Lee Fenton Planning Services Ltd

FLOOD RISK ASSESSMENT

THE GRAPES

GARSTANG ROAD

ST MICHAELS ON WYRE

PRESTON

PR3 0TJ

DEMOLITION OF EXISTING BARN & ERECTION OF NEW BUILDING COMPRISING OF 4 EN-SUITE GUEST ROOMS.

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 April 2007 and was produced by Wyre Borough Council.

The SFRA states this area is very low lying and flat with the majority of the area in Flood Zone 3. The area is predominately agricultural in nature with sporadic larger villages.

The main risk of flooding within the area is from tidal sources, from a breach of the coastal or estuary defences. This would lead to significant areas being flooded. The area is also susceptible to flooding from fluvial sources due to the low gradients and difficulty in discharging into Morecambe Bay. This is compounded by rising beach levels at the discharge points. Similarly sewer flooding, groundwater and highway drainage systems can result in flooding problems as they are interconnected to the watercourses and suffer from poor hydraulics and overcapacity in the urban area.

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.

The SFRA states the main risk of flooding within the area is from tidal sources, from a breach of the coastal or estuary defences.

The site is identified on the Environment Agency's flood mapping as lying within Flood Zone 3. The main risk of flooding is from tidal surges and the subsequent overtopping of the Lune Estuary.

The area is protected by coastal defences that provide protection to the site. The walls and embankments provide protection from a 1 in 200 year event.

The site lies within an Environment Agency flood warning area.

Canals, reservoirs and other sources

There are no canals or reservoirs *local* to the area.

Groundwater

Groundwater flooding tends to occur after much longer periods of sustained high rainfall. The areas that are at risk tend to be those low-lying areas where the water table is shallow. Flooding tends to occur in areas that are underlain by major aquifers, although groundwater flooding is also noted in localised floodplain sands and gravels. The main causes of groundwater flooding are:

- Natural groundwater rising due to tidal influence, or exceptionally wet periods leading to rapid recharge;
- Groundwater rebound due to cessation of abstraction and mine dewatering;
- Existence of confined aquifers and springs.

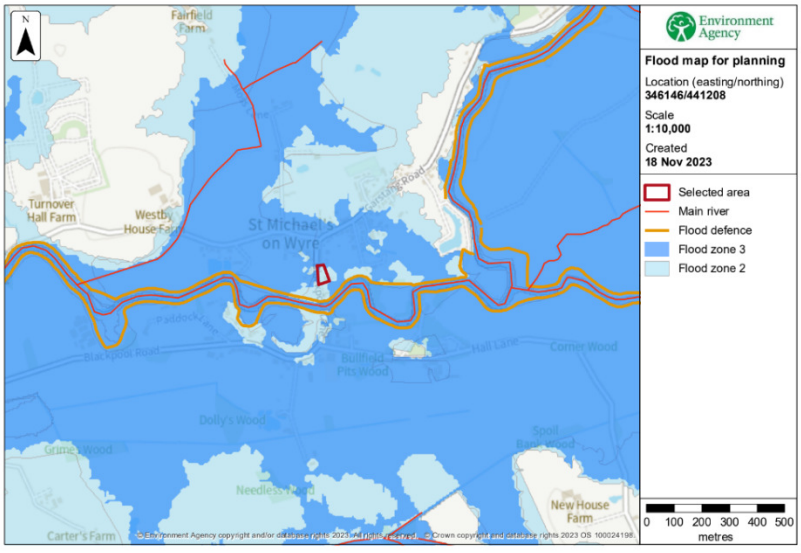
Pluvial runoff

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 1 in 1000 (0.1%); and a low to medium risk of surface water flooding confined to within the drainage ditch along the site's southern boundary.

It should be noted that surface water flooding can be difficult to predict, much more so than river or sea flooding as it is hard to forecast exactly where or how much rain will fall in any storm.

PRODUCT 4 DATA

The following information has been obtained from the environment agency.



Modelled Data

This section provides details of different scenarios that have been modelled and includes the following (where available);

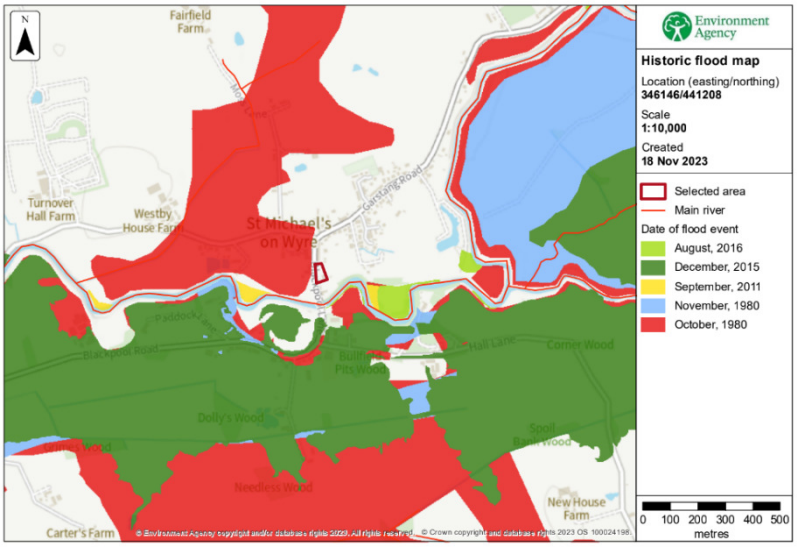
- outline maps showing the area at risk from flooding in different modelled scenarios
- modelled node point map(s) showing the points used to get the data to model the scenarios and table(s) providing details of the flood risk for different return periods
- map(s) showing the approximate water levels for the return period with the largest flood extent for a scenario and table(s) of sample points providing details of the flood risk for different return periods

Modelled scenarios

The following scenarios are included:

- Defended modelled fluvial: risk of flooding from rivers where there are flood defences
- Defences removed modelled fluvial: risk of flooding from rivers where flood defences have been removed
- Defended modelled tidal: risk of flooding from the sea where there are flood defences
- Defences removed modelled tidal: risk of flooding from the sea where flood defences have been removed
- Defended climate change modelled fluvial: risk of flooding from rivers where there are flood defences, including 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
- Defended climate change modelled tidal: risk of flooding from the sea where there are flood defences, including estimated impact of climate change
- Defences removed climate change modelled tidal: risk of flooding from the sea where flood defences have been removed, including estimated impact of climate change

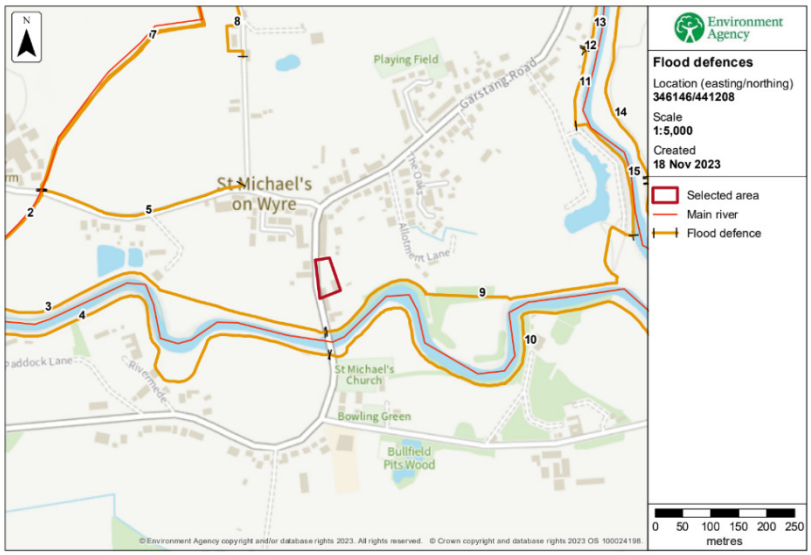
HISTORIC FLOOD MAP & DATA

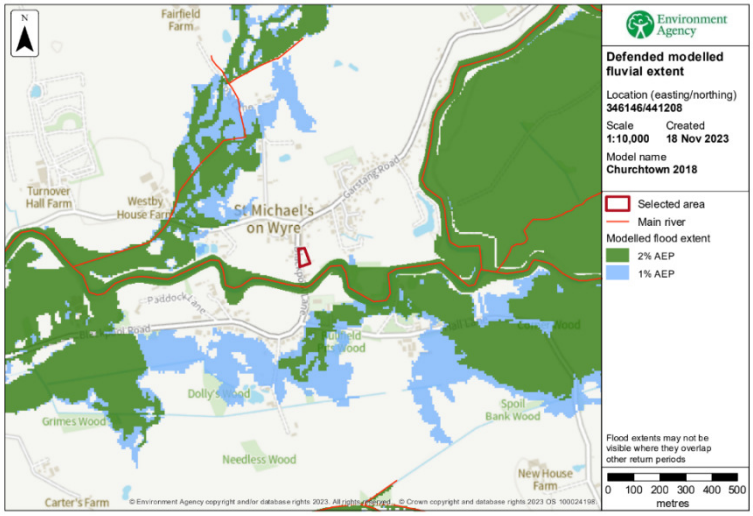


Historic flood event data

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

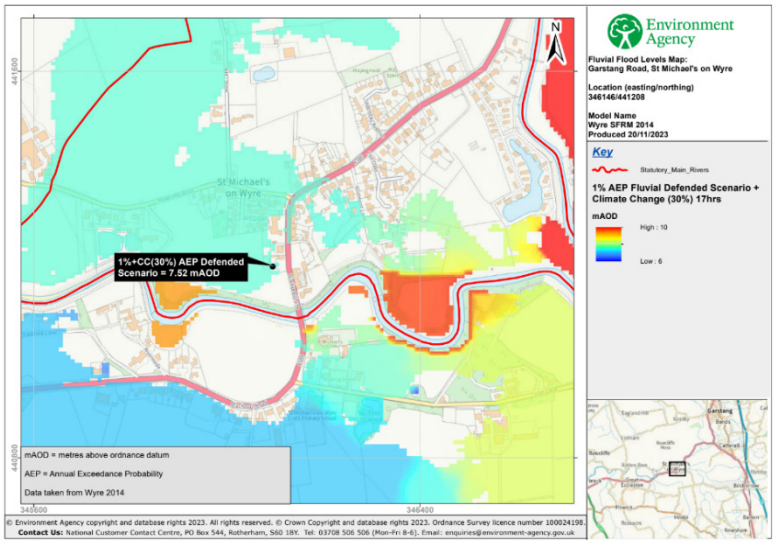
FLOOD DEFENCES



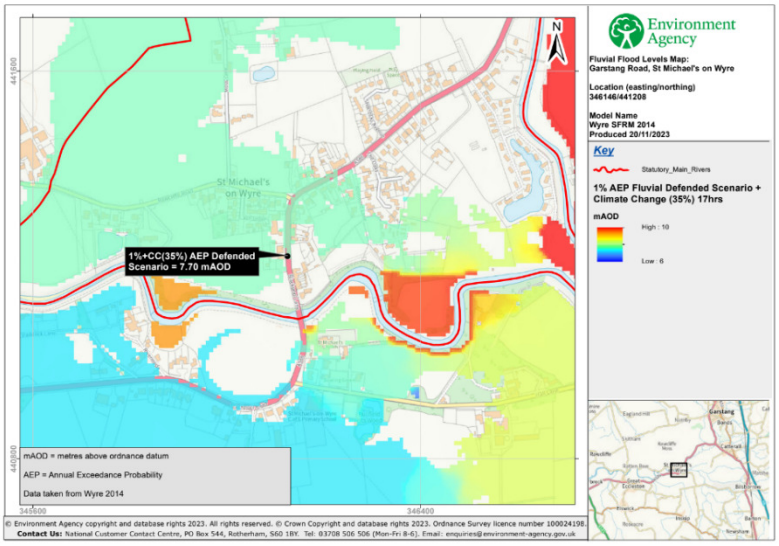


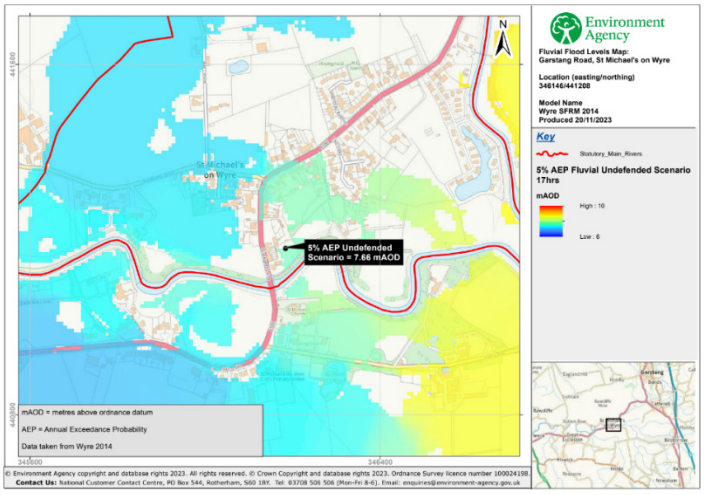
Defended modelled fluvial extent 1% & 2% AEP – site unaffected.

1% AEP Fluvial Defended Scenario + Climate Change (30%) = 7.52 mAOD – Site unaffected.

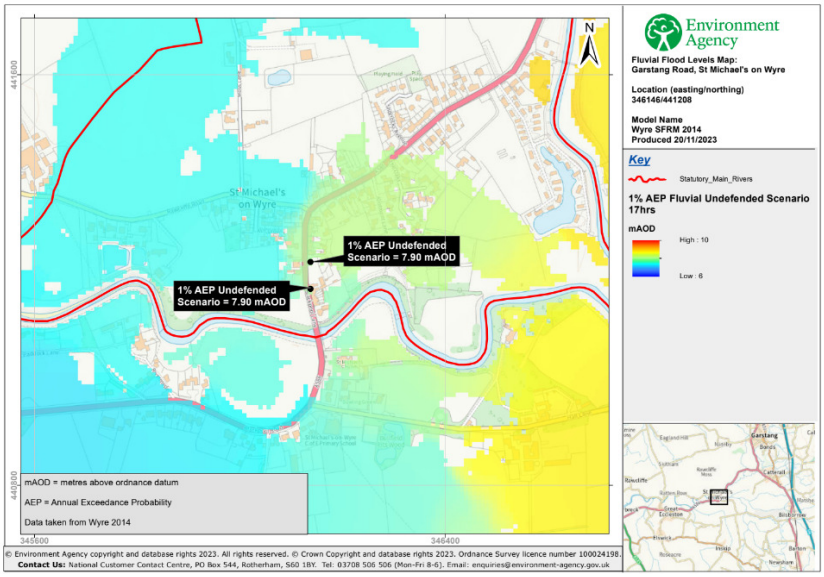


1% AEP Fluvial Defended Scenario + Climate Change (35%) = 7.70 mAOD – Site unaffected.

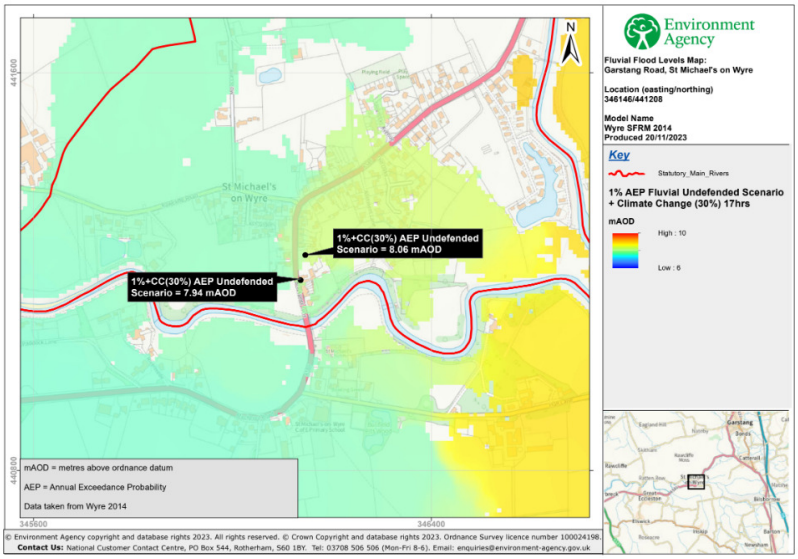




5% AEP Fluvial Undefended Scenario = 7.66 mAOD – Site unaffected.



1% AEP Fluvial Undefended Scenario = 7.90 mAOD – Site unaffected.

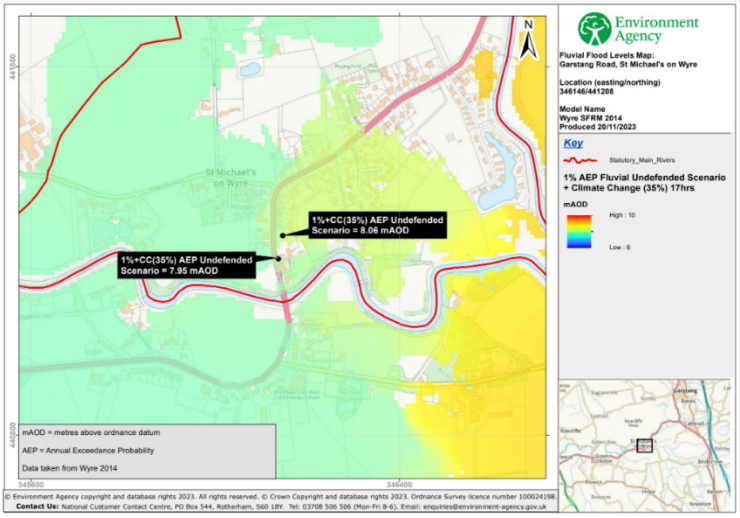


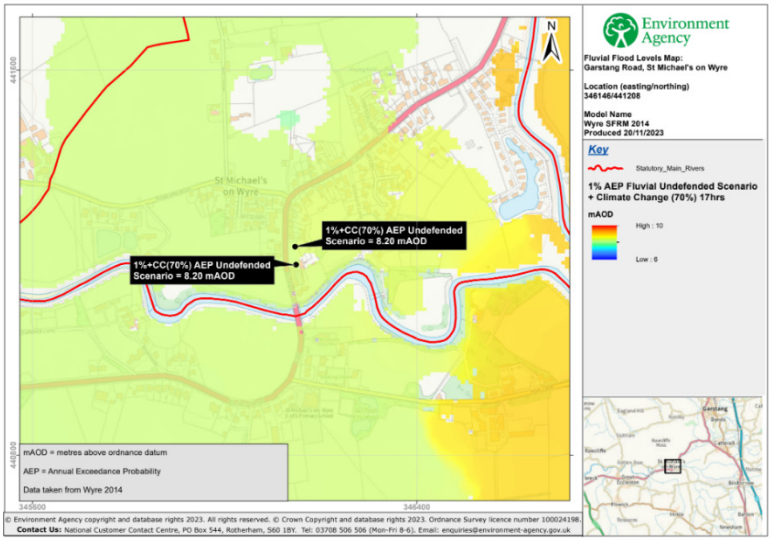
1% AEP Fluvial Undefended Scenario + Climate Change (30%) = Site *could* be affected up to 7.94 mAOD.

This is not applicable to the site due to the current flood defences in place.

1% AEP Fluvial Undefended Scenario + Climate Change (35%) = Site *could* be affected up to 7.95 mAOD.

This is not applicable to the site due to the current flood defences in place.



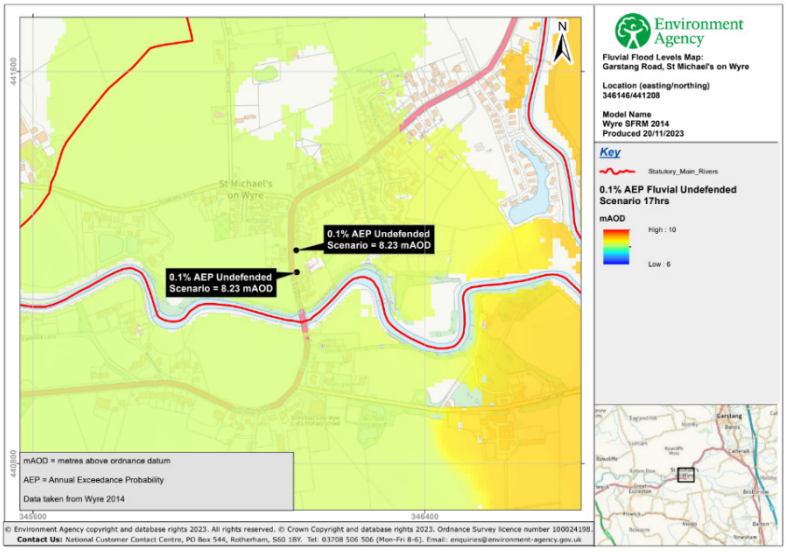


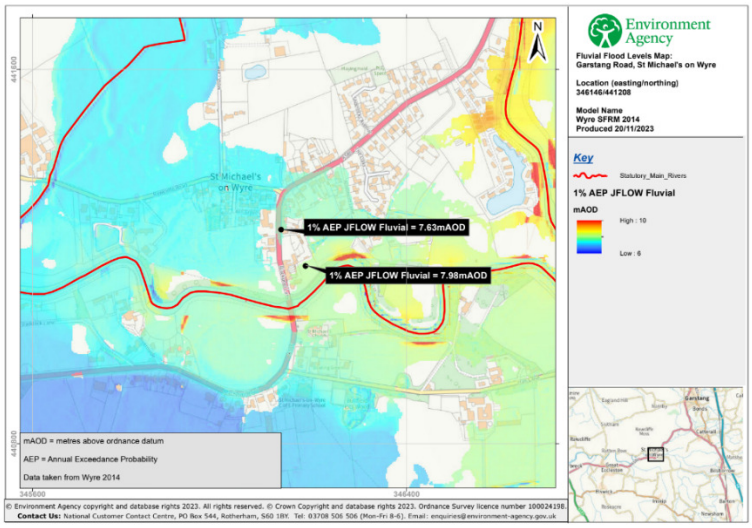
1% AEP Fluvial Undefended Scenario + Climate Change (70%) = Site *could* be affected up to 8.20 mAOD.

This is not applicable to the site due to the current flood defences in place.

0.1% AEP Fluvial Undefended Scenario = Site *could* be affected up to 8.23 mAOD.

This is not applicable to the site due to the current flood defences in place.





1% AEP JFLOW Fluvial = Site unaffected.

From the data shown above, the site may be affected by flooding to maximum depth of 8.23mAOD. This level refers to '0.1% AEP Fluvial Undefended Scenario'

As this refers to an undefended scenario it is not strictly revelevant to our site due to current flood defences that are in place. Going forward we will take this to be the design flood level.

The data shows the site to be unaffected by the tidal (Lune Estuary) defended scenarios therefore no maps have been produced.

From an OS datum point of 7.6mAOD to the north of the site the existing ground level immediatley adjacent the proposed building is 7.6mAOD. The proposed internal floor level is set at 7.97mAOD. The design flood level is 260mm higher than the existing internal floor level.

Future proofing against flooding

The building will be future proofed against future flood events. The measures will include

- Internal floor levels will be set atr 7.97mAOD
- the use of hard floor coverings throughout the ground floor
- routing of all electrical wiring down from ceiling level and no electrical sockets / wiring lower than 300mm above FFL.

- flood barriers to ground floor door openings
- registration with the EA flood warning service

CONCLUSIONS & RECOMMENDATIONS

The site lies within Flood Zone 3.

External ground levels will remain as existing.

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).

As the design flood levels relates to an undefended scenario the realistic conclusion is that the building is not at risk from flooding.