

ML PLANNING CONSULTANCY LTD

FLOOD RISK ASSESSMENT

THE BEECHES
STATION LANE
SCORTON
LANCASHIRE
PR3 1AN

FOR THE PROPOSED DETACHED GARAGE WITH GRANNY ANNEX TO FIRST FLOOR.

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 3.

Flood Zone 3 is identified as land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. The flood zones categorisation refers to the probability of river and sea flooding, ignoring the presence of defences.



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 Upper Wyre Area.

The main risk of flooding within the area is from runoff from flash fluvial events. This is contributed to by agricultural practices and drainage of upper areas.

CONSULTATION & GUIDANCE

This site is identified on the Environment Agency's flood mapping as lying within Flood Zone 2. The main risk of flooding is from runoff from flash fluvial events.

The site lies within a flood warning area where free flood warnings are issued to homes and businesses when flooding is expected.

SOURCES OF FLOOD RISK

This section of the Flood Risk Assessment looks at the flood risk to the site before any mitigation measures are put into place and hence identifies where mitigation will be required. This document will continue to explain the mitigation measures proposed and the residual risk following implementation of any proposed mitigation.

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.

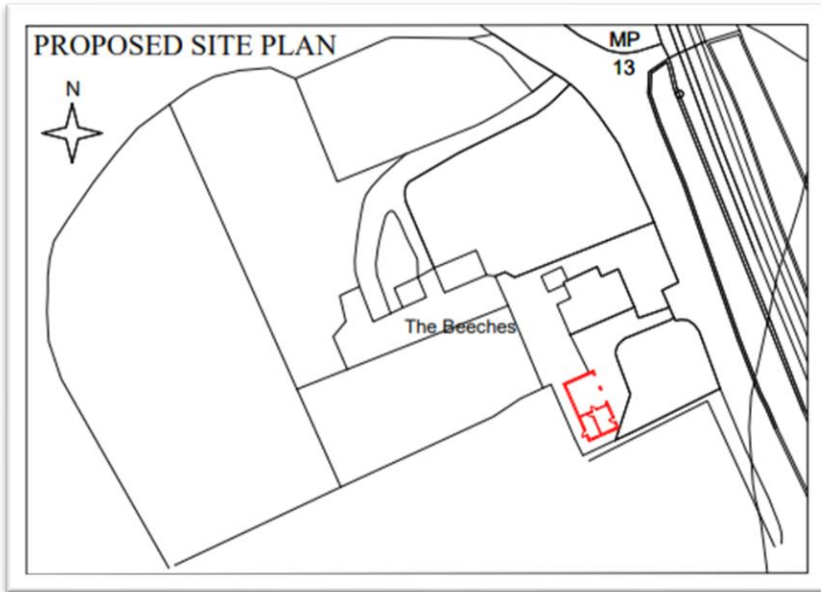
Flooding from Artificial Sources

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

PROPOSED DEVELOPMENT

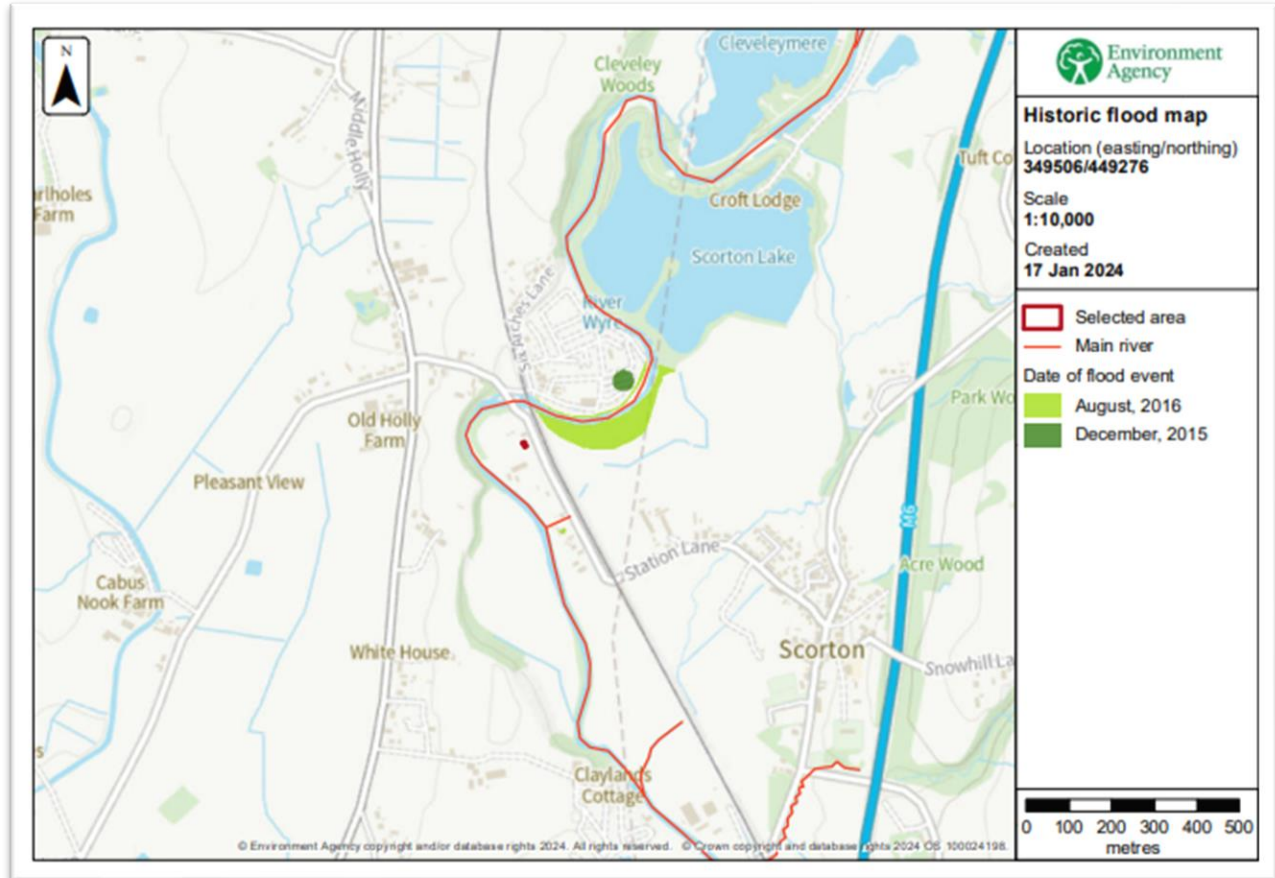
The proposal is for the erection of a detached garage with granny annex to first floor.

The vulnerability classification of the proposed development as defined in Annex 3: Flood Risk Vulnerability Classification of the NPPF is "more vulnerable". It is also notable that the residential element of the proposed building is to the first floor only, the ground floor being a domestic garage/ storage.



HISTORIC FLOODING

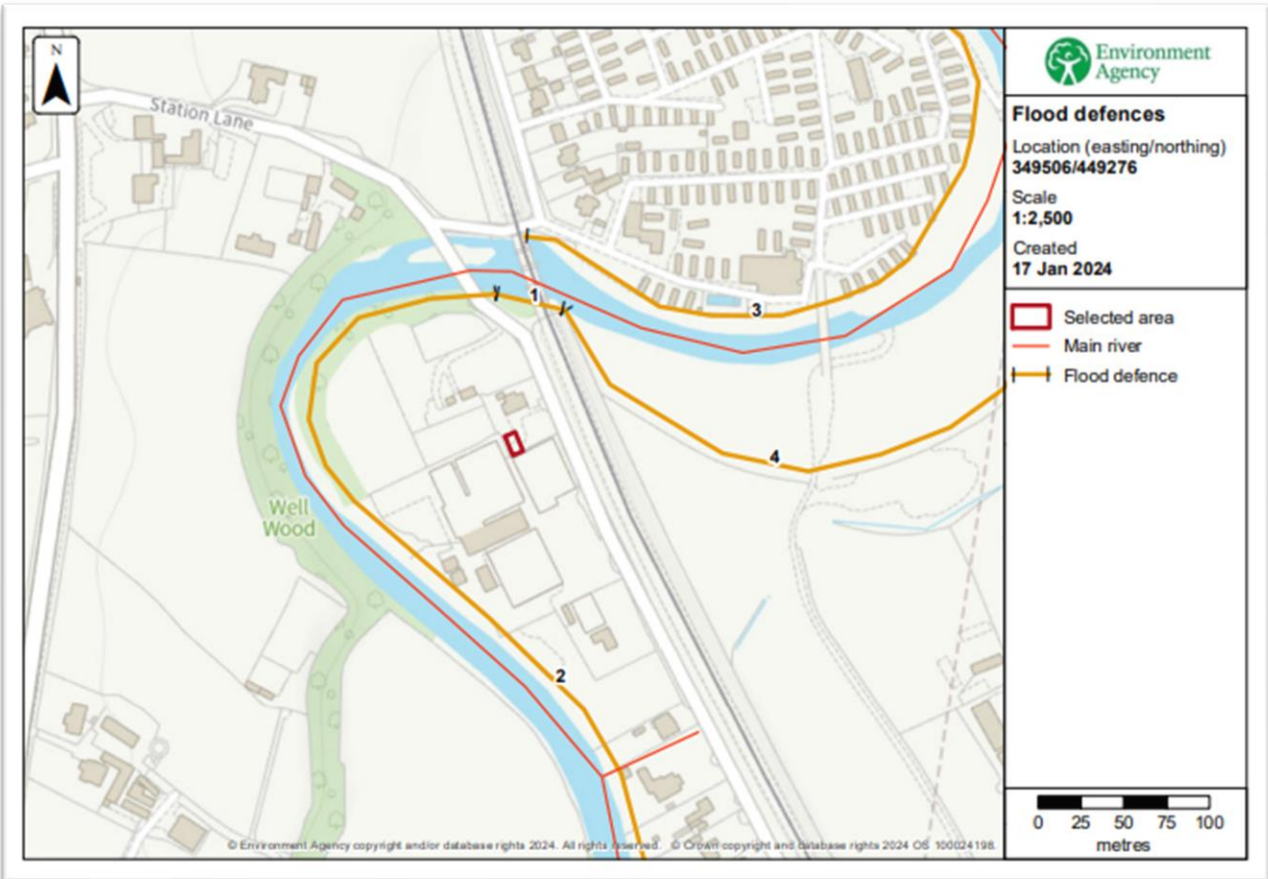
This map is an indicative outline of areas that have previously flooded:



Historic flood event data

Start date	End date	Source of flood	Cause of flood	Affects location
22 August 2016	23 August 2016	main river	channel capacity exceeded (no raised defences)	No
5 December 2015	6 December 2015	main river	overlapping of defences	No

DEFENCES



Flood defences data

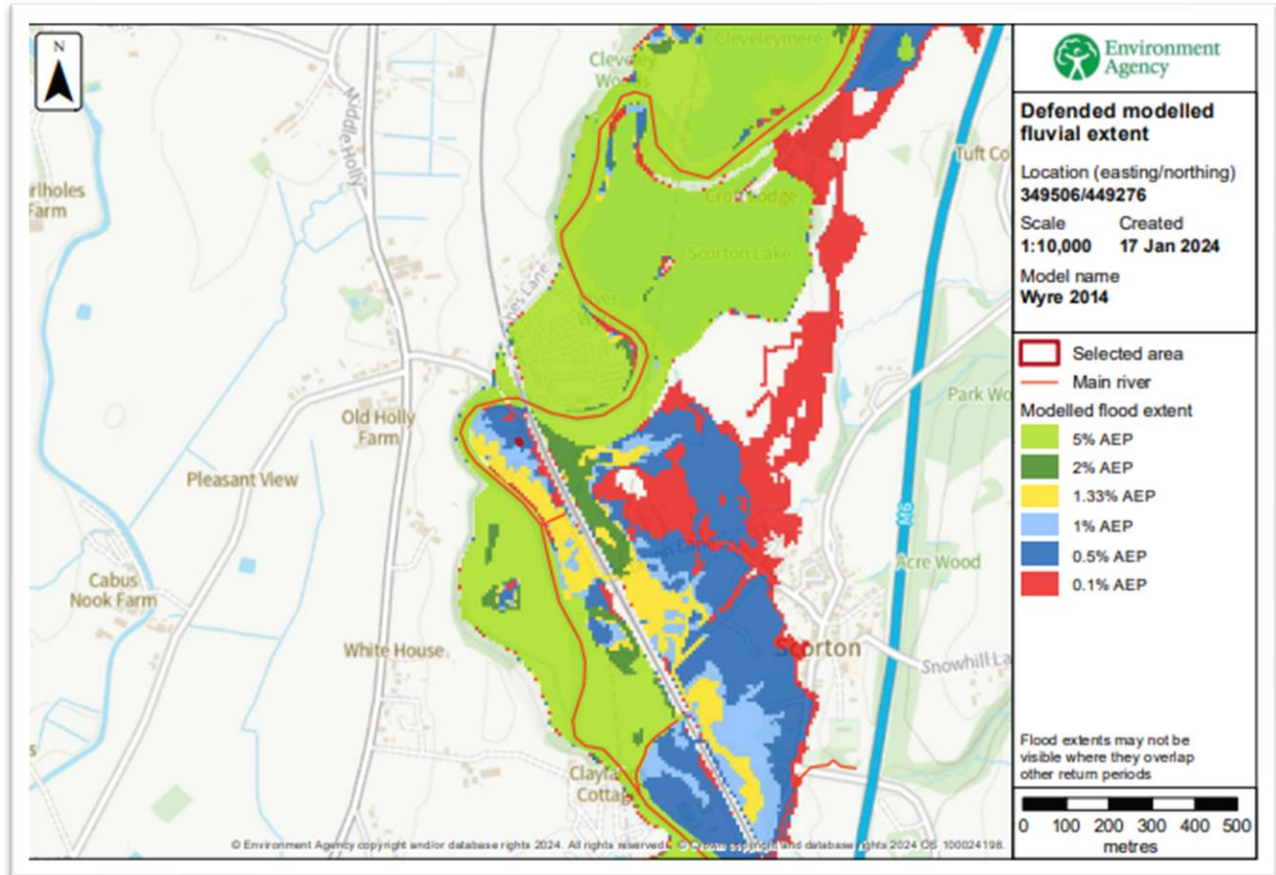
Label	Asset ID	Asset Type	Standard of protection (years)	Current condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
1	46524	Embankment	100	Poor	27.83	27.83	27.83
2	168778	Embankment	100	Poor	25.97	27.83	25.97
3	69884	Embankment	100	Poor	27.25	29.58	27.25
4	12153	Embankment	100	Fair	27.64	30.01	27.64

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

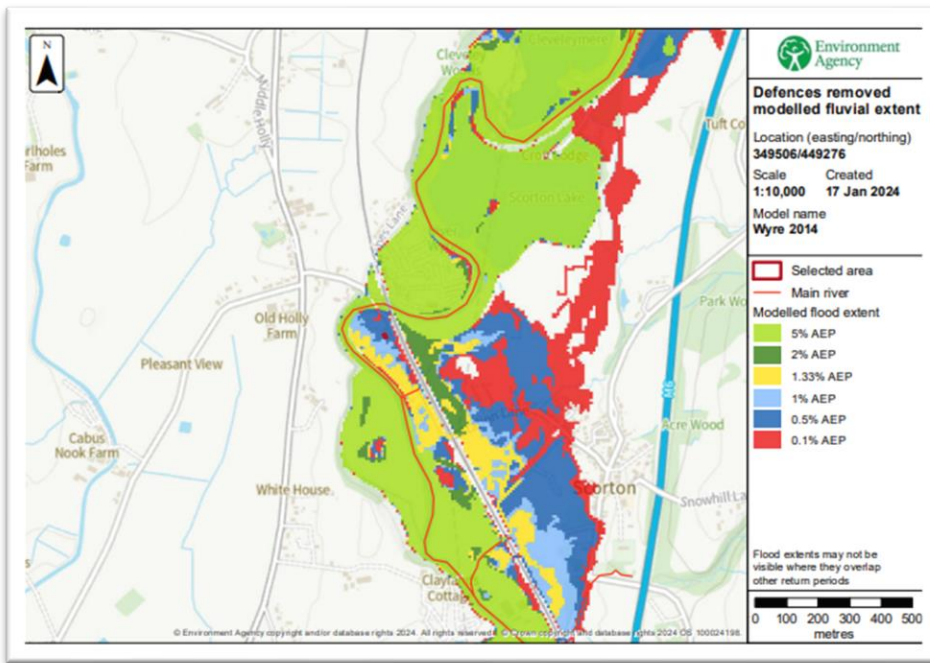
RISK OF FLOODING TO THE DEVELOPMENT

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

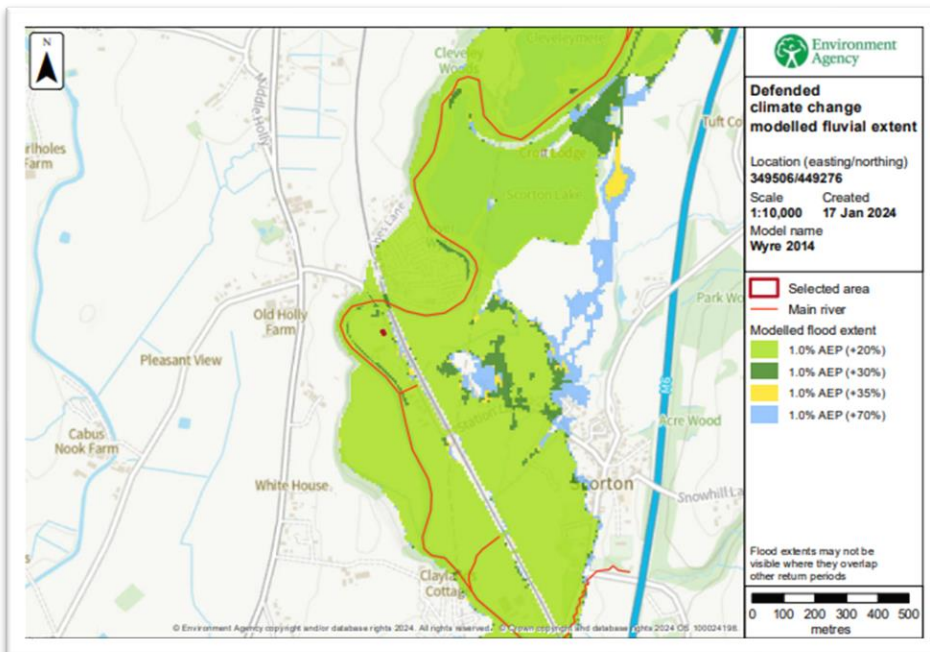
Defended modelled fluvial : risk of flooding from rivers where flood defences:-



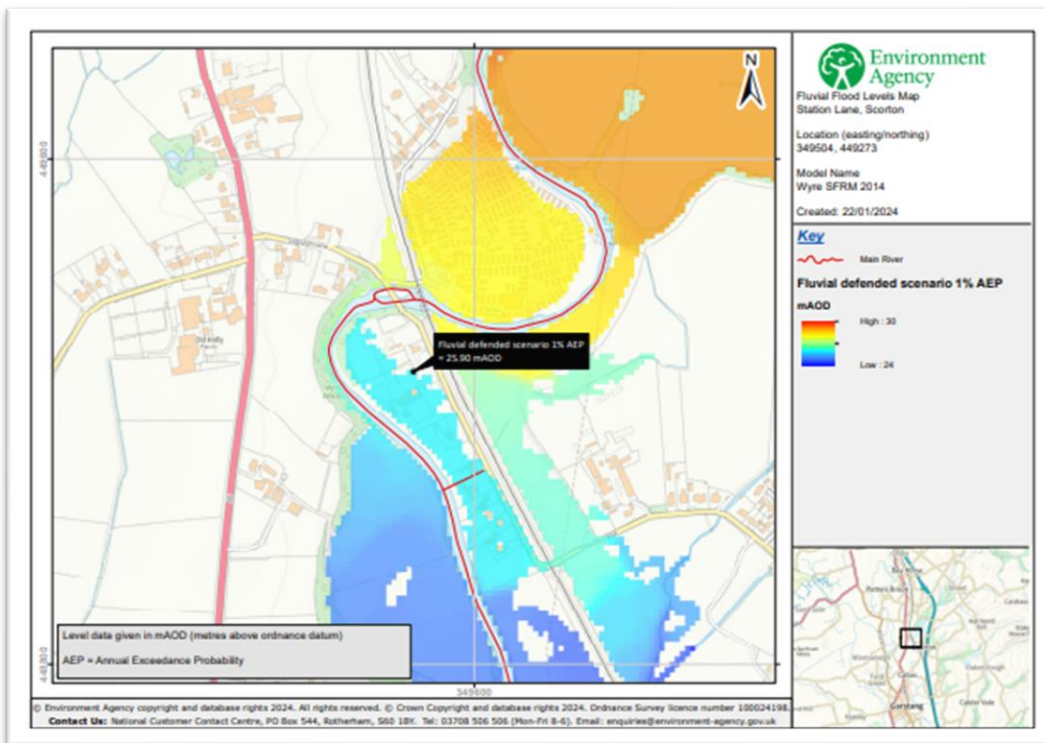
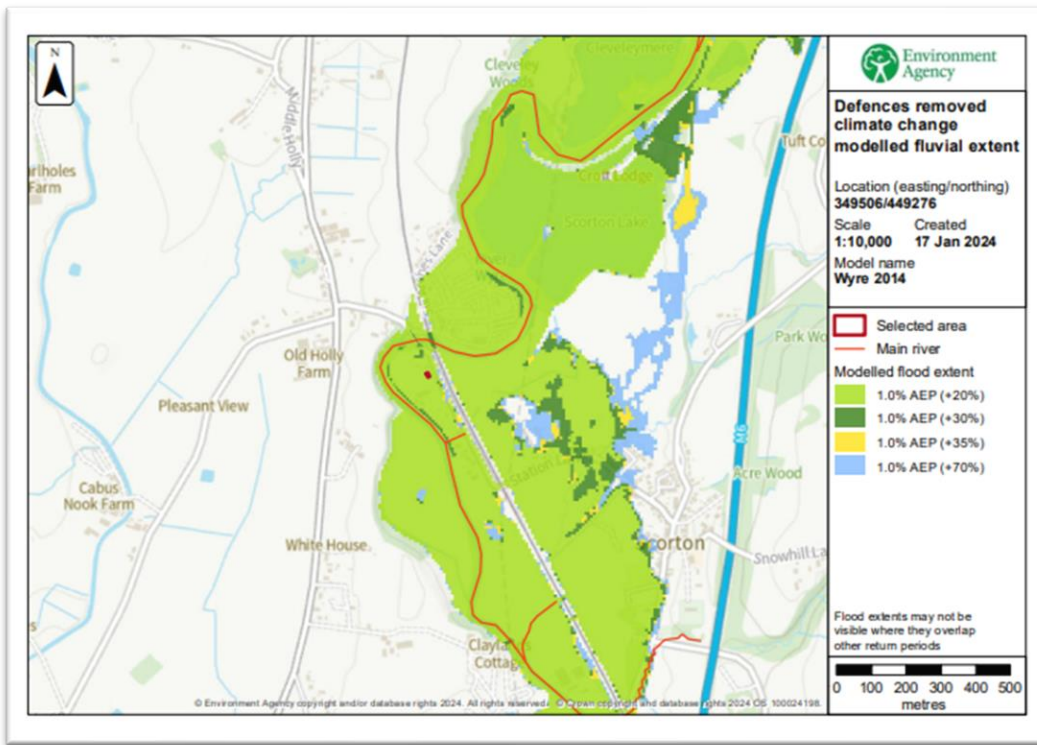
Defences removed modelled fluvial: risk of flooding from rivers where flood defences have been removed.

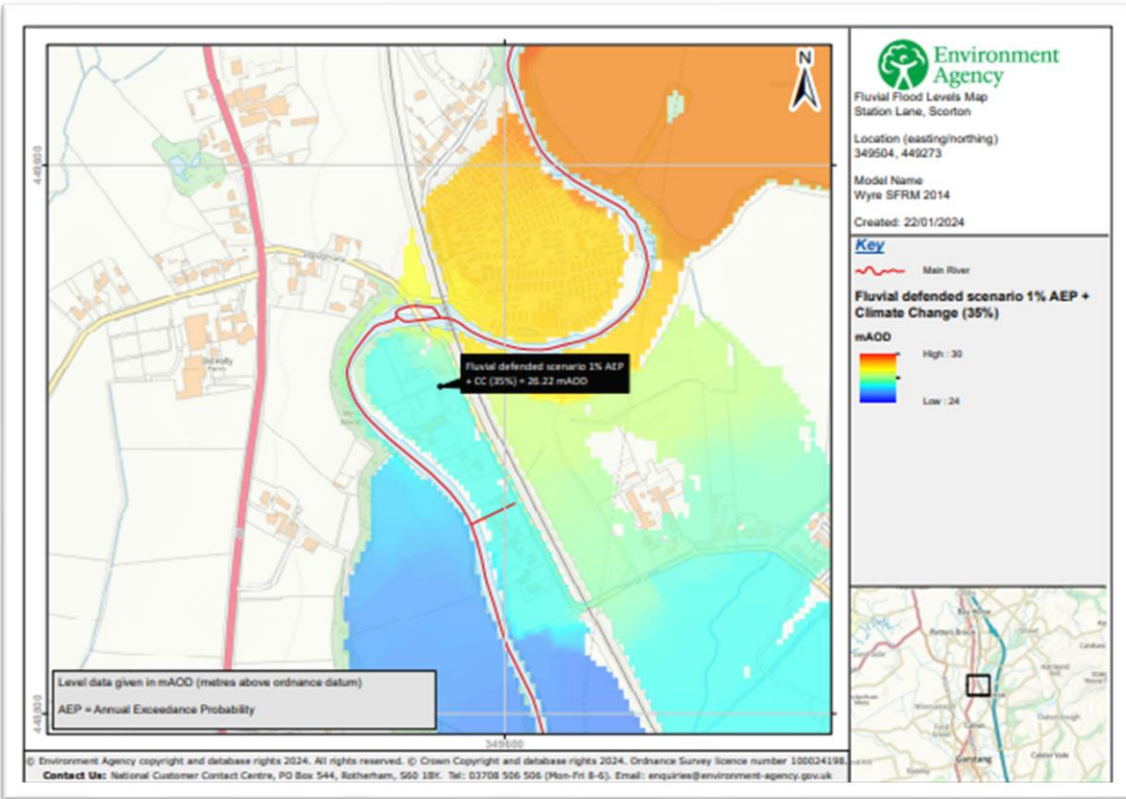
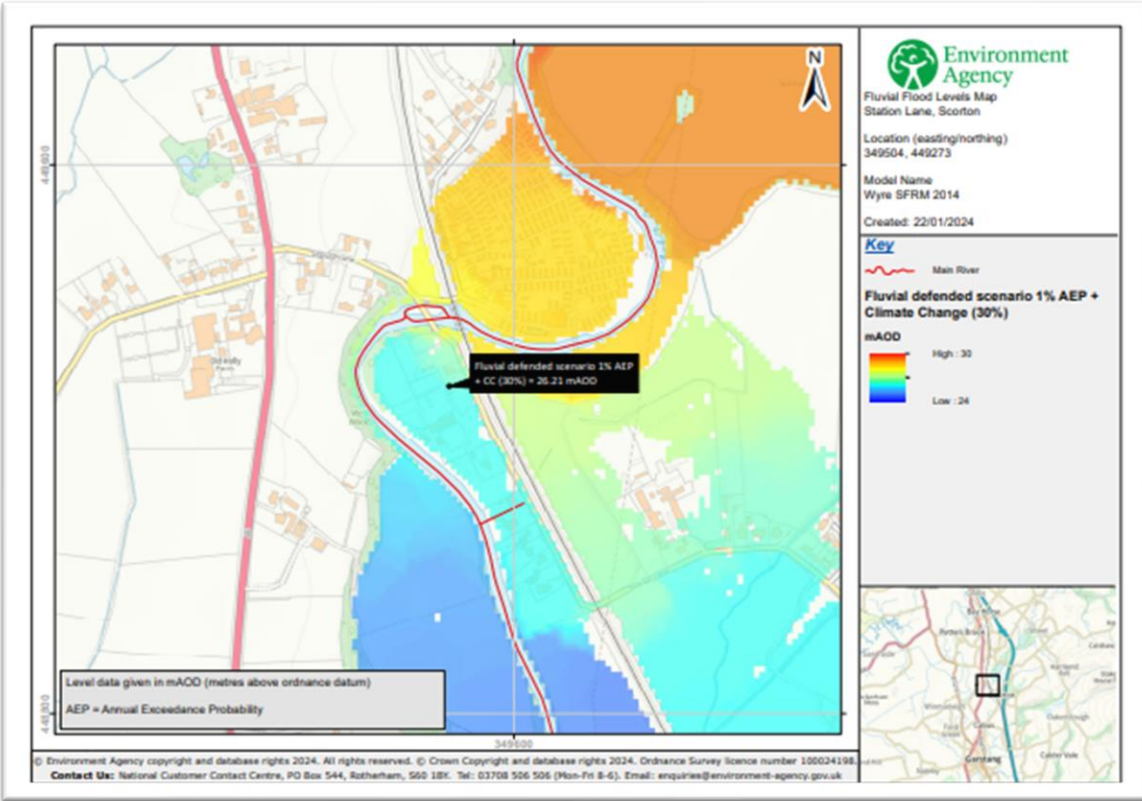


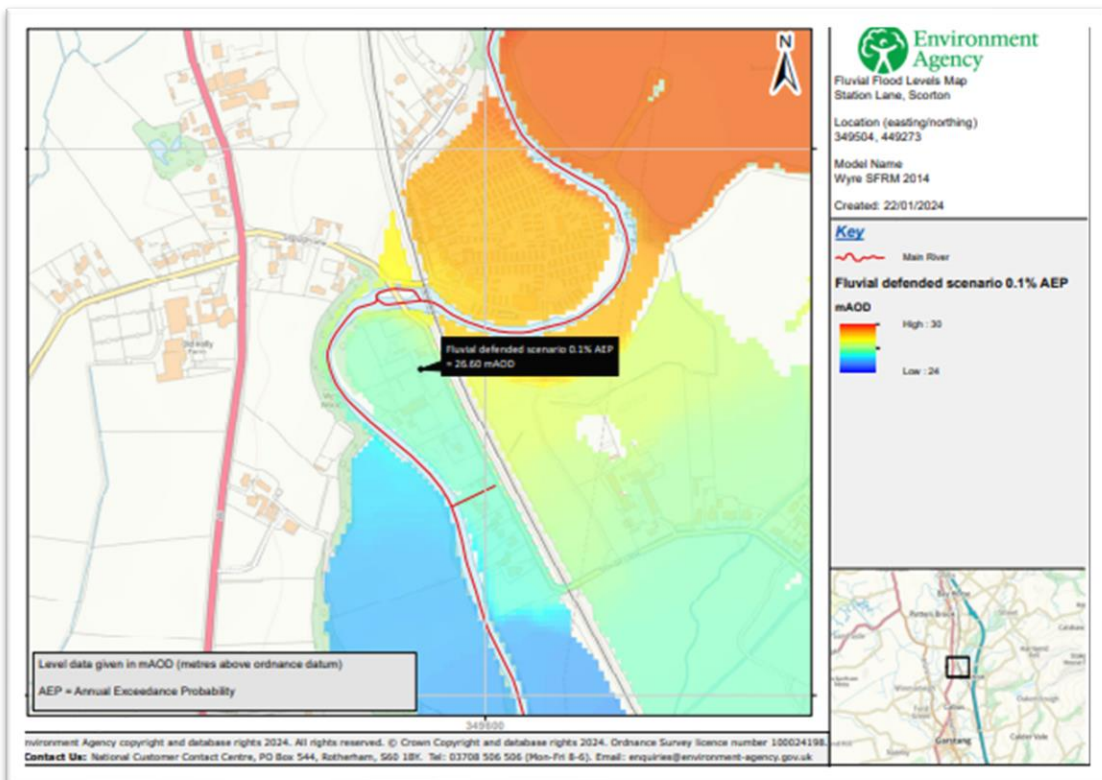
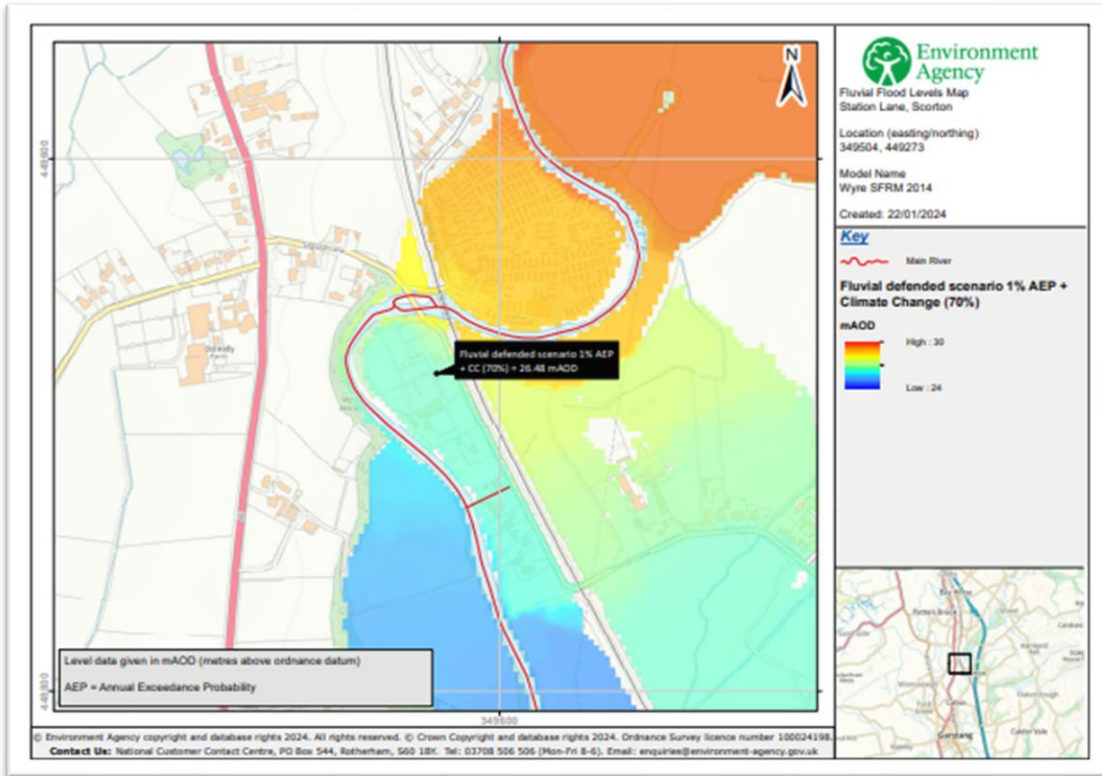
Defended climate change modelled fluvial: risk of flooding from rivers where there are flood defences, included estimated impact of climate change.

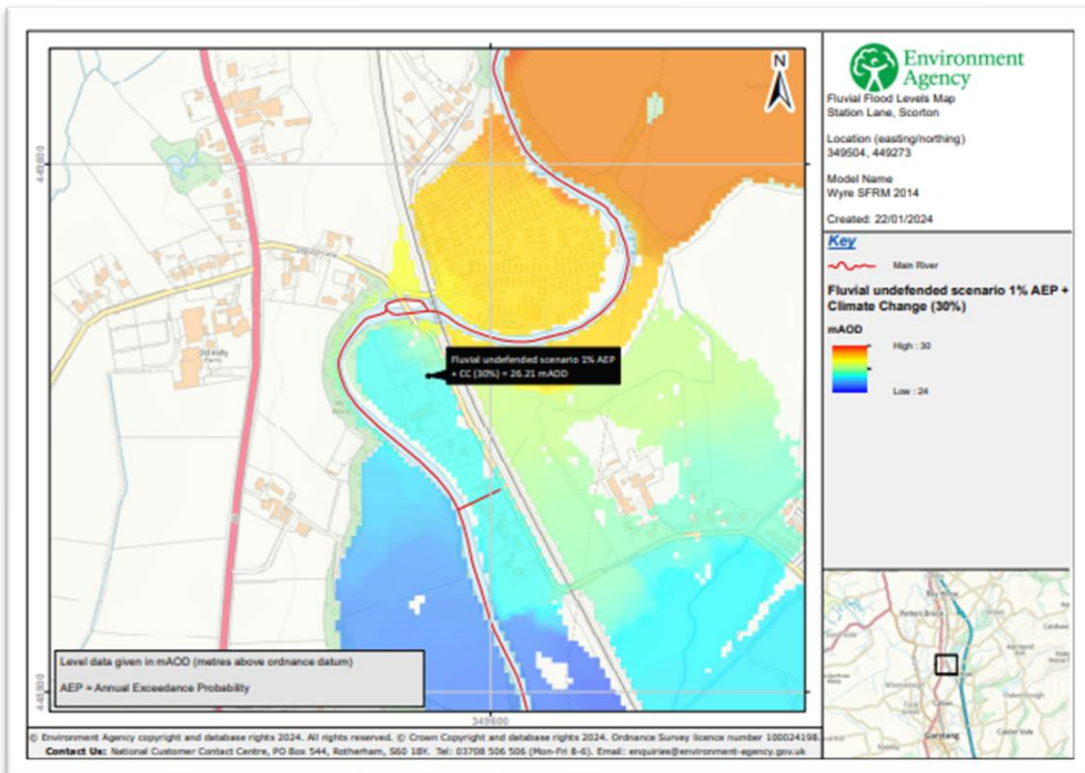
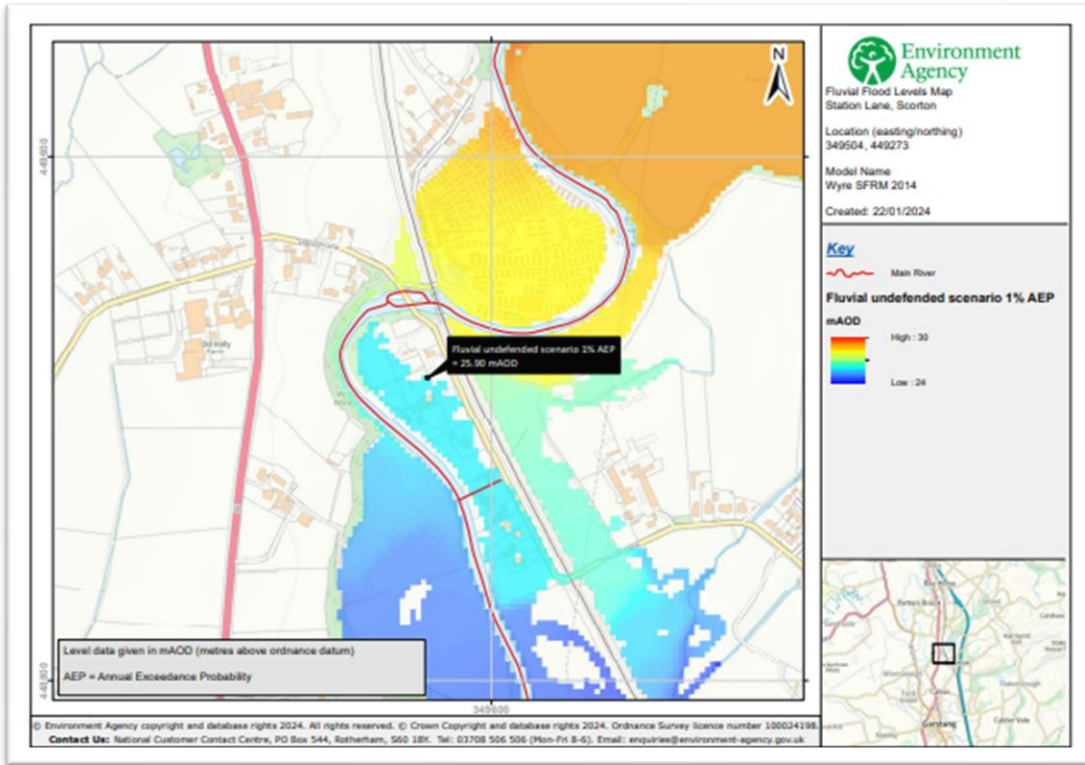


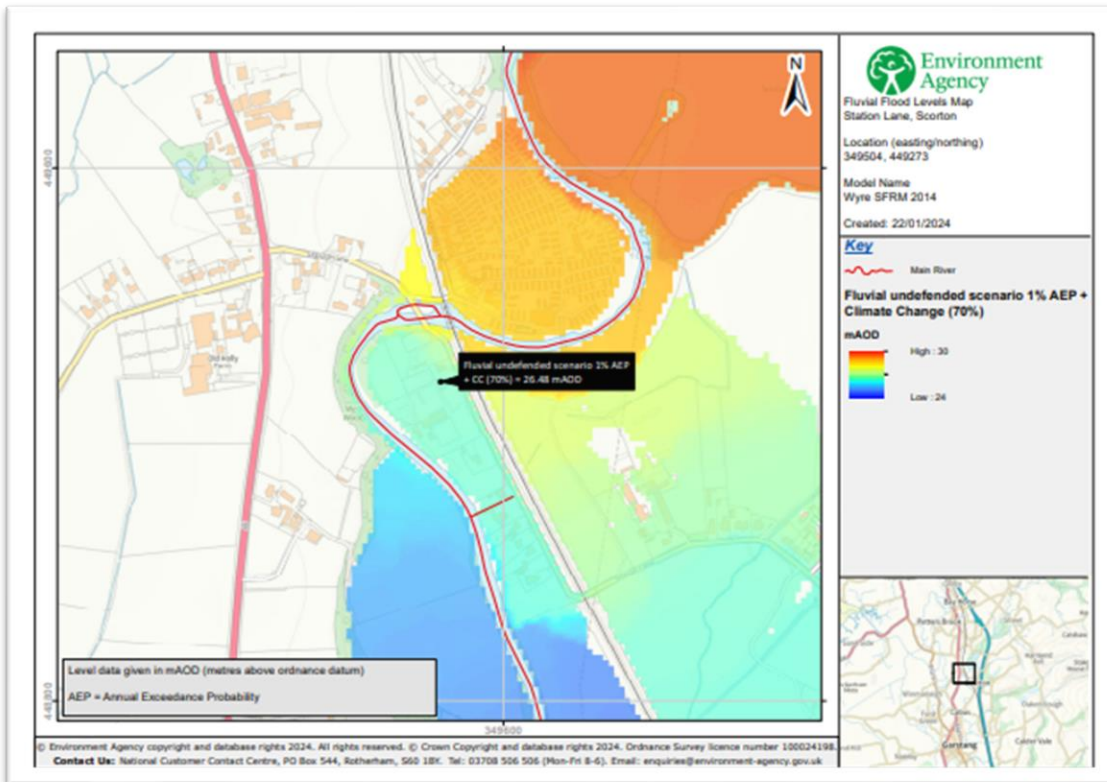
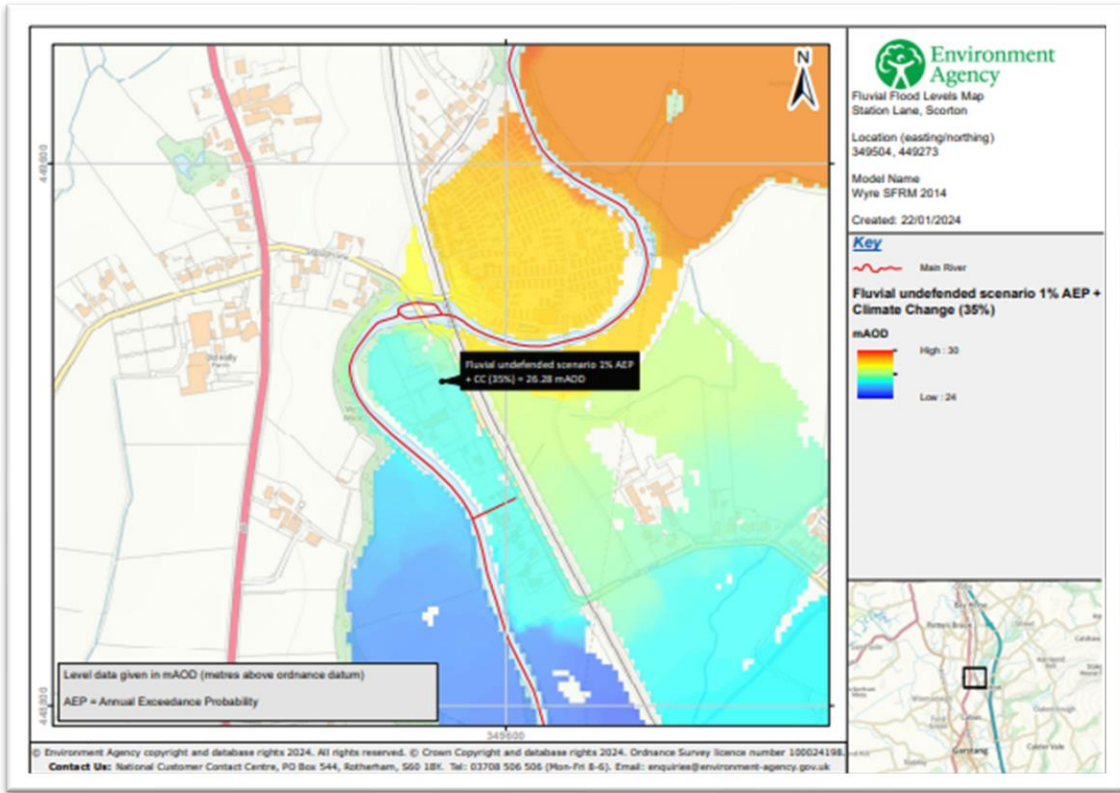
Defences removed climate change modelled fluvial: risk of flooding from rivers where flood defences have been removed, including estimated impact of climate change.

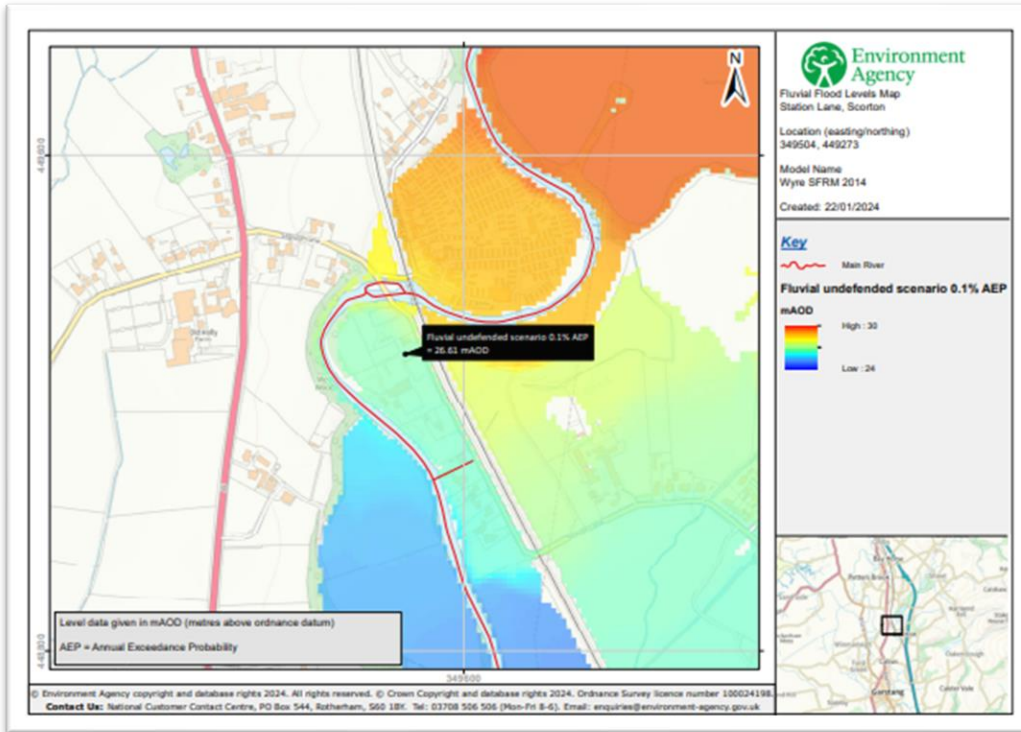




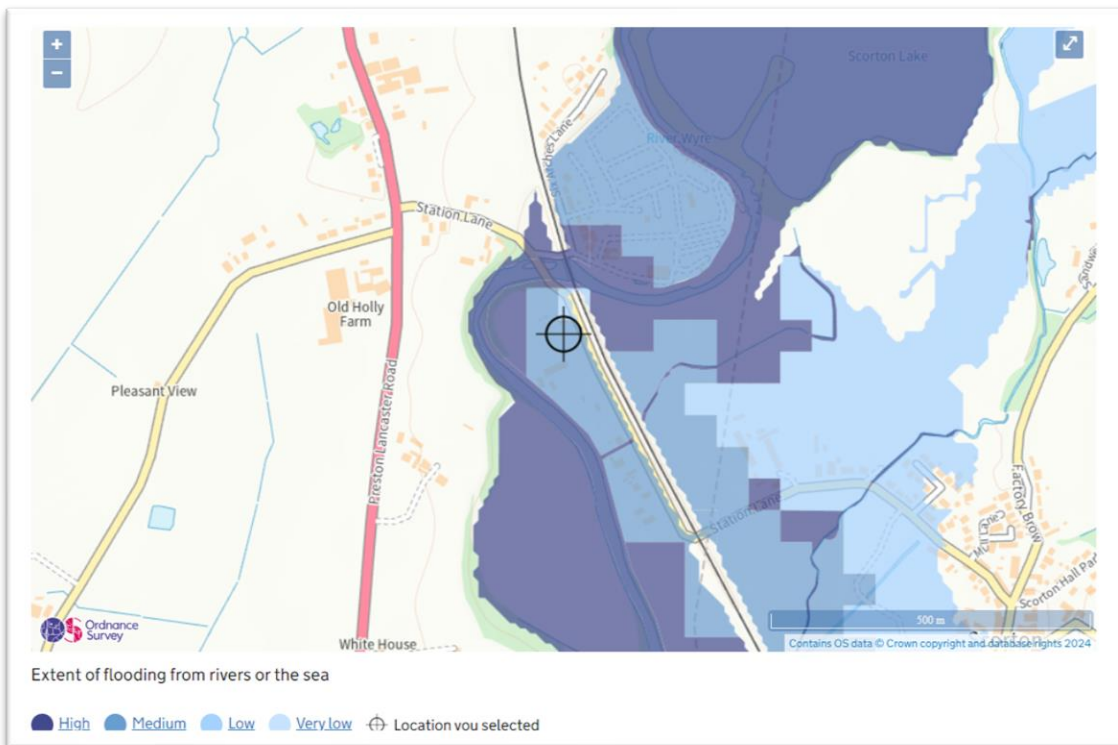


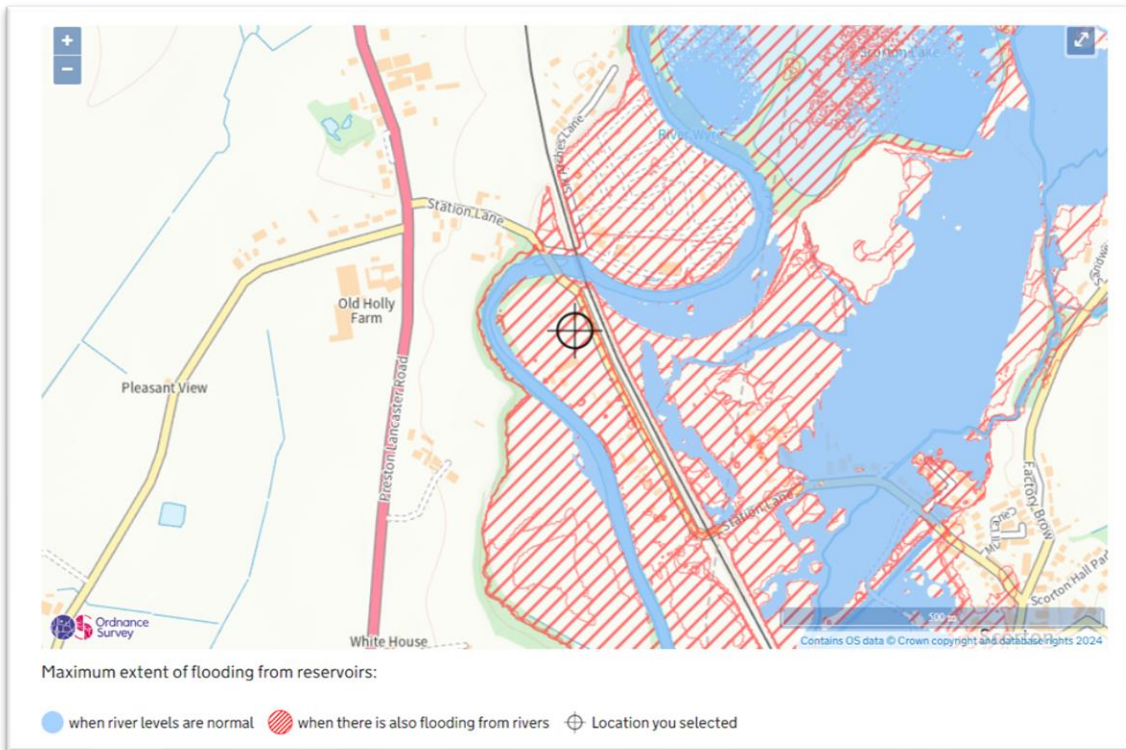






Other sources of flooding:-





PREDICTED IMPACTS AND MITIGATION

The highest possible flood level as indicated by the Environment Agency maps is 26.61 mAOD. This relates to a fluvial undefended scenario. However, this relates to an undefended scenario and therefore is not applicable.

The highest relevant flood level would be 26.60 mAOD. This relates to the fluvial defended scenario 0.1% AEP.

We will therefore use 26.6 mAOD as the design flood level.

An OS datum point 87 m to the south east of the site shows a ground level of 26.2 mAOD. The ground between the OS datum point and the site is relatively flat so we will use 26.2 mAOD as a site ground level.

The difference between the ground level and highest relevant flood level is 0.4 m, however the ground floor of the proposed building will be garage/storage only, with the residential accommodation being located above.

Therefore, the following flood avoidance measures will be followed :-

- The use of concrete floors and hard floor coverings throughout the ground floor (garage and store)
- Evacuation/flood warning plan (appendix below) to be displayed within the building
- The use of fully permeable outdoor surfacing
- Registration with Floodline Warning system.

CONCLUSIONS & RECOMMENDATIONS

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

The residential element of the building is located to the first floor of the property, and therefore there is no risk of the residential property being affected by flooding.

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 a mitigation (detailed above).

FLOOD RESPONSE PLAN



FLOOD ALERT

FLOODING IS POSSIBLE. BE PREPARED.

Site Location: The Beeches, Station Lane, Scorton, PR3 1AN.

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 a high 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 property will be initiated until weather improves or local flooding has subsided.

Once all occupants and visitors have left the property, 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

Occupants to remain in the first floor residential accommodation as appropriate.

Local services (gas, water and 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
Late Rooms	0843 713 0641
Lastminute.com	0330 100 9126
Travel Lodge	08719 848484
Premier Inn	0871 5279 222