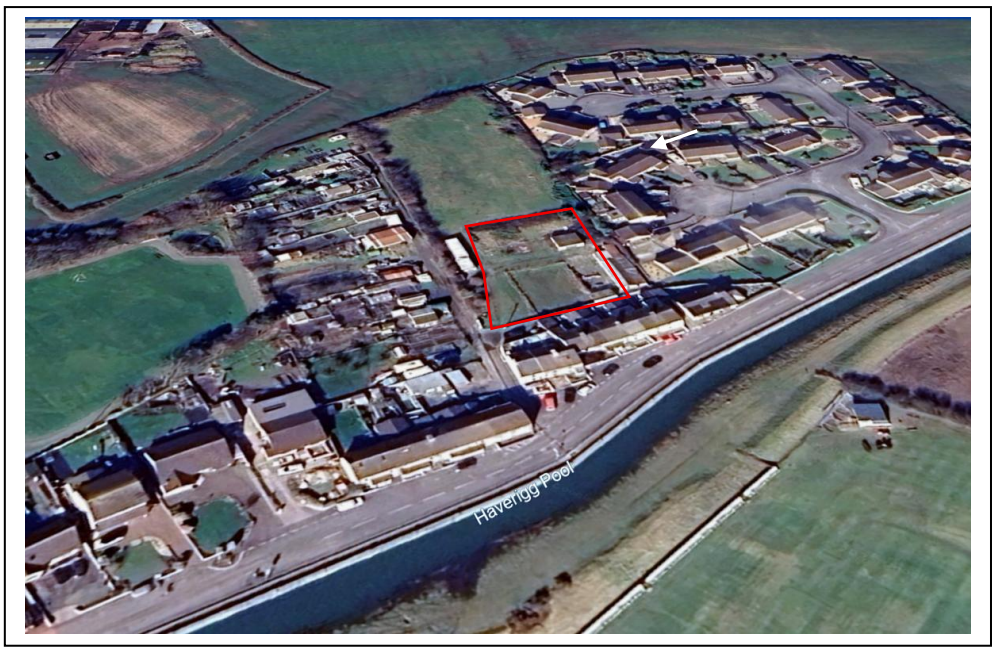
Rubicon Project Consultancy Ltd

Flood Risk Assessment
For

Land at
Poolside
Haverigg
Millom
Cumbria
LA18 4HW

November 2025



Haverigg Pool © Google Earth

Version	Prepared by	Non-Technical Review by	Date
Draft	Rachel Gerrard	J. Tunnicliffe Wilson	22 November 2025
Final	Rachel Gerrard	J. Tunnicliffe Wilson	24 November 2025

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The contents of this FRA follows the Site Specific Flood Risk Assessment checklist as specified in the Flood Risk and Coastal change guidance at:

https://www.gov.uk/guidance/flood-risk-and-coastal-change#contents

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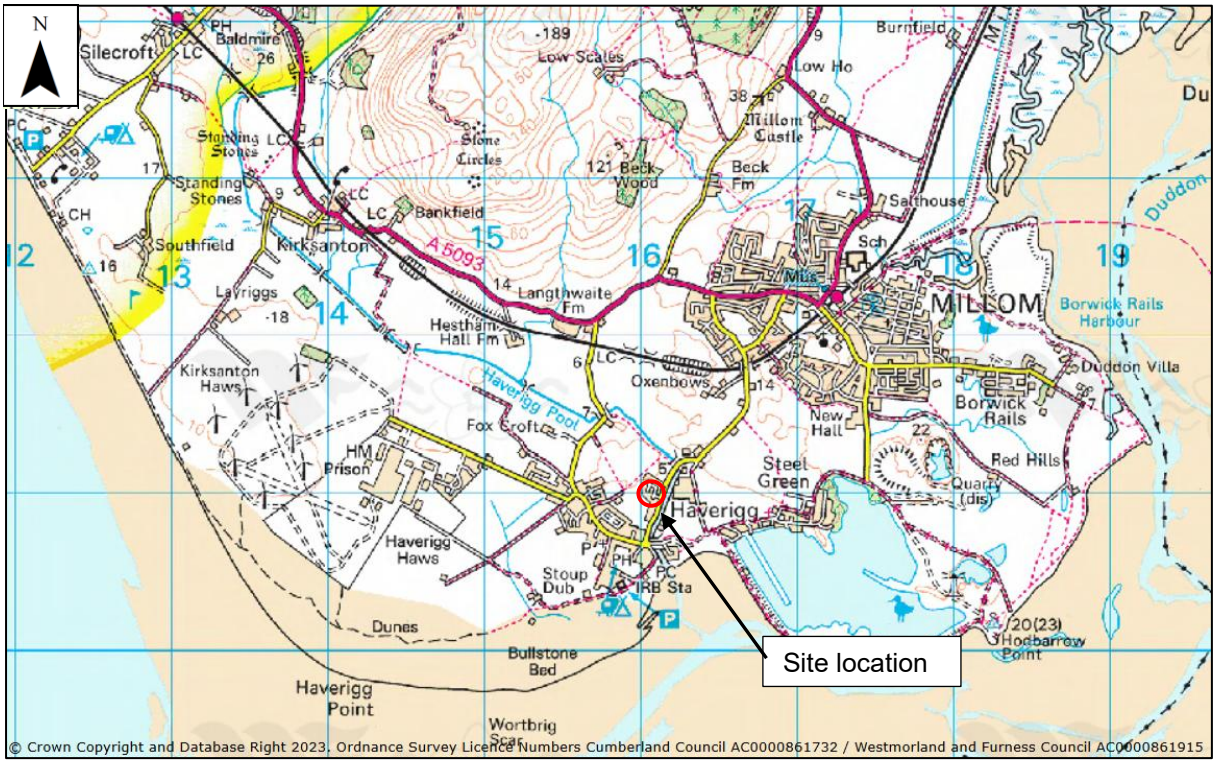
1- Development Site and Location

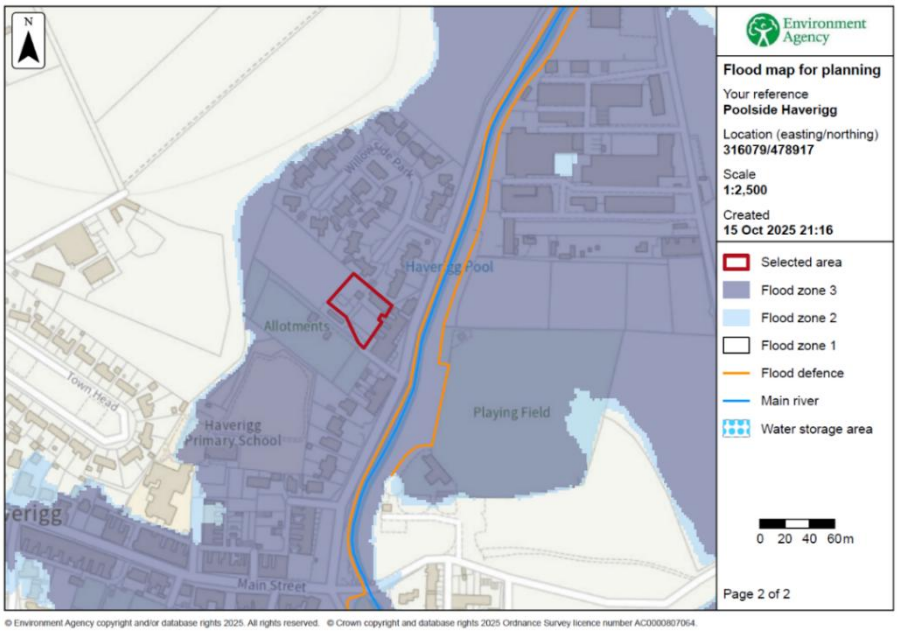
a. The site is land to the rear of Poolside, Haverigg, Millom, LA18 4HW. NGR SD. See Figure 1 – Location Plan.

Figure 1 Location plan



b. The current land use is agricultural.
c. The land is in Flood Zone 3, see Figure 2 below.
d. The site is at risk from Surface Water flooding but not from reservoir flooding. See Appendix A.

Figure 2 Flood Zones map



2 - Development Proposals

a. The development proposals are remove the existing buildings from the site and construct a new workshop/storage building . See Figure 3 below.

Figure 3 Site Plan

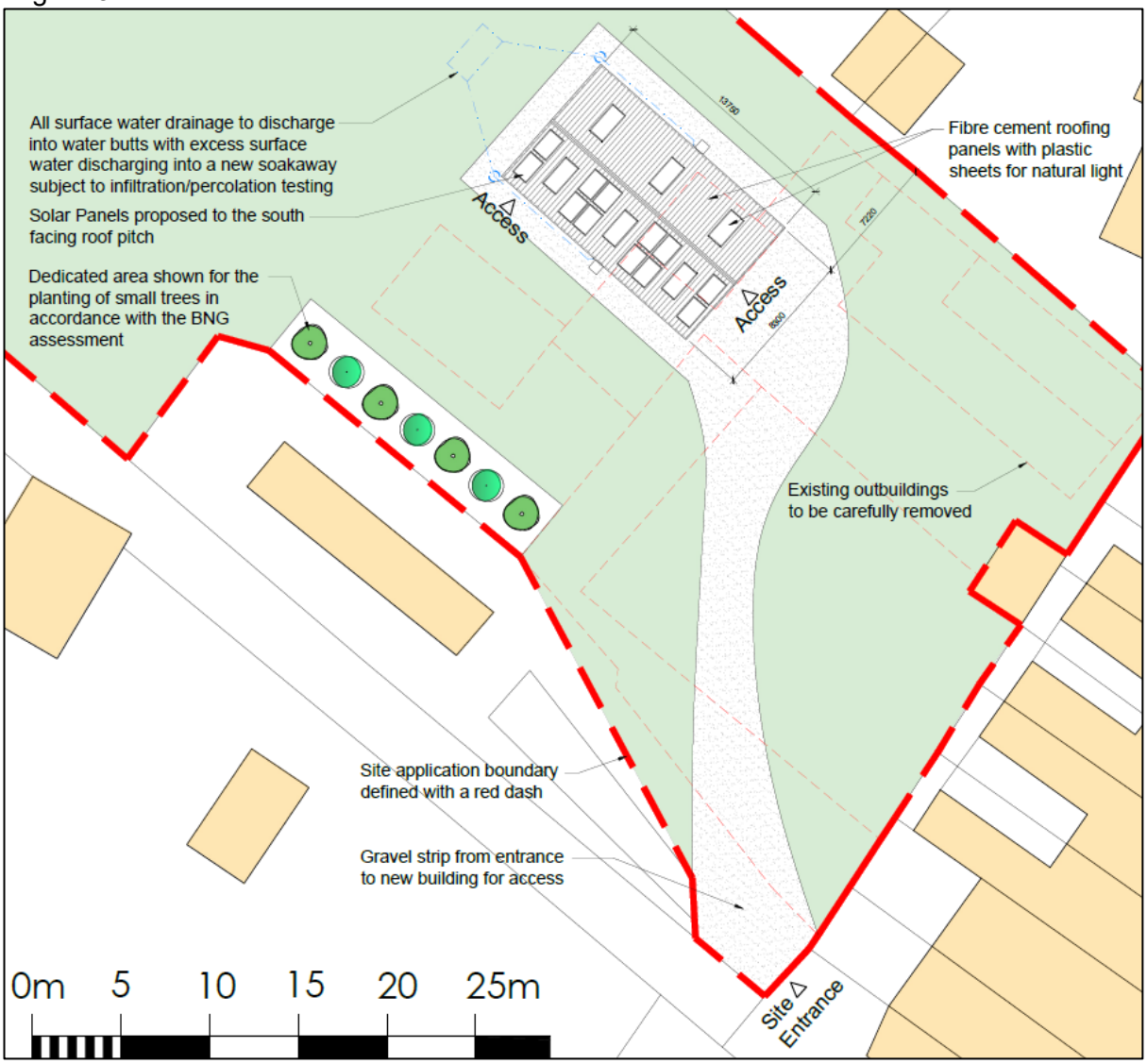
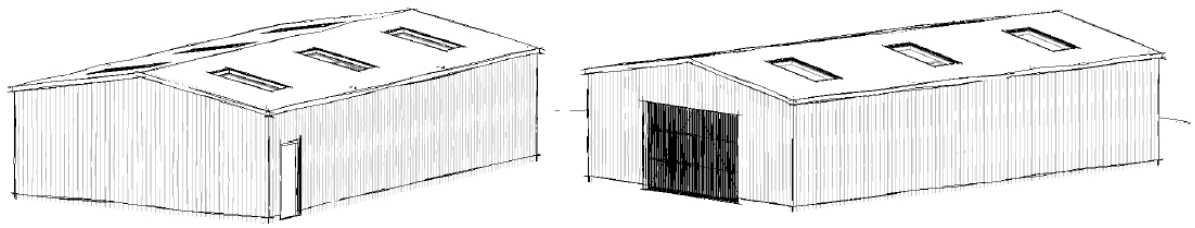


Figure 4 3D sketches of the workshop/storage building



The building will be steel framed with sheet metal walls constructed on a concrete base. With two entrances one pedestrian and the other vehicular.

The existing ground levels at the site are at approximately 5m AOD, see Appendix B.

b. The flood risk vulnerability classification of the proposed development is “Less Vulnerable”.
c. For Flood Risk Assessment purposes, the expected lifetime would be 50 years.

3 - Sequential Test

This a change of use of the land to a domestic garden with replacement of existing buildings with a workshop. As this is a change of use a Sequential test is not required. (National Planning Policy Framework Para 176 footnote 62)

4 - Climate change

The potential flood risk at the site will increase with climate change. The Climate change allowances for a ‘Less Vulnerable’ development in a Flood Zone 3 for Sea Level rise requires the use of the higher central allowance. In the North West, for a development with an expected lifespan until 2075, the higher central allowance rise in sea levels for climate change is 477mm. The model provided by the Environment Agency uses an increase of 600mm so this has been used in this assessment.

Flood maps provided by the Environment Agency show that the climate change level for the Defended 0.5% (200yr) flood including a 600 mm allowance will be 6.6 m AOD.. If the flood defence wall were to fail the undefended climate change 0.5% plus 600mm is 6.84m AOD. See Appendix C.

5 - Site Specific Flood Risk

The site benefits from the Haverigg flood defence wall alongside Haverigg Pool which has a crest level of 6.51m AOD.

a. The main source of flooding to the site is tidal flooding from the Irish Sea. See Figure 2. The site is also at risk of surface water flooding, see appendix A.
b. From Environment Agency flood maps the probability of the site flooding is 1.33% from tidal flooding and 0.1% from fluvial flooding. See map Appendix C.
c. Surface water (see Appendix A) show that the site is at risk of flooding from this source. The surface water flood risk is low probability and low depth (<200mm)
d. The design (0.5%) defended flood height with an allowance of 600mm for climate change is 6.6m AOD. The existing site ground level is 4.9-5m AOD giving depth of flooding of approximately 1.7m.
e. The proposed workshop will be expected to flood in the design flood to a depth of 1.7m.
f. The predicted climate change flood level is 6.6m AOD.. All electrical services will be mounted a minimum of 2m from the ground level. Due to the fluvial flood risk measures should be taken to landscape the ground to drain away from the building and the bottom 500mm of the building should be constructed to minimise water ingress.
The site benefits from the warning for the Cumbrian coastline at Duddon estuary, between Haverigg, Duddon Bridge, Dunnerholme and A595. It is also in The Duddon Estuary flood alert area.
g. The development will not cause increased flood risk elsewhere as the structures footprint is small in comparison to the tidal floodplain.

h. There are no opportunities offered by the development to reduce the causes or impacts of flooding.
i. The flood information used to inform the risk level for this assessment have been taken from the Duddon Sands Tidal 2012 and Haverigg 2011 models obtained from the Environment Agency. A modelled data source gives the highest level of certainty to the assessment.

6 - Surface Water Management

All surface water drainage from the proposed building will be collected for reuse with excess going to soakaway subject to infiltration testing. The system will be maintained by the landowner.

7 - Occupants and Users of the Development

The users of the proposed building won't change from the existing requirements on the site. There will not change nature and times of use.

8 – Exception Test

An exception test is not required as this is a Less Vulnerable development in flood zone 3a.

9 - Residual Risk

a. Tidal flood risk will always remain at the site due to its location.
b. Over the lifetime of the development any increase in flood risk will be managed by the landowners.

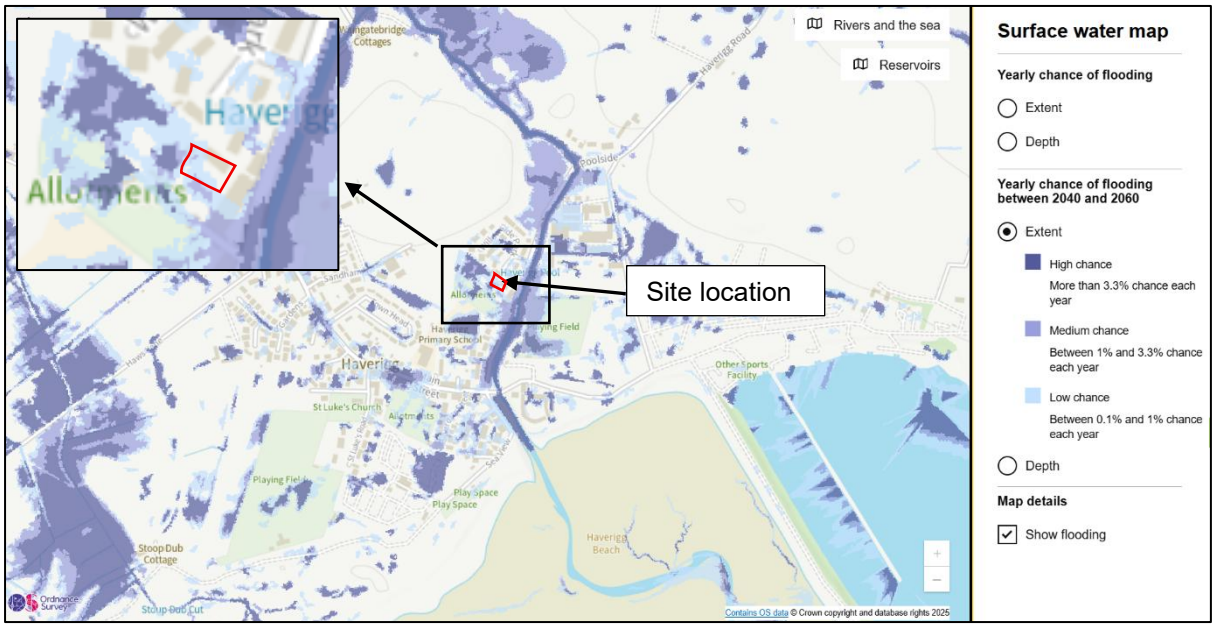
10 - Flood Risk Assessment credentials

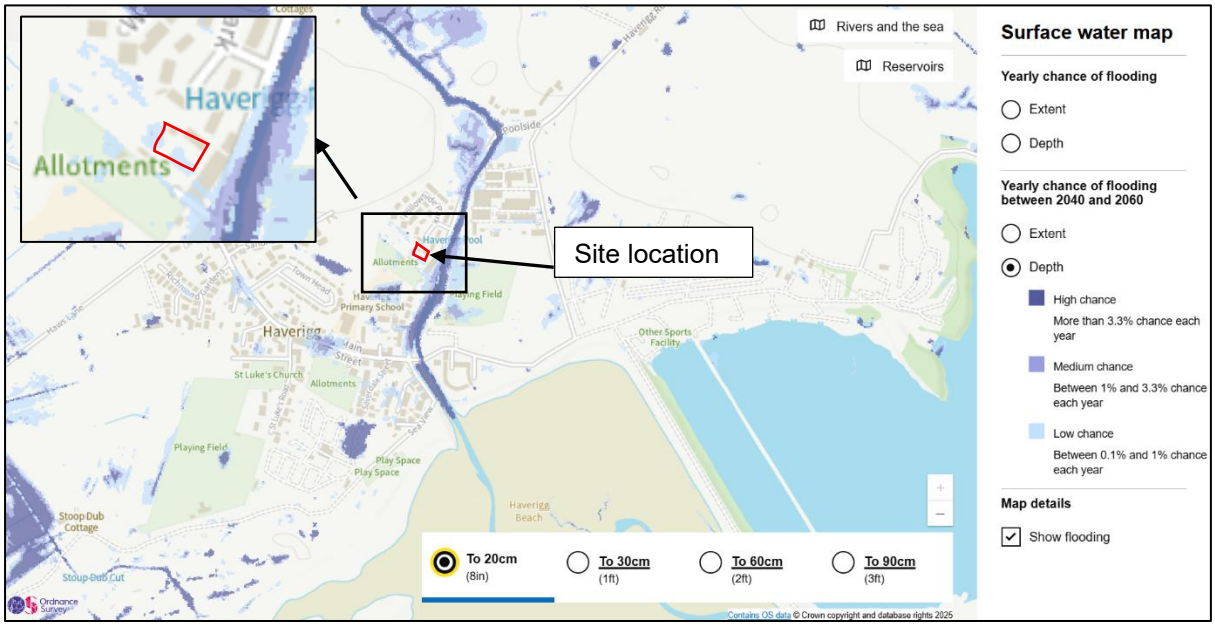
This Flood Risk Assessment has been produced and written by Rachel Gerrard B.Eng C.Eng MICE, completed November 2025.

APPENDIX A – Other sources of Flood Risk

Surface Water Flood Risk

Although the surface water flood risk at the site is due to increase with climate change the likelihood of flooding is predicted to be low and the depth less than 20cm so the hazard is low.





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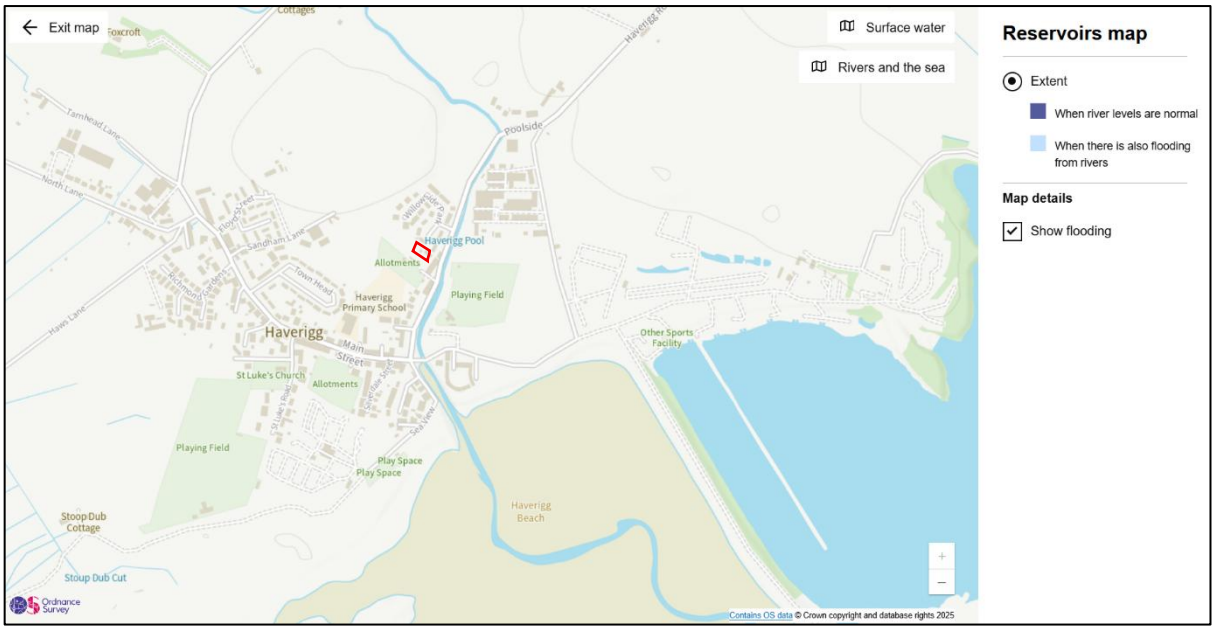
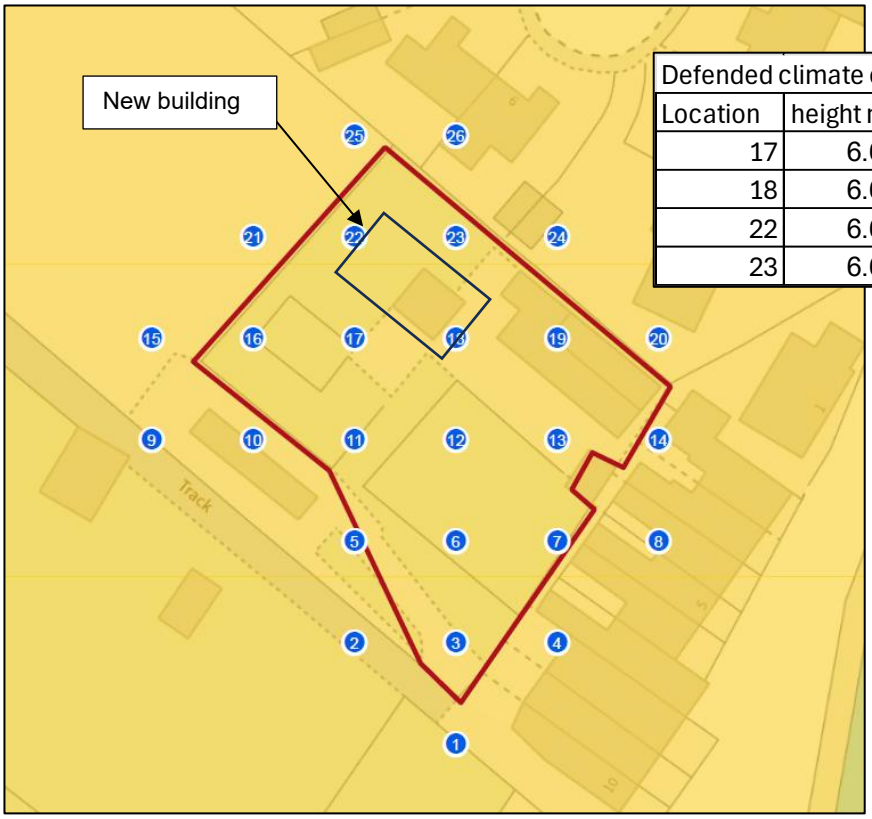
Reservoir flood risk



APPENDIX B – Topographic Survey



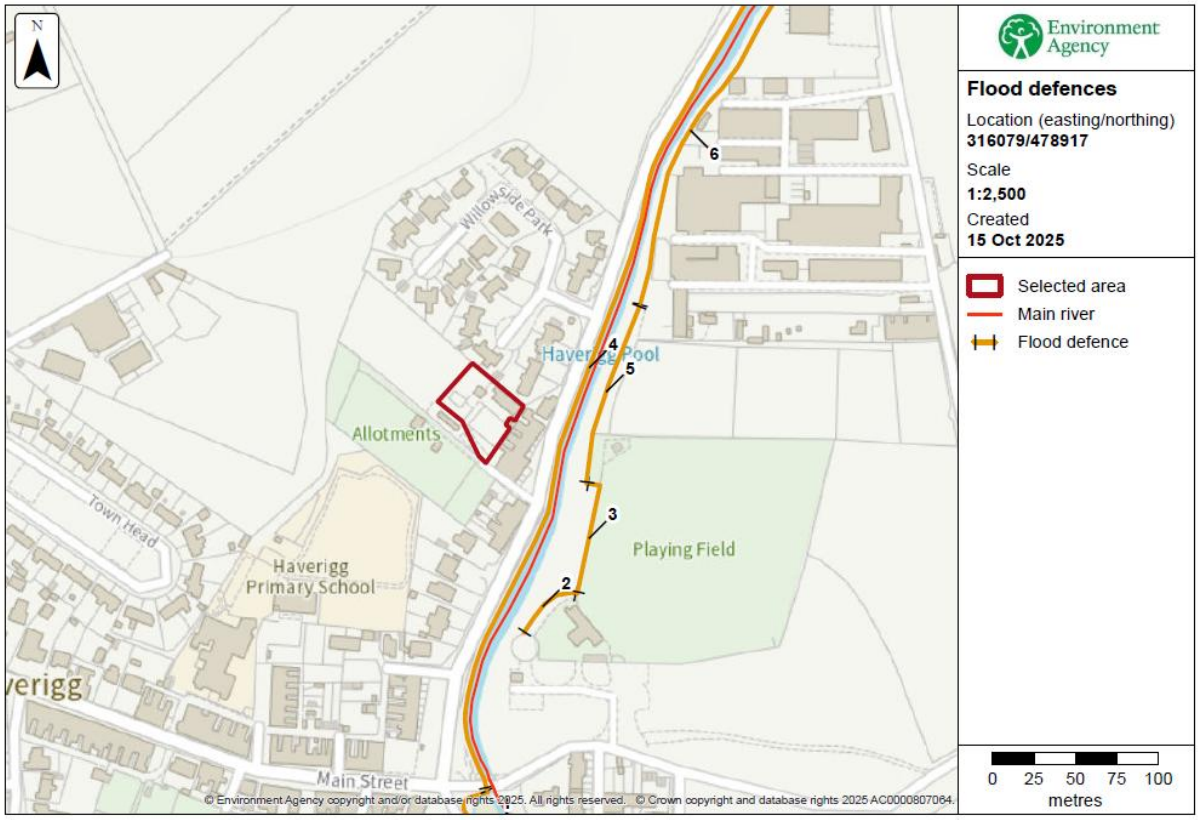
Defended climate change 0.5% +600mm			
Location	height mAOD	depth	ground level
17	6.6	1.77	4.83
18	6.6	1.62	4.98
22	6.6	1.76	4.84
23	6.6	1.54	5.06

New building ground level approximately.4.9 to 5m AOD.

Environment Agency flood data used to obtain approximate ground levels.

APPENDIX C – Environment Agency Information

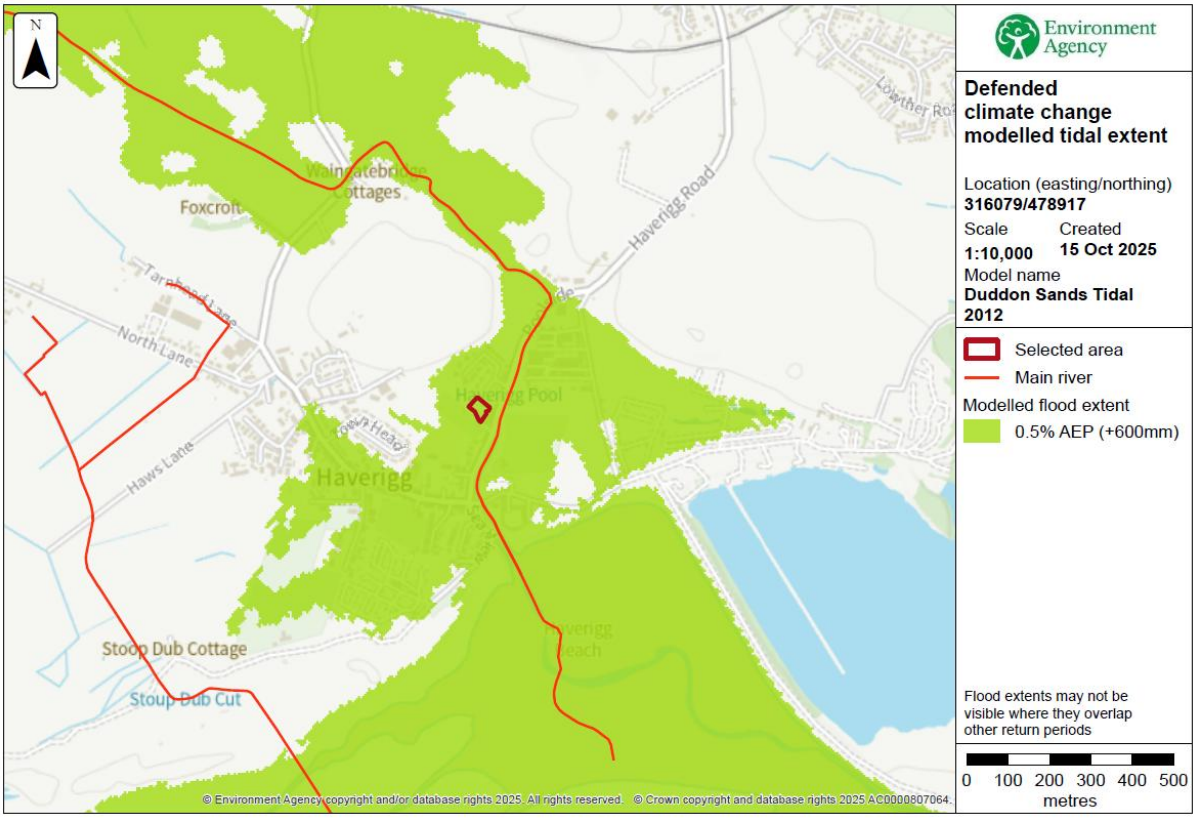
Flood Defence information

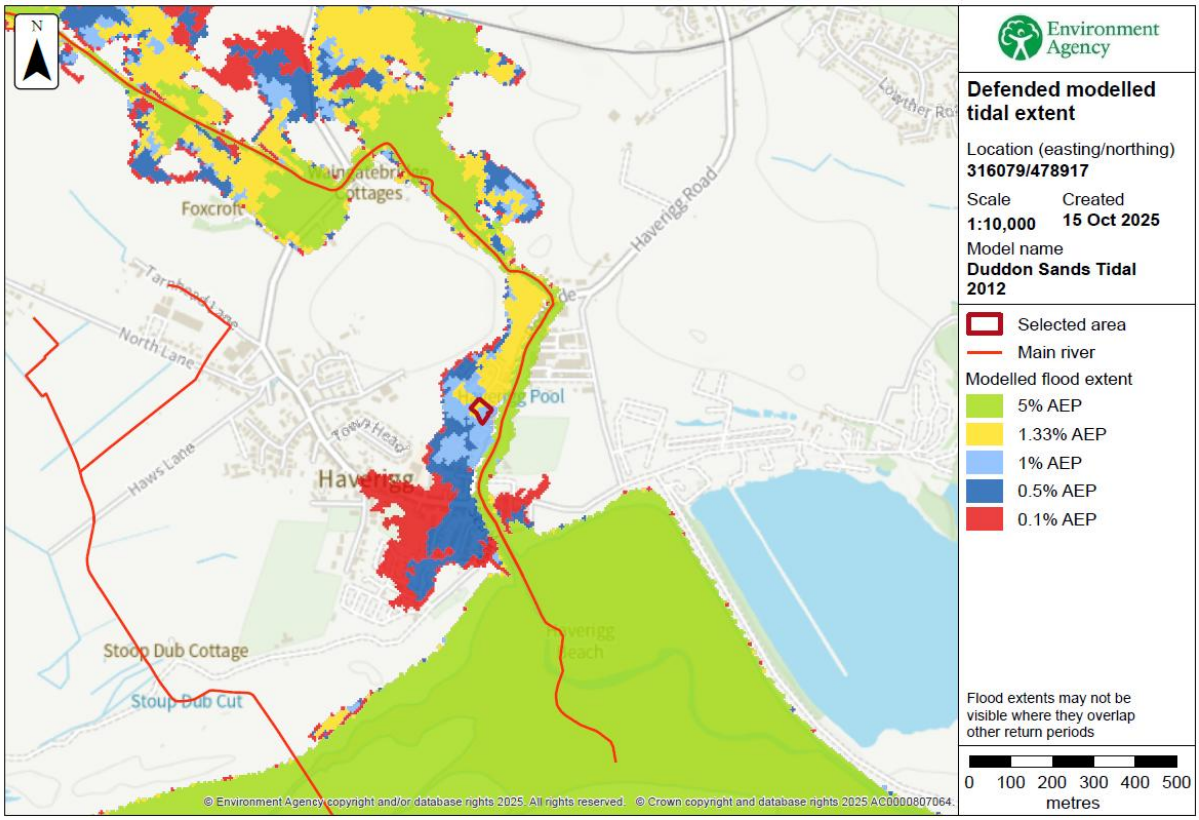


Flood defences data

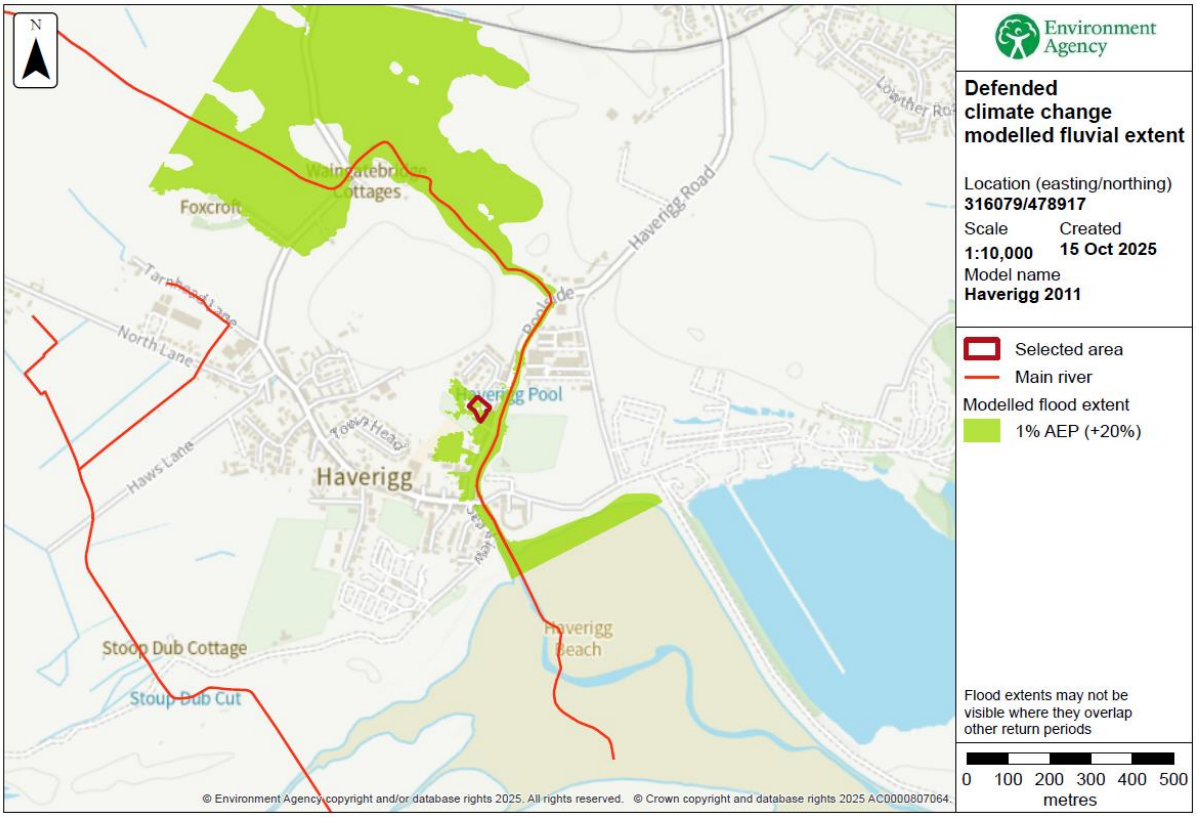
Label	Asset ID	Asset Type	Standard of protection (years)	Current condition	Downstream actual crest level (mAOD)	Upstream actual crest level (mAOD)	Effective crest level (mAOD)
1	79170	Wall	100	Good	6.52	6.53	6.52
2	162818	Embankment	100	Good	6.53	6.59	6.53
3	79142	Wall	100	Good	6.59	6.59	6.59
4	79173	Wall	100	Good	6.52	6.51	6.51
5	79533	Embankment	100	Good	6.56	6.43	6.43
6	79172	Wall	100	Poor	6.49	6.49	6.49

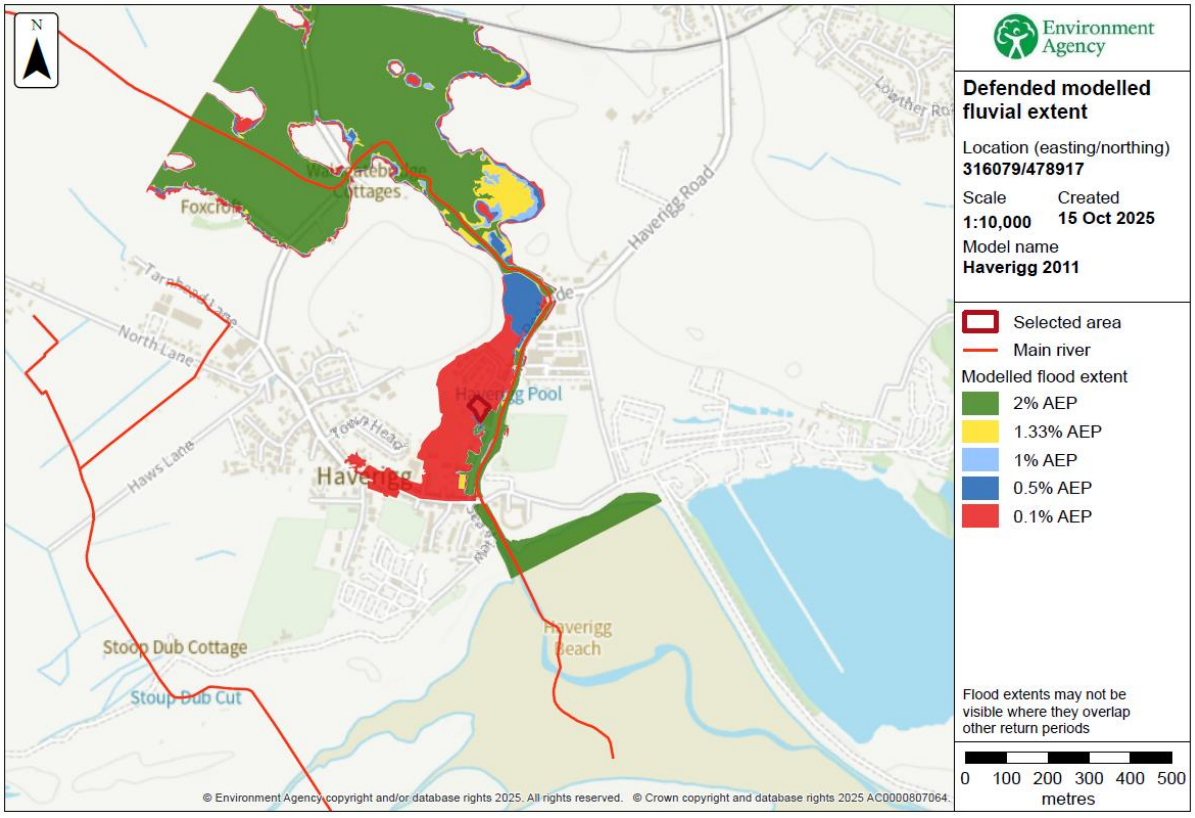
Modelled tidal flood extents from the Duddon Sands Tidal 2012





Modelled fluvial flood extents from the Haverigg 2011





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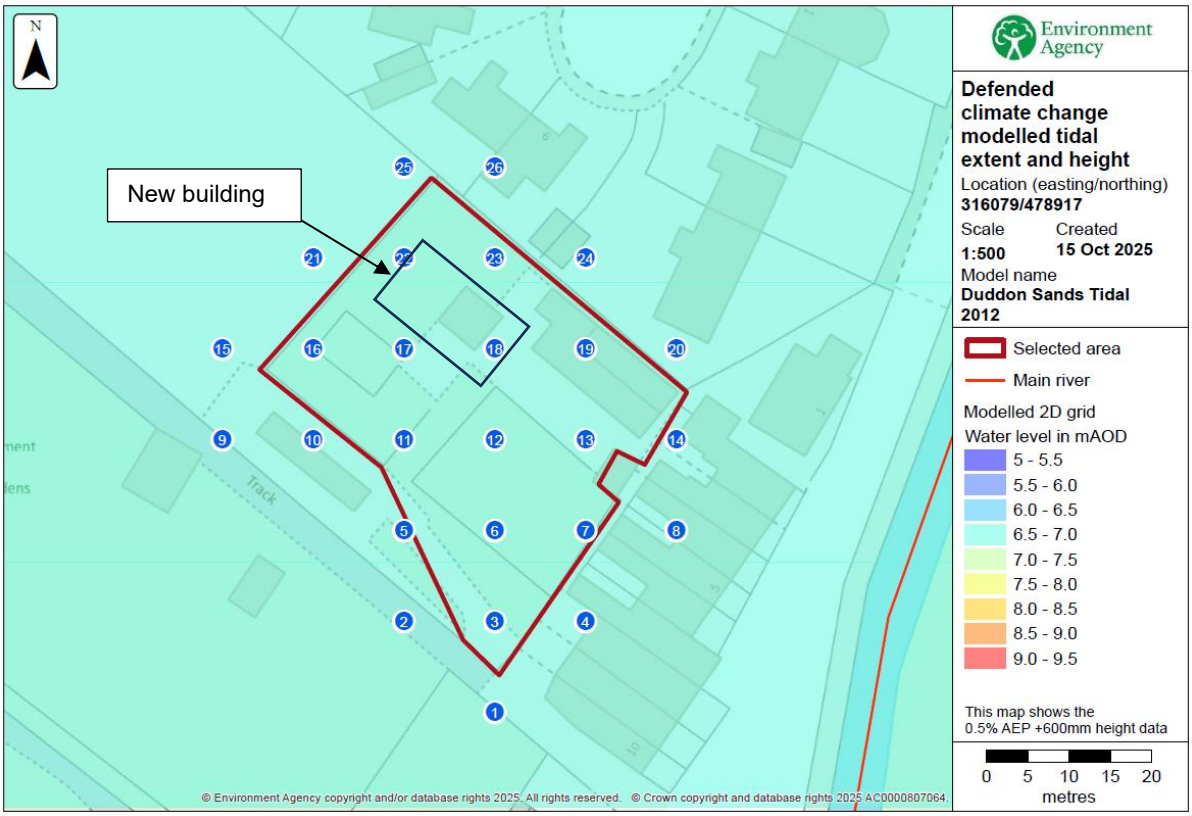
Climate change tidal flood levels



Defended

Label	Easting	Northing	0.5% AEP (+600mm)	0.5% AEP (+600mm)
			Height	Depth
13	316092	478913	6.60	1.57
14	316103	478913	6.60	1.22
15	316048	478924	6.60	1.59
16	316059	478924	6.60	1.68
17	316070	478924	6.60	1.77
18	316081	478924	6.60	1.62
19	316092	478924	6.60	1.43
20	316103	478924	6.60	1.21
21	316059	478935	6.60	1.67
22	316070	478935	6.60	1.76
23	316081	478935	6.60	1.54
24	316092	478935	6.60	1.49

Defences removed

Label	Easting	Northing	0.5% AEP (+600mm)	0.5% AEP (+600mm)
			Height	Depth
13	316092	478913	6.84	1.82
14	316103	478913	6.84	1.75
15	316048	478924	6.84	1.83
16	316059	478924	6.84	1.92
17	316070	478924	6.84	2.01
18	316081	478924	6.84	1.86
19	316092	478924	6.84	1.67
20	316103	478924	6.84	1.64
21	316059	478935	6.84	1.91
22	316070	478935	6.84	2.00
23	316081	478935	6.84	1.78
24	316092	478935	6.84	1.74

The site is also in the 1% plus climate change fluvial flood zone but the level of flooding will be less than the tidal flood level.

APPENDIX D – Flood Warning Information

Flood Warning Area: Cumbrian coastline at Duddon estuary, between Haverigg, Duddon Bridge, Dunnerholme and A595

The area bounded in blue on the map shows the area covered by flood alerts and warnings for Cumbrian coastline at Duddon estuary, between Haverigg, Duddon Bridge, Dunnerholme and A595.

Note: the area shown on the map is the area covered by flood alerts and warnings. It is not a live map of current flooding. The area covered broadly equates to the area where the risk of flooding in any year is greater than 1% (the "hundred year" flood risk).

Flood Alert Area: Coast at Duddon estuary

The area bounded in blue on the map shows the area covered by flood alerts and warnings for Cumbrian coastline at Duddon estuary, at Haverigg to Duddon Bridge, Foxfield, Dunnerholme.

Note: the area shown on the map is the area covered by flood alerts and warnings. It is not a live map of current flooding. The area covered broadly equates to the area where the risk of flooding in any year is greater than 1% (the "hundred year" flood risk).