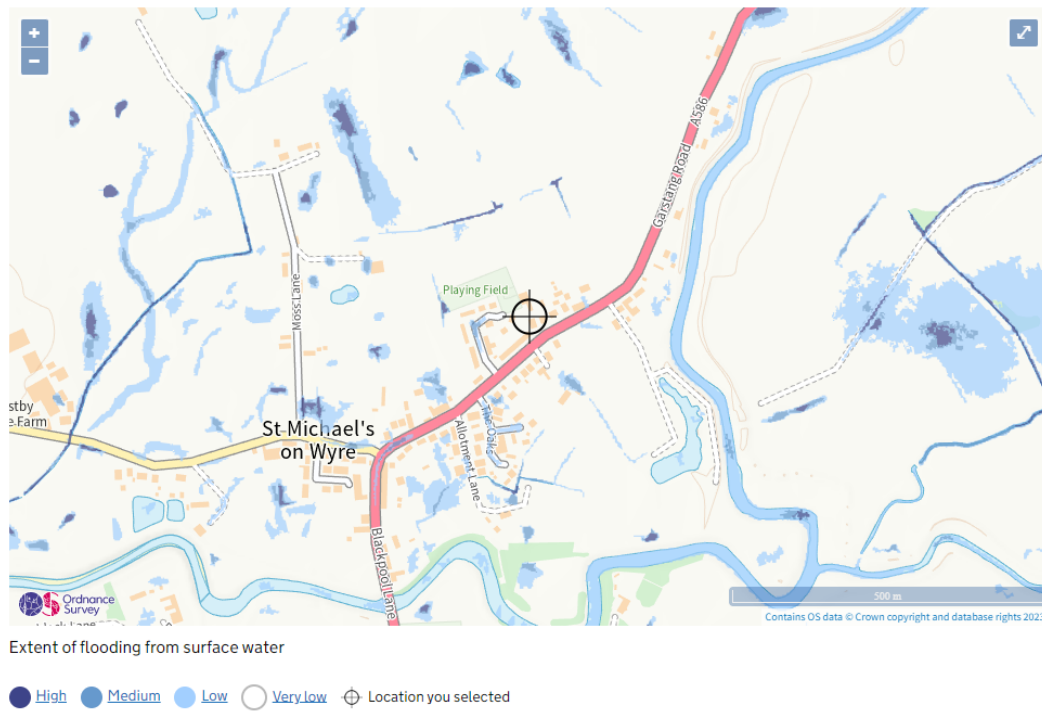


Risk of flooding from rivers where flood defences have been removed, including estimated impact of climate change:



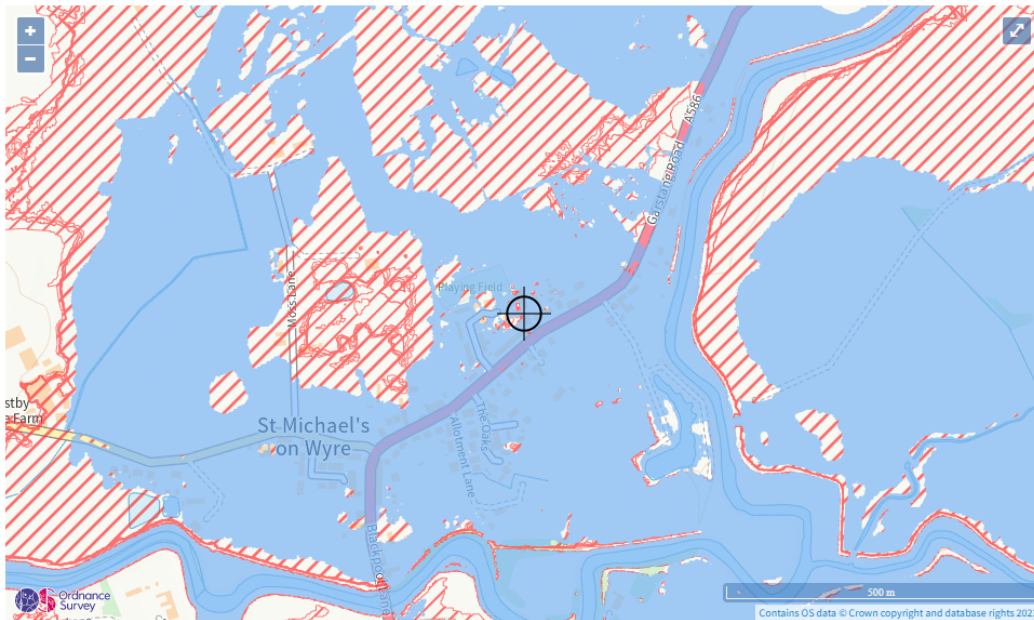
Other Sources of Flooding:

Surface Water flooding



The Environment Agency Risk of Flooding from Surface Water map indicates the site is at a very low risk of surface water flooding i.e. this means that each year, this area has a chance of flooding of less than 0.1%.

Canals, reservoirs and other sources



Maximum extent of flooding from reservoirs:

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

There is a risk of flooding from reservoirs in this area. Flooding from reservoirs is extremely unlikely.

Reservoirs that could affect this area:

Catterall Flood Storage (grid reference SD4680041300)
 Owner: Environment Agency
 Lead Local Flood Authority: Lancashire

Barnacre North (grid reference SD5260047800)
 Owner: United Utilities PLC
 Lead Local Flood Authority: Lancashire

Garstang Flood Storage (grid reference SD4950045500)
 Owner: Environment Agency
 Lead Local Flood Authority: Lancashire

Grizedale Dock (grid reference SD5240048300)
 Owner: United Utilities PLC
 Lead Local Flood Authority: Lancashire

Grizedale Lea (grid reference SD5300048200)
 Owner: United Utilities PLC
 Lead Local Flood Authority: Lancashire

Wyresdale Park (grid reference SD5115049325)

Owner: Private Individual
Lead Local Flood Authority: Lancashire

Barnacre South (grid reference SD5260047600)
Owner: United Utilities PLC
Lead Local Flood Authority: Lancashire

PREDICTED IMPACTS & MITIGATION

The highest possible flood level as indicated by the EA maps is 8.65 AOD. This relates to a fluvial defended scenario + climate change. We will therefore use 8.65mOAD as the design flood level.

An OS datum point 86m to the south west of the site shows a ground level of 7.9mAOD. The ground between the OS datum point and the site is relatively flat so we will use 7.9mAOD as a site ground level.

It is proposed to raise the ground floor level by 600mm, in line with standard EA guidance, together with the following flood avoidance measures:-

- Finished internal ground floor levels will be set at 8.5mAOD
- The use of concrete floors and hard floor coverings throughout the ground floor
- Routing of all electrical wiring down from ceiling level
- All electrical sockets & appliances will be positioned at least 1000mm above internal ground floor level. This will ensure all electrical sockets are above the design flood level.
- Evacuation / flood warning plan (appendix below) to be displayed within the building
- Flood barriers to be installed to all ground floor door openings & any windows with a sill lower than 1000mm above ffl.
- The use of fully permeable outdoor surfacing
- The use of attenuation & flow meters for all surface water
- Registration with Floodline Warning system

CONCLUSIONS & RECOMMENDATIONS

On assessing the information above, it is clear that the risk of flooding is low, despite the site being in flood zone 2.

The finished ground floor levels of the proposed building are to be set no lower than 8.5mAOD.

The site owners are to be registered to receive free flood warnings when flooding is expected to enable the evacuation of people for a range of flooding events up to and including the extreme event.

The development is to use flood avoidance as mitigation (detailed above).

Flood Response Plan



FLOOD ALERT

FLOODING IS POSSIBLE. BE PREPARED.

Site Location: Lavender Cottage, Garstang Road, St. Michaels, Preston PR3 0TD

Proposed Control Measures

Owners to be registered with *Floodline Warning Direct* to receive an early warning notification from them.

A battery operated radio with spare batteries will be kept in the house to monitor local radio news and weather stations.

Charged torches will be kept in the house with spare batteries.

Emergency/portable heating and lighting stored at first floor level within the building.

An open channel of communication maintained with all occupants and visitors to the site.

Sandbags will be palletised and kept in the curtilage where they will be dry and manageable to handle. In the event of flooding these will be used to either help stop water ingress into the building or to keep an area clear for evacuation.

Local Flood Response Plan

Upon receipt of a call from Floodline Watch or information gained from local Radio/TV:

The homeowner / occupant will phone Floodline Watch for an up to date message

A Flood Coordinator will be appointed. This will entail monitoring flood levels via local weather reports and build up of water around the site.

If prolonged weather is forecast and water reaches sufficient levels that breaches the site and surrounding roads is deemed likely, then an evacuation of the ground floor will be initiated until weather improves or local flooding has subsided.

Once all occupants and visitors have left the ground floor, all services (gas, electricity and water) to be switched off at the mains, by the flood coordinator.

Severe Flash Flood response plan

It is most likely that this will happen during the night and the following response steps are detailed below:-

Emergency services to be called to make them aware of the incident

No bedrooms to be located on the ground floor

All occupants and visitors to remain upstairs inside the dwelling where they can remain warm, dry and free from danger

Local services (Gas, Water & Electricity) to be isolated if possible

Monitoring of the weather to remain constant

Re-evaluate situation hourly if possible and record

Once daylight has arrived, provisions for food, water and full evacuation, (if necessary by the emergency services), to be implemented.

Contact Numbers

Emergency Services 999

Local Police 0845 125 3545

Transco 0800 111 999

Electricity Northwest 0800 195 4141

Flood Watch 0345 988 1188

Wyre Council 01253 891000

Lancashire Road Flooding 0845 053 0011

Laterooms 0843 713 0641

Last minute.com 0330 100 9126

Travel Lodge 08719 848484

Premier Inn 0871 5279 222