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ENVIRONMENTAL ASSESSMENT

Flood Risk Assessment

Seacrest,
Gutner Lane,
Hayling Island,
Hampshire,
PO11 0RN

Document Issue Record

Project: Phase 1 Flood Risk Assessment

Prepared for: Charlie Allchurch

Reference: 4934

Site Location: Seacrest, Gutner Lane, Hayling Island, Hampshire, PO11 0RN

Proposed Development: It is understood that the development is for the change of use of an existing detached garage to create a habitable annexe, with minor external alterations to the main dwelling.

Consultant		Date	Signature
Author	Mona Cowman	13/11/2019	
Document Check	Lydia Sayers	14/11/2019	
Authorisation	Steven Brown	21/11/2019	

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Contact Us:

Ambiental Environmental Assessment
Sussex Innovation Centre,
Science Park Square,
Brighton, BN1 9SB

www.ambiental.co.uk

UK Office: +44 (0) 203 857 8540 or +44 (0) 203 857 8530

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1. Summary

- 1.1 Ambiental Environmental Assessment has been appointed by Charlie Allchurch to undertake a National Planning Policy Framework (NPPF) compliant Flood Risk Assessment (FRA) for the proposed development at Seacrest, Gutner Lane, Hayling Island, Hampshire, PO11 0RN.
- 1.2 It is understood that the development is for the change of use of an existing detached garage to create a habitable annexe. External alterations are additionally proposed to the main dwelling but are not considered for the purposes of this assessment, being minor in scale and insignificant with respect to flood risk. This report therefore considers only the flood risk to the proposed annexe.
- 1.3 With reference to the Environment Agency (EA) Flood Map for Planning, the proposed development is located within Flood Zone 3. The proposed development is considered 'More Vulnerable' under the National Planning Policy Framework (NPPF).
- 1.4 The site is partially bounded by Emsworth Channel, which is tidal. Emsworth Channel opens onto the English Channel, which is located approximately 5km south of site.
- 1.5 The site is not considered to benefit from EA tidal defences to a 1 in 200-year standard of protection. There are tidal defences within the vicinity of site, but they have a variable standard of protection (1 in 10-year to 1 in 200-year) and are of variable condition (Fair to Very Poor).
- 1.6 The North Solent Shoreline Management Plan (2010) identifies the site as being located within Policy Unit 5aH103, for which the short, medium and long-term policy for coastal defences is to 'Hold the Line'. The North Solent Shoreline Management Plan (2010) however, identifies that public funding was not available for maintenance and improvement works at the time of publication of the SMP.
- 1.7 In a present day 1 in 200-year tidal flood event, maximum flood depths at the annexe would be 1.07m, with flood depths of 2.18m anticipated in the year 2115 in a 1 in 200-year event. Due to the potentially high flood depths at and within the vicinity of the site, **subscription to the EA Flood Alert and Warning Service would be considered crucial and prior evacuation is recommended.**
- 1.8 **It is proposed that a formal arrangement is maintained between the residents of the existing dwelling, and the residents of the annexe, such that safe refuge would be offered at first floor level in the existing residential dwelling in a flood event.**
- 1.9 As such, and given that,
 - The proposed development is for an internal change of use of an existing garage;
 - The site is with an EA Flood Alert and Warning Service Area. Due to potentially high flood depths, prior evacuation would be considered vital;
 - A formal arrangement is undertaken such that safe refuge is available for annexe residents at first floor level of the main residential dwelling, in a flood event.

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

Development Description	Existing	Proposed
Development Type:	Detached Garage	Change of use of existing garage to residential dwelling (annexe).
Number of Bedrooms:	None	1 x bedroom
EA Vulnerability Classification:	Less Vulnerable	More Vulnerable
Ground Floor Level:	Topographic levels on site vary between approximately 1.52mAOD and 3.61mAOD (2m LiDAR data).	Internal change of use.
Level of Sleeping Accommodation:	None	Ground floor
Impermeable Surface Area:	Existing garage: 66m ²	Internal change of use only
Surface Water Drainage:	N./A ¹	Internal change of use only. It is expected that the existing drainage strategy associated with the existing building may be adopted
Site Size:	Red line site boundary: 2Ha Existing garage: 66m ²	Unchanged. Internal change of use of existing garage.
Risk to Development	Summary	Comment
EA Flood Zone:	3	
Flood Source:	Tidal	Emsworth Channel/English Channel
1:200 Year Flood Level	3.45mAOD	Highest modelled flood levels on site, from the East Solent tidal model (EA).
1:200 Year Flood Level & Climate Change	4.56mAOD	
1:1000 Year Flood Level	3.62mAOD	
Recorded Flood Events in Area:	Yes	1981, 2008
Recorded Flood Events at Site:	Yes	1981, 2008
SFRA Available:	Yes	Partnership for Urban South Hampshire (PUSH) SFRA (2016)
Management Measures	Summary	Comment
Ground floor level above extreme flood levels:	No	Unfeasible to raise floor level above present-day 1 in 200-year flood level due to floor to ceiling height limitations.
Safe Access/Egress Route:	No	Prior evacuation required in conjunction with EA Flood Alert and Warning Service.
Flood Resilient Design:	Yes	Section 7 of this report
Site Drainage Plan:	Yes	Internal change of use only. It is expected that the existing drainage strategy associated with the existing building may be adopted.
Flood Warning & Evacuation Plan:	Yes	EA Flood Alert and Warning Service
Offsite Impacts	Summary	Comment
Displacement of floodwater:	No	Internal change of use only.
Increase in surface run-off generation:	No	Internal change of use only.
Impact on hydraulic performance of channels:	No	Does not affect channel.

Table 1 Summary of flood risks, impacts and proposed flood mitigation measures.

N/A¹ not required for this assessment; N/A² data not available.

2. Development Description and Site Area

Proposed Development and Location

- 2.1 The proposed development is located at Seacrest, Gutner Lane, Hayling Island, Hampshire, PO11 0RN (Figure 1 and Figure 2).
- 2.2 It is understood that the development is for the change of use of an existing detached garage to create a habitable annexe. This would be a self-contained single-storey residential dwelling. External alterations are additionally proposed to the main dwelling but are not considered for the purposes of this assessment, being minor in scale and insignificant with respect to flood risk. This report, therefore, considers only the flood risk to the proposed annexe.
- 2.3 Topographic levels across the redline site boundary vary between approximately 1.52mAOD and 3.61mAOD (2m LiDAR data). Analysis of the topographic levels indicates that the site generally slopes to the south. The average topographic level within the vicinity of the existing annexe is 2.38mAOD.

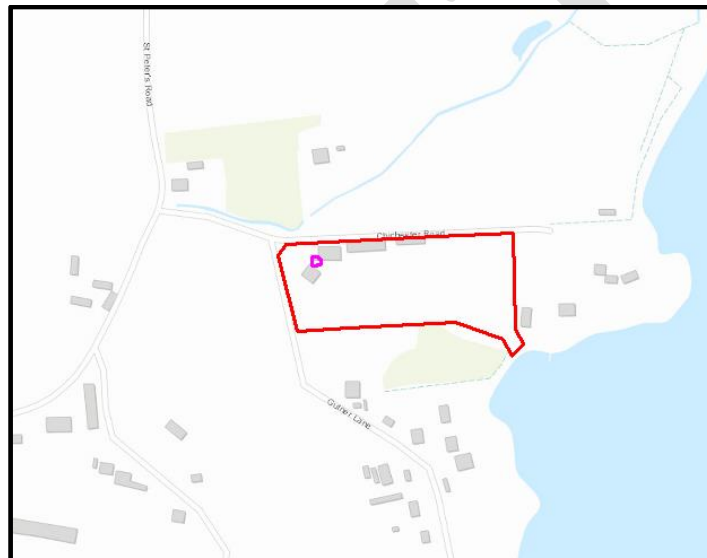


Figure 1 Location Map, identifying the redline boundary of the site (Source: OS). Pink rectangle represents annexe.



Figure 2 Aerial Map, identifying the location of the proposed development (Source: Google)

Vulnerability Classification

- 2.4 The EA Flood Map for Planning (Figure 3) demonstrates that the proposed development lies within Tidal Flood Zone 3 with a high probability of greater than 1 in 200 (0.5%) of flooding from seas or tidal estuaries in any year.
- 2.5 Under the principles of NPPF the existing residential dwelling would be considered 'More Vulnerable'. The detached garage, when considered in isolation would be considered 'Less Vulnerable'. The proposed development for change of use of the existing detached garage to residential use would be considered 'More Vulnerable'.

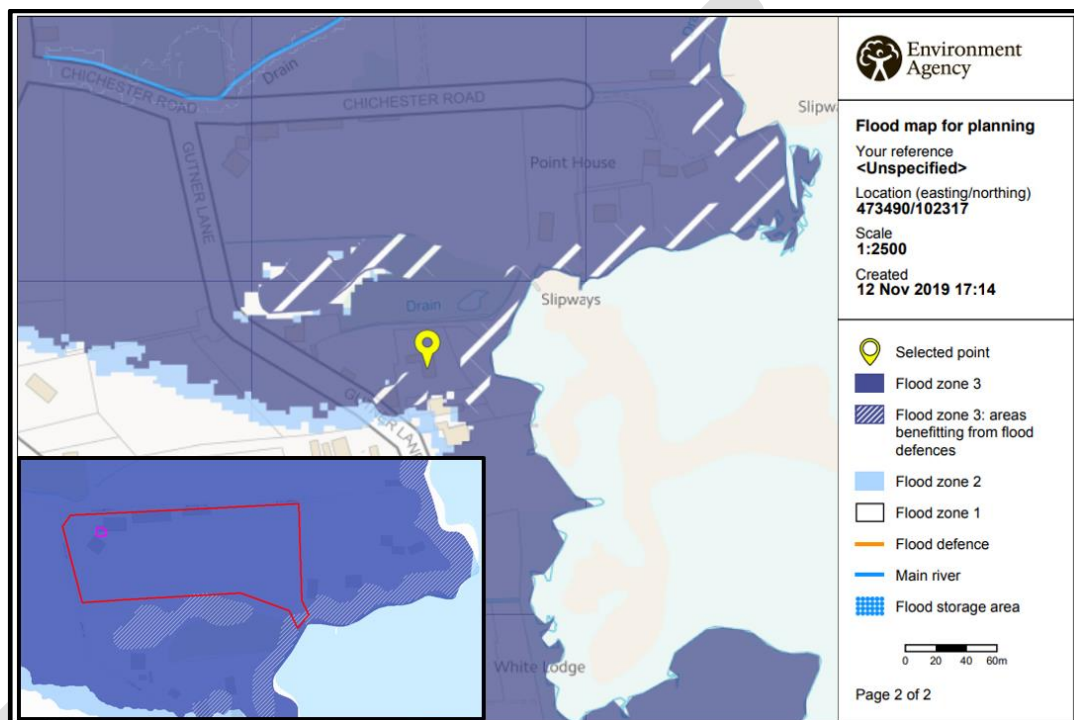


Figure 3 EA Flood Map for Planning. Inset shows zoom view with redline site boundary overlain

Geology

- 2.6 The British Geological Survey (BGS) Geology of Britain Viewer indicates that the bedrock underlying the site is the Lambeth Group comprising clay, silt and sand.
- 2.7 The British Geological Survey (BGS) Geology of Britain Viewer indicates that the superficial deposits underlying the site are undifferentiated River Terrace Deposits, comprising sand, silt and clay.

3. Sequential Test/Exception Test

- 3.1 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.
- 3.2 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 <i>Functional Floodplain</i>	Exception Test Required	✓	✗	✗	✗

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

- 3.3 The existing annexe is located within Flood Zone 3. Flood Zone 3 may be further subdivided into Flood Zones 3a and 3b, which may be identified using EA flood models or SFRA data, where available. Analysis of EA data in Section 4 of this report demonstrates that the site would be inundated in a 1 in 200-year event, which is the definition of Flood Zone 3b-the functional floodplain (Table 6).
- 3.4 Planning Practice Guidance paragraph 7-015-20140306 describes **exceptions to the functional floodplain** (Flood Zone 3b) as follows;
- 'areas which would naturally flood, but which are prevented from doing so by existing defences and infrastructure or **solid buildings**, will not normally be identified as functional floodplain'.*
- 3.5 As the proposed development is for a change of use of the existing solid building (garage), the proposed development may be considered to be in Flood Zone 3a. Development in Flood Zone 3a requires application of the Exception Test (Table 2).
- 3.6 In order to address the requirements of the Exception test, the purpose of this Flood Risk Assessment is in demonstrating that the proposed development may be achieved in a sustainable manner, with no increase of flood risk on site or elsewhere.

4. Site Flood Hazards

Sources of Flooding

- 4.1 The proposed development is located within Flood Zone 3 (high risk of flooding) and is considered to be 'More Vulnerable' according to NPPF guidelines. Table 3 summarises the potential sources of flooding to the site:

Source	Description
Tidal	High Risk; Emsworth Channel/English Channel
Surface	Low Risk
Groundwater	Medium Risk
Sewer	Unknown Risk

Table 3 Summary of flood sources.

Mechanisms and History of Flooding

- 4.2 The EA Flood Map for Planning demonstrates the site to be located within Flood Zone 3 (high risk of flooding). It is important to note that the EA Flood Map for Planning shows only the potential floodplain; the mitigating effects of any flood defences currently in place are not considered.

Flood Defences

- 4.3 The EA Flood Map for Planning (Figure 3) demonstrates that the redline boundary of the site is not considered to benefit from EA tidal defences to a 1 in 200-year standard of protection. However, areas to the south and east of site are considered to benefit from defences.
- 4.4 The EA has provided details of the tidal defences within the vicinity of site (see Appendix II). The design standard of protection of tidal defences in the vicinity of site is variable, from 1 in 10 year to 1 in 200-year, with the defences varying in nature from high ground to embankments. The condition of the 1 in 10-year defences is described as 'Fair'. However, the 1 in 200-year defences are described as being in a 'Very Poor' condition.
- 4.5 The North Solent Shoreline Management Plan (2010) identifies the site as being located within Policy Unit 5aH103 -Northeny Farm to Megham. The short, medium and long-term policy for Policy Unit 5aH103 is to 'Hold the Line', which is to maintain or upgrade the level of protection provided by the existing coastal defences. The North Solent Shoreline Management Plan (2010) however, identifies that public funding was not available for maintenance and improvement works at the time of publication of the SMP (Table 4).

Policy Unit	Epoch 1 0-20 years	Epoch 2 (20-50 years)	Epoch 3 (50-100 years)
5aH103	Hold the Line (No Public Funding Available)	Hold the Line (No Public Funding Available)	Hold the Line (No Public Funding Available)

Table 4 Coastal defence policy for PU 5aH103 (Source: North Solent Shoreline Management Plan, 2010)

Tidal

- 4.6 A slipway in the south-eastern corner of site connects the site to the tidal Emsworth Channel, which is an EA main river. The Emsworth Channel opens onto the English Channel, which is approximately 5km south of site.
- 4.7 Pound Marsh Drain, also an EA main river, is located approximately 10m to the north-west of site. Two unnamed drains drain the eastern area of the site in a north-easterly direction (Figure 4).



Figure 4 River network in vicinity of site. Blue rivers are EA main rivers. Black are drains. (Source: EA)

- 4.8 The EA has provided 21 modelled tidal levels for site from the East Solent tidal model (date not supplied), of which the highest modelled level has been selected for the purposes of this assessment, being representative of 'worst case scenario' tidal flooding. It is not stated if the modelled tidal levels are for the defended or undefended scenario.
- 4.9 In a present day 1 in 200-year tidal flood event, flood levels on site would be 3.45mAOD (Table 5). **Maximum flood depths at the annexe would be 1.07m in a 1 in 200-year event**, assuming topographic levels of 2.38mAOD in the vicinity of the annexe. Climate change is considered in Section 5 of this report.

East Solent model	1 in 200-year 5% AEP (mAOD)	1 in 1000-year 0.1% AEP (mAOD)
Tide Level (2015)	3.45	3.62

Table 5 Maximum present-day tide levels on site (Source: EA East Solent Model).

- 4.10 The Partnership for Urban South Hampshire (PUSH) SFRA online mapping tool demonstrates that in a present day 1 in 200-year tidal breach, the flood hazard to people within the vicinity of the existing buildings on site would be 'High Risk' with areas of 'Very High Risk' elsewhere on site (Figure 5).

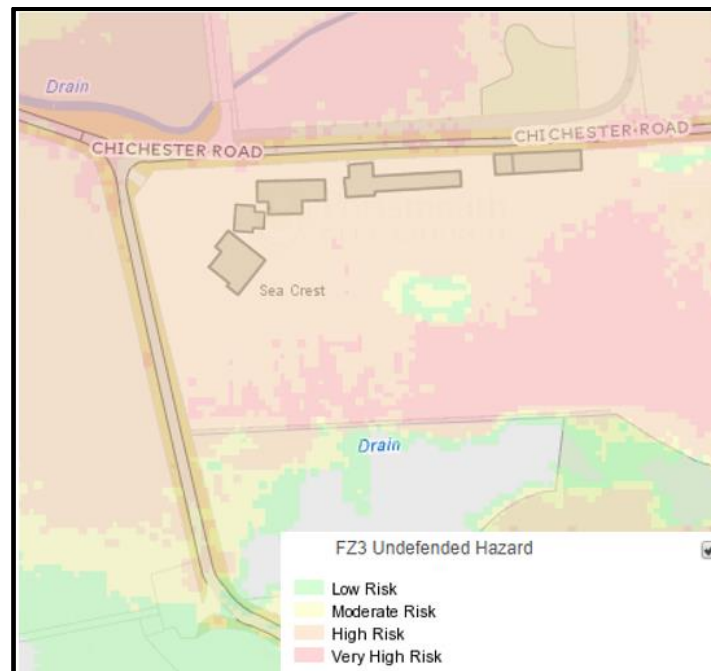


Figure 5 Flood hazard to people in 1 in 200-year undefended tidal event (Source: PUSH SFRA online mapping resource)

Surface Water (Pluvial)

- 4.11 The Environment Agency Flood Risk from Surface Water map (Figure 7) shows the proposed development to be within an area of 'Very Low' risk of flooding from surface water. Areas identified to be at 'Very Low' risk have a less than 0.1% annual risk of flooding from this source.
- 4.12 The EA Surface Water Flood Depth Map for the Low Risk Scenario (Figure 7) indicates that the proposed development would not be affected in this event. Pound Marsh Drain, to the north of site, may locally experience maximum flood depths of over 900mm in this event. A Low Risk Scenario has a 0.1% to 1% annual risk of occurring.

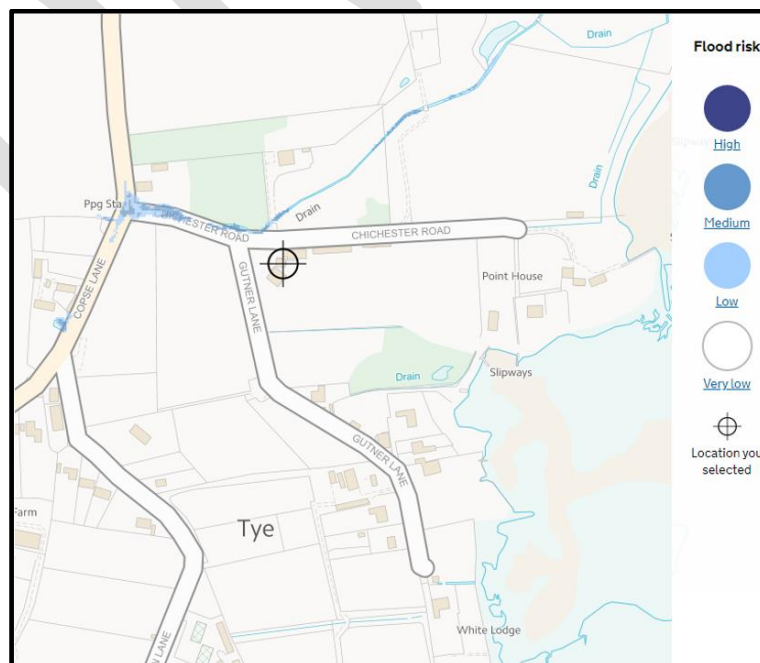


Figure 6 EA Surface Water Flood Risk Map. (Source: EA)

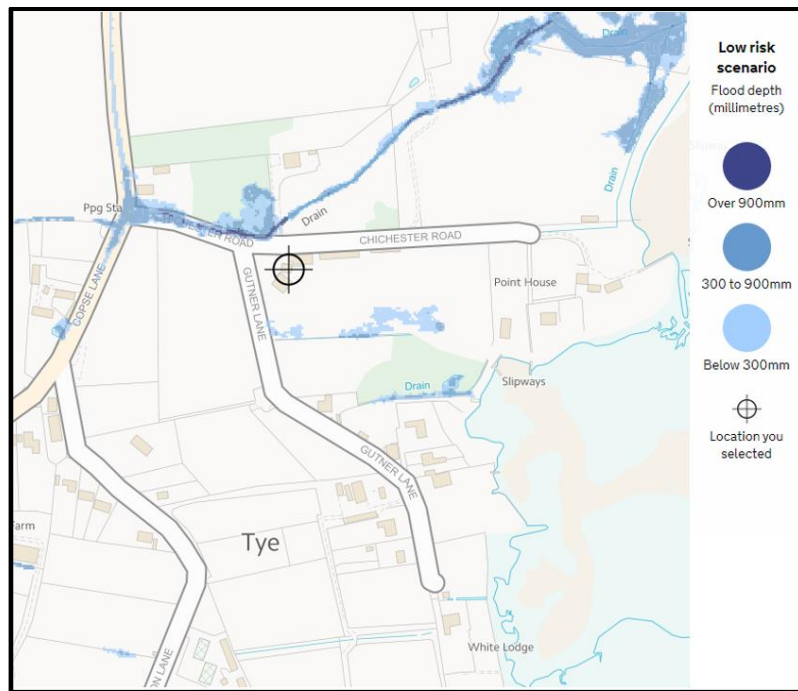


Figure 7 Surface Water Depths for a Low Risk Scenario. (Source: EA)

Groundwater

- 4.13 The British Geological Survey (BGS) Geology of Britain Viewer indicates that the bedrock underlying the site is Lambeth Group. This formation is considered to be a Secondary 'A' aquifer (Source: EA; Magic Map online resource). A Secondary 'A' aquifer is permeable, supporting water supplies at a local scale and may contribute to base flow of rivers.
- 4.14 The British Geological Survey (BGS) Geology of Britain Viewer indicates that the superficial deposits underlying the site are undifferentiated River Terrace Deposits. This formation is also Secondary 'A' aquifer (Source: EA; Magic Map online resource).
- 4.15 The site is not within an EA groundwater Source Protection Zone.
- 4.16 The Partnership for Urban South Hampshire (PUSH) SFRA online mapping tool¹ demonstrates the site to be within an area where the bedrock permeability is considered 'high' (Figure 8). However, there have been no recorded incidents of groundwater flooding within the vicinity of site.
- 4.17 The PUSH SFRA (2016) states that a number of areas in Winchester, Test Valley and East Hampshire have been affected by groundwater flooding, most notably during flood events of winter 2013/14.
- 4.18 The risk of groundwater flooding to the site may be considered **medium**.

¹ <https://www.portsmouth.gov.uk/SiteElements/Html/PUSHLive-Server.html>

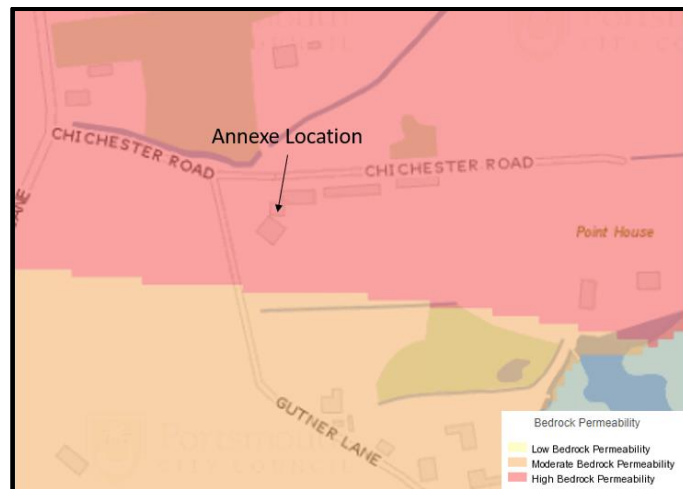


Figure 8 Bedrock permeability. (Source: PUSH SFRA online resource, accessed 2019)

Sewer

- 4.19 The Partnership for Urban South Hampshire (PUSH) SFRA online mapping tool does not indicate any flooding from 'other sources' within the vicinity of site. The risk to site from sewer flooding may be considered low.

Surface Water Drainage Strategy

- 4.20 It is understood that the development is for the change of use of an existing detached garage to create a habitable annexe, with minor external alterations to the main dwelling.
- 4.21 The proposed development is for an internal change of use, and therefore surface water runoff rates and volumes would be considered unlikely to be modified post-development. It is anticipated that the existing surface water drainage strategy associated with the existing annexe may be adopted.
- 4.22 Betterment may be achieved through the implementation of a Rain Water Harvesting system (water butt).

Records of Historical Flooding

- 4.23 The EA holds historic records of tidal flooding within Havant borough (Figure 9). The majority of the site (excluding the south-east corner) is located within the indicative flooding extents for a tidal event in 2008. The north-western corner of site is within the indicative flood extents for a tidal flood event in 1981.

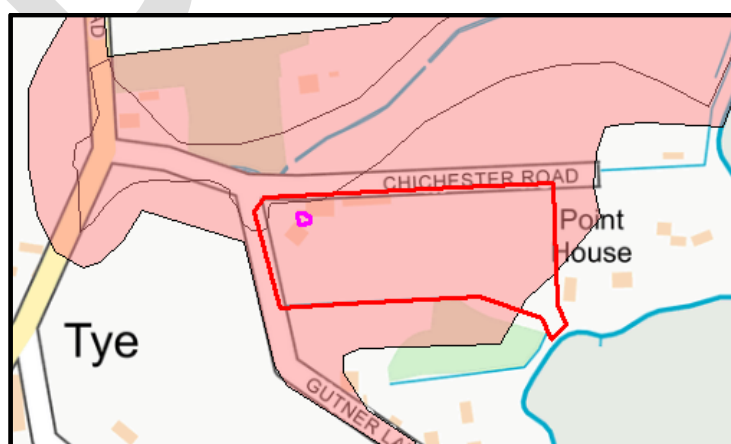


Figure 9 Historic Flood extents. (Source: EA)

5. Probability of Flooding

Flood Zones

- 5.1 According to the EA Flood Map for Planning, the site is located within Flood Zone 3 (high risk of flooding).
- 5.2 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. It is important to note that only the potential floodplain is modelled; **the mitigating effects of any flood defences currently in place are not considered.** For reference, the definition of the NPPF flood risk zones is included below.

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).

Table 6 Definition of the NPPF Flood Zones. (Source: EA)

Climate Change on Site

- 5.3 The current EA sea level climate change allowances for the south-east are shown in Table 7. The cumulative predicted sea-level rise from 2015 to 2115 is 1.11m.
- 5.4 The East Solent Model demonstrates that in a present-day undefended 1 in 200-year tidal scenario, tidal flood levels on site would be 3.45mOAD (Table 5). **In the year 2115, tidal flood levels for the 1 in 200-year event could be expected to be 4.56m AOD** (4.56m AOD=3.45m AOD + 1.11m), assuming no defences are in place (Table 7). **Maximum flood depths at the annexe would be 2.18m in a 1 in 200-year event in the year 2115**, assuming topographic levels of 2.38m AOD in the vicinity of the annexe.

South East	2015-2025	2026-2055	2056-2085	2086-2115	Cumulative rise
Sea level rise	4 mm/yr	8.5 mm/yr	12 mm/yr	15 mm/yr	1.11 m (2015-2115)

Table 7 South-east Sea level allowance per epoch from 2015 to 2115 (Source:EA). Cumulative rise of 1.11m is expected from 2015 to 2115

6. Residual Risks

Identification of Residual Risks

6.1 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;
- 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

6.2 The Partnership for Urban South Hampshire (PUSH) SFRA online mapping tool demonstrates that the site and wider vicinity would be at risk in present day tidal breach events (Figure 10). However, modelled breach flood levels are not available at the time of writing from either the EA or the PUSH SFRA. It is anticipated that the breach levels would be lower than the flood levels derived from the Tidal Surface Water Levels.

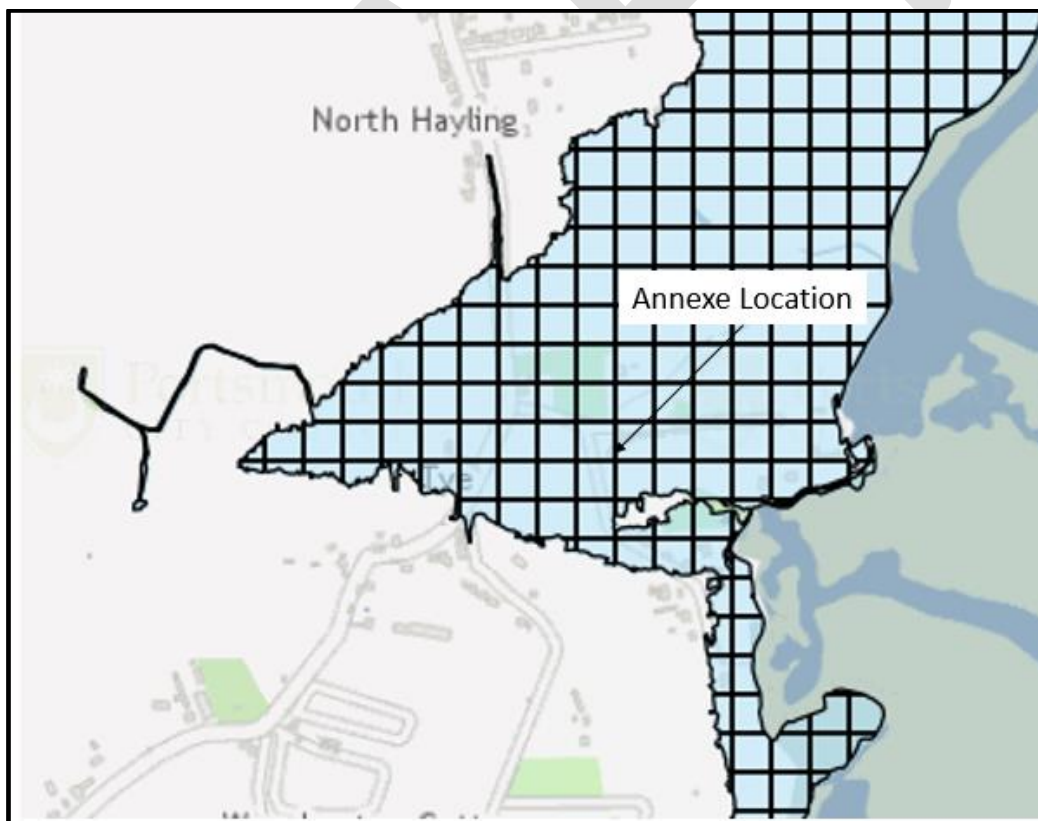


Figure 10 Defence breach index (source PUSH SFRA online mapping resource)

Reservoir Failure

6.3 The EA Risk from Reservoir Map demonstrates that the site is outside flood extents in the event of reservoir flooding.

Drainage Exceedance

- 6.4 In the event of drainage system failure under extreme rainfall events or blockage, flooding may occur within the site. In the event of the development's drainage system failure, the runoff flow will be dictated by topography on site. Topographic elevations from 2m LiDAR suggest that runoff would be directed towards the south of site. This would not impact on neighbouring dwellings or buildings.

DRAFT

7. Flood Risk Management Measures

Flood Risks

- 7.1 It is understood that the development is for the change of use of an existing detached garage to create a habitable annexe, with minor external alterations to the main dwelling.
- 7.2 The main flood risk to site is from tidal flooding. Maximum flood depths at the annexe would be 1.07m in a present day 1 in 200-year event, with flood depths of up to 2.18m in a 1 in 200-year event in the year 2115.
- 7.3 The proposed development is within an EA Flood Alert and Warning Service area for the Solent and South Downs. Due to the potentially high flood depths at and within the vicinity of the site, **subscription to the EA Flood Alert and Warning Service would be considered crucial and prior evacuation is recommended.**
- 7.4 It is noted that the annexe is a single storey flat roof building. It is unlikely that raising floor levels above the present day 1 in 200-year flood level would be feasible within the existing building, due to floor to ceiling height constraints. Safe refuge at higher level within the annexe is therefore also unlikely to be feasible, as the building is single-storey with no loft-space.
- 7.5 It is noted however, that safe refuge would be available in a flood event at first floor level of the existing residential dwelling, which is located less than 1m from the annexe. **It is proposed that a formal arrangement is maintained between the residents of the existing dwelling, and the residents of the annexe, such that safe refuge would be offered at first floor level in the existing residential dwelling in a flood event.**
- 7.6 Betterment may be achieved through the formalisation of an 'escape route' (e.g. a corridor) between the annexe and the main residential dwelling.
- 7.7 The proposed development should be constructed in a flood resilient manner to reduce the impact of potential flooding. The '[Flood resilient construction of new buildings \(Ministry of Housing, Communities and Local Government \(2007\)\)](#)' guidance suggests various flood resilient measures that may be adopted in residential developments.
- 7.8 Recommended flood resilience measures are included in Table 8.

Construction	• Wall cavities to be filled with closed-cell foam throughout; • Ground floor internal render to be waterproof; • External walls to be resistant to flooding; • Exterior ventilation outlets, utility points and air bricks to be fitted with removable waterproof covers.
Electrical Connection	• Ground floor electrical main ring to be run from ceiling, if possible
Gas/Water Supply	• Boilers, control and water storage / immersion to be installed at high level where possible; • All plumbing insulation to be of closed-cell design.
Drainage	• Non-return valves to be fitted to all drain and sewer outlets; • Manhole covers to be secured; • Anti-syphon fitted to all toilets.
Interior fittings	• Use of MDF carpentry (i.e. skirting, architrave, built-in storage) to be avoided

Flood Warning System:

- Residents required to sign up to the EA flood warning service

Table 8 Recommended flood resilience measures

Flood Warning Service

- 7.9 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 Warnings Direct is a free service operated by the EA that provides flood warnings direct to occupants by telephone, mobile phone, fax or pager.
- 7.10 The proposed development site is located within an EA Flood Warning Service Area. Upon receipt of a Flood Warning, site users are advised to evacuate the site to a designated place of safe refuge within Flood Zone 1.
- 7.11 Due to the potential high flood depths at and within the vicinity of the site, **evacuation should not be undertaken if flooding has already commenced** and flood waters along the proposed evacuation route exceed 25cm, unless instructed to do so, and supported by, the emergency services.

Flood Evacuation Plan

- 7.12 In the event of prior evacuation, site users should exit the site on Chichester Road, and turn left (west) towards St Peters Road. At the junction with St Peters Road, site users should turn right (north). Approximately 400m along St Peters Road, site users will be entirely within Flood Zone 1 (Figure 11).
- 7.13 It is recommended that site users proceed to North Hayling where safe refuge may be available in the recreation centre or St Peter's Church.
- 7.14 Due to the potential high flood depths at and within the vicinity of the site, evacuation should not be undertaken if flooding has already commenced and flood waters along the proposed evacuation route exceed 25cm, unless instructed to do so, and supported by, the emergency services.

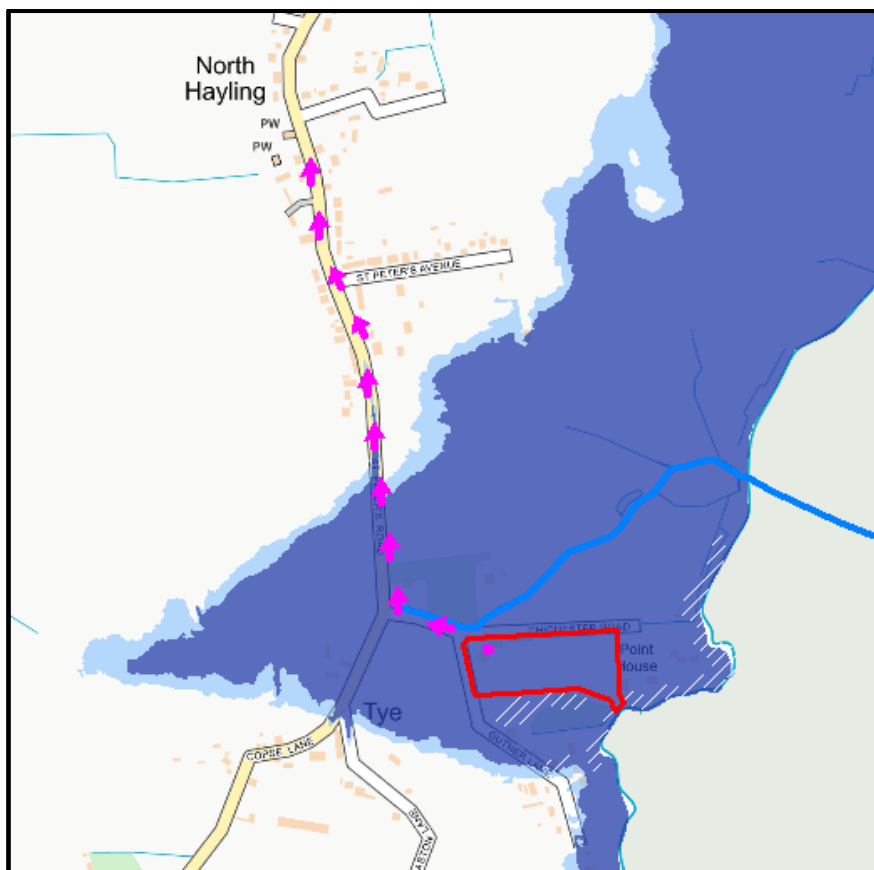


Figure 11 Proposed evacuation route (pink arrows) overlain on EA Flood Map for Planning

8. Off Site Impacts

Flood Water Displacement

- 8.1 It is understood that the development is for the change of use of an existing detached garage to create a habitable annexe, with minor external alterations to the main dwelling.

Generation of Runoff

- 8.2 It is understood that the development is for the change of use of an existing detached garage to create a habitable annexe, with minor external alterations to the main dwelling.
- 8.3 The proposed development is for an internal change of use, and therefore surface water runoff rates and volumes would be considered unlikely to be modified post-development. It is anticipated that the existing surface water drainage strategy associated with the existing annexe may be adopted.

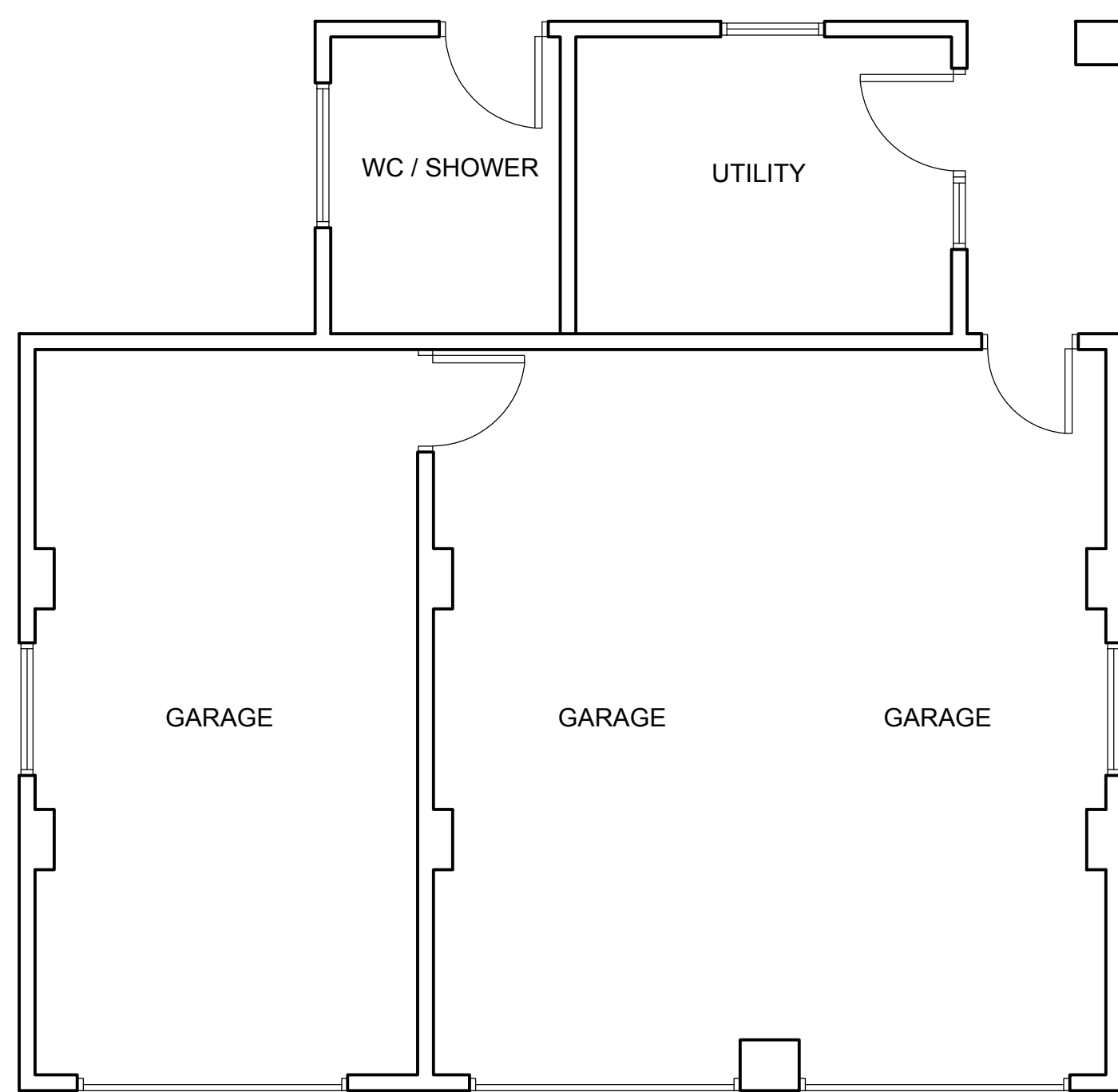
9. Conclusion

- 9.1 Ambient Environmental Assessment has been appointed by Charlie Allchurch to undertake a National Planning Policy Framework (NPPF) compliant Flood Risk Assessment (FRA) for the proposed development at Seacrest, Gutner Lane, Hayling Island, Hampshire, PO11 0RN.
- 9.2 It is understood that the development is for the change of use of an existing detached garage to create a habitable annexe. External alterations are additionally proposed to the main dwelling but are not considered for the purposes of this assessment, being minor in scale and insignificant with respect to flood risk. This report therefore considers only the flood risk to the proposed annexe.
- 9.3 With reference to the Environment Agency (EA) Flood Map for Planning, the proposed development is located within Flood Zone 3. The proposed development is considered 'More Vulnerable' under the National Planning Policy Framework (NPPF).
- 9.4 The site is partially bounded by Emsworth Channel which is tidal. Emsworth Channel opens onto the English Channel, which is located approximately 5km south of site.
- 9.5 The site is not considered to benefit from EA tidal defences to a 1 in 200-year standard of protection. There are tidal defences within the vicinity of site, but they have a variable standard of protection (1 in 10-year to 1 in 200-year) and are of variable condition (Fair to Very Poor).
- 9.6 The North Solent Shoreline Management Plan (2010) identifies the site as being located within Policy Unit 5aH103, for which the short, medium and long-term policy for coastal defences is to 'Hold the Line'. The North Solent Shoreline Management Plan (2010) however, identifies that public funding was not available for maintenance and improvement works at the time of publication of the SMP.
- 9.7 In a present day 1 in 200-year tidal flood event, maximum flood depths at the annexe would be 1.07m, with flood depths of 2.18m anticipated in the year 2115 in a 1 in 200-year event. Due to the potentially high flood depths at and within the vicinity of the site, **subscription to the EA Flood Alert and Warning Service would be considered crucial and prior evacuation is recommended.**
- 9.8 **It is proposed that a formal arrangement is maintained between the residents of the existing dwelling, and the residents of the annexe, such that safe refuge would be offered at first floor level in the existing residential dwelling in a flood event.**
- 9.9 As such, and given that,
- The proposed development is for an internal change of use of an existing garage;
 - The site is within an EA Flood Alert and Warning Service Area. Due to potentially high flood depths, prior evacuation would be considered vital;
 - A formal arrangement is undertaken such that safe refuge is available for annexe residents at first floor level of the main residential dwelling, in a flood event.

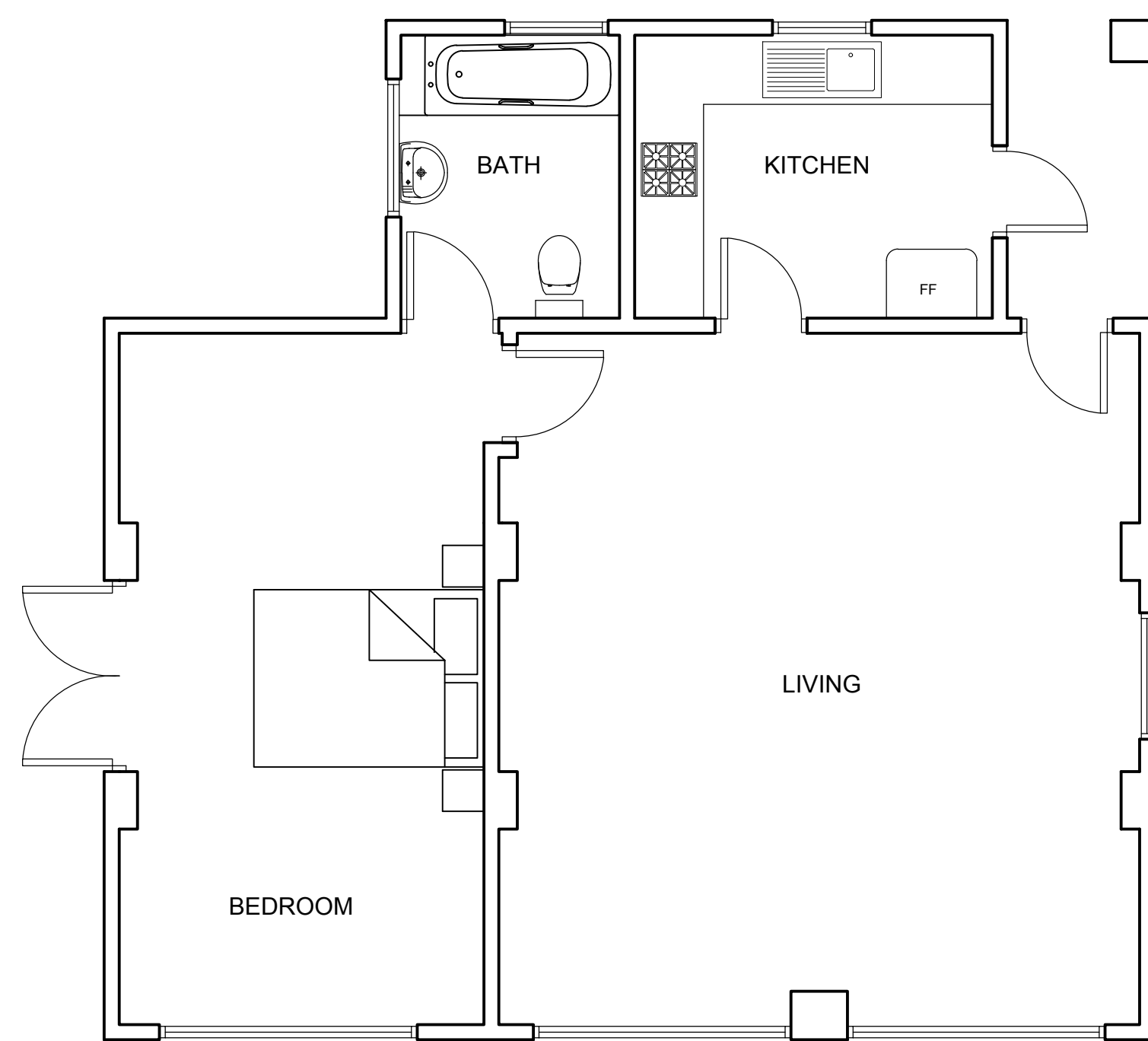
Following the guidelines contained within the NPPF, the proposed development is considered to be suitable assuming appropriate mitigation (including adequate warning procedures) can be maintained for the lifetime of the development.

Site Plans

Appendix I -



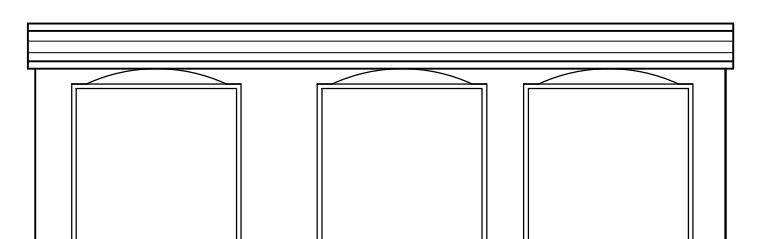
EXISTING GARAGE FLOOR PLAN 1:50



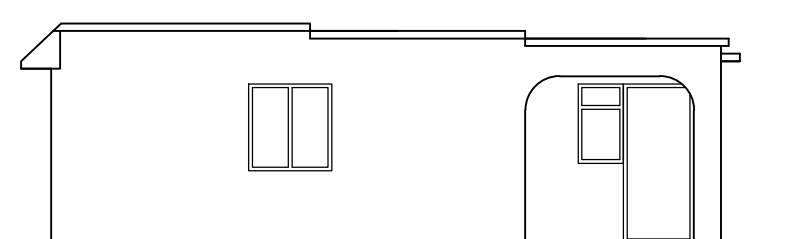
PROPOSED ANNEX FLOOR PLAN 1:50



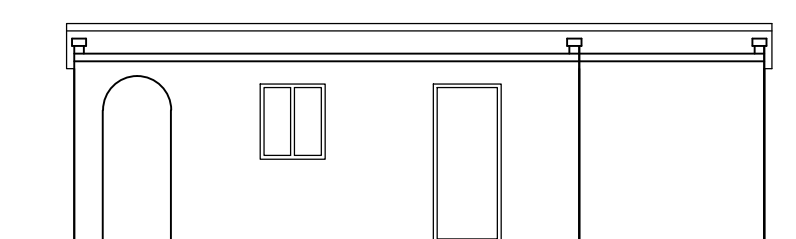
LOCATION PLAN 1:1250
OS. 07881020



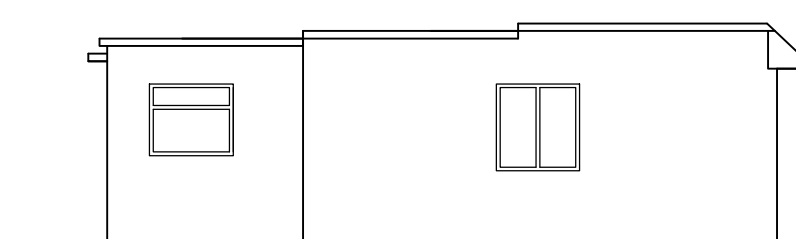
EXISTING GARAGE FRONT ELEVATION 1:100



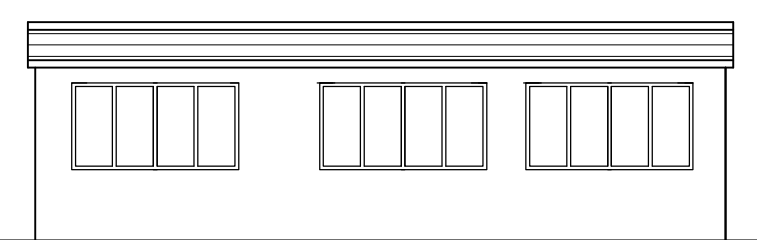
EXISTING GARAGE SIDE ELEVATION 1:100



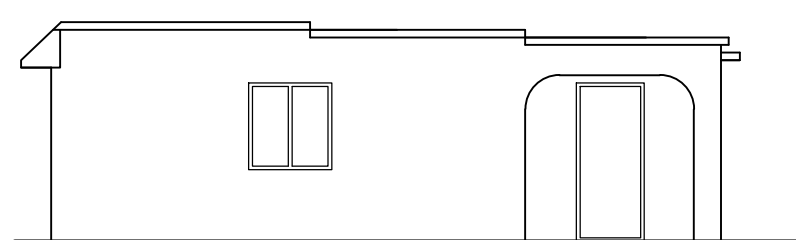
EXISTING GARAGE REAR ELEVATION 1:100



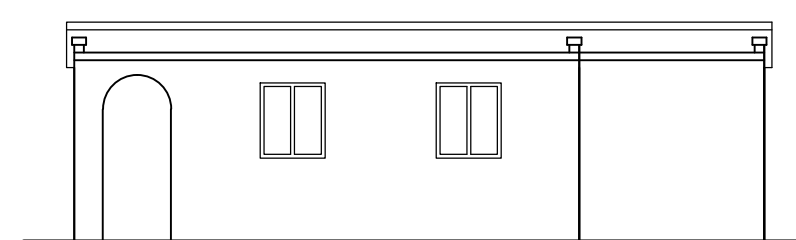
EXISTING GARAGE SIDE ELEVATION 1:100



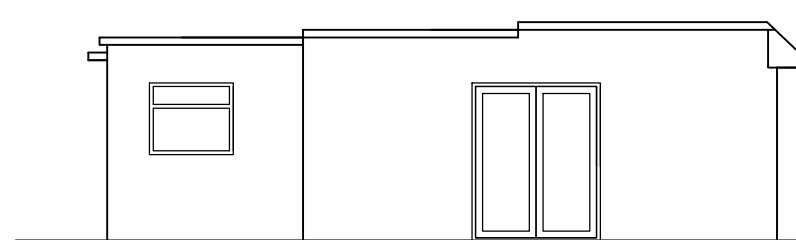
PROPOSED ANNEX FRONT ELEVATION 1:100



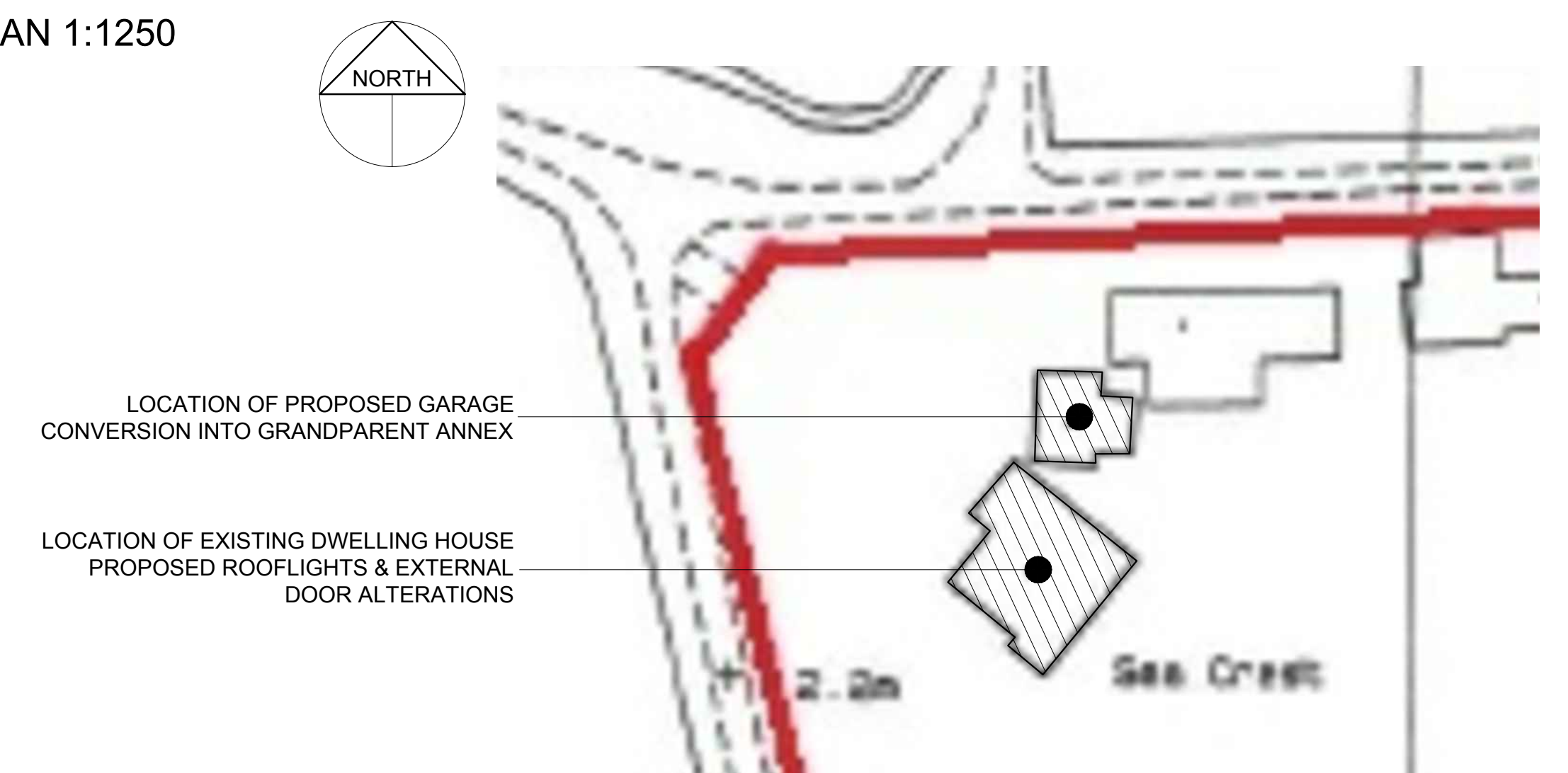
PROPOSED ANNEX SIDE ELEVATION 1:100



PROPOSED ANNEX REAR ELEVATION 1:100



PROPOSED ANNEX SIDE ELEVATION 1:100



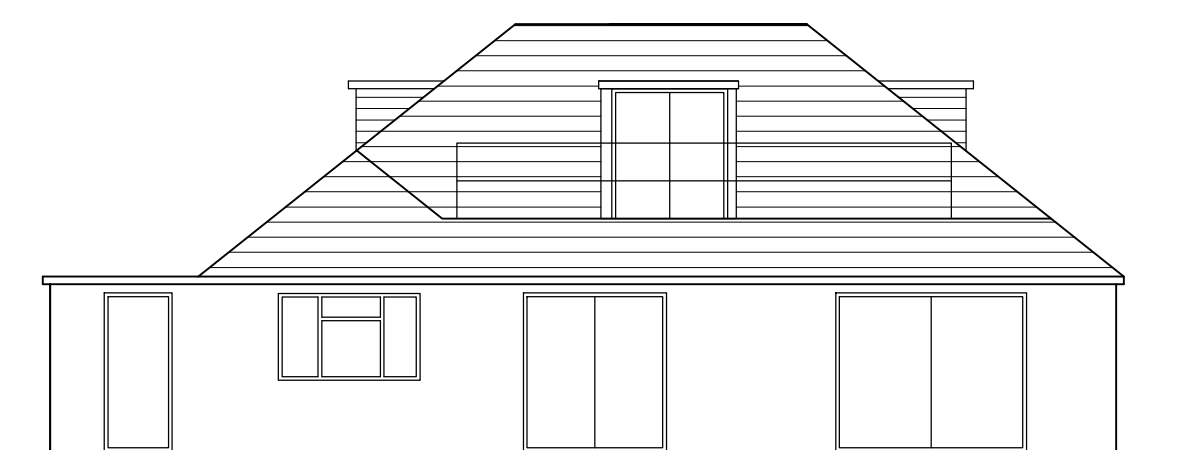
BLOCK PLAN 1:500



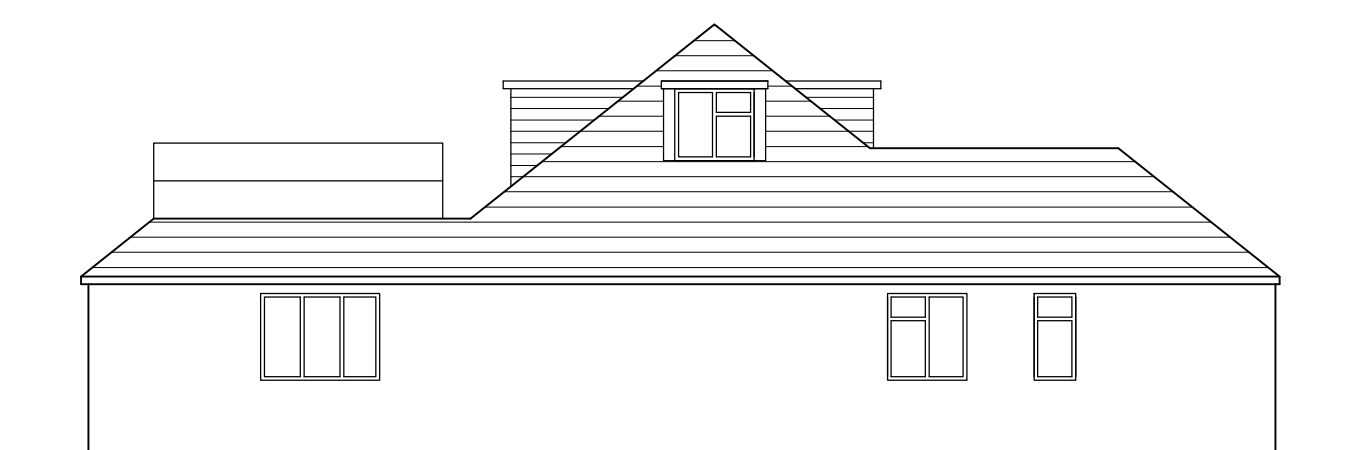
EXISTING HOUSE FRONT ELEVATION 1:100



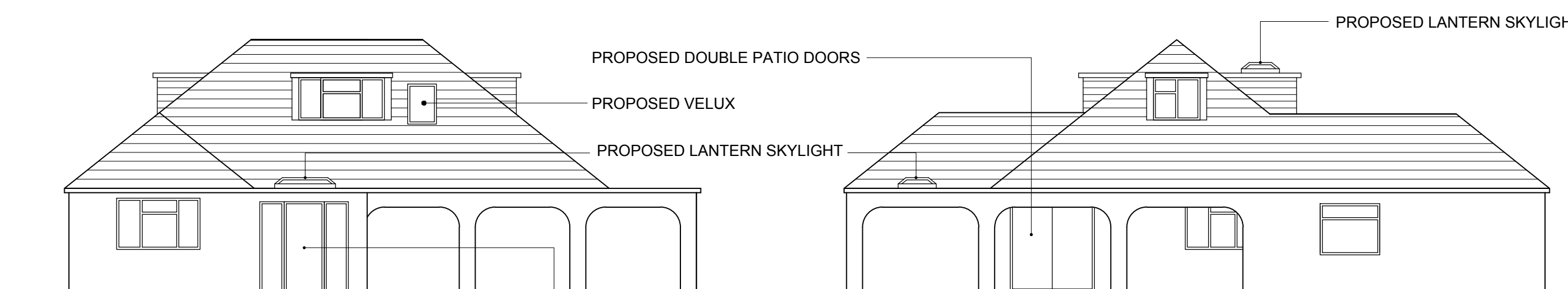
EXISTING HOUSE SIDE ELEVATION 1:100



EXISTING HOUSE REAR ELEVATION 1:100



EXISTING HOUSE SIDE ELEVATION 1:100

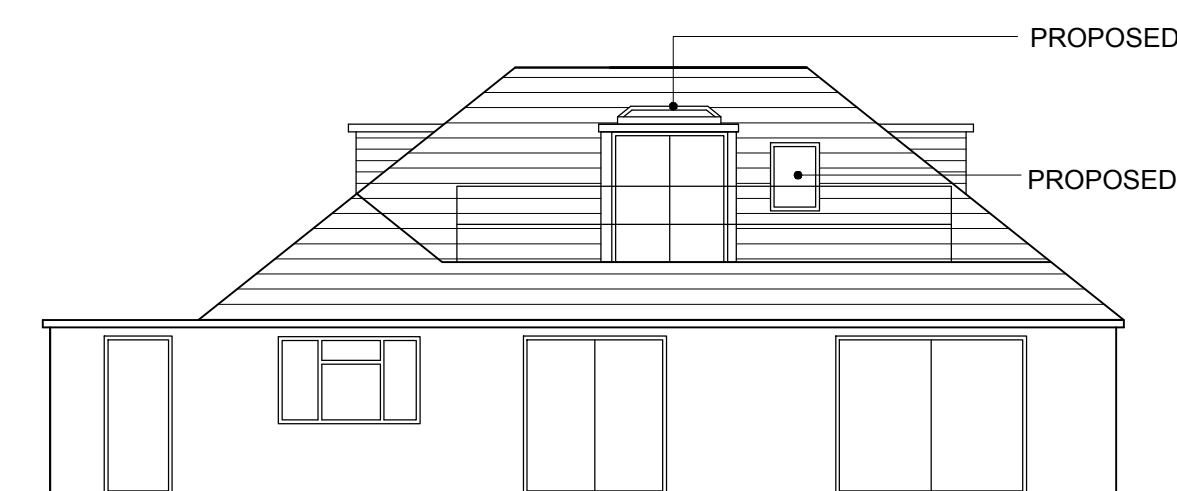


PROPOSED HOUSE FRONT ELEVATION 1:100

PROPOSED GLAZED FRONT DOOR AND FULL HEIGHT SIDE LIGHTS



PROPOSED HOUSE SIDE ELEVATION 1:100



PROPOSED HOUSE REAR ELEVATION 1:100

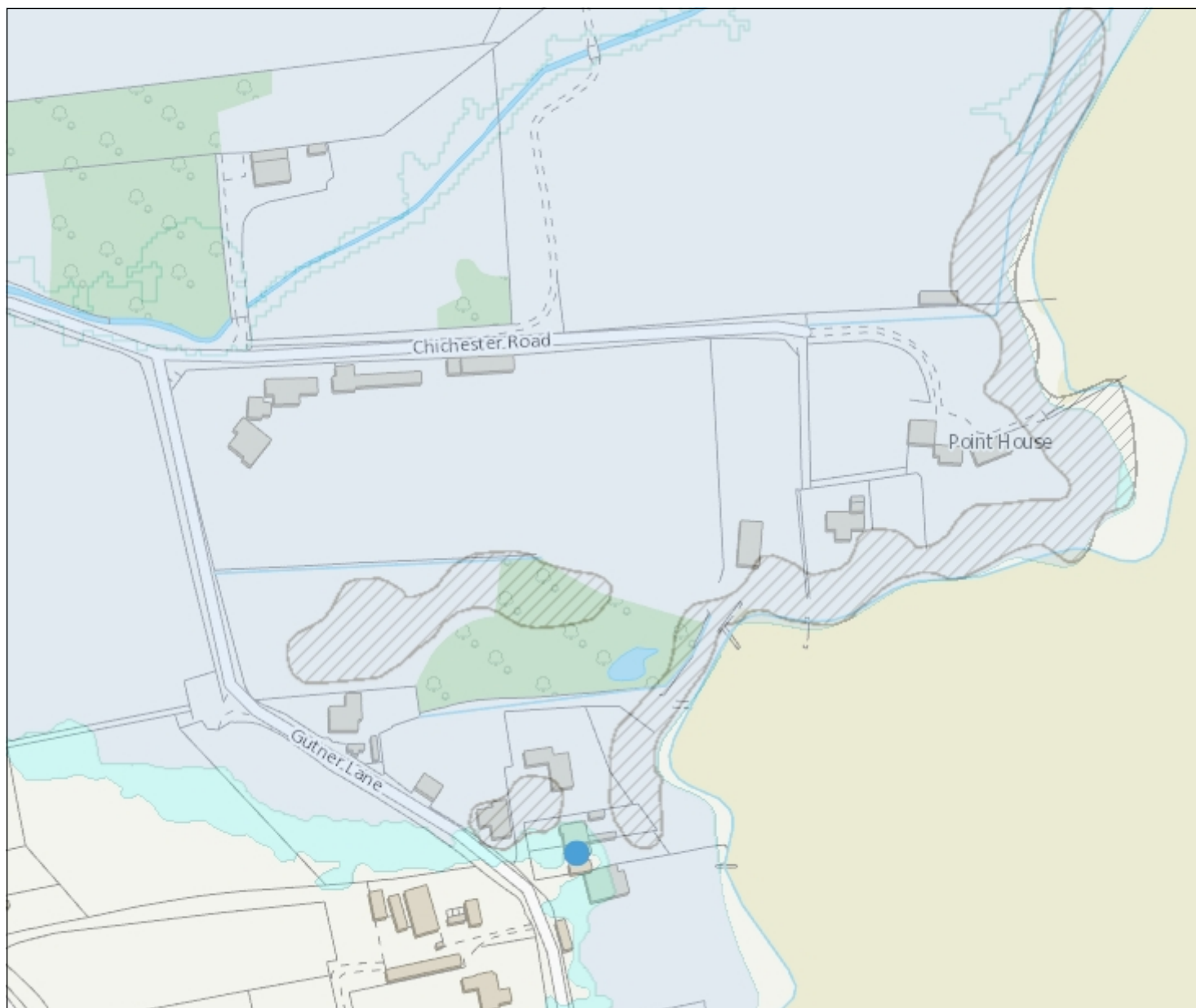


PROPOSED HOUSE SIDE ELEVATION 1:100

EA Data

Appendix II -

Flood Map for Planning (Rivers and Sea) - Centred on Sea Crest, Gutner Lane, Hayling Island - Created 16 October 2019



1: 2,500

0 Metres 62



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 occurring each year.

Flood Levels Map Centred on Gutner Lane, Hayling Island - Created 16 October 2019



Legend

+ Location Points

Flood Depth

Value

High : 26.817

Low : 1.93721e-006

Ground level

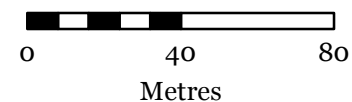
Value

High : 17.9869

Low : -23.1786

1:1,974

*when printed at A4.



East Solent Model Tidal Water Surface Levels

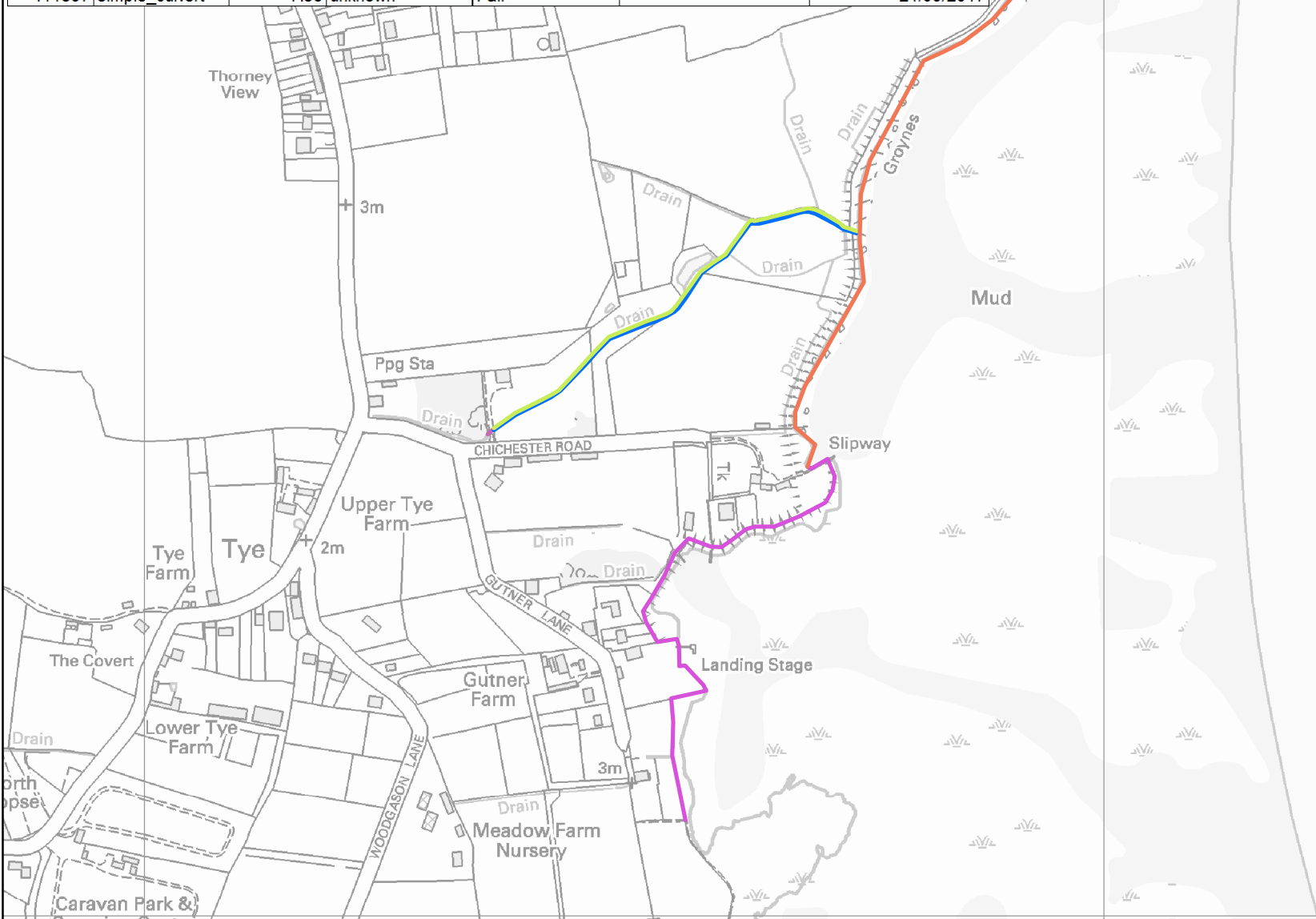
Year	Tide Level (mAOD*)																				
	0.5% annual exceedance probability/1 in 200 Year (Flood Zone 3)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
2015	3.45	3.44	3.44	3.44	3.44	3.44	3.45	3.44	3.45	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.48	3.44	3.44
*Levels in metres Above Ordnance Datum Newlyn																					

Year	Tide Level (mAOD*)																				
	0.1% annual exceedance probability/1 in 1000 Year (Flood Zone 2)																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
2015	3.62	3.61	3.61	3.61	3.60	3.61	3.62	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.65	3.60	3.61
*Levels in metres Above Ordnance Datum Newlyn																					

* For climate change allowances for planning applications please refer to <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>.

Defences Map Centred on Gutner Lane, Hayling Island - Created 16 October 2019

Asset Id	Asset Sub-type	Length (m)	Asset Maintainer	Actual Condition	Expected Design SoP	Last Inspection Date
144283	high_ground	469.98	unknown	Fair	1 in 10	20/11/2014
81931	high_ground	471.91	unknown	Fair	1 in 10	20/11/2014
470285	embankment	611.65	unknown			
87680	embankment	1826.4	private	Very Poor	1 in 200	21/02/2019
411897	simple_culvert	7.86	unknown	Fair		21/09/2017



Legend

ASSET_ID

- 81931
- 87680
- 144283
- 470285
- 411897

1:6,316 *

*when printed at A4.

