

Flood Risk Assessment
AEG0160_Worthing

Michael Jones

Site Address: 111 Marine Parade
Worthing
Sussex
BN11 3QG

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Flood risk, water and environment

UK Experts in Flood Modelling, Flood Risk Assessments, and Surface Water Drainage Strategies

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Document Issue Record

Project: Flood Risk Assessment – Level 1, Flood Evacuation Plan

Prepared for: Michael Jones on behalf of Applicant.

Reference: AEG0160_BN11_Worthing_01

Site Location: 111 Marine Parade, Worthing, Sussex, BN11 3QG

Proposed Development: It is understood that the proposed development is a change of use application for a current hotel into a number of private residential dwellings (flats) from the lower ground floor to the upper floors.

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Please Note:

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1. Summary

1.1 Aegaea has been appointed by the applicant to undertake a National Planning Policy Framework (NPPF) compliant Flood Risk Assessment (FRA) for the proposed development of a change of use for a current hotel/guesthouse into residential dwellings.

1.2 The property is located on Worthing sea front and is within Flood Zone 3a. The property is protected by tidal flood defences and this therefore reduces the risk of tidal flooding to very low.

1.3 Surface water flooding is a concern for the property with impacts likely occurring in the 3.3% AEP event (30 year), the 1% AEP event (100 year) and the 0.1% AEP (1000year) event, with both the property and access routes affected.

1.4 There is a history of past flood events near the property, with a sewer flood event occurring to the east of the curtilage in 1980.

1.5 Groundwater flooding is a low risk concern for this property as identified within the Worthing Strategic Flood Risk Assessment (SFRA).

1.6 There will be no impact to flood risk elsewhere due to the development being a change of use only.

1.7 A Flood Evacuation Plan and Flood Warning Plan has been discussed with recommendations of residents to sign up to the EA Flood Warning/Alert program.

1.8 Following this assessment the analysis assumes that the property should be considered suitable for development on condition that the owners sign up for the EA Flood Warning and Alert program.

1.9 As such, and given that:

- The development is for a change of use application from current hotel dwellings to residential dwellings
- Analysis of the defended 1 in 200 + CC event against the crest height of the defences (beach) has demonstrated that the Site should not be affected.
- The Shoreline Management Plan at this location is Hold the Line.
- A perimeter wall be will added to the amenity area of the lower ground floor to provide a secondary defence.
- Finished floor levels of the development will be set no lower than that of the existing property
- No sleeping accommodation will be provided on the lower ground floor / basement level

Following the guidelines contained within the NPPF, the proposed development could be considered suitable assuming appropriate mitigation (including adequate warning procedures) can be maintained for the lifetime of the development.

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Development Description	Existing	Proposed
Development Type:	Current hotel/guesthouse property	Change of use from guesthouse into a selection of flats ranging from the lower ground floor to the upper floors. There will be no sleeping at lower ground floor / basement level.
EA Vulnerability Classification:	More Vulnerable	More Vulnerable
Existing Ground Level:	3.832mAOD – 4.819mAOD	No changes proposed. Current lower ground floor is used as a bar and will be built into a residential dwelling without altering ground levels. There will be no sleeping at lower ground / basement level.
Impermeable Surface Area:	N/A[1]	N/A[1]
Surface Water Drainage:	N/A[1]	N/A[1]
Site Size:	N/A	No Change – Area 445.7m^2
Risk to Development	**Summary**	**Comment**
EA Flood Zone:	3	The property is located within Flood Zone 3 in a region that is protected by flood defences.
Flood Source:	Tidal	English Channel – Property is located on Worthing sea front.
SFRA Available:	Yes	Worthing SFRA – 2020
Management Measures	**Summary**	**Comment**
Ground floor level above extreme flood levels:	No	Property is not located above extreme flood levels however due to the flood defences being greater than the modelled flood levels the site is defended. Furthermore, there will be no sleeping at basement level.
Safe Access/Egress Route:	Yes	Sign up to EA Flood Alert warning service.
Flood Resilient Design:	N/A[1]	N/A[1]
Site Drainage Plan:	N/A[2]	N/A[1]
Flood Warning & Evacuation Plan:	Yes	EA Flood Warning System is in place and it would be recommended to sign up to this system. A proposed evacuation plan has been outlined to travel to a nearby school to seek refuge.
Offsite Impacts	**Summary**	**Comment**
Displacement of floodwater:	No	No external modifications are occurring so there will be no displacement of flood water.
Increase in surface run-off generation:	No	No external modifications thus no increase in surface water runoff.
Impact on hydraulic performance of channels:	None	

Table 1 Summary of flood risks, impacts and proposed flood mitigation measures.
N/A[1] not required for this assessment; N/A[2] data not available.

2. Policy Compliance

2.1 The proposed development site is located within Flood Zone 2 and Flood Zone 3 based on the EA Flood Map for Planning. As such, under the National Planning Policy Framework, a Flood Risk Assessment is required in support of the planning application for the proposed development.

2.2 The National Planning Policy Framework (NPPF) (DCLG, 2021) includes Government policy on development and flood risk stating that:

> 159. *Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.*
>
> *164. The application of the exception test should be informed by a strategic or site specific flood risk assessment, depending on whether it is being applied during plan production or at the application stage. To pass the exception test it should be demonstrated that:*
>
> *a) the development would provide wider sustainability benefits to the community that outweigh the flood risk; and*
>
> *b) the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.*
>
> *165. Both elements of the exception test should be satisfied for development to be allocated or permitted.*
>
> *167. When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:*
>
> *a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;*
>
> *b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;*
>
> *c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;*
>
> *d) any residual risk can be safely managed; and*
>
> *e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan. …*

3. Development Description and Site Area

Proposed Development and Location

3.1 The proposed development is for a change of use application for a current hotel/guesthouse on the Marine Parade of Worthing into private residential flats occupying from the lower ground floor to the upper floors. The basement/lower ground floor flat will not have sleeping and will instead be a mezzanine flat.

3.2 The property is located at 111 Marine Parade, Worthing, Sussex, BN11 3QG opposite the coast (Figure 1, Figure 2).

3.3 LiDAR DTM data at a 1m resolution is displayed in figure 3 displaying max elevation levels of 4.819mAOD and minimum elevation levels of 3.832mAOD across the site curtilage.

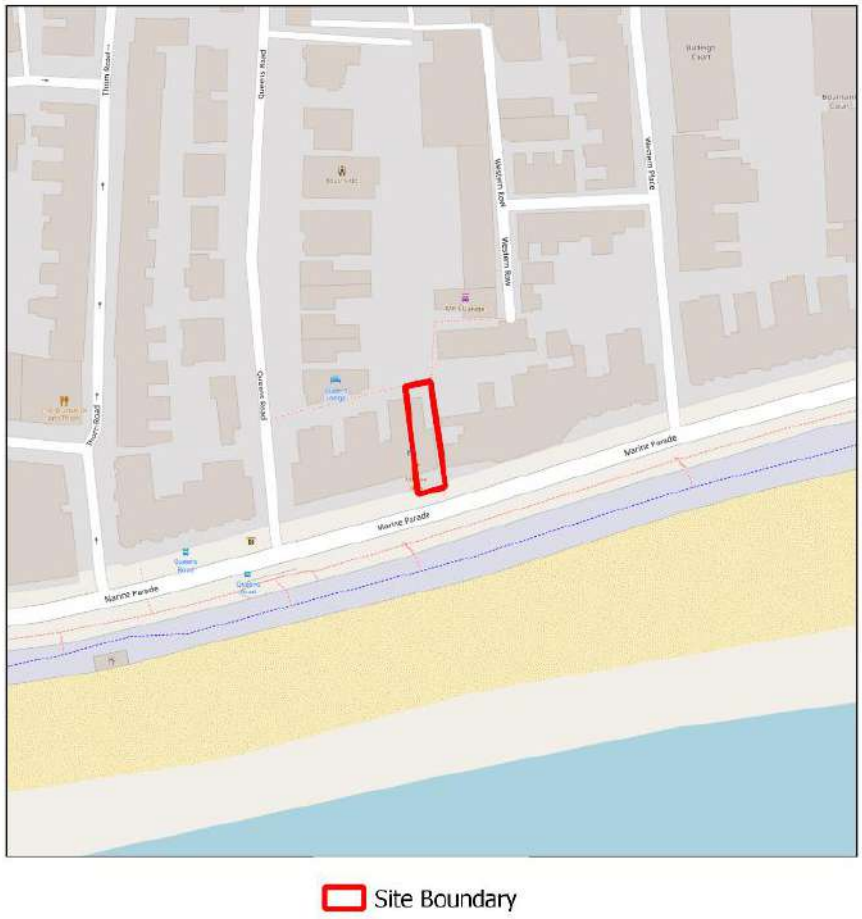

Figure 1: Site Location With Property Curtilage Outline

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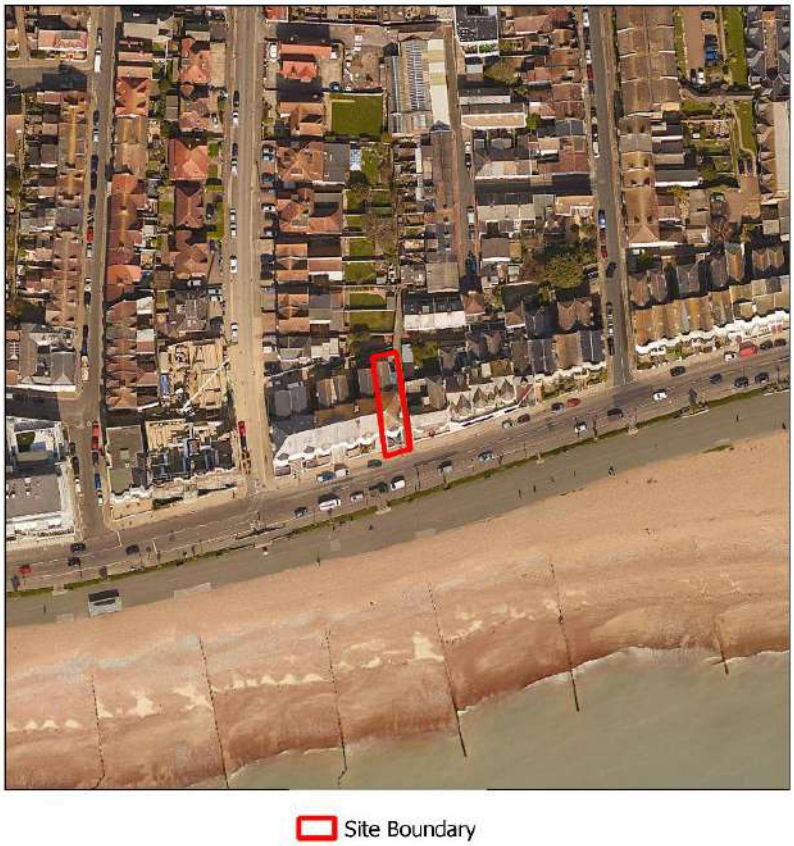

Figure 2: Site Location And Property Curtilage Outline

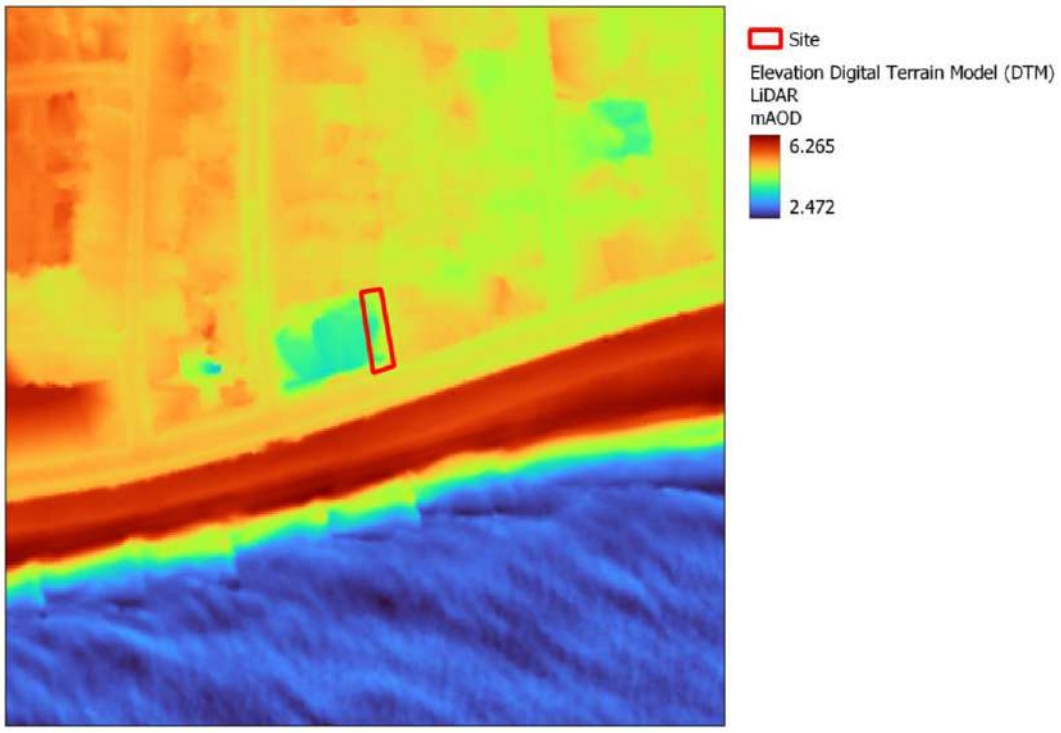

Figure 3: Property Curtilage with DTM Elevation from LiDAR

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Vulnerability Classification

3.4 The Environment Agency (EA) Flood Map for Planning identifies the proposed development within Flood Zone 3 (Figure 4).

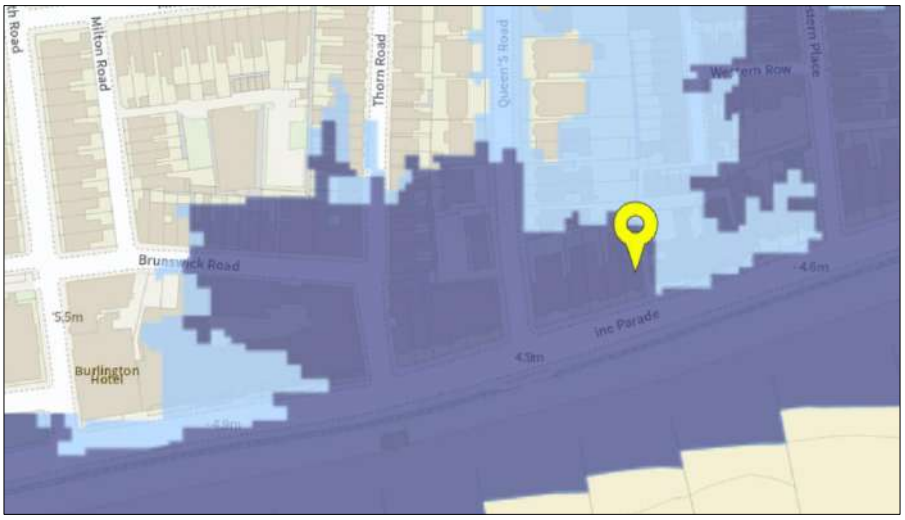

Figure 4: EA Flood Map for Planning displaying property location (Dark Blue is Flood Zone 3, Light Blue is Flood Zone 2)

3.5 The current property as a hotel is defined as 'More Vulnerable' with the proposed development of residential dwellings defined as 'More Vulnerable'.

3.6 Although development is occurring at basement/lower ground floor level, there will be no sleeping accommodation on this floor and as such the classification of the development is more vulnerable.

Geology

3.7 The British Geological Survey (BGS) Geology of Britain Viewer indicates that the bedrock underlying the site is White Chalk Subgroup – Chalk.

3.8 The British Geological Survey (BGS) Geology of Britain Viewer indicates that the superficial geology is Brickearth – Silt.

4. Sequential Test/Exception Test

4.1 Under the NPPF, all new planning applications should undergo a *Sequential Test*. This test should be implemented by local planning authorities with a view to locating particularly vulnerable new developments (e.g. residential, hospitals, mobile homes etc.) outside of the floodplain.

4.2 The NPPF Sequential Test: Flood Risk Vulnerability and Flood Zone 'Compatibility' Table is reproduced below;

Flood Risk Vulnerability Classification		Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	**Zone 1**	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test Required	✓	✓
	Zone 3a	Exception Test Required	✓	×	Exception Test Required	✓
	Zone 3b ***Functional Floodplain***	Exception Test Required	✓	×	×	×

Table 2 The Sequential Test: Flood Risk Vulnerability and Flood Zone 'Compatibility' Table as specified by NPPF/PPG.
Please note: ✓ means development is appropriate; × means the development should not be permitted.

4.3 As per paragraph 168 and footnote 55, change of use applications should not be subject to either the sequential or exception tests but should however meet the requirements for a site-specific flood risk assessment.

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5. Site Flood Hazards

Sources of Flooding

5.1 Table summarises the potential sources of flooding to the site:

Source	Description
Fluvial	N/A
Tidal	English Channel
Surface	3.3% AEP, 1% AEP, 0.1% AEP
Groundwater	N/A
Sewer	Past Event in 1980

Table 2: Summary of flood sources.

Mechanisms and History of Flooding

5.2 The EA Flood Map for Planning displays that the proposed site will be located within Flood Zone 3.

5.3 The main sources of flooding are surface water, with tidal flooding defended by current flood defences.

Tidal

5.4 Tidal flooding has been determined to be the main source of flooding for the property.

5.5 Data provided by the EA identifies the property within both the defended and undefended flood zones for tidal flooding. Figures 5 and 6 display the tidal flood risk for both defended and undefended for different return periods. The property is not at risk from the current day tidal events in the defended models.

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5.6 Water depths for the undefended and defended tidal flood events have been provided and are displayed in table 3 with the flood extent maps (Figure 5 and 6).

Table 3: Environment Agency Tidal Data (Source: Arun to Adur Coastal Model)

	Undefended Modelled Flood Levels in mAOD			**Defended Modelled Flood Levels in mAOD**		
Node	**5% AEP**	**0.5% AEP**	**0.1% AEP**	**5% AEP**	**0.5% AEP**	**0.1% AEP**
1	4.36	4.62	4.83	4.36	4.62	4.83
2	4.32	4.62	4.83	4.32	4.62	4.83

5.7 When observing the LiDAR data for the site, the flood defences in place on the promenade display a profile of max elevations of 6.46mAOD (Average is ~ 6.3mAOD). As the modelled defended and undefended flood levels are all >5mAOD and as such are less than the elevation of the site, it is not likely that any of the modelled flood events will overtop the in place defences and will not affect the property.

5.8 The greatest modelled flood level is 4.83mAOD which is found within the 0.1% AEP event for both the defended and undefended models. This indicates a 1.47mAOD difference between the flood level and the average elevation of the defence, further cementing that the event will not overtop and thus will not affect the property.

5.9 In addition, the ground floor of the property is actually offset from the street level thus it is likely that the defended modelled flood levels are not likely to impact the property at the ground floor level.

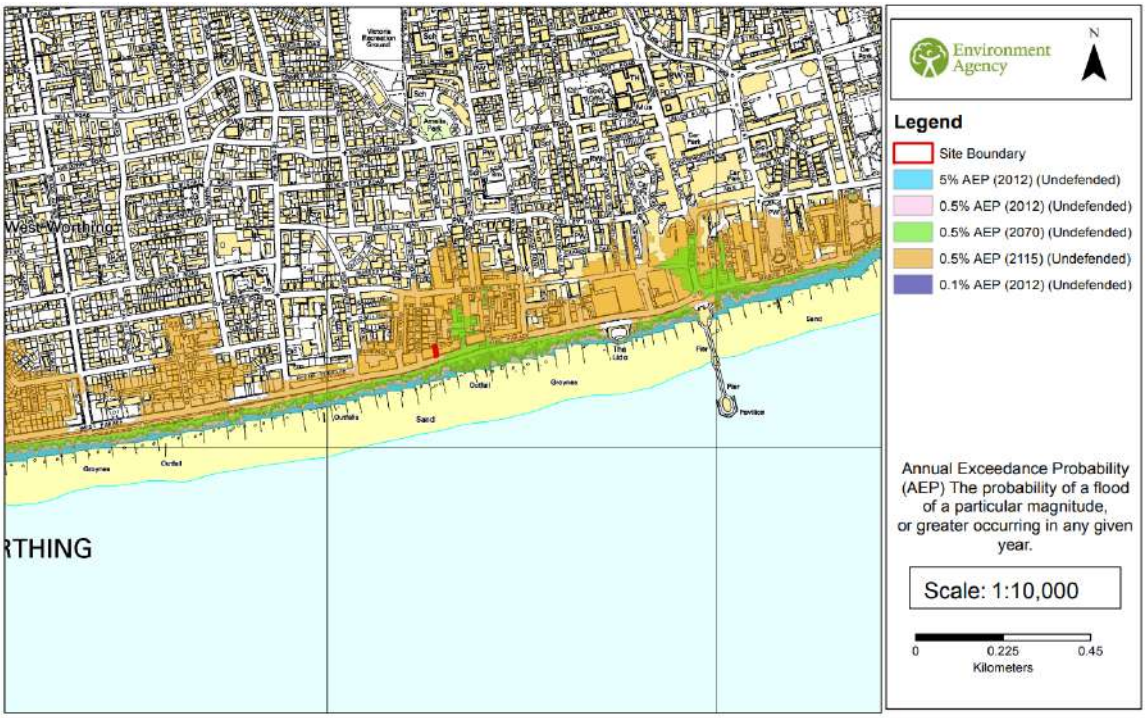

Figure 5: Modelled Flood Outlines for Undefended (Source EA)

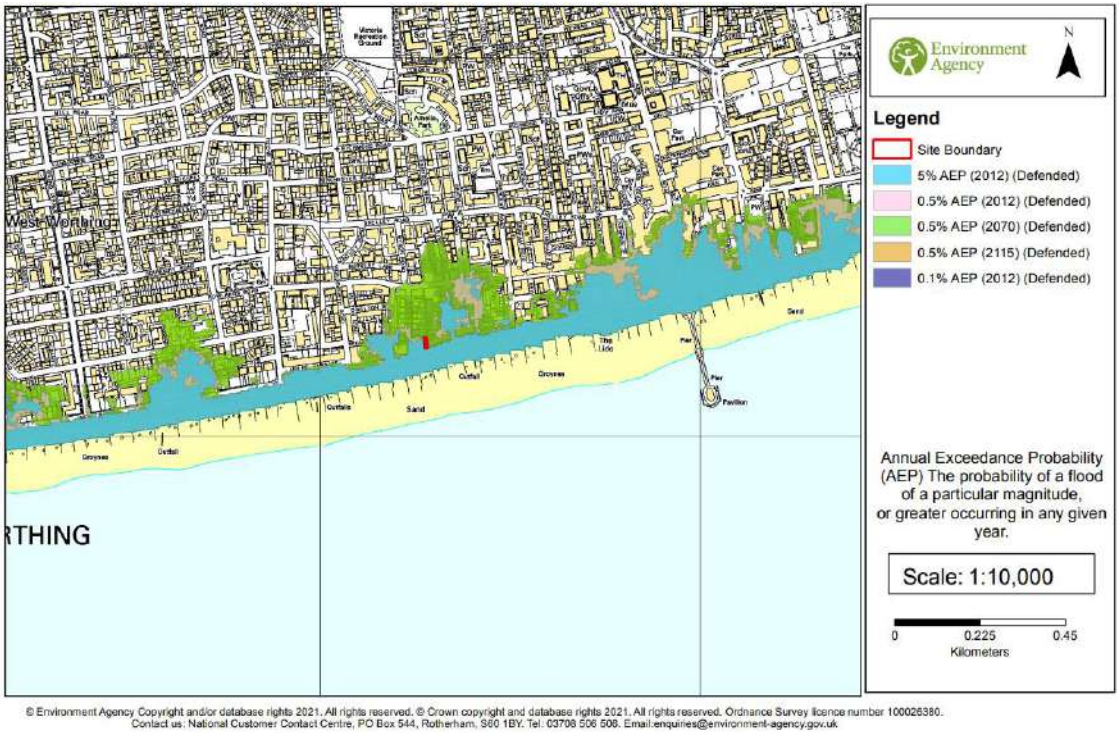

Figure 6: Modelled Flood Outlines for Defended (Source EA)

Climate Change (Tidal)

5.10 Climate change is likely to impact sea level and will therefore likely have an impact on the tidal flood risk of the property.

5.11 Aegaea have taken the 0.5% defended flood level of 4.62m AOD as no undefended 0.5% flood levels have been provided by the EA. We have calculated the incremental SLR using the EA Flood Risk Assessment Climate Change Allowance guidance. This has produced a flood level of 5.75m AOD, 1 in 200 year (2125), Table 4.

5.12 The topography of the defences to the front of the building has a crest of ~6.3mAOD throughout the promenade. This is displayed in figure 12, which displays the LiDAR profile of the defences with the drop down to the beach.

5.13 Comparing the flood level to the flood defences to the front of the property indicates that as there will be a 0.55m difference between the defences and the flood level, this property is not likely to be affected by this event and as such can be considered safe for its lifetime (Figure 7).

5.14 A topographic survey of the ground floor has been instructed by the applicant which has demonstrated that the ground floor level is at minimum of 6.41mAOD. The ground floor level is therefore 0.66m greater than the defended 1 in 200 + CC (2125) flood level of 5.75m AOD.

5.15 The property has a lower ground floor/basement, with topographic levels of 3.77m AOD, when comparing flood levels against topographic levels, the depths are potentially 1.98m. As such no sleeping accommodation is to provided at ground floor level.

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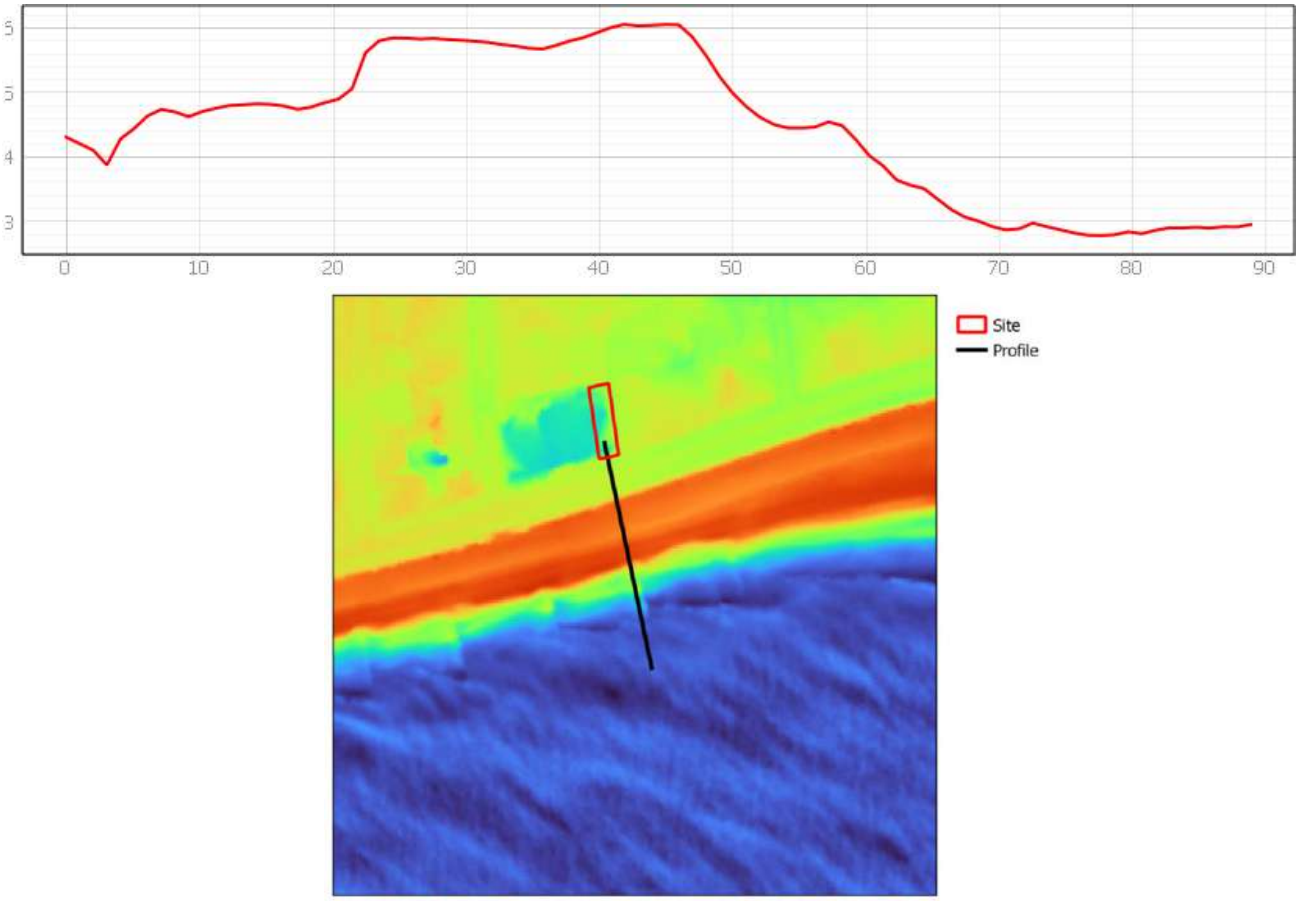

Figure 7: Profile of Flood Defences and Property

Baseline Year	2012					
Flood Level	4.62	1 in 200 defended				
	2000 to 2035	2036 to 2065	2066 to 2095	2096 to 2125		
	5.7	8.7	11.6	13.1		
	131.1	261	348	393	1.1331	
						YEAR
					5.7531	2125

Table 4: Modelled Flood Levels in Meters AOD

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Surface Water (Pluvial)

5.16 Data obtained from the DEFRA and EA Risk of Surface Water Flooding determined the development to be at risk of surface water flooding.

5.17 Within the 1 in 30 year event (3.3% AEP) (Figure 8) the property is at risk within the north of the property with depths up to 600mm, while the east side of the property experiences levels up to 300mm. There is minimum impact to access within this event however the main roads to the east and west are affected by levels up to 600mm.

5.18 For the 1 in 100 year event (1% AEP) (Figure 9) the property experiences flooding levels up to 900mm within the north of the development, while again levels to the eastern side of the property reach levels of 600mm. Access is slightly affected with flooding to the major roads to the east and west of the property however access to the south western road remains intact.

5.19 The 1 in 1000 year event (0.1% AEP) (Figure 10) covers the majority of the development site with max levels of 900mm found to the north western region of the site, levels of 600mm to the north east of the site and 600mm to the southern front of the development. In addition, access to the property is severely limited with all roads leading to the property experiencing flooding to levels of 900mm.

5.20 As the majority of the risk to the property appears to be from the rear of the building, it would be advisable to not develop any entrance ways in this area.

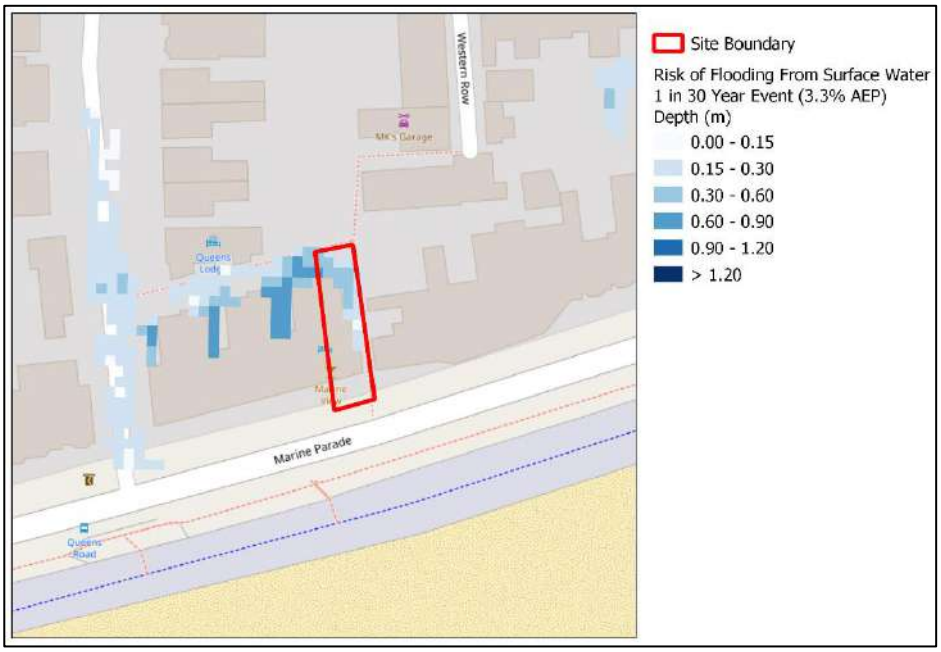

Figure 8: Risk of Flooding from Surface Water for a 1 in 30 Year event (3.3% AEP)

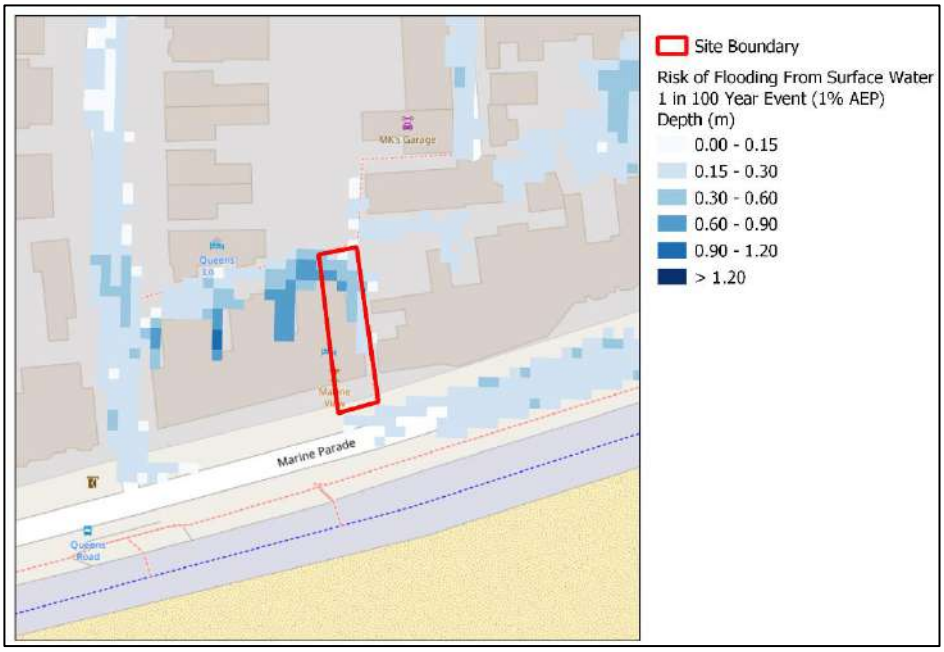

Figure 9: Risk of Flooding from Surface Water for a 1 in 100 Year Event (1% AEP)

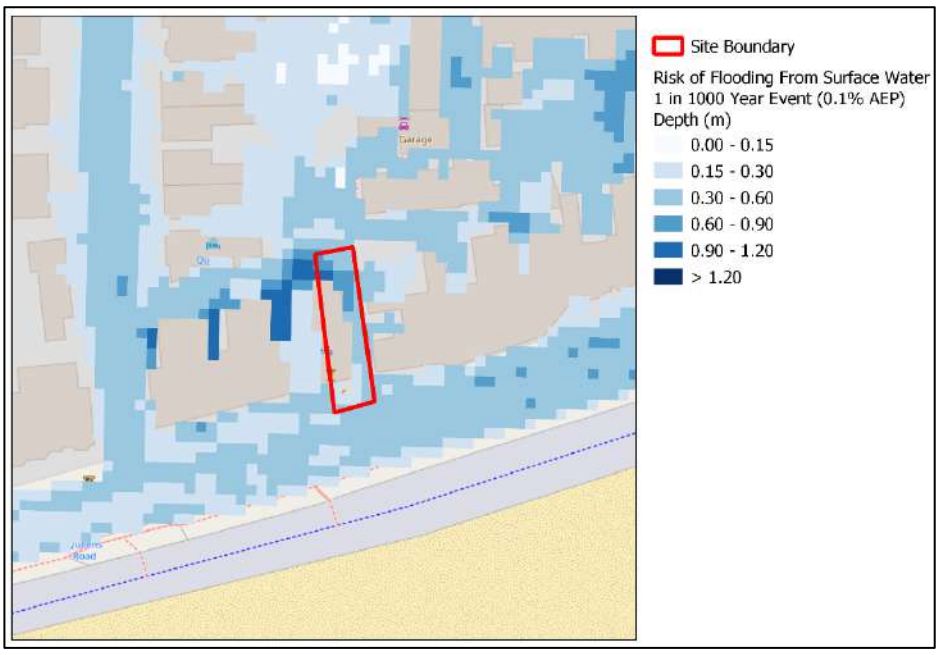

Figure 10: Risk of Flooding from Surface Water for a 1 in 1000 Year Event (0.1% AEP)

5.21 As such, the risk of surface water flooding to the proposed development could be considered **high risk.**

Groundwater

5.22 The Worthing SFRA indicates that the area is within an area of groundwater susceptibility where levels are between 0.05m and 0.5m below the ground surface (Figure 11). This indicates that although on the lower end, there is a slight risk of groundwater flooding.

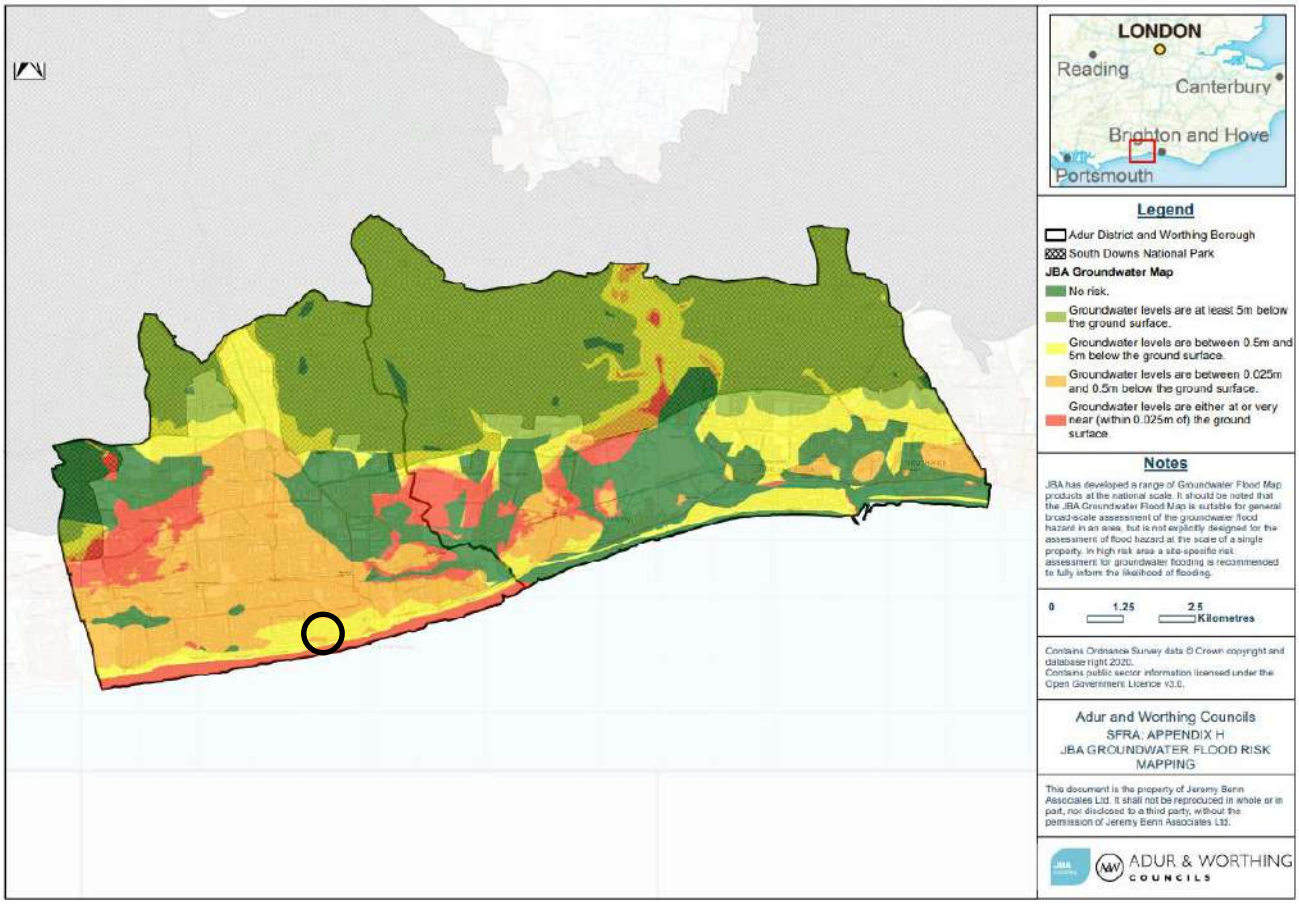

Figure 11: Groundwater Susceptibility Map For Worthing With Site Location Circled (Source: Worthing SFRA - JBA)

Sewer

5.23 Sewer flooding is mentioned within the Worthing SFRA as a cause of flooding with 3 recorded events occurring within the BN11 3 postcode region.

5.24 Sewer flooding was labelled the cause of a flooding event in 1980 within the property vicinity.

Records of Historical Flooding

5.25 Analysis of provided flood events provided by the EA has determined one past event within the proximity of the development site (Figure 12).

5.26 This has been identified within the Worthing SFRA as a past flood event due to surface water or sewer, with further identification by the EA as a drainage flood event in the 1980s.

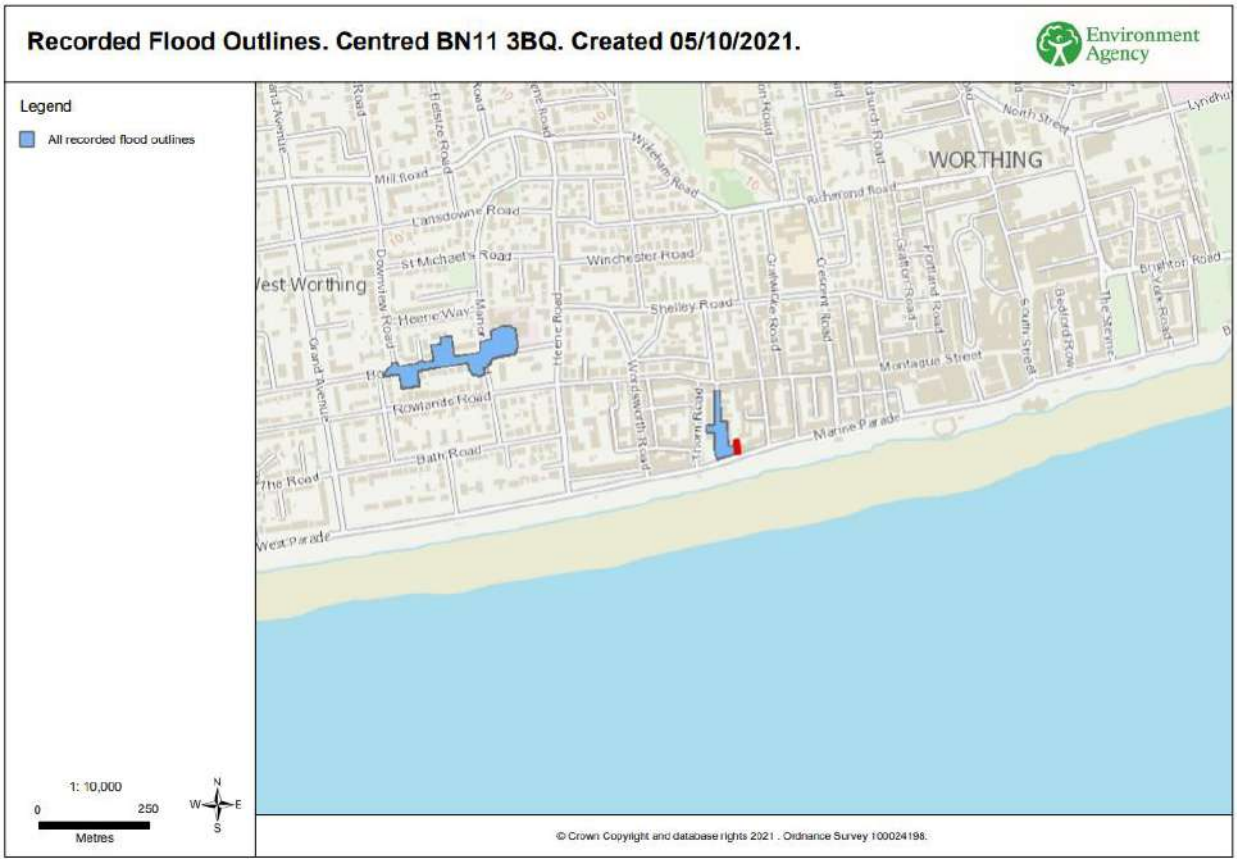

Figure 12: Past Flood Events and Property Location (Source: EA)

6. Probability of Flooding

Flood Zones

6.1 According to the EA Flood Map for Planning, the site is located within Flood Zone 3.

6.2 The EA Flood Map for Planning has been produced in part using a relatively coarse, national scale flood modelling strategy, and in part by detailed modelling. For reference, the definition of the NPPF flood risk zones is included below.

Table 3: Definition of the NPPF Flood Zones. (Source: EA/PPG)

Zone	Description
1	**Low Probability.** This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).
2	**Medium Probability.** This zone comprises land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% – 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% – 0.1%) in any year.
3a	**High Probability.** This zone comprises 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.
3b	**The Functional Floodplain.** This zone comprises land where water has to flow or be stored in times of flood. SFRA's should identify this Flood Zone (land which would flood with an annual probability of 1 in 20 (5%) or greater in any year or is designed to flood in an extreme (0.1%) flood, or at another probability to be agreed between the LPA and the EA, including water conveyance routes).

7. Residual Risks

Identification of Residual Risks

7.1 Residual risks are those remaining after applying the sequential approach to the location of development and taking mitigating actions. Examples of residual flood risk include:

- the failure of flood management infrastructure such as a breach of a raised flood defence, blockage of a surface water conveyance system, overtopping of an upstream storage area, or failure of a pumped drainage system.
- failure of a reservoir, or;
- a severe flood event that exceeds a flood management design standard, such as a flood that overtops a raised flood defence, or an intense rainfall event which the drainage system cannot cope with.

Defence Breach/Overtopping

7.2 The site currently benefits from flood defences on the Worthing sea front, with the main defence as a promenade and consisting of a sand and shingle beach and groynes.

7.3 Tidal flood defences are at a level of ~6.3m, whereas the provided flood levels from the EA (displayed in table 3) reach max levels of 5m. This indicates that the risk of overtopping/breaching is minimum.

Reservoir Failure

7.4 The EA Risk from Reservoir Failure Map demonstrates that the site is not at risk of reservoir overtopping.

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8. Flood Risk Management Measures

Flood Risks

8.1 The site is currently a guest house/hotel building with the proposed development aiming to be a change of use to flats spanning from the lower ground floor to the upper floors.

8.2 The major flood risk is that of surface water flooding, with tidal flooding not likely to occur due to flood defences in place.

8.3 The following mitigation measures are recommended:

- Site owners and occupants to sign up to the EA Flood Alert/Warning Service.
- The development will include a new perimeter wall to the amenity area of the lower ground flood which is viewed as a secondary defence against flood risk.
- No sleeping accommodation at the lower ground floor / basement level.

Flood Alert and Warning Service

8.4 The EA operates a 24-hour telephone service on 0345 988 1188 that provides frequently updated flood warnings and associated floodplain information. Further information can be found on www.environment-agency.gov.uk/floodline. Floodline Alert and Warnings Direct is a free service operated by the EA that provides flood alerts and warnings direct to occupants by telephone, mobile phone, fax or pager.

8.5 Aegaea have accessed the service and can confirm that flood alerts and warnings are possible within this area. It is strongly recommended that the owner signs up to these alerts to provide betterment.

Flood Evacuation Plan

8.6 Upon receipt of a Flood Warning/Flood Alert, users of the site are recommended to evacuate the site to a designated place of safe refuge within Flood Zone 1.

8.7 The proposed evacuation route would be to travel north from the property up Queen Road and Byron Road before travelling east of Shelly Road and taking refuge within the Our Lady of Sion School (Figure 13).

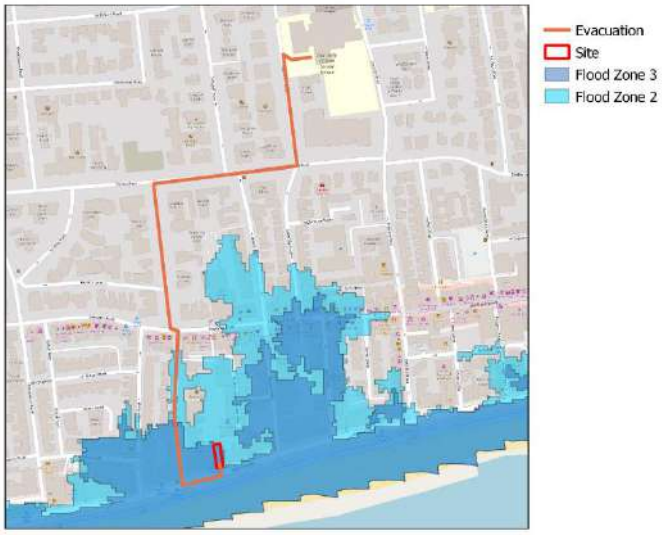

Figure 13: Evacuation Route

8.8 Should this evacuation plan not be possible it would be advisable for the residents of the lower floors to reach the higher floors of the property to take refuge as these floors are likely to be higher than the flood levels.

9. Off Site Impacts

Impact to Flood Risk Elsewhere

9.1 As the proposed development is a simply a change of use application for a current guesthouse/hotel into flats there will not be any significant alteration to flood risk elsewhere.

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10. Conclusion

10.1 Aegaea has been appointed by the applicant to undertake a NPPF compliant FRA for the proposed development at 111 Marine Avenue, Worthing, Sussex, BH11 3QG

10.2 The site is currently a residential property of 'more vulnerable' uses, with the proposed development a change of use from a guest house/hotel into flats with dwellings spanning from the lower ground floor to the upper floors with no sleeping at lower ground/basement level.

10.3 The EA Flood Map has placed the property within Flood Zone 3, however, further information obtained from the EA has stated that the property is below flood levels and thus can be considered at low risk.

10.4 The site is at risk of surface water flooding, with all the presented events (3.3% AEP, 1% AEP, and 0.1% AEP) demonstrated to affect and impact the property.

10.5 Following the guidelines within the NPPF the proposed development is likely to be suitable.

10.6 As such, and given that:

- The development is for a change of use application from current hotel dwellings to residential dwellings
- Analysis of the defended 1 in 200 + CC event against the crest height of the defences (beach) has demonstrated that the Site should not be affected.
- The Shoreline Management Plan at this location is Hold the Line.
- A perimeter wall be will added to the amenity area of the lower ground floor to provide a secondary defence.
- Finished floor levels of the development will be set no lower than that of the existing property, with the ground floor dwelling designed as a mezzanine with no sleeping at lower ground / basement level.

Following the guidelines contained within the NPPF, the proposed development could be considered suitable assuming appropriate mitigation (including adequate warning procedures) can be maintained for the lifetime of the development.

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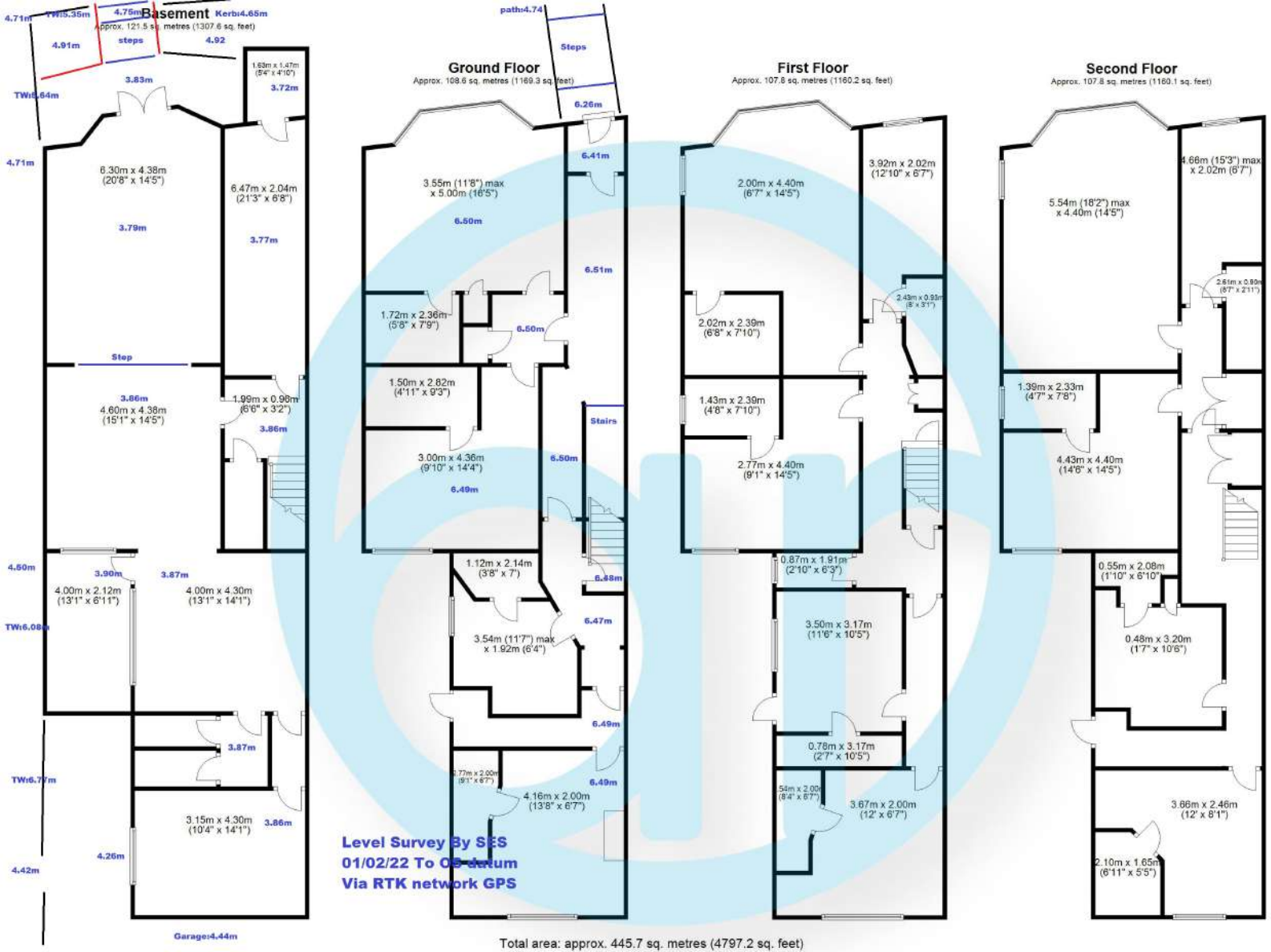
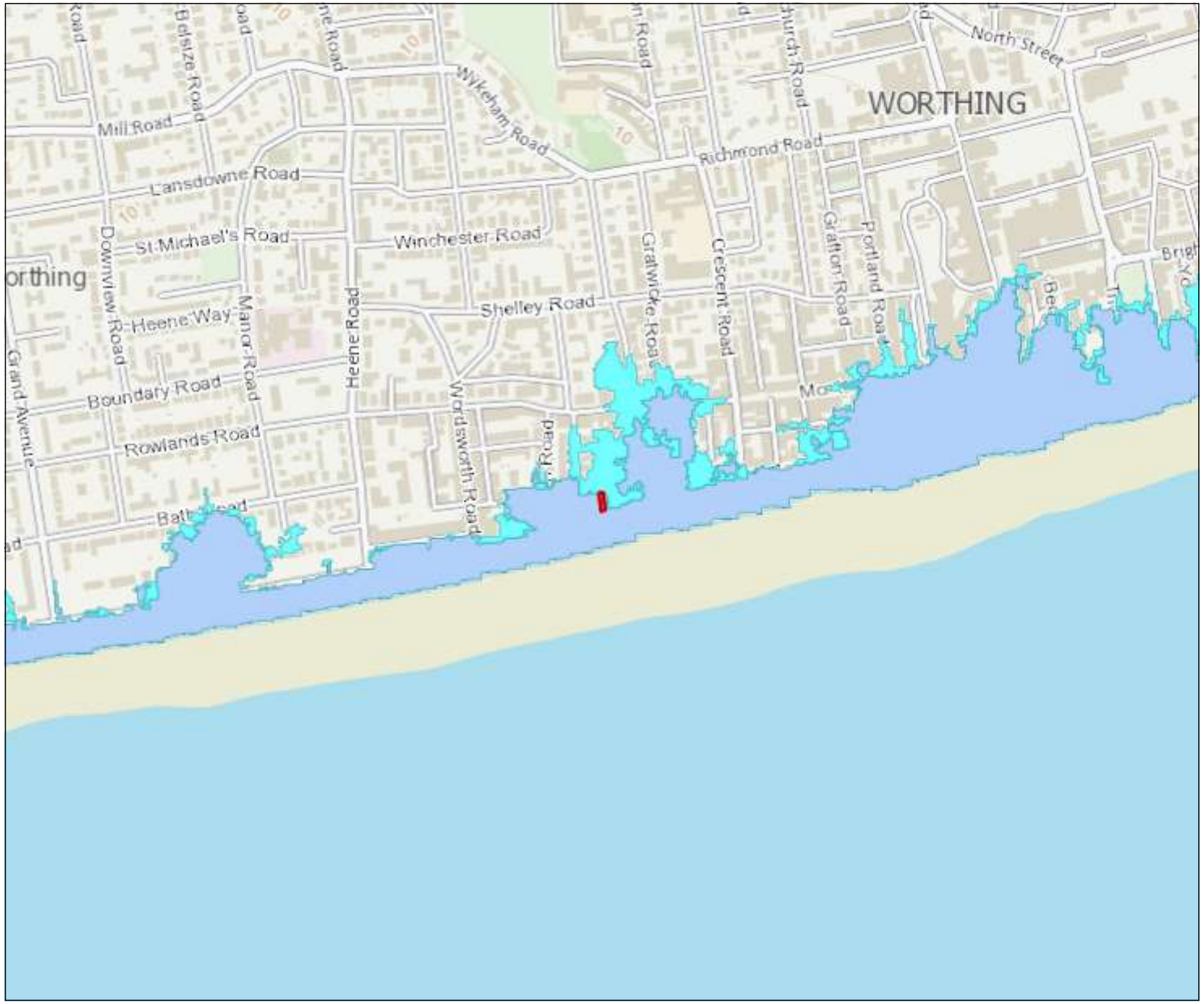


Total area: approx. 445.7 sq. metres (4797.2 sq. feet)

Flood Map for Planning (Rivers and Sea). Centred BN11 3BQ. Created 05/10/2021.



Environment Agency

1: 10,000

0 Metres 250

N W E S

Flood Map for Planning (Rivers & Sea)

- Defences
- Flood Storage Areas
- Areas benefiting from flood defences
- Flood Zone 3
- Flood Zone 2

Flood Map Areas (assuming no defences)

Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 1 in 200 or greater chance of happening each year
- or from a river with a 1 in 100 or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to a 1 in 1000 chance of occuring each year.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

FRA Site Boundary & Node Points. Centred BN11 3QG. Created 05/10/2021.

Legend

- Site Nodes
- Site Boundary

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.

Scale: 1:1,000

0 0.0225 0.045
Kilometers

Product 4 Flood Risk Data Requested by: Aegaea

Site: 111 Marine Parade, Worthing, BN11 3QG

Table 1: Water Levels: Tidal Undefended

	NGR		Modelled Flood Levels in Metres AOD Undefended Annual Exceedance Probability				
Node Ref	Eastings	Northings	5%	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514279	102238	-	-	-	5.23	-
2	514278	102253	-	-	-	5.23	-

Table 2: Water Levels: Tidal Defended

	NGR		Modelled Flood Levels in Metres AOD Defended Annual Exceedance Probability				
Node Ref	Eastings	Northings	5%	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514279	102238	4.36	4.62	5.00	4.64	4.83
2	514278	102253	4.32	4.62	5.00	4.64	4.83

Table 3: Water Depths: Tidal Undefended

	NGR		Modelled Flood Depths in Metres Undefended Annual Exceedance Probability				
Node Ref	Eastings	Northings	5%	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514279	102238	-	-	-	1.19	-
2	514278	102253	-	-	-	1.24	-

Table 4: Water Depths: Tidal Defended

	NGR		Modelled Flood Depths in Metres Defended Annual Exceedance Probability				
Node Ref	Eastings	Northings	5%	0.5%	0.5% (2070)*	0.5% (2115)*	0.1%
1	514279	102238	0.31	0.57	0.95	0.59	0.79
2	514278	102253	0.16	0.44	0.83	0.47	0.66

All levels taken from: Arun to Adur Coastal Modelling

Produced on: 05/10/2021

*** The flood risk data provided is based on existing EA hydraulic models with an allowance for climate change. Please note the climate change allowances provided are not up to date. These were updated on 27 July 2021.**

You should refer to 'Flood risk assessments: climate change allowances' for the most up to date allowances. You will need to undertake further assessment of future flood risk using different allowances to ensure your assessment of future flood risk is based on best available evidence.

There is no additional information or health warnings for these levels/depths or the model from which they have been produced.

Office Address: Guildbourne House, Chatsworth Road, Worthing BN11 1LD.
Customer services line: 03708 506 506. Email: enquiries@environment-agency.gov.uk
www.gov.uk/government/organisations/environment-agency

Recorded Flood Outlines. Centred BN11 3BQ. Created 05/10/2021.

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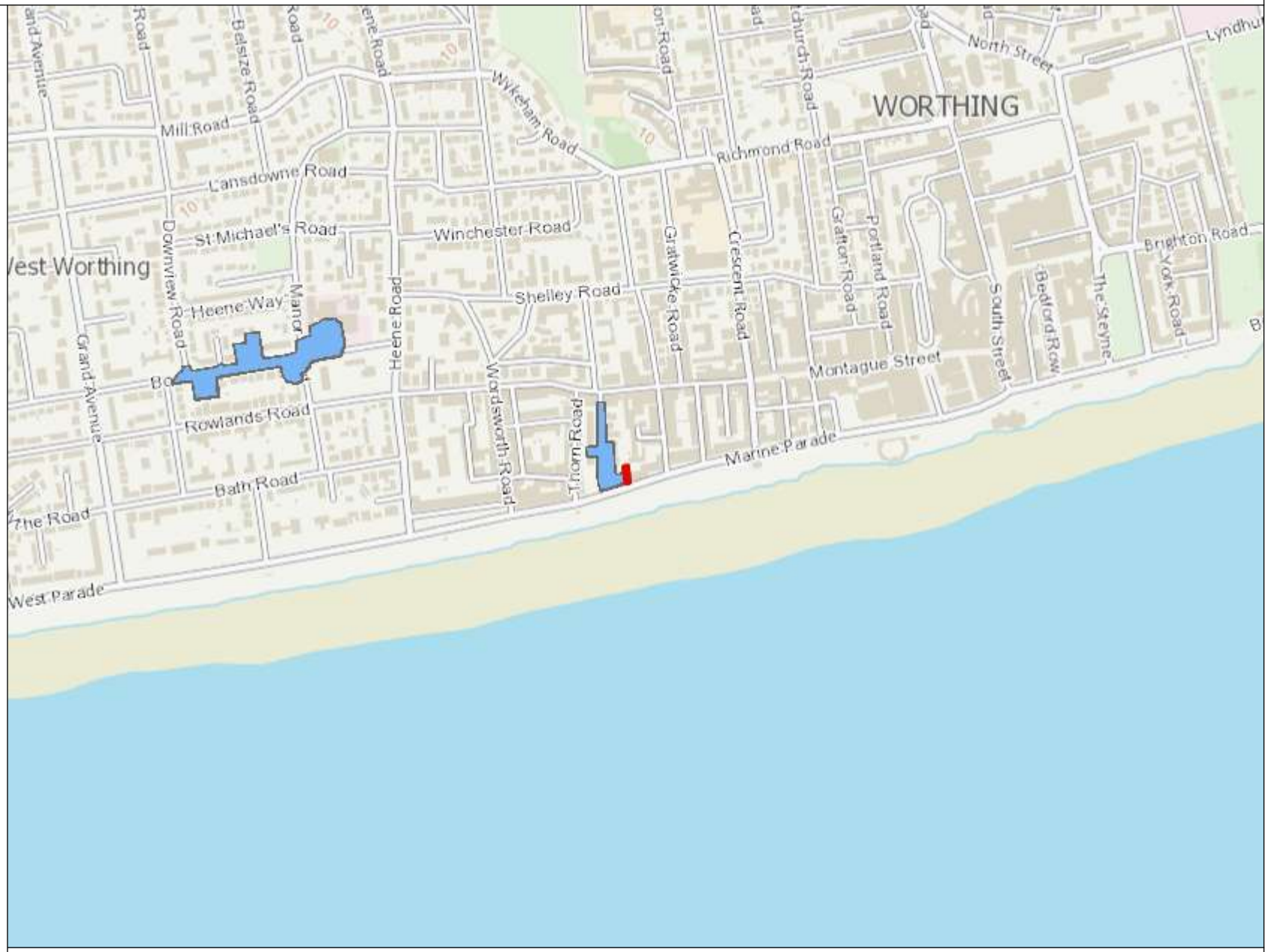
Legend

All recorded flood outlines



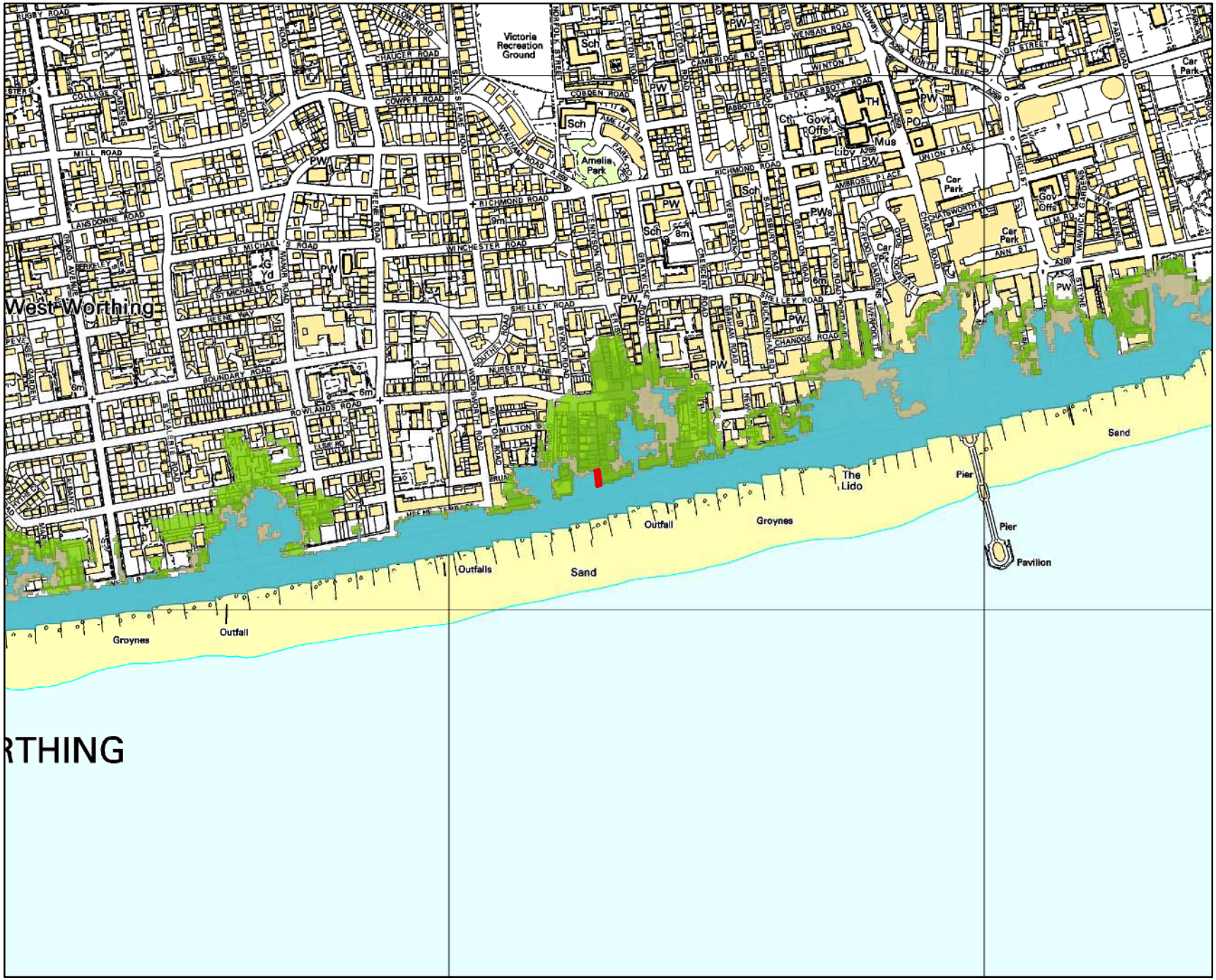
1: 10,000

0 250

Metres

N W E S

Modelled Flood Outlines (Defended Tidal). Centred BN11 3QG. Created 05/10/2021.



Environment Agency

N

Legend

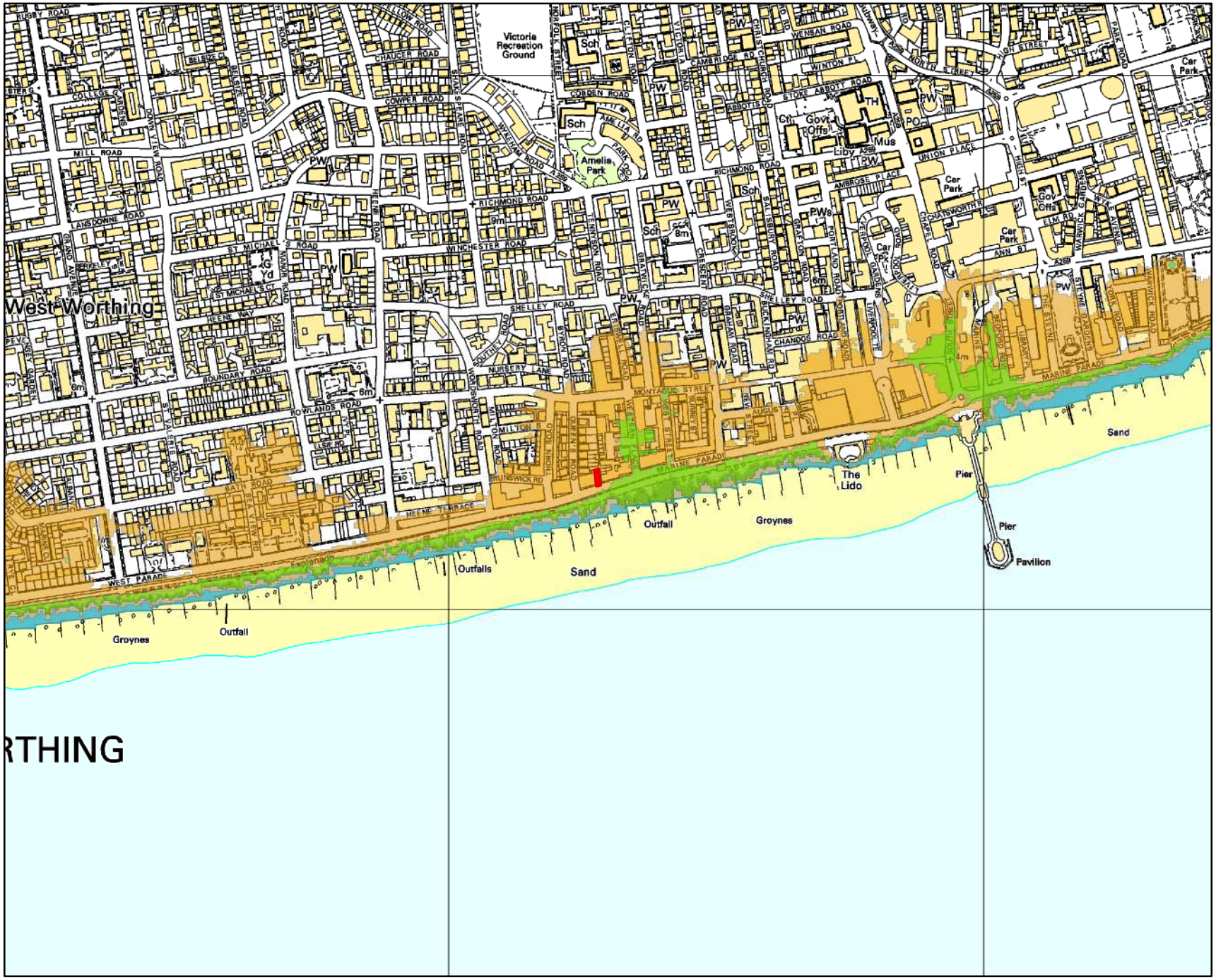
- Site Boundary
- 5% AEP (2012) (Defended)
- 0.5% AEP (2012) (Defended)
- 0.5% AEP (2070) (Defended)
- 0.5% AEP (2115) (Defended)
- 0.1% AEP (2012) (Defended)

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.

Scale: 1:10,000

0 0.225 0.45
Kilometers

Modelled Flood Outlines (Undefended Tidal). Centred BN11 3QG. Created 05/10/2021.



Environment Agency

N

Legend

- Site Boundary
- 5% AEP (2012) (Undefended)
- 0.5% AEP (2012) (Undefended)
- 0.5% AEP (2070) (Undefended)
- 0.5% AEP (2115) (Undefended)
- 0.1% AEP (2012) (Undefended)

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.

Scale: 1:10,000

0 0.225 0.45
Kilometers